SESSION ONE:
Introduction to Health Literacy and Chronic Disease Management
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HEALTH LITERACY STUDY CIRCLES
HALL/NCSALL 2005

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Each session in this guide begins with a note to you, the facilitator. As we wrote these notes, we tried to imagine a face-to-face conversation with you in preparation for each session. We have tried to anticipate your questions and provide you with a sense of the planned flow of the session activities.

Every Study Circle session has four parts: Introductory Activities, Discussion and Analysis Activities, Planning Activities, and Closure Activities. Each of these parts is designed to engage participants in discussions and activities related to health literacy.

The following information will give you a brief description of the session’s activities and the methods you will use to facilitate group discussions.

**About this Session**

Session One sets the stage for subsequent sessions. The session activities introduce participants to the issue of “health literacy” and help you establish a welcoming atmosphere that encourages reflection, discussion, and action. This session includes a range of activities designed to engage the group and promote a high level of participation.

**Note: If participants have completed another Health Literacy Study Circle**

The Session One activities are designed for participants who have not yet taken part in a Health Literacy Study Circle. If the participants have completed another Health Literacy Study Circle, you may skip two activities – the Overview of the Study Circles and the DVD, *In Plain Language*. Instead, you may use an alternate activity that is described in the Discussion and Analysis Activities section of this booklet.
Introductory Activities
The introductory activities of Session One are designed to help participants understand the purpose, structure, and content of the Study Circle+. The introductory activities include a focus on the larger context of health literacy. You can also clarify expectations and acknowledge the questions and concerns that the participants expressed in their Participant Expectation Sheets.

Discussion and Analysis Activities
The Discussion and Analysis Activities shift to a more specific focus on chronic diseases. The first activity uses the background readings as the basis for discussion. Then the group views the DVD, *In Plain Language*, which features adult learners from an adult education program and illustrates a variety of health literacy issues. It will “trigger” discussion about health literacy and chronic disease management issues.

Note: If you are facilitating a study circle for participants who have taken part in another Health Literacy Study Circle+ and have already viewed this DVD, you may substitute an alternate activity. This alternate activity is described within the Discussion and Analysis section of this booklet, and the materials for this activity (photographs) are located with the materials for the In-Class Needs Assessment.

Participants will then reflect on their own experiences and observations of people managing chronic diseases. As they move from small group discussions to the full group discussion, participants will identify a range of tasks and barriers that they or those they love have faced when managing a chronic disease.

Chronic diseases, such as asthma and arthritis, cannot be cured but can be managed. This means that those with a chronic disease must engage in activities and tasks, such as taking medicine or measurements, most days of their lives. All work for this study circle focuses on tasks related to chronic disease management and skills needed to manage any chronic disease.

Neither you nor the participants are expected to be experts in any particular chronic disease. Participants will start from their own experiences and observations. They will examine what it means to manage a chronic disease by considering needed activities as well as issues and possible barriers to action.
The focus of the work in Session Two will be on skills any adult needs to manage a chronic disease. The participants will consider how such skills can be addressed in the adult education classroom.

Planning Activities
The planning activities are designed to give participants an opportunity to review the needs assessment work they will do in their own classes between Session One and Session Two. During this section, participants will focus on the classroom plans to examine their students’ experiences and needs related to managing a chronic disease.

The needs assessment materials include photographs which feature people engaging in activities often related to managing a chronic disease. You will want to point out that the photographs serve as a trigger for discussion. The participants will use the pictures with their students to prompt discussion about their own experiences with chronic disease or about the experiences of people they know.

During Session Two, participants will be asked to discuss the results of their needs assessments and reflect on both the process of using a trigger for a needs assessment as well as on the information provided by their students related to their own experiences and observations.

Closure Activities
At the end of Session One and all sessions, you will facilitate the closure activities. The “Content Review” provides an opportunity for you and the participants to summarize the session, and to reinforce and clarify the concepts discussed. You will also review the methods you used to present information and facilitate discussions. This “Methods Review” is designed to help participants identify methods that they might want to try out in their own classrooms with their students.

Finally, please be sure to leave a few minutes for participants to complete and return their session evaluation forms. After the session, review these forms and make use of the feedback as you see fit.
The Group Discussion Methods

You will use a variety of discussion methods to present information and facilitate activities. We hope that participants will find these methods helpful and consider using them in their own classrooms. Therefore, we ask you to keep in mind that as you facilitate the Study Circle activities, you will be modeling these discussion methods for participants to use in the future.

We have given names to these discussion methods in order to highlight the variety of methods used in different activities. These names are also helpful during the summary and evaluation activities at the end of each session.

The discussion methods used in Session One include:

- **Presentation**: Although you should try to avoid a lecture-like approach, there are times when a presentation from you is very important. You will open the session with a presentation on the goals and objectives of the study circle.

- **Small Group Discussions (Pairs)**: Small group discussions enable members of a group to share their thoughts in a comfortable way. Many people, in the company of strangers, are not at ease talking to a large group. The Study Circle begins with small group work so that everyone has an early chance to participate and has an opportunity to work with and meet others.

- **Report Out**: Small groups share some part of their discussions. This format provides a structure for sharing in a large group and eases the way for large group discussions.

- **Expanding Discussion (Small group to large group work)**: The expanding discussion is used to establish a comfortable environment and is suitable for participants who may not know one another. This discussion expands by the size of the group (from two to four to whole group) and by the type of content (from personal to more general topics). The expanding discussion begins with small groups of two people who introduce themselves and share an experience. This offers a comfortable starting point for people who are not at ease speaking in a large group. Next, two pairs come together to form a small discussion group. Then each group prepares a summary of their discussion to present to the larger group.
When all of the groups come together, the smaller groups present their summaries. This enables the entire group to share the same knowledge base. Then, the entire group is prepared for a facilitated discussion with a focus on broader issues.

Depending on the size and layout of the room, the small group summaries can be presented orally or posted on newsprints (flip charts) so the participants can briefly walk about and see the notes from all groups.

- **A Trigger:** A discussion trigger may be a picture, a film, a story, or a brief presentation. It is so named because it “triggers” discussion. In addition, a trigger enables participants to have the same starting point for discussion.

- **The Dance and the Balcony:** This activity is a metaphor for analyzing the methods used during the session. The purpose of this activity is to highlight the different ways you have structured session activities and to encourage teachers to consider using some of these methods in their own classes.

  You will ask participants to think of the activities they just completed as a “dance.” Next, you will ask them to stop the dance and move up to the “balcony” to look down on the dance floor. Thus, they stop “dancing” and view the dance from a distance. From the “balcony,” participants analyze the dance – they comment on and react to the discussion methods used during the session. Note that you will be conducting this activity at the end of each session.

  *First meetings can be both daunting and exciting.*
  *Be prepared, share your enthusiasm, and enjoy!*
Objectives
One of the principal goals for this study circle is to prepare participants to help their students develop basic skills related to chronic disease management.

During Session One, participants will:
- Develop a shared definition of “health literacy”
- Identify activities people engage in as they manage a chronic disease
- Identify literacy-related barriers and issues faced by those who manage a chronic disease
- Prepare to conduct a student needs assessment

Time
- 3 hours

Session One Agenda
Introductory Activities (40 minutes)
- Welcome and Introductions
- Overview of the Health Literacy Study Circles*
- Review the Study Circle* Goals, Objectives, and Agenda

Discussion & Analysis Activities (90 minutes including the break)
- Reflect on Health Literacy Readings
- – Take a 10-Minute Break –
- View and Discuss the DVD, In Plain Language, or Complete the Alternate Activity with Photographs
- Discuss Experiences and Observations

Planning Activities (30 minutes)
- Prepare for the In-Class Needs Assessment Activity

Closure Activities (20 minutes)
- Session Review
- Session Evaluation and Closing Notes
Materials and Preparations

- DVD – *In Plain Language* (located inside the front binder cover)
- DVD player
- Newsprints (flip charts) and Markers
- Overhead projector (optional)

Newsprints (flip charts) or Overhead Transparencies (3)
We typically refer to materials on flip charts as “newsprints,” but feel free to use overhead transparencies instead. Examples of most newsprints for this session are included in this booklet.

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<pre><code>                                                                                 | Challenges and Barriers in Managing Chronic Diseases   |
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Handouts (3)
Make copies of the following handouts before the session begins. Note that handouts for each session are located after each session booklet.

1. Session One Objectives and Agenda
2. Session One Evaluation Form
3. In-Class Needs Assessment Packet includes:
   - Introduction
   - In-Class Needs Assessment: Identifying Student Challenges and Barriers in Chronic Disease Management
   - Your Notes after Conducting the Needs Assessment
   - Handouts (including photographs for the Alternate Activity)

Sent out before Session One (5)

1. Skills for Chronic Disease Management: Goals and Objectives
2. Participants’ Definition of Health Literacy
3. Shared Goals but Different Roles in Health Literacy
4. Development of the Guides to the Health Literacy Study Circles†
5. *A Maturing Partnership* by Rima E. Rudd
INTRODUCTORY ACTIVITIES (40 minutes)

Welcome and Introductions (15 minutes)
Discussion Methods: Presentation by you, the facilitator
Handouts: Study Circle List of Participants

Welcome
Welcome participants to the first meeting of the Health Literacy Study Circle on Chronic Disease Management. Introduce yourself and state your role as facilitator. Explain how you came to facilitate this study circle and who is sponsoring it.

Introductions
Ask participants to introduce themselves briefly by giving their names, roles, and programs. Also, ask them to indicate (½ minute) whether they have had any experience teaching health topics or health-related skills in adult education programs.

Hand out the list of study circle participants (if you had time to assemble one), or pass around a sheet of paper and ask people to fill in their names, addresses, phone numbers, and e-mail addresses. Explain that you will ask participants to keep in touch between sessions for different assignments.

Comment on Participant Expectations handouts
- Comment on the responses to the Participant Expectations handouts that were distributed to the participants before Session One and returned to you. (If you did not receive any of the completed forms ahead of time, invite participants to share their expectations now.)
- Identify those expectations that will be met and indicate the sessions in which those things will happen.

Overview of the Health Literacy Study Circles (10 minutes)
Discussion Methods: Presentation
Handouts: You might want to refer to the handout titled Shared Goals but Different Roles in Health Literacy (sent out before Session One).
Newsprints: Health Literacy Study Circles Graphic

Introduce and discuss the Study Circle Graphic
- Take a few minutes to explain the rationale behind the development of the Health Literacy Study Circles.
- Explain to participants that this graphic represents an overview of the Health Literacy Study Circles.
- Briefly describe the parts of this graphic.
- **All Health Literacy Activities**: Point out that the larger oval represents a broad array of health literacy activities that take place at home, at work, in the community, and in health care settings. These activities include tasks and skills related to health promotion, health protection, disease prevention, health care and maintenance, and health care system navigation.
- **The Health Literacy Study Circles**: The three smaller circles represent the three areas of critical importance documented in health research.
1. **Tasks for Health Care Access and Navigation** (with a focus on access to care): Poor people have limited access to health care, and minority population groups are more likely to face bias when trying to “navigate” through the health care system.

2. **Tasks for Chronic Disease Management** (with a focus on care and maintenance): People without high school diplomas are more likely to die from chronic diseases than those with more education.

3. **Tasks for Disease Prevention and Screening** (with a focus on early detection): Poor people and those from minority groups are less likely to use preventive services and screening programs.

Note that these study circles could have addressed many different groups of health activities. These three areas were chosen because they have been highlighted as areas of the greatest health disparities in the United States. Improvements in each of these areas can help reduce existing disparities and improve the health of those who are poor, those without high school degrees or GEDs, and those who are from minority populations.

**Literacy Skills:** Educators understand and teach skills related to reading, writing, oral communication, and the application of basic math to everyday tasks. Chronic disease management involves tasks such as time management and measurement, and includes reading medicine labels and using charts, scales, calendars, and clocks. Point out that there will be a strong emphasis on using tables, lists, and charts (known as document literacy), and on basic math.

**Adult Educators’ Contributions:** Point out that effort is required on the part of both health care professionals and educators to fully address needed improvements in the areas of health care access and navigation, chronic disease management, and disease prevention and screening.

- Highlight the fact that health professionals often focus on health content and on the actions people need to take, but rarely consider the skills that people need in order to understand health care information and to take appropriate actions.
- Educators understand and teach skills related to reading, writing, oral communication, and the application of basic math to everyday tasks.
• The Health Literacy Study Circles+ are designed to enable adult educators to make their contribution to health literacy by focusing on skills that fall within the realm of ABE and ESOL programs and can be applied to the three critical health areas.

Conclude with the following statement:
Adult educators are not expected to become health experts and are certainly not expected to know about specific chronic diseases. However, adult educators are experts in literacy skill development and can teach many of the skills needed to manage any chronic disease.

Review the Study Circle+ Goals, Objectives, and Agenda (15 minutes)

Discussion Methods: Presentation by facilitator
Handouts: Skills for Chronic Disease Management: Goals and Objectives

Session One Objectives and Agenda

Briefly review the Goals and Objectives for this Study Circle+

- Ask participants to review the handout titled Skills for Chronic Disease Management: Goals and Objectives that they received before Session One.
- Explain that this Health Literacy Study Circle+ includes a practical component that requires participants to engage in classroom work between sessions. Note that the activities in this study circle are designed to support participants as they explore and develop materials that suit their teaching styles and their students’ needs.
- During this study circle, participants will explore their students’ needs and interests in relation to chronic disease management, teach sample lessons, and reflect on these experiences with peers. Participants will also work with peers to develop their own lessons, units, and strategies for integrating health literacy activities into their classroom programs.
- Ask if anyone has any comments or questions.

Review the Objectives and Agenda for Session One

- Distribute and review the Objectives and Agenda for Session One
- Ask if anyone has any comments or questions
DISCUSSION & ANALYSIS ACTIVITIES
(1 hour, 30 minutes total including a 10-minute break)

Reflect on Health Literacy Readings (20 minutes)

Discussion Methods: Pair Discussion and Brief Report

Handouts: Development of the Guides to the Health Literacy Study Circles
• A Maturing Partnership by Rima Rudd
• Participant Definition of Health Literacy

Explain the process to be used for this first activity

- Explain that participants will have an opportunity to share their thoughts about the following two readings sent out before Session One:
  • Development of the Guides to the Health Literacy Study Circles
  • A Maturing Partnership

- Ask participants to pair up with someone they do not know (if possible) for a 5 to 8 minute discussion about the background readings. Highlight the fact that pair work offers a comfortable way for people to begin working together and sharing their thoughts.

- Let participants know that you will offer a one-minute warning before you ask them to stop their discussions.

- Let participants know that groups will be asked to report some insights gained from the readings.

Give directions for the discussions

- Begin by introducing yourselves to each other.

- Briefly share your reactions to the reading and focus on two questions:
  • How did the readings change or support your own definition of health literacy?
  • What, if any, new insights did the readings offer?

Time the group discussions

- A quiet room generally signals the end of discussion. Monitor the time and bring the pair discussions to a close within 5 to 8 minutes.
Ask pairs to report back (10 minutes)
- Ask volunteers to report to the whole group and offer definitions of health literacy.
- Ask volunteers to report to the whole group and share insights gained.

Summarize
- Provide a brief summary of the comments after all volunteers have reported.
- Then ask participants to consider the implications of the following statement from the Institute of Medicine’s report on health literacy:
  “Health literacy is the intersection of social demands and individuals’ skills.”*
- Ask them to keep this statement in mind as they begin to look at the “demands” of managing a chronic disease.

TAKE A 10-MINUTE BREAK

View and Discuss the DVD, In Plain Language, or View and Discuss Photographs (Alternate Activity) (30 minutes)
Discussion Methods: Use a DVD as a trigger for a large group discussion
Materials: The DVD is inside the front binder cover.

Introduce and view the DVD, In Plain Language (20 minutes)
Note: If participants have already seen this DVD, you may want to substitute the alternate activity described on the next page.

- Explain that the DVD is used as a vehicle to set the stage for an expanded discussion of health and literacy. Thus, the DVD triggers discussion and provides a common context. The DVD deals with the topic of health literacy from several perspectives.
- Before you view the DVD, read or post the following questions to guide participants’ viewing.
  - *What are some of the literacy-related challenges people face in everyday life?*
  - *What are some of the challenges related to managing a disease?*

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- Ask participants to pay particular attention to the brief stories of learners who are managing an illness (one managing her own and the other her daughter’s).
- Play the DVD.

**Facilitate full group discussion** (10 minutes)
- First, ask for brief reactions to the DVD. Then pose the following questions for discussion:
  1. *People in the health field would tend to identify those adults in your classes as members of “at risk” population groups. Do you agree? Are they more “vulnerable” in regard to health than are others in our society?*
  2. *What health risks might people with limited literacy and a chronic disease face?*
  3. *If a colleague in your program asked, why would you say that health literacy is important for ABE/ESOL students?*
Alternate Activity: View and Discuss Photographs

Use the following activity if study circle participants have attended another Health Literacy Study Circle and seen the DVD, *In Plain Language*. This 30-minute activity replaces the DVD viewing and discussion.

View and Discuss Photographs
(30 minutes)

**Discussion Methods:** Use photographs as a trigger for a large group discussion

**Handouts:** Photographs from the In-Class Needs Assessment Packet

**Newsprints:** Why Health Literacy Is Important for ABE/ESOL Students

*Facilitate small group discussions with a focus on photographs* (15 minutes)
- Ask participants to form small groups of three (triads) for a discussion of common health-related activities.
- Distribute a packet of five photographs to each group.
- Ask each group to look at the photographs and describe what is taking place, and then answer the following questions:
  - *Have you (or anyone you know) experienced problems with any of these activities? If so, explain.*
  - *What kinds of problems might your students experience with these activities?*

*Facilitate a large group discussion* (15 minutes)
- Ask the following questions:
  - *People in the health field would tend to identify those adults in your classes as members of “at risk” population groups. Do you agree? Are they more “vulnerable” in regard to health than are others in our society?*
  - *What health risks might people with limited literacy and a chronic disease face?*
  - *If a colleague in your program asked, why would you say that health literacy is important for ABE/ESOL students?*
- Note responses on a newsprint.

Why Health Literacy is Important for ABE/ESOL Students
Discuss Experiences and Observations (30 minutes)

Discussion Methods: An expanding discussion

Newsprint: Challenges and Barriers in Managing Chronic Diseases

Explain that in this next activity, participants will explore their own experiences and observations with chronic disease management.

Introduce the Expanding Discussion Method (5 minutes)
The expanding discussion activity begins with a brief discussion in pairs (about 7 minutes), moves to a four-person discussion as two pairs come together (10 minutes), and then moves to the larger group. Be sure to offer a one-minute warning before asking participants to move on to the next step.

Participants work in pairs (~ 7 minutes)
- Ask participants to assemble in pairs and to choose someone they have not yet worked with.
- Ask each person to begin by listing the names of chronic diseases he or she knows something about. The list might include arthritis, asthma, diabetes, heart disease, HIV/AIDS, or lupus.
- Ask each person to think about someone he or she knows who has a chronic disease, and to briefly describe the kinds of tasks this person needs to do on a regular basis. For example, people with diabetes must look at the sugar content of everything they eat.
- After 3 minutes, remind participants to be sure that the second person has a chance to talk.

Participants work in small groups of four (~ 8 minutes)
- Ask each group of two to join with another group to form groups of four.
- Tell each group of four to begin with listing the chronic diseases discussed in pairs, and then briefly name the various tasks they identified (such as taking medicine, monitoring lung capacity, etc.).
- After just a few minutes, ask each group of four to name some barriers and challenges related to these tasks (for example, remembering to take medicine, using a tool such as a peak flow meter, making sense of the jargon in a patient education brochure).

Report to the full group to generate a list and add to it (10 minutes)
- Record: Ask for a volunteer to record group responses and generate a list on newsprint or on an overhead.
Report: Ask a volunteer from each group of four to list the tasks and possible barriers they noted.

- Ask participants if they can add tasks and/or barriers to this list.
- Ask participants to think about their current students and speculate about which tasks might be difficult for them.
- Note that this study circle addresses many of these issues.

### Challenges and Barriers in Managing Chronic Diseases

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<th>Tasks</th>
<th>Challenges and Barriers Faced</th>
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**Introduce the In-Class Needs Assessment activity**

- Tell participants that the next activity is designed to help them prepare for work with their students. They will first need to gain some insight into the interests and challenges experienced by their students.
- Point out that, in the next part of this session, you will review a needs assessment activity that facilitates that process.
PLANNING ACTIVITIES (30 minutes total)

Prepare for the In-Class Needs Assessment Activity (30 minutes)

Discussion Methods: Presentation and full group discussion

Handouts: In-Class Needs Assessment Packet

These activities will prepare participants to conduct a needs assessment in their classrooms between Sessions One and Two.

Introduce the In-Class Needs Assessment activity (5 minutes)

- Explain that participants are being asked to try out an activity in their classrooms before the next session to learn more about their students’ perspectives and experiences with managing chronic diseases.
- Ask participants to look at the handout titled Identifying Student Barriers and Challenges in Chronic Disease Management. This handout includes a cover sheet, some pictures and the accompanying lesson.
- Explain that you would like participants to use this activity in their classrooms as it is described in the lesson plan (or with some modifications if necessary).

Give participants a few minutes to review the assessment activity (15 minutes)

Pose the following questions for discussion:

1. Is this activity suited to your students’ skill level, proficiency level, or level of comfort?
2. Where might your students have trouble?
3. How might you modify the lesson for your class?
4. Are there any barriers that would prevent you from trying out this activity with your students?
5. What suggestions do you have for overcoming some of these barriers?
6. What are the benefits of doing this activity?

Problem solve

- If a number of participants anticipate difficulties trying out this lesson with their students, ask group members to offer suggestions for other ways to conduct a needs assessment on this topic.
- Remind participants that if their students raise questions that they cannot answer about specific diseases, they should not feel pressured to “read up” on particular diseases. For example, a student may wonder if cancer is considered a chronic or acute disease. The teacher may want to explain that, in general, any disease that you have to deal with over a long period of time is considered a chronic disease.

- Teachers may also want to encourage their students to address their questions about specific diseases by going to the library or searching on the Internet. Note that a list of resources for students is provided in the assessment packet.

**Review the assignment** (10 minutes)

- Point out that the cover sheet of the In-Class Needs Assessment Packet has a description of the assignment. This assignment asks participants to complete the needs assessment with their students and then reflect on the assessment experience. Ask the participants to summarize their observations in writing and bring their notes to Session Two.

- Tell participants to consider the following things as they make their notes:
  - *The diseases identified by your students*
  - *The chronic disease management tasks identified by your students*
  - *The challenges/difficulties to chronic disease management identified by your students*
  - *Some of the skills that students might need to develop*

**Ask participants to find a partner for this assignment**

- Ask participants to find a partner for this assignment (perhaps someone they worked with in an earlier activity).

- Ask the pairs to exchange names and phone numbers so that they can speak with each other before and after completing the needs assessment with their students.

- Encourage them to:
  - Discuss the assignment and any problems they anticipate
  - Discuss how the assessment went
  - Share their findings and observations
CLOSURE ACTIVITIES (20 minutes total)

Session Review (15 minutes)

Discussion Methods: Facilitated full group discussion, The Dance and the Balcony

Handouts: Session One Evaluation Form

Content Review

You may want to ask if anyone in the group is willing to summarize key content areas or make a statement about insights or new information. You or the volunteer will likely highlight the following:

- Developed our understanding of “health literacy”
- Considered chronic disease management and the challenges people face in this process
- Reviewed the assessment activity to be completed with students to learn about challenges they identify related to managing chronic diseases

Discussion Methods Review – The Dance and the Balcony

- Introduce the Dance and the Balcony metaphor. Explain that you would like to take a little time to reflect on the discussion methods – the way in which activities were structured during this session.
- Say to participants:
  
  Imagine that we have been dancing on a large open dance floor with a balcony above it. It is time to stop “dancing” and move from the dance floor to the balcony to look down and comment on our dancing.

- Describe some of the discussion methods used to facilitate different activities during this session.
- Then ask participants to identify any of the discussion methods that they feel would be effective in their own classrooms. Use the following table to help you facilitate this discussion.
Session Evaluation and Closing Notes (5 minutes)

**Handouts:** Session One Evaluation Form

**Session Evaluation**

Distribute the Session One Evaluation Forms and ask participants to complete them. Collect the evaluation forms before the participants leave.

**Closing Notes**

- Thank the participants for their contributions during this session.
- Take a minute or two to address any logistical issues related to Session Two.
- Be sure to post date, time, and place for Session Two.
The National Center for the Study of Adult Learning and Literacy (NCSALL) is a collaborative effort between the Harvard Graduate School of Education and World Education. The University of Tennessee, Portland State University, and Rutgers University are NCSALL's partners. NCSALL is funded by the Educational Research and Development Centers program, Award Number R309B60002, as administered by the Institute of Education Sciences (formerly Office of Educational Research and Improvement), U.S. Department of Education. The contents of this publication do not necessarily represent the positions or policies of the Institute of Education Sciences, or the U.S. Department of Education, and you should not assume endorsement by the Federal Government.
Skills for Chronic Disease Management

Session One Materials

Materials and Preparation
- DVD - *In Plain Language* (located in the front pocket of the study circle binder)
- DVD player
- Newsprints (flip charts) and Markers
- Overhead projector (optional)

Newsprints (flip charts) or Overhead Transparencies (3)
We typically refer to these materials as “newsprints,” but feel free to use overhead transparencies instead. Examples of most newsprints for this session are included in this booklet.

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   - In-Class Needs Assessment: Identifying Student Challenges and Barriers in Chronic Disease Management
   - Your Notes after Conducting the Needs Assessment
   - Handouts (include photographs than can also be used for the Alternate Activity)

Sent out before Session One (5)
1. Skills for Chronic Disease Management: Goals and Objectives
2. Participant Definition of Health Literacy
3. Shared Goals but Different Roles in Health Literacy
4. Development of the Guides to the Health Literacy Study Circles+
5. A Maturing Partnership by Rima E. Rudd
Study Circle+ Graphic

Health Literacy Study Circles+

All Health Literacy Activities

Tasks for Health Care Access and Navigation

Tasks for Disease Prevention and Screening

Tasks for Chronic Disease Management

Literacy Skills

Reading, Writing, Oral Presentation, Oral Comprehension, Numeracy
Skills for Chronic Disease Management
Session One

Objectives
One of the principal goals for this study circle is to prepare participants to help their students develop basic skills related to chronic disease management.

During Session One, participants will:
- Develop a shared definition of “health literacy”
- Identify activities people engage in as they manage a chronic disease
- Identify literacy-related barriers and issues faced by those who manage a chronic disease
- Prepare to conduct a student needs assessment

Session One Agenda

Introductory Activities (40 minutes)
- Welcome and Introductions
- Overview of the Health Literacy Study Circles+
- Review the Study Circle+ Goals and Objectives, and Agenda

Discussion & Analysis Activities (90 minutes including the break)
- Reflect on Health Literacy Readings
- ~ Take a 10-Minute Break ~
- View and Discuss the DVD, In Plain Language, or Complete the Alternate Activity with Photographs
- Discuss Experiences and Observations

Planning Activities (30 minutes)
- Prepare for the In-Class Needs Assessment Activity

Closure Activities (20 minutes)
- Session Review
- Session Evaluation and Closing Notes
Please complete the following evaluation and turn it in before you leave today.

1. What was the most valuable thing that you gained from today’s session? (For example, an insight, a practical idea, specific information, etc.)

2. How would you improve this session?
Skills for Chronic Disease Management

In-Class Needs Assessment Packet

The In-Class Needs Assessment Packet includes the following materials:

1. Introduction
2. In-Class Needs Assessment and handouts: Identifying Student Challenges and Barriers in Chronic Disease Management
   - Using the Dictionary to Learn About “Acute” and “Chronic”
   - Nine Photographs
   - Worksheet: Talking about Photographs
   - (SAMPLE for Teachers) Summary Table Describing Chronic Diseases
   - HANDOUT: Summary Table for Describing Chronic Diseases
3. Your Notes After Conducting the Needs Assessment

Assignment to be completed between Sessions One and Two:

These activities were designed to help you learn more about your students’ experiences in dealing with chronic diseases. You can use these activities in your classroom to help you identify some of the challenges and barriers your students encounter when trying to cope with a chronic disease. Come to Session Two prepared to discuss your findings.

Talk with your study circle partner between sessions:
   - Discuss the assignment and any problems you anticipate
   - Discuss how the assessment went with your students
   - Share your findings and observations

~ Please bring your notes to Session Two. ~
Introduction to the In-Class Needs Assessment

What is a needs assessment?
A needs assessment identifies needs in relation to an issue or service. Many assessments identify “felt needs” and pose the question: What do you need in relation to a particular issue? Some assessments identify needs as perceived by an outside observer or professional: Given what I have observed, X is missing in this community or Y is very hard for most people.

In this case, you will conduct a needs assessment to find out “what’s going on” with your students related to managing chronic diseases. You will explore the challenges and barriers related to literacy skills that make managing a chronic disease difficult for them.

The term “needs assessment” typically implies that we are looking for students’ needs or identifying problems that your students experience. Another way to think about this activity is to think of yourself as conducting an “inventory” of your students’ experiences to gain insights into their strengths and needs.

Before you conduct the needs assessment
To prepare to teach this lesson, we strongly recommend that you carefully look at the pictures and review the entire lesson guide. You are encouraged to modify the lesson to suit your classroom needs. Consider the following questions as you read through the lesson:

- How well suited is this lesson to your students’ skills or proficiency levels?
- How might you adapt it to make it more appropriate for your students?
- Which of the optional activities are you likely to choose? Why?
- How might you work this lesson into what you are currently doing with your students?

As part of this lesson, your learners will examine a set of pictures that feature people engaging in tasks related to chronic disease management. The learners will answer questions in response to the pictures. You will summarize their responses on the board or on newsprint.

You may also want to discuss the needs assessment with your study circle partner to consider ways you might modify it for your students.
# In-Class Needs Assessment:
## Identifying Student Challenges and Barriers in Chronic Disease Management

### Chronic Disease Management Tasks Addressed in This Lesson:
- Learners will increase their understanding of the concepts of “acute” and “chronic illness.”
- Learners will identify barriers that make it difficult for them to manage a chronic disease.

### Skills Focus
- Learners will increase their vocabulary for talking about chronic diseases.
- Learners will discuss the challenges and barriers related to the management of a chronic disease.

### ABE/ESOL Level
High beginning to intermediate ABE/ESOL

### Time
1½ hours (or two 45 minute sessions)

### Materials
- Blackboard or newsprint paper
- Markers
- Handouts:
  - Using the Dictionary to Learn about “Acute” and “Chronic”
  - Nine Photographs
  - Worksheet: Talking about Photographs
  - (SAMPLE for Teachers) Summary Table for Describing Chronic Diseases
  - HANDOUT: Summary Table for Describing Chronic Diseases

### Purpose
Learners will have an opportunity to talk about the definition of chronic disease. They will explore differences between chronic and acute conditions.

By looking at photographs of people engaged in various tasks related to chronic disease management (e.g., talking to a doctor, taking medicine), learners will think about their own experiences and knowledge base about chronic disease management. They will also discuss barriers to successful chronic disease management.

After this lesson, teachers will be able to identify the concerns that their learners have in managing a chronic disease. This learner feedback will inform teachers’ subsequent lessons on the development of chronic disease management skills.

### Steps
1. **Brief large group discussion: Brainstorm about having an ear infection versus having diabetes.**
   - Write ear infection and diabetes on newsprint or on the board and invite the students to brainstorm about the differences between the two. Pose the following question to start the brainstorm.
   - *How is having an ear infection different from having diabetes? Name as many differences as you can.*
   - Record students’ ideas.

   **Note to Teachers:** Remember that during a brainstorm, learners are encouraged to offer all ideas about how an ear infection might be different from diabetes – even if the learners are not sure or feel as if they are guessing.
Here is a sample list of differences that the learners might generate in response to the question: How is having an ear infection different from having diabetes?

<table>
<thead>
<tr>
<th>When we have an ear infection</th>
<th>When we have diabetes</th>
</tr>
</thead>
<tbody>
<tr>
<td>An ear infection usually lasts a short time.</td>
<td>Diabetes does not go away. It can last a long time.</td>
</tr>
<tr>
<td>Doctors usually give you an antibiotic to take for a week.</td>
<td>If you have diabetes, you have to take medicine every day. If you don’t, the diabetes can get worse.</td>
</tr>
<tr>
<td>Sometimes people get better even without taking any medicine.</td>
<td></td>
</tr>
<tr>
<td>We usually visit the doctor once.</td>
<td>We need to see a doctor for regular checkups.</td>
</tr>
<tr>
<td>After we take the antibiotics, we get better and the ear infection goes away. Eventually we’re not sick anymore.</td>
<td>Diabetes is not “curable.” Diabetes does not go away. Some people have to cope with diabetes for their whole lives.</td>
</tr>
</tbody>
</table>

2. **Review learners’ responses**
   
   After the learners have shared their ideas, you may wish to highlight several of the learners’ descriptions of the two conditions, emphasizing the fact that diabetes is a disease that lasts a long time. Unlike an ear infection, diabetes does not simply go away. Explain that in the next exercise, learners will have an opportunity to work in small groups and to learn new vocabulary to talk about conditions that “last a short time and go away” and conditions “that don’t go away.”

3. **Small group work: Explore new vocabulary — “acute” and “chronic”**
   
   Write the words “acute” and “chronic” on the board. Organize the class into small groups of three to four learners and provide them with dictionaries (hard copies or online).

   Explain to the class that doctors and other medical professionals often use these two words to describe health problems. This activity gives learners an opportunity to explore the meanings of these two words and think of health problems that are either “acute” or “chronic.” Ask the learners to work in their small groups to complete the tasks outlined on the worksheet, **Using the Dictionary to Learn about “Acute” and “Chronic.”**
4. Large group discussion
After the small groups have completed the worksheet, bring the class together for a discussion. Ask volunteers to share their ideas about the differences between acute and chronic health problems. As part of this group discussion, be sure to highlight a key difference between the two conditions.

- An ear infection is treated and then ends.
- Diabetes can be treated, but does not go away.

This is the crucial distinction between chronic and non-chronic (i.e., “acute”) conditions. Chronic diseases are on-going conditions. There are no cures for them. People with a chronic disease may not feel sick everyday, but they still have a disease that must be kept under control.

5. To transition to the next step in the lesson, say to the learners:

In your groups, you talked about chronic diseases you know about and if you know someone with a chronic disease. Now that we are together as a class, let’s see how many of us know someone with a chronic disease. Please raise your hand if you do.

It is very likely that nearly every learner will raise his or her hand. At this point, as you look around the room at the raised hands, you may wish to point out that nearly everyone knows someone with a chronic disease.

Invite the learners to think about what things people must do when they have a chronic disease. Some possible responses might include:

- Take medicine
- Go to the doctor regularly
- Exercise
- Eat properly
- Use tools like a blood glucose monitor (for diabetes) or peak flow meter (for asthma)
- Avoid getting sick, like with a cold or the flu

In the next exercise, you will ask the learners to look at photographs and think about the things that people must do when they have a chronic disease. The learners will identify different tasks suggested by the photographs, explore what makes these tasks difficult, and discuss ways that people can deal with these difficulties.

6. Small Group Work: Look at pictures related to chronic disease management
Organize the class into small groups of three to four learners and assign two pictures to each group. Each picture has some questions to guide the discussions. Read the questions out loud if necessary, or ask students to read the questions as they discuss...
the pictures within their groups. The groups will have about 30 minutes to discuss the pictures.

Distribute one copy of the worksheet titled *Talking about Photographs* to each group and ask for a volunteer in each group to note answers to the questions on the worksheet.

7. **Large Group Discussion: Identify challenges related to chronic disease management**
   Ask each group to share their responses to the questions about each picture. Either you or a class volunteer should record the responses to the questions on the board or on a newsprint (or transparency).

8. **Large Group Discussion: Final thoughts and questions**
   After each group has had an opportunity to share their ideas, allow time for the class to add other tasks and challenges/barriers. Invite the students to comment on the ideas brought up during the activity.

**ESOL Teaching Tip**
To facilitate small group discussion in beginning ESOL classes, you may wish to provide the learners with a set of key words related to the photographs. This will provide the learners with a working list of vocabulary that they can use to begin talking about what they see in the picture. Here are some suggestions for three of the photographs.

<table>
<thead>
<tr>
<th>Picture 1: At the Pharmacy</th>
<th>Picture 2: At the Dentist</th>
<th>Picture 3: Medicines and a Calendar</th>
</tr>
</thead>
<tbody>
<tr>
<td>directions</td>
<td>changes</td>
<td>appointment</td>
</tr>
<tr>
<td>medicine</td>
<td>complaint</td>
<td>calendar</td>
</tr>
<tr>
<td>order</td>
<td>diagnose</td>
<td>dose</td>
</tr>
<tr>
<td>pharmacist</td>
<td>medical history</td>
<td>plan</td>
</tr>
<tr>
<td>pharmacy</td>
<td>patient</td>
<td>reminder</td>
</tr>
<tr>
<td>prescription</td>
<td>physician</td>
<td>schedule</td>
</tr>
<tr>
<td>refill</td>
<td>symptoms</td>
<td></td>
</tr>
</tbody>
</table>

**Advanced ABE and GED Teaching Tips**
To make the lesson more challenging for learners, use the lesson as a writing exercise. Instead of organizing the learners into small discussion groups, ask the learners to write essays (descriptive essays or personal narratives) in response to one of the three pictures.

**Technology Tips: Some recommended Web sites**
- **The National Heart, Lung, and Blood Institute (NHLBI):** Provides information about diseases of the heart, blood vessels, lung, and blood; blood resources; and sleep disorders. Also contains link to the National Institute of Health Woman's Health Initiative. 
- **American Diabetes Association**: Web site for a well-known nonprofit health organization providing diabetes research, information, and advocacy. Features materials in several languages. [http://www.diabetes.org/home.jsp](http://www.diabetes.org/home.jsp)

- **U.S. Food and Drug Administration, Easy-to-read publications**: Features brochures about arthritis in Spanish and English. [http://www.fda.gov/opacom/lowlit/englow.html](http://www.fda.gov/opacom/lowlit/englow.html)

Follow-up Activities

1. **Mini-research project about chronic diseases**
   Ask the learners to form groups of three to four learners. Assign each group a chronic disease (for example diabetes, arthritis, hypertension, asthma, and heart disease). Explain that each group will conduct basic research on their topic and will find answers to the following questions:
   - *What causes this disease?*
   - *What parts of the body does it affect?*
   - *What are some symptoms of the disease?*
   - *What are some treatments for this disease? (Include medicines and life style changes such as diet restrictions, exercise, etc.)*

   Direct the learners to different Web sites that address chronic diseases, or ask them to seek out references and other texts at their local library. (*Note:* This project may provide the class with an opportunity to develop basic research and library skills.)

   Note: A handout titled **Summary table for describing chronic diseases** is provided at the end of this lesson for learners to complete with the information they find. Use an overhead projector or newsprint to make a larger version of this chart when learners present their information to the class.

2. **Interview with a person suffering from a chronic disease**
   Find someone who is willing to be interviewed about his or her experiences with a chronic disease. You might ask the questions listed below. Ask learners to take notes on the person’s responses. Learners can share their information in the next class or write up their notes in an expository essay.
   - *What chronic disease do you have?*
   - *How did you find out you had this chronic disease?*
   - *How did you feel when you first learned you had this disease?*
   - *What kind of treatments do you need to take?*
   - *How has this disease affected your everyday life?*
   - *What advice would you give to someone who just found out they have this disease?*
Using the Dictionary to Learn About  
“Acute” and “Chronic”

Directions: Look up the words “acute” and “chronic” in the dictionary. For each word, identify the part of speech and its pronunciation.

1. What is the origin of the word “chronic?” What language does the word come from? If people in your group speak another language other than English, share related words (i.e., cognates) from other languages or ask members to translate “chronic.”

2. Read the dictionary definitions for “acute” and “chronic.” Make sure you can re-state the definition in your own words. Use the words in complete sentences to help you remember their meanings.

3. Based on your understanding of the definitions of “acute” and “chronic,” what do you think is the difference between a “chronic disease” and an “acute condition?”

4. Do you know people who have chronic diseases? What diseases do they have?

5. What other chronic diseases do you know about? List them here.
Session One Materials
Handouts: In-Class Needs Assessment
Picture 1: At the Pharmacy

1. What’s happening in this picture?
2. How does this picture remind you of your own experience (or experiences of someone you know)?
3. What’s easy about getting medicine from a pharmacy?
4. What’s difficult?
Session One Materials
Handouts: In-Class Needs Assessment
Picture 2: At the Dentist

1. What’s happening in this picture?
2. How does this picture remind you of your own experiences (or experiences of someone you know)?
3. What’s easy about talking to a doctor?
4. What’s difficult?
Session One Materials
Handouts: In-Class Needs Assessment
Picture 3: Medicines and a Calendar

1. What’s happening in this picture?
2. How does this picture remind you of your own experiences (or experiences of someone you know)?
3. What’s easy about taking medicine when you have a chronic disease?
4. What’s difficult?
Session One Materials
Handouts: In-Class Needs Assessment
Picture 4: A Peak Flow Meter

1. What’s happening in this picture?
2. How does this picture remind you of your own experiences (or experiences of someone you know)?
3. What’s easy about using tools to keep track of your health when you have a chronic disease?
4. What’s difficult?
Session One Materials
Handouts: In-Class Needs Assessment
Picture 5: At the Library

1. What’s happening in this picture?
2. How does this picture remind you of your own experiences (or experiences of someone you know)?
3. What’s easy about finding information about a chronic disease?
4. What’s difficult?

Photo © Jon Crispin
Session One Materials
Handouts: In-Class Needs Assessment
Picture 6: At the Doctor’s Office

1. What’s happening in this picture?
2. How does this picture remind you of your own experience (or experiences of someone you know)?
3. What’s easy about telling a doctor about your health?
4. What’s difficult?
Session One Materials
Handouts: In-Class Needs Assessment
Picture 7: Pills

1. What’s happening in this picture?
2. How does this picture remind you of your own experience (or experiences of someone you know)?
3. What’s easy about taking a lot of pills each week?
4. What’s difficult?
Session One Materials
Handouts: In-Class Needs Assessment
Picture 8: Blood Sugar Test

1. What’s happening in this picture?
2. How does this picture remind you of your own experience (or experiences of someone you know)?
3. What’s easy about using tools to keep track of your health when you have a chronic disease?
4. What’s difficult?
Session One Materials
Handouts: In-Class Needs Assessment
**Picture 9: At the Grocery Store**

1. What’s happening in this picture?
2. How does this picture remind you of your own experience (or experiences of someone you know)?
3. What’s easy about watching what you eat?
4. What’s difficult?
Session One Materials
Handouts: In-Class Needs Assessment
**Worksheet: Talking about Photographs**  
*(Notes from small group discussions)*

<table>
<thead>
<tr>
<th>What are people doing in the pictures?</th>
<th>What can be difficult about doing these things?</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Picture #___</em></td>
<td></td>
</tr>
<tr>
<td><em>Picture #___</em></td>
<td></td>
</tr>
</tbody>
</table>
Session One Materials
Handouts: In-Class Needs Assessment
### (SAMPLE for Teachers) Summary Table Describing Chronic Diseases

**Directions:** Work in groups of three to four people. Pick a chronic disease. Use the resources, materials, or Web sites provided to you by your instructor and answer the following questions about the disease. Record your answers in the chart. Present your answers to the class.

<table>
<thead>
<tr>
<th>What is this disease?</th>
<th>Asthma</th>
<th>Arthritis</th>
<th>Diabetes</th>
<th>Hypertension</th>
<th>Heart disease</th>
</tr>
</thead>
<tbody>
<tr>
<td>A chronic, inflammatory lung disease characterized by recurrent breathing problems.</td>
<td>A chronic medical condition affecting a joint or joints, causing pain, swelling and stiffness.</td>
<td>A chronic disease caused by the body's inability to process sugar, usually due to a lack of insulin.</td>
<td>High blood pressure.</td>
<td>Any disease or condition of the heart, including coronary heart disease, heart failure, hypertensive heart disease, congenital heart disease, disorders of the heart valves, infections of the heart, cardiomyopathy, conduction disorders, and rhythm disorders.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>What systems or parts of the body does it affect?</th>
<th>Respiratory Pulmonary</th>
<th>Skeletal</th>
<th>Urinary (kidneys) Endocrine (pancreas)</th>
<th>Cardiovascular</th>
<th>Cardiovascular</th>
</tr>
</thead>
</table>

| What are some signs and symptoms? | Shortness of breath Coughing Wheezing | Painful joints | Frequent urination Excessive thirst Hunger Weight loss | Headaches Heart palpitations Shortness of breath Fatigue Blurry vision Dizziness | Pain in the chest, arms, shoulders and/or neck Change in vision Nausea Headache |

| What are some treatments for this disease? | Take medicine Exercise Avoid trigger | Take medicine Exercise | Take medicine Exercise Special diet | Take medicine Exercise Special diet Avoid stress | Take medicine Exercise Special diet Avoid stress |
**HANDOUT: Summary Table for Describing Chronic Diseases**

*Directions:* Work in groups of three to four people. Pick a chronic disease. Use the resources, materials, or Web sites provided to you by your instructor and answer the following questions about the disease. Record your answers in the table. Present your answers to the class.

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<td>What are some signs and symptoms?</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>What are some treatments for this disease?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Your Notes after Conducting the Needs Assessment

~ Please bring these notes to Session Two ~

After you have completed the needs assessment activity with your learners, take some time to answer the following questions based on your learners’ responses. You may also discuss the assessment and your findings with your study circle partner.

1. How did the needs assessment experience go? What went well? What surprised you?

2. List the diseases identified by your students.

3. List the chronic disease management tasks identified by your students.

4. List the challenges/difficulties that your students identified that are related to managing chronic diseases.

5. List some of the skills related to health literacy that your students need to develop.
SESSION TWO: 
Identifying Chronic Disease Management Tasks and Underlying Skills
SESSION TWO:
Identifying Chronic Disease Management Tasks and Underlying Skills

Rima Rudd, Sc. D.
Lisa Soricone, Ed. D.
Maricel Santos, Ed. D.
Charlotte Nath, R.N., Ed. D.
Janet Smith, Ed. M.
We hope that the activities in Session One and the classroom needs assessment offered the Study Circle participants opportunities to reflect on issues related to chronic disease management. The following notes provide a brief overview of Session Two.

**About this Session**

Session Two will likely be one of the more intensive sessions of the Study Circle. Participants will share what they learned about their students’ experiences in managing a chronic disease. They will then consider activities and the literacy skills involved in managing any chronic disease. The discussions should help participants consider health literacy teaching goals designed to meet their students’ needs.

**Introductory Activities**

The introductory activities of Session Two provide an opportunity for participants to move from the general orientation to “health literacy” and “chronic disease” in Session One to a more focused examination of health-related tasks and the underlying skills to be addressed in adult education classrooms. Session Two sets in motion the participants’ consideration of classroom lesson and unit plans.

**Discussion and Analysis Activities**

First, participants discuss their in-class needs assessments and identify the challenges and barriers their students face when dealing with chronic diseases. Then the group identifies activities and tasks related to managing chronic diseases. Next participants will work in small groups to identify the literacy skills needed to accomplish the activities and tasks they have just identified.

Keep in mind that the participants may be able to identify various chronic
disease management tasks, but may not be able to identify the skills needed to carry out these tasks effectively. Please remind participants that health professionals have not yet done this type of analysis either. A table listing examples of activities, tasks, and skills is provided to help you facilitate this activity.

Participants will review sample lessons that address chronic disease management tasks during the second part of the discussion and analysis activities. These lessons are not linked to one another and do not constitute a unit or curriculum. Each lesson provides an example of a skills-based approach. The discussion and review of these lessons will help participants to develop lessons and units of their own.

Planning Activities
During the planning activities, you will review the assignment for Session Three and address questions participants might have. Encourage participants to examine the lessons and modify them to suit the skill levels and interests of their students. Here, as in Session One, you will ask participants to find partners and exchange phone numbers so they can discuss this assignment between sessions.

Participants are also asked to complete a Post-Teaching Reflection Sheet. Please encourage the participants to teach one of the sample lessons as soon as possible so that they have time to reflect on the experience before Session Three.

Closure Activities
You will facilitate activities for participants to review both the content of the session and the discussion methods. Remember to leave time at the end of the session for participants to complete the session evaluation forms. After Session Two, review these forms and consider how to use the feedback.
The Group Discussion Methods

The Group Discussion Methods used in Session Two are designed to support collaborative work as participants share ideas and engage in analyses. The various discussion methods are described below.

**Brainstorm:** A brainstorm activity helps a group generate ideas or solutions. Participants should be encouraged to offer any and all ideas, no matter how remote an idea may sound. Ideas are recorded on newsprint and evaluated after the brainstorming is over.

**Facilitated Large Group Discussion:** Participants can report on and hear about others’ experiences. Discussion questions are used to focus the discussion and help make a transition to the next activity.

**Small Group Project:** This method is used to foster group collaboration.

**Walk About:** This activity (which, in this session, takes place during an extended break) gives participants an opportunity to view the work completed by small groups. This activity provides an alternative to the activity where participants from each group report to the whole group.

**Pair and Small Group Discussions:** These kinds of discussions are designed to maximize engagement and participation.

**The Dance and the Balcony:** This activity is a metaphor for analyzing the group discussion methods used during the session. The purpose of this activity is to highlight the different ways you can structure activities and encourage teachers to consider using some of these methods in their own classes.

You will ask participants to think of the activities they just completed as a “dance.” Next, you will ask them to stop the dance and move up to the “balcony” to look down on the dance floor. Thus, they stop “dancing” and view the dance from a distance. From the “balcony,” participants analyze the dance – they comment on and react to the discussion methods used during the session. Note that you will be conducting this activity at the end of each session.
Overview: Session Two

Objectives

During Session Two, participants will:

- Analyze the results of the in-class needs assessments
- Develop a list of specific chronic disease management tasks and underlying skills that can be addressed in ABE/ESOL classes
- Review and modify sample health literacy lessons for adult learners

Time

3 hours

Session Two Agenda

*Introductory Activities* (15 minutes)

- Welcome, Session Objectives, and Agenda

*Discussion & Analysis Activities* (1 hour 30 minutes including the break)

- Review Results of the Needs Assessment Activity
- Examine Chronic Disease Management Tasks
- Identify Skills Needed for Successful Management of Chronic Diseases
- Walk About (includes a 10-Minute Break)
- Discuss and Analyze Tasks and Skills

*Planning Activities* (55 minutes)

- Review Sample Lessons
- Review the Assignments for Session Three

*Closure Activities* (20 minutes)

- Session Review
- Session Evaluation and Closing Notes
Materials and Preparations

Newsprints (flipcharts), Markers, and Tape
Overhead Projector (optional)
Copies of your state’s adult education curriculum framework (if available)

Newsprints (flip charts) or Overhead Transparencies (3)
We typically refer to materials on flip charts as “newsprints,” but feel free to use overhead transparencies instead. Examples of most newsprints for this session are included in this booklet.

<table>
<thead>
<tr>
<th>To be prepared ahead</th>
<th>To be completed during the session</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analysis from Tasks to Skills</td>
<td>Student-Identified Barriers and Challenges</td>
</tr>
<tr>
<td></td>
<td>Chronic Disease Management Activities and Tasks</td>
</tr>
</tbody>
</table>

Handouts (5)
Make copies of the following handouts before the session begins. The handouts for each session are located after the session booklet.

1. Session Two Objectives and Agenda
2. Analysis from Tasks to Skills
3. Table of Chronic Disease Management Activities, Tasks, and Underlying Skills
4. Session Two Evaluation Form
5. The Sample Lesson Packet includes the following handouts:
   - Overview of the Sample Lesson Format
   - Lesson Review Sheet (to be completed during Session Two)
   - Post-Teaching Reflection Sheet (to be completed after you have taught a sample lesson between Session Two and Session Three)
   - Nine Sample Lessons

Health Literacy Study Circles: Skills for Chronic Disease Management
Readings and materials for Session Three for the Optional Expanded Session

Please make copies and distribute these materials to participants even if you do not plan to facilitate the activities for the expanded session.

1. Reading guide for *Math is Healthy* by Martha Merson.
2. *Math is Healthy* by Martha Merson with a reading guide
3. A sample math lesson, *Body at Work – Tables and Rules* (Facilitator’s Guide and the Student’s Lesson), from EMPower Mathematics\(^1\) is also included for review.
4. *Not Just a Number: Critical Numeracy for Adults* by Sandra Kerka\(^2\)
5. *Numeracy in the Adult ESL Classroom* by Tom Ciancone\(^3\)
6. *How Adults Learn Basic Math* by Ellen McDevitt\(^4\)

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2. From the Clearinghouse on Adult, Career, and Vocational Education (ACVE) available at www.cete.org/acve/docgen.asp?tbl=archive&ID=A012
Session Two: Identifying Chronic Disease Management Tasks and Underlying Skills
INTRODUCTORY ACTIVITIES (15 minutes total)

Welcome, Session Objectives, and Agenda (15 minutes)
Discussion Methods: Presentation by facilitator
Handouts: Session Two Objectives and Agenda

Welcome the group back
Remind the participants that this study circle focuses on one set of health literacy activities and skills – those related to managing any chronic disease. You may want to emphasize the importance of this topic for their students. The initial background readings highlighted the fact that people with less than a high school education are more likely to die (unnecessarily) of a chronic disease than are those with higher educational achievement.

You may wish to respond to any important issues raised in the Session One evaluations.

Provide an overview of Session Two
Explain that during Session Two, participants will report back on the needs assessments conducted in their classes. They will then list out many tasks related to managing a chronic disease and identify skills needed to accomplish these tasks. They will also identify the skills most appropriate for adult education instruction.

Explain that the activities for this session will move from identifying barriers to successful chronic disease management to outlining skills as a strategy for overcoming those barriers.

Distribute the Session Two Objectives and Agenda
Review the objectives and agenda and briefly describe the session activities.
Ask if anyone has additional comments or questions.
DISCUSSION & ANALYSIS ACTIVITIES
(1 hour and 30 minutes including a 10-minute break)

Review Results of the Needs Assessment Activity (15 minutes)
Discussion Methods: Facilitated large group discussion
Newsprints: Student-Identified Barriers and Challenges

Focus on needs assessment activities and solicit reflection and commentary

Explain that this discussion will focus on the lesson conducted in class and the needs assessment findings. Pose each of the following questions and ask participants to volunteer answers and examples. Use a newsprint or overhead sheet to record the participants’ responses to question #4.

1. How did students react to the needs assessment activity? Did the activity prompt a discussion about chronic disease management and health literacy–related challenges?
2. What chronic disease tasks did the students identify?
3. What did the students feel was hard to do?
4. What kinds of barriers and challenges to successful management of chronic diseases did your students identify?

Please note that the large group discussion continues with a slight shift in focus.
Examine Chronic Disease Management Activities (15 minutes)

Discussion Methods: Full group brainstorm activity
Newsprints: Chronic Disease Management Activities and Tasks

*Generate a list of chronic disease management activities*

Explain that the next activity is based on the information participants received from their students during the needs assessment and on their own observations from Session One.
Encourage participants to draw from the posted newsprint just completed (Student-Identified Barriers and Challenges).
Post another newsprint or use an overhead sheet to record and post ideas.
Ask participants to consider a general activity such as *Take Medicine*. Work with the group to generate a list of about five or six general activities related to chronic disease management.
If the group is stymied, you might present one or two examples from the table provided for you (Table of Chronic Disease Management Activities, Tasks, and Underlying Skills). Do not read the entire list, but try to encourage suggestions from group members. If no one suggests a math related category, mention *Use a Measurement Tool* (liquid measuring cup, scale, or peak flow meter).

### Chronic Disease Management Activities and Tasks

1. Take medicine –
2. Use a measurement tool –
3. 
4. 
5. 
6.
**Ask participants to identify some specific tasks associated with each activity**

Explain that there are several tasks related to an activity like *Take Medicine*. Work with the group to fill in some of the tasks. For example, these tasks include read directions, figure out dose, figure out timing, count, measure liquid doses, use a clock to time medicine, and use a calendar to schedule medicine.

### Chronic Disease Management Activities and Tasks

1. Take medicine – read, count, measure, time, schedule
2. Use a measurement tool – identify full range, identify average or normal range
3. 
4. 
5. 
Facilitator’s Copy: Table of Chronic Disease Management Activities, Tasks, and Underlying Skills  
Note: This table contains examples to help you facilitate this activity.

<table>
<thead>
<tr>
<th>General Activities with Examples of Tasks</th>
<th>Materials and Tools Adults Are Expected to Use</th>
<th>Skills Adults Need</th>
<th>Lesson Ideas</th>
<th>Related State Standards/ Curriculum Frameworks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recognize and act on symptoms e.g., make note of changes in or onset of symptoms; make an appointment</td>
<td>Health education booklets and brochures Calendar</td>
<td>Read commonly available health education booklets for relevance Expand reading vocabulary Observe and take notes</td>
<td>Ask students to write about a change in themselves, a child, a parent, or a friend Ask students to underline words used to describe the “before” and the “after” states</td>
<td></td>
</tr>
<tr>
<td>Provide information e.g., describe feelings; talk about change</td>
<td>Journal or logbook Calendar</td>
<td>Use descriptive vocabulary Present health issues in a time sequence</td>
<td>Write about a series of events in sequence over time</td>
<td></td>
</tr>
<tr>
<td>Learn more about your chronic disease e.g., locate information at the library or on the Web</td>
<td>Dictionary Patient education booklets Web sites</td>
<td>Use a dictionary Ask health providers for clarification Do research</td>
<td>Interview a person with a chronic disease and write about what he/she has to do each day</td>
<td></td>
</tr>
<tr>
<td>Develop a treatment plan with a health professional e.g., provide updates; participate in planning</td>
<td>Journal Calendar</td>
<td>Ask questions Express needs and objections Give feedback on health status Analyze treatment options</td>
<td>Develop a plan for adding a new activity (e.g., journaling, exercise, medicine) to one's daily activities Discuss what makes it hard or easy to change one's routine</td>
<td></td>
</tr>
<tr>
<td>Take Medicine e.g., follow directions on labels; measure amounts; count pills; plan timing</td>
<td>Clock Calendar Labels</td>
<td>Read and comprehend labels Use clock and calendar to plan when to take medicines Develop reminder cues</td>
<td>Read a medicine label and discuss instructions</td>
<td></td>
</tr>
<tr>
<td>Measure and Monitor e.g., use a peak flow meter to determine need for medicine</td>
<td>Measurement tools (e.g., peak flow meter, scale, chart, thermometer)</td>
<td>Measure and record Understand and use measurement scales Use a chart</td>
<td>Keep a daily diary of a measure (such as weight) or an event (such as hours slept)</td>
<td></td>
</tr>
</tbody>
</table>
Identify Skills Needed for Successful Management of Chronic Diseases (30 minutes)
Discussion Methods: Small group project
Handouts: Analysis from Tasks to Skills
Newsprints: Analysis from Tasks to Skills (Examples)
Materials: Newsprint paper, markers, tape, adult education standards or curriculum framework if available

Introduce the activity – a small group project (5 minutes)
Explain that participants will now work in small groups to define the skills needed for completing different type of chronic disease management tasks.

Ask participants to form small groups of three to four people.
Give each group a handout titled Analysis from Tasks to Skills.
This handout has directions for the activity.

Small Group work: Analysis from tasks to skills (25 minutes)
Provide each group with newsprint and ask each group to work independently.
Ask members to select one or two activities and identify related tasks, materials and skills.
Use the newsprint below as an example, but emphasize that there may be several tasks associated with any activity.

<table>
<thead>
<tr>
<th>Tasks</th>
<th>Materials</th>
<th>Needed Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>Read the label</td>
<td>Medicine bottle label</td>
<td>Reading and vocabulary</td>
</tr>
</tbody>
</table>

Check in with each group to answer any questions and observe how the different groups are doing.
At the end of this activity, ask groups to post their newsprints on the wall so everyone can review them during the break.
Note: You should save these newsprints for use during Session Three.
Walk About (15 minutes including a 10-Minute break)
During the break, ask participants to walk about, read, and reflect on the ideas posted by the different groups.

Discuss and Analyze Tasks and Skills (15 minutes)
Discussion Methods: Facilitated large group discussion
Handouts: Table of Chronic Disease Management Tasks and Underlying Skills

Review the table for examples of tasks and skills
Distribute the handout titled Table of Chronic Disease Management Tasks and Underlying Skills.
Examine some entries in the first column of the table on the handout. Ask for some examples that would fill in the rows. If groups did not address all categories in the tables, you can refer to the facilitator’s table for more examples.
By sharing ideas, participants will get a sense of the range of skills that might be challenging for ABE students as well as the ways in which an adult educator might address these skills in classroom instruction.

Analyze the skills identified by participants
Ask the whole group the following questions:

1. How many of these skills are you already teaching in class?
2. What skills are not being addressed in your classrooms?
3. Given the diverse range and complexity of activities needed for managing a chronic disease, how will you decide which skills to focus on in your classroom?

Note: At the end of this activity, be sure to collect and save the group newsprints because you will need them again during Session Three.
PLANNING ACTIVITIES (55 minutes total)

Review Sample Lessons (40 minutes)
Discussion Methods: Pair discussions and facilitated large group discussion
Handouts: Sample Lesson Packet

Distribute and briefly review the Sample Lesson Packet (10 minutes)
Ask the participants to work in pairs with someone who teaches in the same area (e.g., ESOL, ABE, and GED) or with students at a similar learner level (e.g., beginning English proficiency, advanced GED students). This will enable pairs to discuss the appropriateness and applicability of the various lessons within their own teaching context.

Explain the goal of this activity: To examine one of the lessons in the Sample Lesson Packet in depth.
By the end of this activity, participants should have either identified a lesson (as is or modified) that they will try out in their own classrooms or generated some other ideas for their own lessons.
Explain that most of these lessons lay the groundwork to pursue project-based learning activities in the classroom. These activities enable students to develop skills in the context of a project. The follow-up activities to the lessons include suggestions for several projects that students can do, such as conducting an interview with a person with a chronic disease, researching a chronic disease on the Web, or creating graphs based on data the students collect themselves.

Review and evaluate one sample lesson (20 minutes)
Ask participants to quickly scan the sample lessons and choose one lesson to examine in depth. Then ask them to consider the questions on the Lesson Review Sheet found in the Sample Lesson Packet.
Optional (If time permits)
Ask each pair to find another pair who reviewed the same lesson and discuss their reactions to the lesson. Alternatively, ask each pair to find another pair who teaches in the same area or at the same level and discuss their reactions to the lesson they reviewed.
**Bring the participants together as a large group** (10 minutes)
Facilitate a group discussion with a focus on an initial evaluation of the sample lessons.

First, ask each pair to name the lesson they examined.

Then use the following questions to guide the large-group discussion.

1. *To what extent do the sample lessons address your students’ concerns and issues discovered through the needs assessment activity?*
2. *Which lessons do you anticipate trying out in your classes? Why?*
3. *To what extent will you need to adapt or alter the lesson plans?*
4. *What other topics or types of skills are not covered in this packet but would be of interest to you and your students?*

**Review the Assignments for Session Three** (15 minutes)

**Discussion Methods:** Brief presentation

**Handouts:** Math Readings

**Introduce the assignment: To teach a sample lesson before Session Three**

Explain that the lessons in the packet are just *sample* lessons and that participants should feel free to modify them for use in their own classrooms or generate their own lessons.

After they teach a lesson, participants should complete the Post-Teaching Reflection Sheets (located in the Sample Lesson Packet) and bring these back to Session Three.

Ask for questions or comments about the assignment.

**Ask participants to find a partner for this assignment**

Ask participants to find a partner for this assignment (perhaps someone they worked with in an earlier activity) so they can talk between sessions about the assignment.

Ask the pairs to exchange names and phone numbers so that they can speak with each other before and after teaching a sample lesson.

Encourage them to:

- Discuss the assignment and any problems they anticipate
- Discuss how the lessons went
- Share their findings and observations
Distribute the reading assignments

Note that all of these readings focus on math skills. Managing a chronic disease often requires skills related to measuring, using or reading scales, and interpreting numbers. If you plan to lead the regular three-hour version of Session Three, ask participants to read at least one of the handouts listed for the optional expanded session.

Reading assignments for an Expanded Session Three (6-hour session)

If you plan to offer the expanded version of Session Three, add the following reading assignments:

Math is Healthy by Martha Merson, a paper developed for the National Center for the Study of Adult Learning and Literacy (NCSALL).

Explain that this paper highlights the role of math in adult education instruction. A reading guide contains questions that highlight key points. A sample math lesson, Body at Work – Tables and Rules, from EMPower Mathematics* is also included for review.

Optional Readings (3):

- Not Just a Number: Critical Numeracy for Adults by Sandra Kerka
- Numeracy in the Adult ESL Classroom by Tom Ciancone
- How Adults Learn Basic Math by Ellen McDevitt

CLOSURE ACTIVITIES (20 minutes total)

Session Review (15 minutes)
Discussion Methods: Facilitated full group discussion, The Dance and the Balcony

Content Review
Briefly remind participants of the purpose of Session Two:

To expand our understanding of the range of language, literacy, and numeracy skills that underlie chronic disease management tasks
To prepare participants to try out some sample lessons with their students

Methods Review – The Dance & the Balcony
Remind participants about the purpose of the Dance and Balcony activity:
• To reflect on the discussion methods used for activities during this session
• To identify discussion methods that might be useful in the classroom

Review the following discussion methods and activities from Session Two. Then ask participants to identify the discussion methods that they feel would be effective for use in their classrooms. Use the table below to help you facilitate this discussion.

<table>
<thead>
<tr>
<th>Session Two Discussion Methods</th>
<th>Activity Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large Group Facilitated Discussion</td>
<td>Review results of in-class needs assessments</td>
</tr>
<tr>
<td>Brainstorm</td>
<td>Identify chronic disease management activities and tasks</td>
</tr>
<tr>
<td>Small Group Project</td>
<td>Identify skills needed to manage chronic diseases</td>
</tr>
<tr>
<td>Walk About</td>
<td>Review small group work</td>
</tr>
<tr>
<td>Small Group (Pairs) Discussion</td>
<td>Review sample lessons</td>
</tr>
<tr>
<td>The Dance and the Balcony</td>
<td>Reflect on the discussion methods used during this session</td>
</tr>
</tbody>
</table>
Session Evaluation and Closing Notes (5 minutes)
Handouts: Session Two Evaluation Form

Session Evaluation (5 minutes)
Distribute the Session Two Evaluation Forms and ask participants to complete them. Collect the evaluation forms before the participants leave.

Closing Notes
Thank the participants for their contributions during this session.
Take a minute or two to address any logistical issues related to Session Three.
Post the date, time, and place for Session Three.
The National Center for the Study of Adult Learning and Literacy (NCSALL) is a collaborative effort between the Harvard Graduate School of Education and World Education. The University of Tennessee, Portland State University, and Rutgers University are NCSALL’s partners. NCSALL is funded by the Educational Research and Development Centers program, Award Number R309B60002, as administered by the Institute of Education Sciences (formerly Office of Educational Research and Improvement), U.S. Department of Education. The contents of this publication do not necessarily represent the positions or policies of the Institute of Education Sciences, or the U.S. Department of Education, and you should not assume endorsement by the Federal Government.
Skills for Chronic Disease Management

Session Two Materials

Newsprints (flip charts) or Overhead Transparencies (3)
We typically refer to materials on flip charts as “newsprints,” but feel free to use overhead transparencies instead. Examples of most newsprints for this session are included in this booklet.

<table>
<thead>
<tr>
<th>To be prepared ahead</th>
<th>To be completed during the session</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Analysis from Tasks to Skills</td>
<td>• Student-Identified Barriers and Challenges</td>
</tr>
<tr>
<td></td>
<td>• Chronic Disease Management Activities and Tasks</td>
</tr>
</tbody>
</table>

Handouts (5)
Make copies of the following handouts before the session begins. Handouts for each session are located right after the session booklet.

1. Session Two Objectives and Agenda
2. Analysis from Tasks to Skills
3. Table of Chronic Disease Management Tasks and Underlying Skills
4. Session Two Evaluation Form
5. The Sample Lesson Packet includes the following handouts:
   • Overview of the Sample Lesson Format
   • Lesson Review Sheet (to be completed during Session Two)
   • Post-Teaching Reflection Sheet (to be completed after you have taught a sample lesson between Session Two and Session Three)
   • Nine Sample Lessons

Readings and materials for Session Three for the Optional Expanded Session (6)
Please make copies and distribute these materials to participants even if you do not plan to do the activities for the expanded session.

1. Reading guide for Math is Healthy by Martha Merson
2. Math is Healthy by Martha Merson
3. A sample math lesson, Body at Work -- Tables and Rules (Facilitator's Guide and the Student’s Lesson), from EMPower Mathematics is also included for review. ¹

4. *Not Just a Number: Critical Numeracy for Adults* by Sandra Kerka  
5. *Numeracy in the Adult ESL Classroom* by Tom Ciancone  
6. *How Adults Learn Basic Math* by Ellen McDevitt

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Skills for Chronic Disease Management
Session Two

Objectives
During Session Two, participants will:
- Analyze the results of the in-class needs assessments
- Develop a list of specific chronic disease management tasks and underlying skills that can be addressed in ABE/ESOL classes
- Review and modify sample health literacy lessons for adult learners

Session Two Agenda

Introductory Activities (15 minutes)
- Welcome, Session Objectives, and Agenda

Discussion & Analysis Activities (1 hour 30 minutes including the break)
- Review Results of the Needs Assessment Activity
- Examine Chronic Disease Management Tasks
- Identify Skills Needed for Successful Management of Chronic Diseases
- Walk About (includes a 10-Minute Break)
- Discuss and Analyze Tasks and Skills

Planning Activities (55 minutes)
- Review Sample Lessons
- Review the Assignments for Session Three

Closure Activities (20 minutes)
- Session Review
- Session Evaluation and Closing Notes
Small Group - Analysis from Tasks to Skills

Individual Preparation
Consider the range of activities people undertake as they manage any chronic disease. Recall what you learned from your students during the needs assessment and what you know from your own experiences and observations. Factor in the language, literacy, and numeracy skills that can be taught in adult education classes.

Activity
- Choose a recorder to take notes on the group’s discussion on a newsprint and a facilitator to pose the various questions and to track the time.
- Focus on one or two activities related to chronic disease management. Discuss and record the tasks and skills needed to accomplish the activities you chose. Be sure to consider the kinds of “materials” people need to use. For example, consider a medicine bottle and a label with directions; a peak flow meter (for asthma); a teaspoon; or tables and charts that people need to fill in.
- On the newsprint, list specific tasks related to one activity.
- Fill in the table by discussing the following questions.
  - What literacy, numeracy, and language skills are needed in order to accomplish these tasks?
  - What materials or tools are involved?
  - How do these skills relate to state standards or curriculum frameworks for ABE/ESOL instruction?
Table of Chronic Disease Management Tasks and Underlying Skills

<table>
<thead>
<tr>
<th>General Activities with Examples of Tasks</th>
<th>Materials and Tools Adults Are Expected to Use</th>
<th>Skills Adults Need</th>
<th>Lesson Ideas</th>
<th>Related State Standards/Curriculum Frameworks</th>
</tr>
</thead>
</table>
| **Recognize and act on symptoms**
e.g., make note of changes in or onset of symptoms; make an appointment | | | | |
| **Provide information**
e.g., describe feelings; talk about changes | | | | |
| **Learn more about your chronic disease**
e.g., locate information at the library or on the Web | | | | |
| **Develop a treatment plan with a health professional**
e.g., provide updates; participate in planning | | | | |
| **Take Medicine**
e.g., follow directions on labels; measure amounts; count pills; plan timing | | | | |
| **Measure and Monitor**
e.g., use a peak flow meter to determine need for medicine | | | | |
Skills for Chronic Disease Management
Session Two Evaluation Form

Please complete the following evaluation and turn it in before you leave today.

1. What was the most valuable thing that you gained from today’s session? (For example, an insight, a practical idea, specific information, etc.)

2. How would you improve this session?
Reading Guide for “Math is Healthy” by Martha Merson *

Consider these questions before and after you read the essay “Math is Healthy” by Martha Merson. You are encouraged to take notes on your responses (e.g., in a reading journal). The ideas in this essay will be discussed during Session Three.

1. Martha Merson observes that “In spite of the importance and relevance of teaching math, many adult literacy teachers approach the subject reluctantly... Teaching beyond the boundaries of one’s comfort or knowledge level is stressful” (p.1). How is Merson’s observation consistent with your own teaching experiences and feelings about math instruction?

2. Identify some ways that the author believes that an adult literacy teacher can support their students’ math skill development, even if the teacher is not specifically trained to teach math.

3. What message do you think the author tries to convey with her sub-title “Uniting Math and Health: Mix Equal Parts” (p.3)?

4. Reflect on the nine recommendations Merson offers for maximizing math instruction in the context of health literacy skills. Think of an example that illustrates how you might apply one of Merson’s recommendations in your own classroom. Do any of the recommendations seem especially difficult? If so, why?

5. The author recommends that teachers make use of students’ “common sense to increase their facility with school math” (p.3). Think of an example in which a student’s “common sense” (i.e., everyday mathematical thinking) about chronic disease management could be used to facilitate the development of math skills in the classroom.

6. Choose one of the math skills mentioned in Merson’s essay (e.g., problem-solving, measuring time, reasoning, reading scales).
   - Why would someone with a chronic disease need to master this skill?
   - What do you think your students would find easy or difficult to learn with respect to this math skill if they needed to manage a chronic disease?
   - How might you go about addressing this skill in your teaching (even if you are not a math teacher)?

7. What aspect of Martha Merson’s article was most relevant to you as you think about how to address math skills related to chronic disease management in your own ABE/ESOL classroom?

Math is Healthy

An essay by Martha Merson

The scene: A few friends gather for dinner at a restaurant. After dinner, the check comes and inevitably, someone backs away, saying, “I am no good at math.”

Cut to an adult basic education program where an adult student confronts a math text and says with equal emphasis, “I am no good at math.”

Adults often express insecurity about math. Yet the same people who feel unsure of their math skills have numbers that act as their personal benchmarks, for example, the height and weight of a child. They can handle division situations such as splitting an amount fairly between two children, and they can often calculate hourly wages and sometimes time and a half as well. If teachers look and listen, they can easily find evidence that their students 1) do math and 2) have strategies to manage real life situations that demand mathematics.

Why teach math in the classroom then?
1) Some adults want to perform well on tests and pursue formal education for which they need higher math skills.

   Students’ out of school math skills and experience do not always translate to classroom or test situations. Building a bridge between adults’ common sense and their strategies in-school situations is key to promoting progress in reaching goals such as higher education, passing tests like the GED or work-related tests for promotions.

2) Adults face high-stakes decisions that call for complex math problem solving. When a real-world problem is unfamiliar or slightly more sophisticated than what adults are accustomed to, the strategies they have developed to handle specific real-world tasks may not translate to the new situation.

   Adults confront high-stakes decisions regarding their health benefits and life insurance options, not to mention payment plans and credit card debt. Caretakers make decisions about when to rush to the nearest emergency room based on their reading and interpretation of blood sugar levels, peak flow meter results, or thermometer readings. Experience with math in the classroom can lead to greater confidence with problem solving thereby helping adults avoid negative financial and health repercussions.

In spite of the importance and relevance of teaching math, many adult literacy teachers approach the subject reluctantly. Literacy or language teachers have training, experience and passion for reading and language, and not necessarily for exploring math concepts and skills like word problems, algebraic thinking, or...
percents. Teaching beyond the boundaries of one’s comfort or knowledge level is stressful.

However, adult education teachers can assist students in refining their math skills, not by teaching the how-to of every calculation, but by:

1) Scaffolding reasoning skills
2) Teaching students how to question themselves and others
3) Modeling how to make informed guesses
4) Teaching students how to capitalize on the strategies students already possess
5) Setting the tone for exploration and inquiry

Pre-GED teacher Martha Gray frequently tells her students, “We’re learners together. We help each other out by explaining how we see the situations and what our process is.”

Units Health and Math: A Little Background
In published standards (1989, 1995) the National Council of the Teachers of Mathematics has stressed that students need skill-based instruction in concert with the ability to communicate, problem solve, reason, estimate, and make connections to other areas, like health. Many financial and economic issues require sophisticated math skills. Health topics usher in mathematics issues as well. Because health is both universal and personal, it works well as a context for making math meaningful. The mathematics involved can be related to concrete topics like time and measurement or more complex topics like risk and probability. Adult educators are uniquely positioned to carry out this type of curriculum. They understand that adults come to class with expertise based on life experience as well as immediate, pressing needs related to real world problems.

Literacy and language teachers who begin to delve into mathematics with their students will find that many of their teaching strategies carry over to mathematics. Excellent math classes are less about the teaching of specific steps and more about posing an open-ended question, such as “What did you notice? In what range do you expect the answer to fall? What do you predict will affect the rate of change?”

Habits related to daily activities like exercise, sleep patterns or eating have formed over years and years; adults are unlikely to change after one conversation. Similarly, habits of mathematical thinking based on a lifetime of experience may not shift immediately. Educators who teach health topics tend to be realistic about the process of changing health behaviors. An equal amount of patience may be called for when teaching math. Assimilating new steps or strategies can take encountering, processing, and repeating the information multiple times in multiple ways. For example, while counting out the number of hours between medication doses, a student might revert to counting the hours by one’s as
opposed to counting by two or adding six hours and adjusting for the 24-hour day or simply dividing the number of times into the 24-hour day.

Most standards and frameworks documents include general ideas rather than specifics for teaching lessons. The National Science Foundation recognized the need for a curriculum geared to adults and young adults and funded Extending Mathematical Power to Adults (EMPower, 2000-2004), a research and curriculum project to design and pilot reform math curriculum in pre-GED type classes (for ESOL and ABE students).

As EMPower’s research associate, I have closely observed adults doing mathematics in their classrooms. The team of researchers and authors has also collected and analyzed student work. When we gather around samples of student work, we ask ourselves: What do students know and understand? What questions do I have about the work I see? What might I do next as an instructor? The result of this scrutiny is that field-test teachers and EMPower authors have found several approaches which deepen mathematical thinking, communication, and reasoning.

In this article, I share some of the insights, hunches, and recommendations gleaned from this work. I offer tips for how to handle math topics that tend to surface in health discussions, particularly misconceptions about percents, number, and data, and offer a sample lesson plan teachers with minimal math background can adapt, expand and take into the classroom.

**Uniting Math and Health: Mix Equal Parts**

By exploring some of the mathematical issues inherent in health topics, teachers have a chance to:

- Acknowledge and exploit students’ common sense to increase their facility with school math, thereby strengthening both
- Teach how to use tools like gauges (temperature), calculators, web-based calculators
- Increase document literacy (interpreting of charts, graphs, and forms)
- Gain a deeper understanding of how students make sense of quantities, including percents associated with (representing) risk or raw numbers
- Increase students’ reasoning, ability to articulate patterns, generalize and predict

Below are nine recommendations for maximizing math instruction in the context of health and literacy.

**1) Pose a real life problem.**

Researchers have shown that on the job, people tend to stick to the meaning of the situations. This guides their thinking and keeps them from making the exasperating errors teachers tend to see in classwork. If school math could take advantage of the sense that adults bring to the math in their daily lives and workplaces, then students could make quicker progress toward their school
related goals. Staying close to the meaning of the situation makes EMPower curriculum writers carefully consider the structure and content of math classes. The problems have to ring true. Here are some sample questions to pose:

<table>
<thead>
<tr>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>What does the 4 mean in the temperature reading of 100.4? How worried are you if your child’s temperature is 100.4?</td>
</tr>
<tr>
<td>The doctor says this therapy works in 50% of the cases. How do you interpret that? What would it mean if 100 people get the surgery this month? What about 600 people?</td>
</tr>
</tbody>
</table>

Keep the math linked to a sensible context so that students can always come back to the question, look again at their solutions and ask themselves: does this make sense?

(2) **Offer multiple strategies**

Brainstorm possible strategies before you hone in on one. Create a bridge to students’ real world experience. Invite students to bring those strategies into the classroom. An example:

<table>
<thead>
<tr>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>With information from a nutrition label in hand or posted: 4 cookies 62g Calories 220 Calories from fat 20</td>
</tr>
<tr>
<td>How would you figure out the nutrition information for one cookie? What is another way?</td>
</tr>
</tbody>
</table>

Encourage students to show their ways using pictures of cookies or a number line that shows the numeric information for four cookies, two cookies, and finally one cookie. Students may guess and check, break the numbers down, or add up.

<table>
<thead>
<tr>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>“If you want to find someone’s pulse for a minute, how do you do it?” Sure, you can place your finger on the pulse at the wrist for one minute. That absolutely works. Does anyone have another way?”</td>
</tr>
</tbody>
</table>

If students do not offer multiple strategies, or a strategy you see as efficient and one they could get some mileage out of, model how you approach the problem.
“Here is how I do it: I watch the clock for 15 seconds while I count the pulses. Then what could I do to find the pulse rate for one minute?”

Give students a chance to practice each other’s strategies or the one you offered. “Okay, let’s work in pairs and get a pulse for each person.” (Note: Remind students to avoid using the thumb to track pulse; it has a strong pulse point of its own that can interfere.)

(3) Use manipulative or countable objects to make an abstract idea more concrete.

Although adult education programs may have math manipulatives like blocks or Cuisenaire rods on their shelves, sometimes students resist using manipulatives. Over the counter manipulatives (available through Cuisenaire or Dale Seymour) like blocks, may look childish and are thus off-putting. However, manipulatives give students a physical model to which they can relate the abstract numbers. For example:

<table>
<thead>
<tr>
<th>Pam is taking three pills every day. When will she finish her 50th pill? Use pennies to represent the pills. Group them by day then count how many days go by until the 50th pill is reached.</th>
</tr>
</thead>
</table>

Manipulatives are especially helpful in understanding ratios with relatively small numbers. For example:

<table>
<thead>
<tr>
<th>If you can buy 2 pints of blueberries for $5.00, how much do 10 pints cost? Use pennies to show pints and toothpicks for dollars.</th>
</tr>
</thead>
<tbody>
<tr>
<td>OO</td>
</tr>
<tr>
<td>iiii</td>
</tr>
</tbody>
</table>

It is key to introduce manipulatives well. I have seen teachers explain that children learn by playing and that play is something adults can benefit from as well. Central to dispelling the stigma of manipulatives is to make sure everyone has them, not just the one or two students who are struggling. If the manipulatives are easily accessible, anyone can reach for them at any time to make an explanation clearer.

Teachers absolutely do not have to spend a lot of money to have manipulatives: post-it notes, paperclips, a jar of pennies, a stopwatch, clock, thermometer, all come in handy. Learners hold onto information that they absorbed from kinesthetic experiences as well as through verbal and auditory channels.
(4) **Use benchmark numbers**
Even adults who memorized their times tables do not rely exclusively on them to do mental math or estimation. Adults report using strategies such as breaking down numbers, rounding, adjusting, and doubling. With a strong sense of 10’s, 5’s, and 1’s, adults can solve a very wide range of problems.

Similarly, for understanding data, a grounded sense of half, quarters, and thirds allows for mental comparisons. For example, students in one class generated a set of data based on the foods they eat most frequently. They organized the data and wrote statements based on it. One group described the starch category, “4/9 of the starch group is rice”. This statement is accurate, yet not typical of the way most statistics are reported. The teacher asked, “Is this more than, less than, or equal to a half?”

Strategies involving breaking numbers apart and putting them back together can make intimidating-looking problems manageable mental math. For example,

```
MJ makes $800 for a 70-hour work week.
Kiki makes $10.25/hour for a 35-hour work week.
Who makes more per hour?
What do you do first?
Compare what you did with a co-worker or friend.
```

(5) **Address component parts [measurement units]**
Be aware that students often relate to quantities as if they are all whole numbers represented by countable objects. This model works if you are handling gelcaps or counting fingers. The first one is one, but if you are counting parts of a day or using a measurement tool, you start counting with the first space. Students may benefit from practicing with a ruler and may require help finding zero on it because rulers rarely have “0” clearly marked.

Students’ written work may look as if it is filled with comprehension errors particularly when word problems involve time. In EMPower pilot classes, I have observed students struggle with problems that require converting between seconds and minutes or minutes and hours. In the two problems below, the math concepts called upon are similar. Students found the first problem was not at all difficult, but the second was a huge challenge.

```
Alberto puts aside $5 a day for his mother. How many weeks will it take him to save up $140 for his mother?

Velma watches 5 hours of television every day. Each hour includes 10 minutes of commercials. How many days until Velma has watched 10 hours worth of commercials?
```
In both problems, students take a given amount and repeatedly add or multiply that amount until they find the given target amount. But in the first problem, the unit starts as $5 and the unit for the target amount is also given in dollars. Whereas in the second problem students need to work with 10 minute increments, but the target amount is hours. When the teacher asked how many 10 minutes chunks in an hour, students seemed not at all certain.

The fact that in the U.S. we don’t use a twenty-four hour clock complicates matters further. Unless they are associated with the military, it is unlikely that students will ever see the 13th hour written as 13:00, but rather must visualize 1 p.m. as the 13th hour. The use of diagrams and sketches can clarify calculations. Diagrams and pictures help the teacher determine whether a mistake or question is conceptual (e.g., not understanding whether to multiply or add) or if the difficulty is based on measurement/counting. One student calculated 100 minutes in an hour instead of 60 minutes in an hour, so her answer for Velma’s TV time came out wrong though she understood well how to approach the problem.

If a problem becomes confusing, use the same premise, but simplify the numbers. EMPower students are strongly encouraged to rely on their benchmarks. If they can figure out the problem with easy to manipulate numbers like half, four, and twenty-four or if they can re-state the problem using money, they may be able to get themselves back on track.

(6) Ask about the story in a graph, table, or chart. Certain kinds of formats presenting information and numerical data are more likely to be familiar to students than others. A traditional graph with the numbers starting at the bottom left corner with zero and getting larger as they go up is not a particularly familiar format to adults with little formal education. On the contrary, adults tend to be very comfortable with columns of numbers that start small at the top and get larger. People organize numbers and total them in this format. Many adults are familiar with multiplication tables that start in the left corner with zero times zero. Women might recognize the format as similar to the charts on the backs of many pantyhose packages. Parents might recognize average height and weight charts from their children’s visits to the clinic. However, when students encounter graphs, they may need time to orient themselves because the numbers do the opposite of what they expect. The numbers typically start small at the bottom left instead of at the top left.

Posing a specific question about information in a chart or graph quickly sets up a dynamic where students are right or wrong. In this situation, students’ comprehension is evaluated solely on interpreting a graph for a purpose determined by a teacher or test. Such questions do not motivate students to independently engage with a graph. Multiple-choice formats do nothing to promote a real need to know or drive to understand.
Teaching for understanding involves fostering observation skills. Ask students to list all that they notice in the first 20 seconds of looking at a table or graph. Over time, they will learn to look for key words, key numbers, and features of the format. Then ask what story the graph tells. Help students tell a coherent story based on the graph. Students looking at a graph of the cost of prescription drugs might say, “At the beginning the price went up, then it leveled off, then it went sharply up.”

Once students have identified the overall trend, they can focus on specific data points. Follow up by asking, who would care about this data or what decisions could this graph help you make? Teachers can also ask critical thinking questions, such as:

\begin{quote}
What information appears to be missing?
What other way could the information be presented?
\end{quote}

Encourage students to pose their own questions about the graph.

\textbf{(7) Give students opportunities to generate their own graphs.}

EMPower has one unit dedicated to data and graphs. The unit gives students many opportunities to organize data as well as to make their own graphs. To see where information in a graph comes from, students generate a set of data, sort the data into different categories, and then present and describe the categories. In a follow-up activity, the task asks students to organize data about illnesses a group of adults experienced. Determining categories and titles has proved a challenge in a few classes. After working with the data, students in one class suggested categories such as: “Illnesses you can see” and “Illnesses you cannot see.” Another’s categories included bones, skin, stomach and chest. Many illnesses did not fall into these categories, and students mis-categorized others. Categorizing is one aspect of organizing information. It is a skill that can and should be honed across the curriculum because it is central to determining relevant information for making decisions. Without the skill of organizing information, adults are needlessly distracted by bits of information.

Once students have categorized information, a next step they can take is to represent the information using a bar graph, pie graph, or frequency graph. In a small ESOL/pre-External Diploma Program, the teacher asked the students to draw a pie graph to show how many women and men were in the room. At the time, five women were present and no men were present. As an author and observer, I predicted that they would finish their first circle graphs quickly. I tried to think ahead about another situation for them to represent on a circle graph. Three students put their circle graphs on the board. To my surprise, the first one showed two equal slices; one slice labeled Women (5), the other labeled Men (0). Hoping students could learn from each other, we asked a couple students to show their circle graphs. One student had divided her circle into two. She wrote women (5) next to the first slice and men (0) next to the second slice. Both students
explained that there were no men currently present, but some might come, hence there was space on the pie chart for them.

Why is this significant? The expectations any of us brings to a text (including graph or chart) shape what we see. The fact that students expect that they might encounter an empty place, that the graph might save a space for something that is yet to occur indicates to me that they may expect more truth from a circle graph than the data will actually deliver. Absent categories fall out of certain kinds of graphic representations.

(8) Consider that written or oral skills may mask math strengths or difficulties.
Often students write what they mean but say it wrong or the reverse, say their thoughts correctly, but then record them incorrectly. For example, a teacher was reviewing homework in one class I observed. The student who volunteered had the answer on her paper, but when she read it aloud, she said the answer incorrectly. I called the teacher over to look at the student’s written work. Continuing to work back and forth helps students with strengths and deficiencies in different areas begin to build off one to augment the other. Pay particular attention to students whose symbolic writing will confuse them later. A slanted plus sign could cause an error if it is read as a times sign.

The work on paper may be recorded correctly, indicating the student does have some idea, but has trouble expressing that verbally or has simply misspoken in the heat of the moment. For students who find all math intimidating, especially equations with parentheses or letters standing for words, working with the equation and the rule stated in English can diffuse the fear.

(9) Play out students’ suggestions to their logical conclusions.
It is easy to accept the right answer and to move on. For example, you the teacher pose a question. What is the number of seconds in a minute? You hear some right answers and a couple wrong answers. Instead of accepting the right answer and moving on, try this. Record all the answers. Then ask representatives to explain their thinking.

Alternatively, take the wrong answer and play it out to its conclusion. If a student claims that 2 divided by 20 is the same as 20 divided by 2, ask what would happen if there were $2.00 divided among 20 students. Will the amount each student gets be equal to the amount if $20 is divided by two students? Follow students’ thinking by asking, “If this is the case, then this is the case? Does this make sense?” If students can correct their own thinking, they will remember better for the next time.

Uniting Health and Math: Ways to Nourish Discussion
Once a teacher has posed life problems, offered multiple strategies, used manipulatives, addressed component parts, and played out students’ suggestions
to their logical conclusions, here are some ideas for how to sustain the momentum of a math discussion.

Facilitating math discussions takes a little practice. You may not have time to turn every question into a rich, nuanced conversation, but when you want to, here are some rules of thumb that EMPower teachers use to enliven discussion.

The goals of math discussion/conversation are to:

1) Reveal students’ thinking. What are their ideas? How do they see the problem? What strategies do they gravitate toward?
2) Encourage students to talk with each other, to share strategies
3) Give multiple students a chance to practice their reasoning
4) Give students opportunities to articulate their logic

Call for a vote
Rationale: Students have to commit. They will remember the outcome longer if they have had to commit to one answer or another because that is an active stance toward the question, not a neutral and passive stance.
    Pose a question.
    Often you will hear more than one answer.
    Choose an answer to focus on that is NOT correct.
    Ask how many agree or disagree.

Make the numbers/pictures/data visible
Rationale: The conversations can get abstract. Students will glaze over. Those whose learning style is not strongly auditory will flounder. Patterns are most easily noticed when the work is organized. Help students by setting up charts for their work.

Keep the focus
Rationale: It is useful to have the opportunity to express one’s ideas aloud, but often students have the experience of not really being heard. It takes work to listen through an accent or to piece together a circuitously explained idea. Nevertheless, there are rewards for listeners and speakers in sticking with an explanation.

Have students re-state each other’s words:
    Can someone recap what Sam just said?
    Ask someone else, How did your classmate say he or she knew?

Have meta-level conversations
Rationale: In every class (not to mention in life), there is a lot to pay attention to. Help students prioritize, rehearse, and therefore remember the most important points.

Take time to engage students in metacognitive thinking about the math:
Conclusion

By exploring some of the mathematical issues inherent in health topics, e.g., timing medication, understanding nutrition label information, reading gauges like temperature or peak-flow meters, students will benefit inside and outside the classroom. With math-related health instruction, they will increase their accuracy and confidence when they encounter unfriendly numbers, math in graphs, measurement, or other types of problems. With the type of problem-posing approach used by EMPower, students can increase their ability to explain their reasoning, articulate patterns, generalize and predict. Instruction that illustrates the connections between health and math gives students the opportunity to more deeply understand both health topics and math topics and thereby to improve their health and the quality of the decisions they make in health and other arenas.

About the Author

Martha Merson was a Research Associate for the EMPower project, based at TERC in Cambridge, MA. She has a Masters degree in Education and has worked in the field of adult basic education since 1988.
About the Sample Lesson Plan

Lesson 3: Body at Work, Tables and Rules *

The lesson plan included here is part of Seeking Patterns, Building Rules: Algebraic Thinking, one unit in the EMPower curriculum authored by Tricia Donovan, Mary Jane Schmitt with Myriam Steinback and Martha Merson. Lesson 3 “Body at Work, Tables and Rules from Seeking Patterns” captivated and challenged students. By design, the lesson’s main focus is generalizing a rule from a pattern and articulating how the pattern visible in tables relates to each other. For the purpose of EMPower lessons, the context of average maximum heart rate motivates students to compare average pulse rates across the life span.

Average maximum heart rates are used as benchmarks to which maximum heart rates for individuals can be compared. They can reveal whether or not a person is doing better or worse than would be expected at that age. Lifestyle decisions may proceed from such determinations. Questions such as “Do you need to increase your exercise times or the difficulty (of the routines)” can be addressed.

Note the structure of the lesson, the open-ended questions, and following the activity write-up, the two sections Looking Closely, for ongoing assessment ideas, and Lesson 3 Commentary, with facilitation ideas and math background information.

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Synopsis
This is the first of a set of three lessons in which students explore, extend, and compare patterns about the human body. This lesson emphasizes connecting rules with tables of real data, and using tables and rules to solve related problems.

1. Students take their pulses at rest for 15 seconds, make a class table of the data, and state a rule for finding the number of beats per minute.

2. Individuals develop a personal table, a general statement, and an algebraic equation to determine the number of times their own hearts beat in any number of minutes.

3. Student pairs complete four tables with information about the number of calories burned over time for different exercises. They write a rule in words and algebraic symbols for each table.

4. Summary discussion centers on strategies for relating tables and rules, and using the table or rule to help solve problems.

Objectives
- Describe the pattern in a situation with a verbal and symbolic rule
- Connect patterns in tables with generalized rules
- Solve problems using the patterns represented in table data and rules
Materials/Prep

- Calculators
- Clock or watches with second hands
- Colored markers
- Graph paper
- Newsprint or transparencies
- Rulers

For Activity 2, prepare transparencies or newsprint copies of the four “Calories Burned” tables (Student Book, pp. 37–39).

Heads Up!

Use the board or set up newsprint copies of the data for the whole class to see so they can compare the various representations (table, verbal rule, and algebraic equation).

Opening Discussion

Explain that this lesson again focuses on noticing patterns and stating a rule to solve a problem, but that this time the data concern students themselves.

Begin with a common pattern for everyone—heart rate, or pulse. Say:

- Start by thinking about a pattern that everyone has—a heart rate, or pulse.
- How does a nurse or a workout trainer usually take a pulse?

Students will most likely mention that nurses and trainers check pulse rates on the wrist. If no one mentions that a pulse is usually taken for 10 or 15 seconds, explain that this method saves time.

Activity 1: Heart Rates at Rest

Part 1

Ask everyone to take his or her pulse for 15 seconds, and post the results in a table for all to see. The results might look something like this:

<table>
<thead>
<tr>
<th>Name</th>
<th>Beats per 15 Sec</th>
<th>Beats per Minute</th>
</tr>
</thead>
<tbody>
<tr>
<td>John</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Ron</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>Denise</td>
<td>18</td>
<td></td>
</tr>
</tbody>
</table>
Then ask:

- How can you predict the number of times your heart will beat in a minute?

After students copy the information in the table onto their charts (Student Book, p. 34), they are ready to fill in their predictions for the pulse rate for a baby and a feverish adult.

Ask:

- How did you figure out those two new listings? Did anyone do it a different way?
- What is the rule for finding the total number of heartbeats in one minute?

Write down people’s verbal rules verbatim on the board. In one class, for example, students dictated:

<table>
<thead>
<tr>
<th>Rule in Words</th>
<th>Algebraic Notation</th>
</tr>
</thead>
<tbody>
<tr>
<td>To find the heartbeats in a minute, multiply the heartbeats in 15 seconds by 4.</td>
<td>$M = F \times 4$</td>
</tr>
<tr>
<td>Heartbeats in 15 seconds times four equals heartbeats in one minute.</td>
<td>$M = 4F$</td>
</tr>
<tr>
<td>Times it by two, two times.</td>
<td>$F \times 2 \times 2$</td>
</tr>
<tr>
<td>Add the 15-second number four times.</td>
<td>$F + F + F + F = M$</td>
</tr>
</tbody>
</table>

Check for agreement on the ways the rules are expressed. While you will be working toward using precise language, use the students’ words and notation for now.

Ask for volunteers to translate the verbal rules to algebraic notation. You might prompt by saying that “$F$” stands for the number of beats in 15 seconds and “$M$” for the number of beats per minute. In one class, the students wrote:
Check for agreement on the way the algebraic expressions are written, and use this opportunity to ask people to relate the various algebraic expressions:

**How can you show with words or by sketching that your algebraic expressions mean the same thing?**

**Part 2**

Students now focus on their own heart rates. They complete their personal heart rate table (*Student Book*, p. 35). Starting with their one-minute pulse rates, they determine the number of times their hearts beat in other time periods, such as in 5 minutes, 10 minutes, an hour (60 minutes), or a day (1,440 minutes). Ask student pairs to compare tables with each other. When everyone has a personal table completed, suggest:

**Think of the table you completed as an In-Out table. Is there a rule you can write that tells how you get from the number of minutes to the total number of heartbeats?**

Call upon three volunteers to record their tables and rules in words and in algebraic notation on the board. Focus on one person at a time. Draw attention to the connections between each table, its verbal rule, and its algebraic rule, asking:

**Show how your rule and table are related.**

**Does the rule work for every instance in the table?**

Students should use table data to verify that a rule works.

Select a fourth student’s algebraic equation to write on the board, and pose the question:

**Whose rule might this be? How do you know?**

Then instruct:

**Use the rule to predict the number of times this person’s heart will beat in a day.**

Ask the originator of the rule to verify the prediction.

**Activity 2: How Many Calories Am I Burning?**

Explain that the next activity will provide a chance to think more about how bodies work and how patterns and rules can be used to predict future outcomes or solve problems.
Form pairs or small groups of students. Direct attention to How Many Calories Am I Burning? (Student Book, p. 37). Let pairs work for a while, and then ask for volunteers to fill in the newsprint tables you prepared earlier.

How did you know which numbers to use to fill in the tables?

What pattern did you see in Table 1? Table 2? Table 3? Table 4?

How did those patterns show up in your rules?

Ask a few volunteers to write verbal and symbolic rules for each table on the newsprint and to connect those rules with the table data.

Heads Up!

The tables show that jogging burns 10 cal./min.; cleaning house burns 5 cal./min.; running up stairs burns 20 cal./min.; and watching TV burns 1 cal./min. Rule for jogging, \( y = 10x \); cleaning house, \( y = 5x \); sitting, \( y = x \); and running up stairs, \( y = 20x \).

Next, focus attention on how people used the tables and rules to solve Problem 1:

How long do you have to watch TV to burn the same number of calories as you would in a half-hour of jogging? How do you know?

If we substitute those times (30 minutes of jogging and 300 minutes of TV watching) into these rules, what will happen?

Did anyone use his or her rules to solve this problem? How?

Substitute the number of minutes for each of those activities into the symbolic rules to show that the calorie totals are equal. If no one used his or her rules to solve the problem originally, work on that now.

Summary Discussion

Much happens in this lesson. Take time to review what has been learned by asking:

How did you use the tables and/or algebraic equations to solve problems about heart rates and calories burned?

How can you tell that a table and a rule are related?

Also, provide an opportunity for students to share concerns and achievements by asking:

What was hard and what was easy for you today? What questions do you still have?
Finally, suggest students take a few moments to write in *Reflections* (*Student Book*, p. 159).

### Practice

*Say It in Words and Fill in the Tables*, p. 41
For practice translating common abbreviations for rates into tables and connecting those to situations.

*Driving at 50 Miles per Hour*, p. 42
For practice looking at the rule in a table that involves distances and times.

### Symbol Sense Practice

*Equations ↔ Words*, p. 44
Asks students to translate algebraic expressions to words and vice versa.

*Substituting for x*, p. 45
For practice evaluating expressions.

### Extension

*A Friendly Reunion*, p. 46
Extends this lesson to a more complicated situation that involves times, distances, and speed. A follow up to *Driving at 50 Miles per Hour*.

### Test Practice

*Test Practice*, p. 48

### Looking Closely

Observe whether students are able to

**Describe the pattern in a situation with a verbal and symbolic rule**

One issue that impedes rule description occurs when students rely on numerical relationships that surface in the columns, rather than looking across the rows. For instance, if the figure for calories burned for 15 minutes is given, students may realize they can double that figure to arrive at the calories burned in 30 minutes. However, this will not help them find the rule for this situation. To do that, they must look across the rows. Remind them that while these tables reflect particular levels of activity, they operate like In-Out tables. Pushing to the 100th case often forces the need to define the rule as well.
Work on getting the verbal rule as precise as possible, and use mathematical terms like “multiply it by 10.” The Symbol Sense Practice (Student Book, p. 44), provides opportunities to translate equations into words and helps students become familiar with the language-symbol connection. More explicit work with rules and equations takes place in Lesson 7.

Do students find it hard or easy to work with letters representing the variables? For the most part, let students define the variables in their own ways. However, sometimes it is useful to make a suggestion. Make sure students understand that the variable represents the number of heartbeats or the number of total calories and that these numbers vary according to the particulars of the situation.

How well do students connect the verbal rule to the equation? One way to help students translate verbal rules into notation is to write out the verbal rule, formulated as specifically as possible, across the board or on a piece of paper. Then work with the student to connect the words with symbols and numbers, using arrows.

Connect patterns in tables with generalized rules

Do students see that the multiplier (the coefficient) in the equation is the number that they multiply time-related variables by to get figures for heartbeats or calories burned? Make that connection explicit by setting up a third column in the table between the time column and the heartbeats or calories-burned column. Ask students to write in this space what they did to get new numbers. Then ask:

Where is that number in your rule?

<table>
<thead>
<tr>
<th>Minutes Jogging (m)</th>
<th>10m = C</th>
<th>Calories Burned (C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>× 10 =</td>
<td>10</td>
</tr>
<tr>
<td>15</td>
<td>× 10 =</td>
<td>150</td>
</tr>
<tr>
<td>30</td>
<td>× 10 =</td>
<td>300</td>
</tr>
<tr>
<td>45</td>
<td>× 10 =</td>
<td>450</td>
</tr>
</tbody>
</table>

Asking students to check rules by substituting table values into the equations or the verbal rules further strengthens the connections.

Solve problems using the patterns represented in table data and rules

Do students show how a solution is supported by the table data and the rule? Although some of the problems can be solved with simple computational arithmetic, ask students to connect this information to the table and rule as well.
Spend time showing how the table data for TV-viewing might be extended to reach 300 minutes without making every 15-minute entry. Match the calories-burned figure for TV-viewing to the jogging-for-30-minutes entry. Likewise, demonstrate how the rules could be used to solve the problem:

Jogging \( C = 10m \), so \( C = 10(30) \) or \( C = 300 \)

Watching TV (sitting) \( C = 1m \). We know we want to burn 300 calories, so \( C = 300 \), and \( 300 = 1(m) \). What number multiplied by 1 equals 300?

Always use students’ rules, and ask students to demonstrate how they might use them to solve the problem first. If they do not know how, then demonstrate. Do not worry if students seem baffled by this process. They are just getting used to equations and will have more time to solve problems with them in the lessons ahead.
## Facilitating Lesson 3: Body at Work - Tables and Rules

**What to Look for in Lesson 3**

<table>
<thead>
<tr>
<th>Representations</th>
<th>Connections</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diagrams</td>
<td>Uses table data to arrive at rule in words</td>
</tr>
<tr>
<td>Creates a diagram to represent the number of heartbeats in 15 seconds related to the number of beats in a minute</td>
<td>Recognizes how table data connect to symbolic rules</td>
</tr>
<tr>
<td>Recognizes vertical and horizontal patterns</td>
<td></td>
</tr>
<tr>
<td>Identifies relationship between $x$- and $y$-values</td>
<td></td>
</tr>
<tr>
<td>Predicts missing values correctly</td>
<td></td>
</tr>
<tr>
<td>Rules</td>
<td></td>
</tr>
<tr>
<td>Accurately describes relationship between $x$- and $y$-values in words</td>
<td></td>
</tr>
<tr>
<td>Accurately writes relationship between $x$- and $y$-values as algebraic equations</td>
<td></td>
</tr>
<tr>
<td>Uses algebraic notation conventions for all four operations</td>
<td></td>
</tr>
</tbody>
</table>

**Who Stands Out? (List Students' Initials)**

<table>
<thead>
<tr>
<th>Strong</th>
<th>Adequate</th>
<th>Needs Work</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Notes for Next Steps**

- **Notable Students**
- **Strengths**
- **Areas for Improvement**
- **Additional Resources**
LESSON 3 COMMENTARY

Rationale
Tables and rules continue to be the focus in this lesson, but students extend their knowledge by connecting tables and rules to real situations. Connecting tables to rules and using each to solve problems involving bodily data demonstrates that the pattern description skills learned earlier can prove meaningful in our daily lives.

Math Background
Rates: References to rates are endemic to our culture. We talk of miles per gallon, miles per hour, interest rates, heart rates, etc. all the time. However, understanding the mathematical relationships involved in rates is often difficult. Most commonly used rates involve change over time or distance. The dependence of one variable on the other—of miles per gallon of gas or interest paid for a number of months or years—can be confusing to anyone whose sense of proportion is shaky. This is because rates involve two variables, either of which can influence the magnitude of the other. As proportional relationships, common rates can be represented as linear relationships on graphs, which will be dealt with in the next lesson. Proportional relationships are not the main focus of this lesson, but inform much of the work.

Symbol Sense Focus: How much you decide to focus on symbol sense depends on the needs of the class. During the lesson, you might choose to highlight any or all of the following:

• Ways to write about rate: 60 mph, 60 mi./hr., 60 miles per hour, 60 miles in 1 hour.
• Ways that rates can look different when extended but be constant: 60 beats in 1 min. is the same rate as 600 beats in 10 min.; 60 beats/min. = 600 beats/10 min.
• Ways to write multiplication without a multiplication sign: \( C = 5m \) reads \( C \) equals 5 multiplied by \( m \); \( 5m = 5(m) \).
• Relationships that use multiplication to find a total—for instance, total calories burned—can be reformulated as division rules to find one of the units multiplied, e.g., minutes exercised:
  \[ C = m(10) \] for dancing and \( \frac{C}{10} = m \) or \( \frac{C}{m} = 10 \)

Context
Heart Rates: Differences in heart rates interest students. Normally the heart beats 60–80 beats per minute (bpm), although it can beat up to 200 or more bpm during intense exercise periods. Exercise is not the only stimulus that can raise a person’s heart rate, however. Drugs, such as caffeine and nicotine; hormones, like epinephrine and those produced by the thyroid; and mental conditions, like anxiety, can all raise a person’s heart rate. High body temperatures, like those
experienced during a fever, can also increase the heart rate to make you feel like your heart is racing. Low body temperatures decrease the heart rate, as does being in good physical condition.

**Calories:** A calorie is a unit of energy equal to the amount of heat energy it takes to raise the temperature of one gram of water one degree Celsius. The calorie amounts listed on food packages are actually kilocalories. When a package reads that two slices of bread have 150 calories, it means “food” calories, or kilocalories. In scientific terms, it really has 1,000 times that many calories, or 150,000.

For more information, go to http://fitness.howstuffworks.com/calorie.htm.

At http://www.caloriesperhour.com you can calculate calories burned for any of dozens of activities. The site charts the calories burned based on height, weight, gender, age, etc.

At http://www.nutristrategy.com you can find tables of calories burned for various activities.

**Facilitation**

**Numeracy Connection:** You and your students might look for tables outside the classroom, perhaps sent with a bill, in an advertisement, or in the newspaper. For each table, you might ask:

- **What patterns do you notice?**
- **Does there seem to be a rule?**
- **Is there a rule to predict what comes next in the table?**

Students use a table to organize heartbeats in 15 seconds and the corresponding pulse in a minute. Make sure everyone reads the column headings and understands what they mean.

Some students have trouble knowing where to look for the pattern. Remind them that these tables are similar to In-Out tables.

**Making the Lesson Easier**

Conduct the two activities as separate lessons. Spend more time on the heart rates exercise and the relationship between the number of beats and number of seconds.

Using objects to model these relationships can help demonstrate their equivalency. Ask students to diagram or represent the relationship between time and beats by having pennies represent seconds and large paper clips represent heartbeats. Someone can lay out a penny for each of 15 seconds while another person takes his or her pulse. Then lay out the paper clips for the heartbeats. Look to see how the clips and pennies relate. Is there a one-to-one correspondence? Ask students how many paper clips or heartbeats there are for each second. Place the pennies in
an arc from 12 o’clock to 3 o’clock, and ask students how many groups of 15 pennies would be needed to fill a whole clock. Ask them to figure out how many heartbeats would then be represented.

**Making the Lesson Harder**

If most students are comfortable with algebraic notation, spend a little more time being more precise about the notation, comparing and relating the multiplication form with the division.

If \( C = 50m \), then \( m = \frac{C}{50} \).

Ask students:

Why do we multiply to find the number of calories burned, but divide to find the number of minutes doing the exercise?
LESSON 3 IN ACTION

The unit’s early lessons are launched with a situation itself (e.g., taking pulses) and two-variable tables of numbers. Students are asked to seek patterns and to write a rule that explains how to find the second variable, when the first is known. They are strongly encouraged to say or write the rule in everyday language before they write it in algebraic symbols because, as one student we videotaped said, “I understand it more when I try to write it down in words.”

Pulse Rate Activity

When we look closely at how students verbally express rules, we see a variety of responses. Most responses have in common the communication of a mathematical pattern, but they vary in degree of precision. Here are examples from pilot classes.

Some of the language is very precise:

“The nurse takes the pulse for 15 seconds and whatever number she gets, she times it by four.”
“Take pulse for 15 sec. x 4.”
“Multiply beats for 15 sec. by 4.”
“Multiply beats/15 seconds by 4.”

Some of the language is less complete and less precise, but you can understand what the student means.

“Multiply by 4” (several students wrote this).
“\times 4.”
“She multiplies 15 seconds by 4 to get the answer.”
“Multiply by pulse rate \times 4 = ____.”
“Multiply the number of \(\text{bpm}\)’s by 4.”
“Times by 4.”
“15 seconds \times 4 = ____.”
“Multiply the beats by 4.”

Some students did not generalize:

“18 beat to 15 sec.”

Ask yourself: What kind of instruction will move students toward more precise language?

continued on next page
In one class with both General Educational Development (GED) and pre-GED students, there was one student who did not know that there are 60 seconds in a minute. He guessed there were 100. Not knowing this basic fact made it hard for him to grasp the multiplication in the opening heart-rate exercise. It was not clear to him that you would multiply the number of beats in 15 seconds by four because $4 \times 15$ did not equal 100. This young man wrote at the end of class that he enjoyed working on the problems, but experienced some confusion when doing problems with heartbeats and minutes. In fact, he posted his heart rate as 15 beats in 15 seconds, which made us wonder if he counted seconds, not heartbeats. He couldn't distinguish between the two variables and see them as distinct, yet related.

**Calories Burned Activity**

When working on the calorie charts, the level of computational ability separated those who completed the table quickly from those who took more time. Fortunately, people helped one another.

In a pre-GED class with a wide skill range, some people divided and multiplied with ease; others figured out situations calling for multiplication and division by using adding or doubling techniques. Even with calculators available, the computation was a workout for some.

At the close of one class, students were asked how the class went for them. One student said, “I learned more about burning calories. It went fast and was fun.”

*Compilation of data from several pilot classes*
Scientists, business people, and health professionals often use tables to organize information to look for patterns. These patterns sometimes involve rates, such as pay rates, interest rates, or growth rates.

This lesson gives you a chance to look for patterns of heartbeat rates and rates at which you burn calories during different activities. You will use tables to organize the information and detect the patterns. By the end of the lesson, you will be able to use the tables to describe patterns as rules both in words and in algebraic notation.
**Activity 1: Heart Rates at Rest**

**Part 1**

Everyone’s heart throbs in a fairly rhythmic pattern. We check that pattern when we take a pulse by counting the number of heartbeats in a minute. Usually, when nurses take your pulse, they do so for less than a minute, often for 15 seconds. Take the pulses of several people for 15 seconds. Record the information in the table below. Then figure the number of heartbeats per minute for each person.

<table>
<thead>
<tr>
<th>Name</th>
<th>Beats per 15 Seconds</th>
<th>Beats per Minute</th>
</tr>
</thead>
<tbody>
<tr>
<td>A baby</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>A feverish adult</td>
<td>35</td>
<td></td>
</tr>
</tbody>
</table>

Write the rule you used for finding the number of heartbeats per minute when you knew the number of beats in 15 seconds.

**Rule in words:**

**Rule as an algebraic equation:**
Part 2

Now complete your personal heart-rate-at-rest table. Enter your pulse (number of heartbeats in one minute) in the first row. Then fill in the missing values based on the same rate.

Personal Heart Rate Table

<table>
<thead>
<tr>
<th>Time in Minutes (M)</th>
<th>My Total Number of Heartbeats (B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td></td>
</tr>
<tr>
<td>60 (an hour)</td>
<td></td>
</tr>
<tr>
<td>1,440 (a day)</td>
<td></td>
</tr>
</tbody>
</table>

1. Write a rule for finding the total number of times your heart beats if you know the number of minutes it has been beating.

   Rule in words:

   Rule as an algebraic equation:

Always remember to check a rule by entering the numbers in the table. A rule has to work with all the entries.
2. Write a rule for finding the number of minutes your heart beats if you know the total number of heartbeats.

   Rule in words:

   Rule as an algebraic equation:

3. About how long would it take for your heart to beat 1,000,000 times? How do you know?
Activity 2: How Many Calories Am I Burning?

Many people pay close attention to calories these days. There are two ways to think about calories:

- We put calories into our bodies in the form of food.
- We burn calories at different rates, depending on what we do and how much time we spend doing it.

In the following activity, you will consider various activities and their rates for burning calories.

- Look for a pattern in the table, and fill in the missing information. In each table, the rate for burning calories remains constant.
- Write a rule that can be used to determine the total calories burned in any number of minutes for each type of activity.

For the following tables, numbers are approximate, based upon an imaginary 5’8”, 190 lb. woman (source: http://www.caloriesperhour.com).

### Minutes Jogging vs. Calories Burned

<table>
<thead>
<tr>
<th>Minutes Jogging</th>
<th>Calories Burned</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>150</td>
</tr>
<tr>
<td>15</td>
<td>150</td>
</tr>
<tr>
<td>30</td>
<td>450</td>
</tr>
<tr>
<td>45</td>
<td>450</td>
</tr>
<tr>
<td>60</td>
<td>100</td>
</tr>
</tbody>
</table>

What patterns do you see?

The rule in words for finding calories burned while jogging:

The rule as an algebraic equation:
What patterns do you see?

The rule in words for finding calories burned while cleaning house:

The rule as an algebraic equation:

<table>
<thead>
<tr>
<th>Minutes Cleaning House</th>
<th>Calories Burned</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>75</td>
</tr>
<tr>
<td>30</td>
<td></td>
</tr>
<tr>
<td>45</td>
<td></td>
</tr>
<tr>
<td>60</td>
<td>300</td>
</tr>
<tr>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Minutes Running Up Stairs</th>
<th>Calories Burned</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>300</td>
</tr>
<tr>
<td>30</td>
<td>600</td>
</tr>
<tr>
<td>45</td>
<td></td>
</tr>
<tr>
<td>60</td>
<td></td>
</tr>
<tr>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>
What patterns do you see?

The rule in words for finding calories burned while running up stairs:

The rule as an algebraic equation:

<table>
<thead>
<tr>
<th>Minutes Sitting (Reading or Watching TV)</th>
<th>Calories Burned</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>45</td>
<td></td>
</tr>
<tr>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

What patterns do you see?

The rule in words for finding calories burned while sitting:

The rule as an algebraic equation:
Use the information from the four calorie-burning tables you have just completed to answer the following questions:

1. How long would you have to watch TV to burn the same number of calories as you would in a half-hour of jogging?

   a. How can you use the tables to arrive at the solution?

   b. How can you use the equations to arrive at the solution?

2. You have to burn 3,500 calories to lose a pound of fat. Invent three exercise plans for burning a pound of fat. Combine all three activities in each plan you create.

   **Three Ways to Burn a Pound of Fat (3,500 calories)**

<table>
<thead>
<tr>
<th></th>
<th>Jogging</th>
<th>Cleaning House</th>
<th>Running Up Stairs</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min.</td>
<td>Cal.</td>
<td>Min.</td>
<td>Cal.</td>
<td></td>
</tr>
<tr>
<td>Plan 1</td>
<td>180</td>
<td>100</td>
<td></td>
<td>3,500</td>
</tr>
<tr>
<td>Plan 2</td>
<td></td>
<td></td>
<td></td>
<td>3,500</td>
</tr>
<tr>
<td>Plan 3</td>
<td></td>
<td></td>
<td></td>
<td>3,500</td>
</tr>
</tbody>
</table>

Write a rule that tells, in general, how to make a plan to burn 3,500 calories. What do you add? What do you multiply?
Practice: Say It in Words and Fill in the Tables

The expressions below relate to rates of measurement that are fairly common in everyday life.

1. Write in words what each one says.

2. Fill in a table with some entries based on that rate.

3. Describe a situation where you might use that rate.

Example: 60 mph

In words: This means you travel 60 miles in one hour.

A table:

<table>
<thead>
<tr>
<th>Miles</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>60</td>
<td>1</td>
</tr>
<tr>
<td>120</td>
<td>2</td>
</tr>
<tr>
<td>240</td>
<td>4</td>
</tr>
<tr>
<td>480</td>
<td>8</td>
</tr>
</tbody>
</table>

A possible situation: Driving a car on the highway

1. $0.15/minute

In words:

A table:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A possible situation:

2. 2,500 calories/day

In words:

A table:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A possible situation:
Practice: Driving at 50 Miles per Hour

1. A woman is driving 50 miles per hour. What does that mean?

2. Does she have to drive for one entire hour to go 50 miles per hour? Explain.

3. How far does she go in
   a. 1 hour? ______
   b. 2 hours? ______
   c. Half an hour? ______
   d. 10 hours? _____

4. How long does it take her to go
   a. 50 miles? ______
   b. 100 miles? ______
   c. 25 miles? ______
   d. 500 miles? ______

5. Explain your strategies for figuring out the answers to Problems 3 and 4.
6. Put the values from Problems 3 and 4 in the table below. Be sure all your times and distances are in the same units of measurement.

**Driving at 50 mph**

<table>
<thead>
<tr>
<th>Time (t)</th>
<th>Distance (d)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

7. Circle all of the equations that correspond to your table:

\[ t = 50d \quad d = 50t \quad t = \frac{d}{50} \]

\[ d = \frac{50}{t} \quad d = \frac{t}{50} \quad t = \frac{50}{d} \]
Symbol Sense Practice: Equations ↔ Words

Every algebraic equation can be translated into a simple sentence. Some examples are listed below:

<table>
<thead>
<tr>
<th>Algebraic Equation</th>
<th>A Simple Sentence</th>
</tr>
</thead>
<tbody>
<tr>
<td>$7x = y$</td>
<td>Multiply seven by $x$ to find $y$.</td>
</tr>
<tr>
<td>$6x - 2 = y$</td>
<td>Six times $x$ minus two equals $y$.</td>
</tr>
<tr>
<td>$y = \frac{x}{4}$</td>
<td>$y$ equals $x$ divided by four.</td>
</tr>
</tbody>
</table>

Translate each algebraic equation below into a simple sentence.

1. $x + 9 = y$  
   ________________________________

2. $10x + 20 = y$  
   ________________________________

3. $\frac{x}{8} + 15 = y$  
   ________________________________

4. $y = \frac{1}{2}x + 1$  
   ________________________________

Now write an algebraic equation for each sentence.

5. ________________________________  
   $y$ equals five multiplied by $x$.

6. ________________________________  
   Double $x$ to find $y$.

7. ________________________________  
   Multiple $x$ by ten, then add five to equal $y$.

8. ________________________________  
   Find $y$ by subtracting four from $x$.

Make up two of your own equations and matching sentences.

9. ________________________________  

10. ________________________________  

$2x = 8$  
$6x - 2 = y$  
$y = \frac{x}{4}$  
Multiply seven by $x$ to find $y$.  
Six times $x$ minus two equals $y$.  
$y$ equals $x$ divided by four.
Symbol Sense Practice: Substituting for $x$

In math, a rule of order is to perform multiplication before addition, no matter where they occur. So …

$$5 + 2(100) = 5 + 200$$
$$5 + 2(100) \neq 7(100)$$

In the following equations, solve for $y$ in three cases: when $x = 0$, when $x = 10$, and when $x = 100$. When you have addition and multiplication in the same equation, perform the multiplication first unless there are parentheses. If there are parentheses, do the math inside them first.

Substitution Values for $x$

<table>
<thead>
<tr>
<th>Original Equations</th>
<th>$x = 0$</th>
<th>$x = 10$</th>
<th>$x = 100$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. $y = 2x + 35$</td>
<td>$y =$</td>
<td>$y =$</td>
<td>$y =$</td>
</tr>
<tr>
<td>2. $y = 15 + 3x$</td>
<td>$y =$</td>
<td>$y =$</td>
<td>$y =$</td>
</tr>
<tr>
<td>3. $y = 5 + 7x$</td>
<td>$y =$</td>
<td>$y =$</td>
<td>$y =$</td>
</tr>
<tr>
<td>4. $y = 2(x + 2)$</td>
<td>$y =$</td>
<td>$y =$</td>
<td>$y =$</td>
</tr>
<tr>
<td>5. $y = (0.25 + 0.75)x$</td>
<td>$y =$</td>
<td>$y =$</td>
<td>$y =$</td>
</tr>
<tr>
<td>6. $y = 1,000 + 25x$</td>
<td>$y =$</td>
<td>$y =$</td>
<td>$y =$</td>
</tr>
<tr>
<td>7. $y = \frac{x}{2} + 90$</td>
<td>$y =$</td>
<td>$y =$</td>
<td>$y =$</td>
</tr>
</tbody>
</table>
Extension: A Friendly Reunion

1. Three friends who live quite a distance from one another planned a reunion. They picked a central meeting spot that seemed fair, 180 miles away from each person. Each of the friends has a car, but the cars are not in the same working condition. The sports car driver can drive at an average speed of 90 mph. The minivan driver figures she can go 60 mph, and the driver with the old pick-up truck will only be able to drive at 45 mph. (Highway speed limits are ignored in this problem).

a. Fill in three tables, one for each driver. Show at least five entries for time and distance.

<table>
<thead>
<tr>
<th>Pick-up Truck</th>
<th>Sports Car</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time (in hours)</td>
<td>Distance (in miles)</td>
</tr>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Minivan

<table>
<thead>
<tr>
<th>Time (in hours)</th>
<th>Distance (in miles)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>
b. If they want to meet at noon, what is the latest time each driver should plan to leave home? Use your tables and the sketch to support your answer.

2. What if some things went wrong? The three drivers all started out from their homes as planned, but halfway there, the sports car driver discovered she forgot her purse and had to go back home to get it. The minivan driver had to detour because of road construction, which meant she had to go 60 miles out of her way. The driver of the old pick-up truck had no problems. How did this affect their meeting time? Use your tables and the sketch to support your conclusion about when each person actually arrived under these new circumstances.
Use this table for Problems 1 and 2.

<table>
<thead>
<tr>
<th>Cost of Item</th>
<th>Sales Tax</th>
</tr>
</thead>
<tbody>
<tr>
<td>$20</td>
<td>$1.00</td>
</tr>
<tr>
<td>$30</td>
<td>$1.50</td>
</tr>
<tr>
<td>$40</td>
<td>$2.00</td>
</tr>
<tr>
<td>$50</td>
<td>$2.50</td>
</tr>
</tbody>
</table>

1. Which of the following could be the rule to find the sales tax when you know the cost of an item?
   (1) Subtract $19 from the item cost.
   (2) Divide the cost of the item in half.
   (3) Divide the cost of the item by ten.
   (4) Multiply the cost of the item by 10.
   (5) Divide the cost of the item by 20.

2. Which of the following could be the rule to find the cost of the item when you know the sales tax? Let “C” stand for item cost and let “t” stand for the sales tax amount.
   (1) $C = \frac{t}{20}$
   (2) $C = 20(t)$
   (3) $C = \frac{t}{2}$
   (4) $C = 2(t)$
   (5) $C = 0.5(t)$

Use the following sequence for Problems 3 and 4.

6, 11, 16, 21, …

3. What is the eighth number in the sequence?
   (1) 26
   (2) 41
   (3) 46
   (4) 51
   (5) 56

4. What digit would the 75th number in the sequence end in?
   (1) 0
   (2) 1
   (3) 5
   (4) 6
   (5) 7
5. Look at the pattern in the table below. What reasonable conclusion can you make based on the information?

<table>
<thead>
<tr>
<th>Activity (1 hour)</th>
<th>130 lb.</th>
<th>155 lb.</th>
<th>190 lb.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Running, wheeling, general</td>
<td>177</td>
<td>211</td>
<td>259</td>
</tr>
<tr>
<td>Sailing, boat/board, windsurfing, general</td>
<td>177</td>
<td>211</td>
<td>259</td>
</tr>
<tr>
<td>Sailing, in completion</td>
<td>295</td>
<td>352</td>
<td>431</td>
</tr>
<tr>
<td>Scrubbing floors, on hands and knees</td>
<td>325</td>
<td>387</td>
<td>474</td>
</tr>
<tr>
<td>Shoveling snow, by hand</td>
<td>354</td>
<td>422</td>
<td>518</td>
</tr>
<tr>
<td>Shuffleboard, lawn bowling</td>
<td>177</td>
<td>211</td>
<td>259</td>
</tr>
<tr>
<td>Sitting—playing with child(ren)—light</td>
<td>148</td>
<td>176</td>
<td>216</td>
</tr>
<tr>
<td>Skateboarding</td>
<td>295</td>
<td>352</td>
<td>431</td>
</tr>
<tr>
<td>Skating, ice, 9 mph or less</td>
<td>325</td>
<td>387</td>
<td>474</td>
</tr>
<tr>
<td>Skating, ice, general</td>
<td>413</td>
<td>493</td>
<td>604</td>
</tr>
<tr>
<td>Skating, ice, rapidly, &gt; 9 mph</td>
<td>531</td>
<td>633</td>
<td>776</td>
</tr>
<tr>
<td>Skating, ice, speed, competitive</td>
<td>885</td>
<td>1056</td>
<td>1294</td>
</tr>
<tr>
<td>Skating, roller</td>
<td>413</td>
<td>493</td>
<td>604</td>
</tr>
<tr>
<td>Ski jumping (climb up carrying skis)</td>
<td>413</td>
<td>493</td>
<td>604</td>
</tr>
<tr>
<td>Ski machine, general</td>
<td>561</td>
<td>669</td>
<td>819</td>
</tr>
<tr>
<td>Skiing, cross-country, &gt; 8 mph, racing</td>
<td>826</td>
<td>985</td>
<td>1208</td>
</tr>
<tr>
<td>Skiing, cross-country, moderate effort</td>
<td>472</td>
<td>563</td>
<td>690</td>
</tr>
<tr>
<td>Skiing, cross-country, slow or light effort</td>
<td>413</td>
<td>493</td>
<td>604</td>
</tr>
<tr>
<td>Skiing, cross-country, uphill, maximum effort</td>
<td>974</td>
<td>1161</td>
<td>1423</td>
</tr>
<tr>
<td>Skiing, cross-country, vigorous effort</td>
<td>531</td>
<td>633</td>
<td>776</td>
</tr>
</tbody>
</table>

Source: http://www.nutristrategy.com/activitylist4.htm

(1) The less you weigh, the more calories you burn doing the same amount of exercise.

(2) For any amount of exercise, the number of calories you burn increases as your weight increases.

(3) The older you are, the harder it is to lose weight.

(4) If you double your speed, you double your calories burned.

(5) The number of calories burned does not depend upon your weight.

6. Continue this pattern: What is the fifth number?

100, 50, 25, _____, _____, _____
"It is difficult to understand why so many people must struggle with concepts that are actually simpler than most of the ideas they deal with every day. It is far easier to calculate a percentage than it is to drive a car." (Dewdney 1993, p. 1) To many people, the words "math" and "simple" do not belong in the same sentence. Math has such an aura of difficulty around it that even people who are quite competent in other areas of life are not ashamed to admit they can't "do" math. Innumeracy is more socially acceptable and tolerated than illiteracy (Dewdney 1993; Withnall 1995). Rather than discussing specific ways to teach math to adults, this Digest looks at emerging perspectives on numeracy and their social, cultural, and political implications as a context for new ways of thinking about adult numeracy instruction.

**What Is Numeracy?**

Numeracy involves the functional, social, and cultural dimensions of mathematics. Numeracy is the type of math skills needed to function in everyday life, in the home, workplace, and community (Withnall 1995). Although not always recognized as such, math is used in many everyday situations—cooking, shopping, crafts, financial transactions, traveling, using VCRs and microwave ovens, interpreting information in the media, taking medications. Different people need different sets of math skills, and their numeracy needs change in response to changes in life circumstances, such as buying a car or house or learning a new hobby (Gal 1993; Withnall 1995).
literacy, numeracy "is not a fixed entity to be earned and possessed once and for all" (Steen 1990, p. 214), nor a skill one either has or doesn't have. Instead, people’s skills are situated along a continuum of different purposes for and levels of accomplishment with numbers.

Beyond daily living skills, numeracy is now being defined as knowledge that empowers citizens for life in their particular society (Bishop et al. 1993). Thus, numeracy has economic, social, and political consequences for individuals, organizations, and society. Low levels of numeracy limit access to education, training, and jobs; on the job, it can hinder performance and productivity. Lack of numeracy skills can cause overdependence on experts and professionals and uncritical acceptance of charlatans and the claims of pseudoscience (Dewdney 1993). Inability to interpret numerical information can be costly financially; it can limit full citizen participation and make people vulnerable to political or economic manipulation. Like people with low levels of literacy, those lacking numeracy skills sometimes manage to avoid using math, relying on social support networks and coping tricks adapted to their environment (Steen 1990).

**Math Myths . . . and Real-Life Numeracy**

Why do people avoid math, and why does such a seemingly abstract subject arouse such high emotions? Many myths cloud the perception of math and numeracy (Bishop et al. 1993; Gal 1992; Willis 1992); the realities are discussed in this section.

*Numeracy is culturally based and socially constructed.* The math mystique is fed by stereotypes suggesting that white males and Asians are innately better at math and that math originated in Western civilization (Zaslavsky 1994). However, a new field-ethnomathematics-is emerging to refute these ideas. Researchers in this field are demonstrating that all cultures have math and use it (like language) as a system for making meaning of the world (*Numeracy in Focus* 1995). Math principles and numeracy practices are not universal. Like literacy, numeracy is
a set of cultural practices that reflect the particular values of the social, cultural, and historical context (Joram, Resnick, and Gabriele 1994). From the mental math of bazaar merchants to the navigational practices of South Pacific islanders to the astronomical calculations of ancient Mayans, "an enormous range of mathematical techniques and ideas have been developed in all parts of the world" (Bishop et al. 1993, p. 6). Some math activities are widely practiced across cultures-counting, measuring, locating, designing, playing (gambling, guessing), and explaining—but there are cultural differences in these "universal" activities (ibid.). Academic math may look the same in many societies because a competitive economic and political ethic demands a competitive math curriculum and dominant cultures may have imposed their math forms on other societies (ibid.).

Math reflects a particular way of thinking. Why is a computer program considered "real" math and the calculations in knitting a sock are not (Zaslavsky 1994)? Why do people think that math requires special intelligence or a "math mind"? As a particular way of thinking about the world, the math of a particular culture or group can be used as a gatekeeper to restrict access to professions, disproportionately keeping out nondominant groups such as women and minorities (Willis 1992). The behavior and attitudes of the dominant group become the norm against which others are measured. Those whose ways of thinking are attuned to this kind of math succeed where it is used in school and work. Those who think in other ways may be considered lacking in math ability, prompting Willis to ask whether math anxiety is innate or culturally induced. Because math (and numeracy) relates to specific cultural contexts, different cultural groups have different mathematical strengths. Although academic math is used to regulate access to higher education and occupations, academic aptitudes and skills are not necessarily those needed on the job or in life (Gal 1992).

Numeracy reflects cultural values. Math is often seen as abstract and neutral. In reality, it is a discourse—a way of talking or thinking—that people use to give
meaning to the world and therefore it reflects a particular world view (Numeracy in Focus 1995). For example, consumer education typically uses math to teach about credit, budgeting, and money management. Implicit in these uses of math are the assumptions of a market economy about value for money, investment, and consumption—a hidden curriculum whose values are not shared by all cultures (ibid.).

_Numeracy is not just about numbers._ Numeracy is a socially based activity that requires the ability to integrate math and communication skills (Withnall 1995). It is intricately linked to language: words are the tools for translating numerical code and giving it meaning. Words can have everyday meanings as well as math meanings: for example, "and" is a conjunction, but in math it can also mean "plus." Some words are math specific: numerator, multiplicand, divisor. Interpretation of these words can cause confusion for people with low literacy levels or those attempting to become numerate in a second language.

_Math evolves and changes._ Despite the myth that mathematical principles are fixed for all time, new discoveries and theories about math continue to emerge. The uses of math in the world evolve as societal needs change. For example, computers are changing the need for some kinds of math skills and creating the need for others (Bishop et al. 1993).

_Numeracy is about procedural, practical knowledge._ This type of knowledge is perceived as less important or prestigious than abstract, theoretical knowledge. Practical, everyday math is considered the "lower end" of the mathematical hierarchy.

_Numeracy involves different ways of solving problems._ There is not just one way to get the one right answer. "The students found it helpful to discuss the sort of strategies they use in their real lives. The reinforcement of these strategies not being wrong gave them a lot of confidence. The students were convinced that there was only one way to carry out a process in maths" (Halliday and Marr 1995, p. 75). In traditional teaching, the teacher/authority hands
down knowledge to blank-slate students who memorize multiplication tables and formulas and mechanically apply rules to solve problems. However, real-world problems are not as cut and dried as textbook math (Zaslavsky 1994). Intuition, mnemonics, tricks, and other "home-grown" problem-solving methods can complement abstract, formal approaches (ibid.).

**Implications for Adult Education**

Numeracy has an uncertain place in adult basic education. Instructors (often volunteers) are not always prepared to teach math and may even share some of their students' anxieties about it. Adult math instruction often focuses on preparation for the General Educational Development Test, which is based on high school math and perhaps "cannot serve as a complete road map for what adult numeracy provision should encompass" (Gal 1992, p. 22). The concepts of numeracy and math explored in this digest suggest that numeracy instruction should be based on the belief that everyone can do math and everyone uses numeracy practices that may go unrecognized. Taking a broad view of numeracy, educators take learners' existing reasoning skills, experience, and literacy and language abilities as the context for what learners need to learn (ibid.).

Literacy and numeracy should be linked and contextualized. Math is better understood if learned in familiar contexts that may provide cues to enhance problem solving. Familiar contexts may make math more accessible for those who have been alienated from it (Numeracy in Focus 1995). Having learners keep journals develops language and math skills together, helps them verbalize their thought processes, and enables them to express emotional reactions and feelings about math (Halliday and Marr 1995). Contextualized math applies a constructivist approach to learning, in which people relate new knowledge to what they already know, construct their own understanding, and make new meanings. This approach can help learners recognize the math characteristics of everyday situations (Gal 1992).
Contextualized math can also help those learners with different ways of thinking. Individual learning style preferences should be considered in numeracy instruction (Zaslavsky 1994).

Adult educators should also consider their philosophical approach to education as well as numeracy. Critical numeracy means that learners empowered with functional skills can participate fully in civic life, skeptically interpret advertising and government statistics, and take political and social action. In opposition to the perspective that blames innumerate people for their own difficulties, educators can use language, literacy, and numeracy as vehicles for examining how society positions people and treats them differently (Shore et al. 1993).

Teaching from the perspective of adult education as a tool for social justice, instructors seek to change the system in which math serves as a barrier and to "equip people with the knowledge and tools that will enable them to examine and criticize the economic, political, and social realities of their lives" (Zaslavsky 1994, p. 217). An inclusive approach to instruction recognizes the different power relations in the way math and numeracy are viewed and used and seeks to give people a voice and more control over life circumstances (Shore et al. 1993). At the same time, educators can also empower learners with the numeracy skills needed to function in the technological society and workplace. As more learners acquire those skills, the cultural practices that are numeracy as well as the way math serves society can be changed.

References


Gal, I. Issues and Challenges in Adult Numeracy. Philadelphia, PA: National Center on Adult Literacy,
1993. (ED 366 746)


Numeracy in the Adult ESL Classroom

by Tom Ciancone
Toronto Board of Education, Adult Basic Education Unit

Numeracy is the ability to cope confidently with the mathematical demands of everyday life in the home, workplace, and community (Cockcroft, 1982; Withnall, 1995). The tools of mathematics provide adults with the resources to express facts and opinions and to analyze situations. Knowing how to calculate percentages, for example, is necessary for discount shopping and for figuring sales tax. For many adults, expressing and using the abstract concepts of mathematics is not an easy task, in part, because numeracy needs change as one's life circumstances change. However, like literacy, numeracy is not a case of one's either being proficient or not, rather individuals' skills are "situated along a continuum of different purposes and levels of accomplishment with numbers" (Kerka, 1995, p.1).

This digest examines numeracy for adults learning English as a second language (ESL) as well as for those who teach them. It focuses on learners with low literacy skills and provides curriculum ideas and resources for use in the classroom. While many suggestions are based on the author's experiences in teaching adult immigrants in Canada, they are applicable to adult ESL instruction in other English-speaking countries.

Assessing Numeracy Needs

Adult ESL Learners
In developing a methodology for numeracy instruction, an instructor must consider not only the nature of mathematics learning, but also the nature of adult learners. Determining appropriate instructional methods depends both on learners' mathematical skills and on their attitude toward mathematics. For the ESL learner, proficiency in English will be an additional factor. Although mathematical concepts may be generalizable to many languages and cultures, these concepts must be learned and expressed through particular languages. Whereas "2 + 2 = 4" may be widely understood, the English expression "two plus two equals four" is not. Thus a learner's difficulties in numeracy may be due in part to a lack of proficiency in English.

Decisions regarding topics to be covered should be based on a needs assessment that takes into account both what the learners want to do and what they can do. Needs may be assessed in a number of ways, from asking about learners' experience in school mathematics to having them try math problems related to a skill they want to learn, e.g., calculating whether it is to their economical advantage to buy a monthly bus pass. To
ensure that the class is meeting learners' needs, the instructor should continually monitor their progress and encourage self-assessment.

It is also important to be aware of differences in the use of mathematical symbols in learners' native languages and differences in methods of computation that result from their previous schooling. For example, there is variation in the world's languages in the use of the comma and the decimal point for writing numbers greater than a thousand and numbers as decimals. If a postal carrier earns $32,578.50 in Canada or the United States, most persons from non-English-speaking countries would write the salary as $32,578,50 - i.e., with the point and comma reversed.

Another common difference is the method of writing out long division computations. For a class party, if 16 people wish to share equally the bill for some pizzas that cost $42.40, there are at least three different ways to do the division:

\[
\begin{align*}
2.65 \\
16 & \quad 42.40 \\
42.40 & \quad 16 \\
\quad & \quad 2.65 \\
42.40 & \div 16 = 2.65
\end{align*}
\]

Writing 42.40 16 instead of 16 42.40 is not backwards; rather it is simply another way of symbolizing the operation of long division. Because there are often multiple ways to solve problems, it is best to observe how learners approach them and build on that. However, adult ESL learners may ask to learn the new way so that they may help their children in school.

**Adult ESL and Literacy Instructors**

In addition to addressing learner needs, instructors need to consider their own attitudes about numeracy (Kallenbach, 1994; Leonelli & Schwendeman, 1994; Stoudt, 1994). Many ESL and adult literacy educators may not be comfortable with math and may teach math skills as discrete and isolated rather than "relevant, contextualized, and essentially linked to overall literacy" (Stoudt, 1994, p.11).

Educators in the United States are beginning to form local and national groups to improve their own and others' math teaching practice. In 1992, 22 adult basic education (ABE), ESL, adult secondary education (ASE), general education development (GED), and workplace education practitioners in Massachusetts collaborated to form the ABE Math team. Using the standards from the National Council of Teachers of Mathematics as a model, they developed 12 math standards for teaching adults (Leonelli & Schwendeman, 1994) that stressed the importance of learning through discovery rather than through rote study of textbooks, the value of understanding over memorization, and the usefulness of such generally undervalued skills as estimating totals (Kallenbach, 1994).
In 1994, in Arlington, Virginia, 110 adult educators from 30 states met for a three-day working conference on adult mathematical literacy. Their recommendations included the following:

- Class math activities should be collaborative, involve problem-solving, and help learners develop reasoning skills.
- Diagnostic assessment tools need to be developed to inform all stakeholders—learners, instructors, evaluators, and program funders.
- Support for professional development for teachers is needed (Gal & Schmitt, 1995).

**Guidelines for Teaching Numeracy**
To facilitate numeracy learning in an ESL literacy program, Ciancone and Jay (1991), Kallenbach (1994), Leonelli and Schwendeman (1994), and Lucas, Dondertman, and Ciancone (1991) offer the following suggestions:

- Encourage looking for patterns rather than finding the right answer.
- Stress the possibility that there may be many ways to solve the same problem.
- Encourage peer-group collaboration. The best way to clarify one's own understanding of a concept is to explain it to someone else.
- Encourage learners to write journals about the math skills they are learning and their feelings about learning math. Using the language of mathematics reinforces both the mathematical concepts and proficiency in English.
- Although numeracy is an everyday coping skill, mathematical concepts can be quite abstract; the more concrete and visual the explanation, the more easily understood the abstract concept.
- Each numeracy lesson should provide a balance between skill building and functional needs. A lesson may begin with a problem (e.g., a mistake on a paycheck) that provides a context for learning new skills (such as subtracting decimals), or the lesson may start with a skill (e.g., adding decimals) followed by practical applications (such as adding sales tax to a fast food bill).
- Include math in literacy instruction from the beginning. Even learners who have almost no proficiency in English need to learn numbers for such basic activities as shopping and riding the bus.

**Some Numeracy Activities**
As learners develop language skills, they can also develop skills such as estimating, measuring, and analyzing data. Activities for numeracy learning can range from recognizing numbers to calculating percentages, from reading a bus schedule to baking a cake. The two activities described below have been useful for helping beginning numeracy learners understand number systems.

**Place-Value Chart**
The place-value chart reinforces the essential mathematical concept of place value while helping ESL learners to read large numbers. It is a series of adjacent columns with headings that designate their value. From right to left the headings are "Ones," "Tens,"
"Hundreds," "Thousands," and so on as high as "Billions," if needed. The chart can be used in a variety of ways. The instructor can simply dictate numbers and ask the learners to write them in the correct columns on the chart. Or this exercise can be combined with questions, such as, "How many days are there in a year?" or "What is the population of Ontario?" If a class is reading a newspaper article that involves large numbers (e.g., corporate profits), the instructor can have learners underline numbers and then copy them onto the place-value chart. The chart can also be used when writing numbers in words, as required in writing checks.

A related activity is to make a large money chart. The headings on this chart are (from right to left) "Pennies," Dimes, "Ones," Tens," and "Hundreds, with the decimal point between the "Ones" and "Dimes." The columns are large enough to allow placement of real money or facsimiles on the chart. The money chart is an excellent tool for learners who have difficulty with carrying and borrowing in addition and subtraction.

**Metric Measurement**

A unit on metric measurement can include topics of length, distance, area, volume, and weight to teach functional language skills related to dimensions and mathematical skills involving decimals. The following activity presupposes a preliminary understanding of metric units, a reasonable expectation of learners educated outside the United States. U.S. measurements can also be used, or an activity can be done comparing the two systems of measurement.

The learners work in pairs, each pair with one meter stick or ruler, or both. A dialogue such as the following occurs in which learners take turns estimating the length or size of something in the classroom:

A: How long is the table?
B: It's about 2 meters long.
A: Let's measure it.

The learners measure the table and record the exact measurement. Then the second learner might ask, "How high is the ceiling?" and so on. From here more complex dialogues can be developed.

This activity provides a starting point for learning decimals. For example, learners may measure the width of a piece of paper as 21.6 cm with the ruler and see that 21.6 cm is just over halfway between 21 cm and 22 cm. In fact, 0.6 cm is six-tenths of one whole centimeter. Using the ruler as a concrete aid, the teacher can introduce the concept of decimal before the learners have mastered fractions.

**Conclusion** Numeracy includes a range of skills that are necessary for initial survival in a new country and for functioning as a fully literate person. In programs for adults learning English as a second language, both the mathematical skills and the language for these skills need to be integrated into the curriculum in order to prepare the learners to be successful. Instructors interested in integrating numeracy-related activities into their
classes should evaluate their own perspectives on numeracy and advocate for training and professional development to improve their math teaching practice.

References


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ABSTRACT

How adults learn basic math

by Ellen McDevitt

Most adult math practitioners are not math teachers, but reading teachers who have inherited the math classes. Or they are volunteer tutors whose own math anxiety might equal that of their learners’. Both groups might find themselves wondering how best to teach adults and might be finding that the methods by which they learned are not working as well as expected with adult learners. This article provides insights on how adults learn math and offers suggestions that practitioners can use to increase their learners’ success.

Ellen McDevitt has worked in adult education for more than 20 years. She is a founding member and current president of the Adult Numeracy Network, former editor of The Math Practitioner newsletter, and owner of a training consulting firm, FourthRiver Associates.
How adults learn basic math

by Ellen McDevitt

You can count on me.” “Count me in.” “A day late and a dollar short.” “Penny wise and pound foolish.” Our language is rich with references to numbers and math. Isn’t it interesting, then, that so many of us are afraid of math? Isn’t it even more interesting that so many of our learners actually believe that they never use math, as if all the numbers and number concepts they encounter in daily life don’t exist? But we do use numbers every day and we need to be able to use them as needed. So how do we learn the math we need? The answer to that question is found in the principles of adult learning theory and in the practices of the math classes we know from childhood.

Adults learn math: under protest, with a great deal of anxiety, more easily when it has meaning for them right now, when they can apply it, when they can use their own learning style, and when they have examples to learn from.

‘When am I gonna use this stuff?’

We’ve all heard our learners ask some version of that question. They frequently save the math subtest of the GED until last, postponing the inevitable in the hope that either it will all make sense in some miraculous cosmic math osmosis or that the GED gods will absolve them of the need to do it! Sometimes learners can’t get beyond their fear of math and they drop out of sight, sacrificing their goal of getting a GED. Most learners try, under protest and with a great deal of fear, to understand concepts that have eluded them most of their lives. They don’t see the relevance of the math they’ve learned in class to anything in real life because they don’t have any familiar contexts on which to “hook” their understanding.

So my first suggestion for improving that scenario is that adults should learn basic math in an environment that is as different as possible from the one they remember so unhappily from their school days. For one thing, adults don’t have a lot of time to spend in learning, so you and they have to make the time count. If you teach math the way you were probably taught, you are using a model that is based on the idea of 180 class days for young children who have little else to occupy their days. For one thing, adults don’t have a lot of time to spend in learning, so you and they have to make the time count. If you teach math the way you were probably taught, you are using a model that is based on the idea of 180 class days for young children who have little else to occupy their days. If adults didn’t get it under those circumstances, they are not likely to get it under the time constraints of adult literacy programs.

Also, the lecture model of teaching works well for those who learn by hearing, but not as well for those with other learning needs. According to Dunn (1994), less than 30 percent of adults learn aurally. Further, underachievers “tend to be tactile/kinesthetic learners … often are peer motivated or motivated only when interested in what they are learning.” If we accept that many of our learners are underachievers, we can make the case for restructuring our teaching. A suggestion, then, is to include the use of manipulatives, group work, and other hands-on activities in learning experiences.

Another suggestion is to ask a different question than: “How do adults learn basic math?” When you read that question, what do you think of? I think of multiplication tables and
Theorems and computation. The more productive question might be: “Why do adults want to learn basic math?” As soon as we reframe the question, we do two things: We acknowledge the learner’s goal, validating it as a context for instruction, and we shift the emphasis from mere number operations, implied by the term *math*, to the rich tapestry of experience and understanding known as *numeracy*.

**Teaching in context**

In a typical classroom, the instructor provides both the content and the context of the instruction, with every learner being fed the same number stew. But contexts—why a learner wants to learn math—differ from learner to learner. Effective instruction takes advantage of those contexts to help learners recognize the characteristics of generalized math instruction in their own lives.

My next suggestion is that you use learners’ goals to identify contexts for instruction. By using familiar contexts to frame our instruction, we might make math more understandable to those who haven’t been able to “get it” in the past, and we might help the transference of learning. For a long time we have taught skills in general terms and have assumed that they will transfer to the more specific situations in which adults need to use them. In reality, transference has not been well established for the learners in our math classes. Another suggestion, then, is that you use the following strategies to help a learner transfer knowledge:

- Use the skill in several contexts;
- Teach when to use a skill, not just how to use it;
- Teach for understanding; and
- Teach through patterns (NIFL, 2000).

Teaching in context also gives instructors the freedom to work beyond the ubiquitous workbooks. By asking why the learner wants to learn math we get some idea of other ways for an adult to learn. The instructor no longer has to be the source of all knowledge but can ask the learner to supply authentic materials to supplement the standard materials. The National Institute for Literacy’s Equipped for the Future (EFF) initiative asks learners to select a role that is important to them—worker, parent, or citizen—and uses that context as the “hook” for instruction.

You don’t have to use the EFF roles, but you can still find the “hook” with your learner. In doing so, you increase the likelihood that your learner will learn and retain the knowledge. Multiplication for a carpenter, for example, looks very different from multiplication for a cook. The basic operations are the same, but the applications are different. Why make up “real-life” contexts when the genuine article is at your fingertips? Use building blueprints; work orders; lumber dimensions; or metric weights, cups, and gallons when teaching multiplication, measurement, volume, or geometry. Another suggestion is that you use authentic materials, supplied by the learner if possible, to enhance your instruction and increase the learner’s understanding.

**Beyond the test**

One of the shortcomings of traditional math instruction is that students learn enough to pass a test, but then they can’t remember how to do the math when they need it to help a child with simple geometry or figure whether the car salesman is ripping them off. Dr. Kathy
Safford of St. Peter’s College in New Jersey calls it “Magic Slate Math.” Do you remember the magic slates of childhood? You wrote on them with a stylus, then all was erased as you lifted the cover sheet, so you could write more. That’s the end result of learning only what you need to learn to pass a test. It’s erased from memory when the test is over.

The Third International Math and Science Survey (TIMSS) tested more than half a million students from 40 countries. American students scored below the international average on math and science literacy—a position that put us in company with students from Hungary, the Russian Federation, Italy, Lithuania, Cyprus, and South Africa. Part of the assessment dealt with performance expectations, defined as knowing, using routine procedures, investigating and problem-solving, mathematical reasoning, and communicating.

According to Willard R. Daggett, American students are the most tested but least evaluated students in the world. We do very well in testing content knowledge, but do little to assess whether students can use their knowledge in a variety of real-world situations. And according to the TIMSS, we don’t do very well when it comes to using the math we learn so well for tests.

Of course, both the TIMSS and Daggett are referring to learners in the K–12 system, but many students who can’t make it there eventually find our programs, and we inherit the performance shortfall. The traditional method of teaching math to adults does little to improve the situation. Our learners want to know only what they have to know to take the test, so we oblige them and send them on their way, with the result that they still do not remember the math when they need it. So another suggestion is that you teach math as problem-solving, so that learners will develop an understanding of the math processes that will enable them to figure out what they don’t know. When learners can do that, they’re on the way to being numerate.

**Numeracy is making sense of math**

If we begin by asking why the learner wants to learn math, we not only establish a new context, but we also begin to reframe our instruction as numeracy rather than simple math. Just as literacy is more than letters, numeracy is more than numbers. Numeracy has been defined as the kinds of math skills needed to function in everyday life; not one fixed set of skills, but a continuum of skills that an adult draws from to meet different needs. And it’s numeracy that we want for our learners, not just math. It’s because they haven’t been educated in numeracy that our learners don’t get the connections between what they learn in class—school math—and what they use every day—real-life math.

For example, in real life, math problems are complicated. They use real numbers that can be messy, and there is rarely only “one way” to the answer. Yet our classrooms rely on the “I’ll teach you the rule, and you’ll practice this skill over and over until you get it” method of instruction, which perpetuates the gap in understanding. This reliance on algorithms creates a situation in which learners believe they have to memorize the rules if they’re going to be good at math. When they can’t remember the rules, they give up, because they never learned how to actually engage in problem solving. Sometimes I think the start of a solution is as simple as shifting our thinking from “How will I teach this?” to “How will they learn this?” In shifting from teaching to learning, we place the emphasis where it should be—on what the learners need to be able to do.

So another suggestion is that you conduct your classes to encourage development of
problem-solving skills that will be useful beyond the classroom walls. Encourage learners to wonder why things are, to practice solving problems even where they’re not familiar with or aware of procedures, to solve problems in a variety of different settings, and to use what is familiar to them to explain what is not. Problem solving might not be a short-term process, because learners engage in math at multiple levels. So learners don’t work on multiplication and then practice it over and over again on different problems. Instead, they might learn about multiplication and then have a real-life learning situation that will take several class sessions to solve.

At the April 2001 Making Math Real Institute held in Pittsburgh, the final activity asked teams of practitioners to create a math learning activity based on what they had learned during the institute. One team set up a learning activity that would use a grocery shopping trip that the student makes every week as the context for demonstrating an understanding of map reading, operations with whole numbers and decimals, the use of time and scheduling, budgeting and the use of money, and making good decisions. Such a learning activity will provide mental models for the learners to use when they need to solve problems in similar situations. The National Council of Teachers of Mathematics (NCTM) in the Professional Standards for Teaching Mathematics (NCTM 1991) offers suggestions for incorporating problem solving in math class.

Adults who are numerate have a full toolkit of problem-solving strategies they can draw from in different situations. So another suggestion is that you help learners identify different problem-solving strategies and encourage them to use different strategies as needed. One good idea is to keep a class strategy list posted on the wall or bulletin board. As learners identify strategies, write them on the list for everyone to see. The goal is for learners to understand that not all strategies work all the time, but that success comes from knowing which strategy to select and when. As learners experience success, they begin to believe that they can be successful in other math situations. And when that happens, well, your work is done.

What it boils down to

In summary, here is a list of suggestions for helping adults learn math:

1. Don’t teach the way you were taught.
2. Use manipulatives, hands-on activities, group work, and other varied modalities for delivering instruction.
3. Ask, “Why do you want to learn math?” in order to discover the learner’s goals and to establish a context for instruction.
4. To enhance the transfer of knowledge, provide practice in using the skill in several contexts; when to use a skill, not just how to use it; recognizing patterns; and understanding.
5. Use authentic materials, supplied by the learner if possible, to supplement your instruction.
6. Teach math as problem-solving to increase understanding.
7. Help learners identify problem-solving strategies they can use in different situations.
8. Shift the emphasis from teaching to learning.
References


Skills for Disease Prevention and Screening
Sample Lesson Packet Overview

This packet includes sample lessons designed to address health literacy skills for chronic disease management. These sample lessons are meant to jumpstart your thinking about how to incorporate these skills into your own classroom curriculum.

Familiarize yourself with the entire packet of lessons before you decide which one to try out in your classroom. This will give you an idea of the range of content and skills addressed in the various lessons. You are encouraged to adapt the lessons to suit the needs of your students or use these lessons to help you create your own.

The packet includes the following materials:

1. Lesson Review Sheet (to be completed during Session Two)
2. Post-Teaching Reflection Sheet (to be completed after you have taught a sample lesson and before Session Three)
3. Nine Sample Lessons:
   - Lesson 1: (ABE) Learning to Live with a Chronic Disease
   - Lesson 2: (ABE) Developing Problem-Solving Skills
   - Lesson 3: (ABE) How to Manage Your Medicines
   - Lesson 4: (ABE) How to Take Your Medicines on Time
   - Lesson 5: (GED) Language for Describing Symptoms
   - Lesson 6: (GED) Using Bar Graphs to Learn about Literacy and Health Outcomes
   - Lesson 7: (ESOL) Communication between Patients and Doctors
   - Lesson 8: (ESOL) Questions to Ask Your Doctor
   - Lesson 9: (ESOL) Talking about Symptoms to Your Doctor

Notes to Teachers

Adapting the lessons for your classroom: As the lesson titles indicate, the sample lessons were designed with a particular student audience (i.e., ABE or ESOL) in mind. At the same time, you are encouraged to adapt ANY of the lessons to your own classroom context. These lesson topics are relevant to all areas of adult education, and most of the lessons provide suggestions and tips for adapting them for other adult education contexts.

Opportunities to pursue project-based inquiries: Most of the lessons lay the groundwork to pursue project-based learning activities in your classroom. Instead of working on isolated activities that focus on particular
skills, students can develop skills in the context of a project. The follow-up activities to the lessons include suggestions for several projects that students can do, such as conducting an interview with a person with a chronic disease, researching a chronic disease on the web, or creating graphs based on data the students collect themselves.
Lesson Review Sheet
~ To be completed during Session Two ~

Instructions: With your partner, choose one lesson from the Sample Lesson Packet to examine in depth. Complete the following worksheet.

Title of the Lesson: ____________________________________________

Summary of the lesson: Briefly describe what this lesson is about.

Questions to consider
1. Will my students find the lesson topic interesting and useful? (Does this lesson address concerns raised by students in the needs assessment activity?)

2. Is this lesson appropriate for my students’ skill levels?

3. In what ways does the lesson link to skills and topics I am currently addressing in my classroom?

4. How might I adapt or alter the lesson to better fit the needs of my students?
Post-Teaching Reflection Sheet

~ To be completed after you have taught a sample lesson.
Please bring this completed worksheet with you to Session Three ~

Instructions: After you have tried out one of the lessons from the Sample Lesson Packet (or perhaps one of your own lessons) with your students, complete the following worksheet. Use the back of this sheet, if necessary.

Title of the Lesson: ________________________________
Date(s) lesson was taught: _________________________
Class Level: _____________________________________

Reflection Questions

1. How successful was the lesson? (Did you meet your teaching goals? What specific features of the lesson went well? What features did the students respond to most positively?)

2. What specific features of the lesson did not go well? (What features did the students have the most difficulty with?)

3. What adaptations (if any) did you make to the lesson for use in your classroom?

4. What might you have done differently to make the lesson more effective?
5. What teaching suggestions and tips would you offer a teacher who is interested in using this lesson?

6. As you answer the following questions, keep in mind the issues raised by your students during the needs assessment and the skills they need to develop. Think about how to build on the lesson you just taught.

- What other related skills might you address through additional lessons?

- What other lessons could you teach to meet your students’ needs?
Lesson 1: (ABE) Learning to Live with a Chronic Disease

Chronic Disease Management Tasks Addressed in this Lesson

• Students increase their awareness about the range of tasks involved in chronic disease management.
• Students increase their understanding of possible barriers to successful management.

Skills Focus

• Students will develop critical thinking and comprehension skills in reading about a family’s experiences with chronic disease management.

ABE/ESOL Level

High-intermediate to advanced ABE

Time

2 hours (Two sessions - 60 minutes each)

Materials

• Student reading Living with Asthma and handouts
• Blackboard or newsprint
• Markers

Vocabulary

See the list on page 2 of this lesson plan.

Purpose

This interview, Living with Asthma, * is designed to facilitate discussion in the ABE/ESOL classroom about chronic disease management and possible barriers to successful management. Sandra Jones, a health care worker, interviews 16-year old Aron who was diagnosed with asthma when he was 7 years old. Aron shares his everyday experiences managing the disease. Sandra also interviews Aron’s mother, Clela, about her experiences caring for Aron.

By reading and discussing one family’s experiences managing a chronic disease, students will begin to reflect upon and analyze their own experiences and knowledge base about chronic disease management. They will have an opportunity to discuss barriers to successful chronic disease management and contemplate possible strategies to overcoming difficulties. After this lesson, teachers will be able to identify the chronic disease management concerns that their students face. This student feedback will inform teachers’ subsequent lessons on the development of chronic disease management skills.

Note to teacher: This lesson has two parts. Part One includes pre-reading activities. Part Two consists of reading, comprehension, and discussion activities.

Part One: Pre-reading Activities

Steps
1. **Vocabulary Work**

   Present the students with the following list of words from the interview. Ask them to work in groups to define the words. Ask students how the words might be put into categories. (Possible categories: verbs, medical terms, feelings).

<table>
<thead>
<tr>
<th>affect</th>
<th>embarrassed</th>
<th>routine</th>
</tr>
</thead>
<tbody>
<tr>
<td>attack</td>
<td>inhaler</td>
<td>shocked</td>
</tr>
<tr>
<td>“couch potato”</td>
<td>medications</td>
<td>suspect</td>
</tr>
<tr>
<td>cut back</td>
<td>medicine</td>
<td>treatment</td>
</tr>
<tr>
<td>deal with</td>
<td>nebulae</td>
<td>wheeze</td>
</tr>
<tr>
<td>diagnose</td>
<td>peak flow meter</td>
<td>worried</td>
</tr>
</tbody>
</table>

*Teaching Note about Use of Pictures/Realia:* When discussing the vocabulary, be sure to show students pictures of a nebulizer, inhaler, and a peak flow meter, or if possible, have actual items on hand to show students. Pictures of these items are provided in Handout A.

*Teaching Note about Vocabulary Development:* Teachers can use this vocabulary list to help students learn to use a thesaurus or learn about synonyms. For example, after students define “wheeze,” ask them to brainstorm all the ways they can say “breathe.” Record all suggestions. After the brainstorm, ask the students to go back and write a short descriptive phrase explaining each word. One possible list might look like this:

- **pant**
  To breathe quickly in short gasps, usually after you have done something physically demanding

- **puff**
  To breathe forcefully and quickly, e.g., the big bad wolf huffed and puffed; a short, sudden burst of air, e.g., a puff of smoke

- **sigh**
  To breathe out in a long deep breath usually because you are tired or relieved.

- **snore**
  To breathe noisily while you sleep

- **wheeze**
  To make a harsh whistling sound when breathing, often when a person has difficulty breathing

- **inhale**
  To breathe in

- **exhale**
  To breathe out

To reinforce word meanings, ask students to write sentences using each synonym.
2. **Tapping prior knowledge about asthma**
   Write the word “asthma” on the board. Invite the students to generate as many words as possible that relate to the target word, “asthma.” You can say to the students, “Tell me some things that come to mind when you think of the word “asthma.” As students brainstorm, record all responses on the chalkboard. (Possible responses: attack, tough to breathe, inhaler, lungs, coughing…) After the students have finished brainstorming, ask the students how the responses could be placed into categories. Ask the students to assign labels to the categories and add any extra information to each category. (Possible categories: Medicines for treating asthma, Signs that you have asthma, Signs of an asthma attack…).

3. **Preparing to read**
   Distribute the interview, *Living with Asthma*, to each student. Explain to the students:

   *You are going to read an interview between a health care worker, Sandra McCray, and a teenager named Aron who has asthma. Sandra also interviews Aron’s mother, Clela, about her experiences caring for Aron. Can you imagine how Aron would feel when he first learned he had asthma? How might his mother feel? What kind of difficulties dealing with asthma might you expect Aron and his mother to mention in the interview?*

   Ask the students to share their responses. Record their ideas on the board.

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**Part Two: Reading and Discussion**

**Steps**

1. **Reading the interview**
   Depending on your class, the students may be able to read the interview silently by themselves. If students read silently, be sure to read the interview out loud as well. Assign different students to read the different roles. In addition, you may wish to do a model reading. As students read, encourage them to think about their predictions about Aron’s and his mother’s experiences and challenges dealing with asthma. Encourage them to read for information which confirms or counters their predictions.

2. **After reading the interview - Comprehension and discussion**
   Use the following questions to check the students’ comprehension and interpretation of the interview. Note that these questions are designed to prompt the students to extend their analysis of Aron and Clela’s experiences dealing with asthma to their own experiences or to that of people they know who have a chronic diseases. (Questions are listed on Handout B.)

   - In your own words, describe how Aron and Clela found out that Aron had asthma.
   - Make a list of the different feelings Aron and his mother have experienced since he learned he has asthma. What made Aron and his mother feel this way? (Note to
teachers: Encourage the students to make two columns in their notebooks, one column for the various feelings expressed by Aron and his mother and one column for the reason the person felt that particular way. For example:

<table>
<thead>
<tr>
<th>Aron’s feelings</th>
<th>Why Aron felt this way</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aron felt scared</td>
<td>He found out he had asthma. He also had to start taking medicines.</td>
</tr>
<tr>
<td>Aron sometimes felt embarrassed</td>
<td>He had to use an inhaler at school.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Clela’s feelings</th>
<th>Why Clela felt this way</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clela felt shocked</td>
<td>She learned Aron had asthma.</td>
</tr>
<tr>
<td>Clela was worried</td>
<td>She didn’t know when another attack would happen.</td>
</tr>
</tbody>
</table>

- Read the interview again and make a list of the all the things Aron needs to do on a regular basis to take care of himself because he has asthma. Work in pairs or groups to generate a complete list. (Note to teachers: You may want to provide students with highlighters and ask them to highlight all the phrases that describe the different things Aron does to manage his asthma.) Be sure to write the complete list on the board.

**For example:**
- *Takes medicine in the morning*
- *Takes medicine whenever he needs it during the day*
- *Takes a pill before he goes to bed*
- *Uses a nebulizer*
- *Uses an inhaler*

- What advice does Clela offer parents whose children have asthma?

- Make a list of the problems and concerns Clela faces in caring for Aron. What things did she need to learn to help care for Aron?

**For example:**
- She didn’t understand many new words, such as nebulizer and inhaler, plus the drug names.
- She had to learn how to use a peak flow meter and also teach Aron how to use it.
- She needed to be able to fill out school forms to permit Aron to carry an inhaler.
• She needed to be able to explain to Aron about how well his lungs were working.
• She needed to be able to talk to Aron’s doctor about how well his lungs were working.

Think about your own experiences managing a chronic disease, or think about what you know about chronic diseases based on other people’s experiences.

How are your experiences (or that of someone you know) similar to or different from Aron and Clela’s experiences? (Note to teachers: Be sure to record the students’ responses.)

Follow-up Activities

A) Interview a person who has a chronic disease
Find someone who is willing to be interviewed about his or her experiences with a chronic disease. Ask the following questions:

- What chronic disease do you have?
- How did you find out you had this chronic disease?
- How did you feel when you first learned you had this disease?
- What kind of treatments do you need to take?
- How has this disease affected your everyday life?
- What advice would you give to someone who just found out they have this disease?

Ask students to take notes on the person’s responses. Students can share their information in the next class or write up their notes in an expository essay.

B) Create a class resource file
Gather pamphlets, web resources, and other materials related to various chronic diseases. Ask the students to rate the clarity and usefulness of the materials. Build a classroom file on chronic diseases.

ESOL Teaching Tip
You may wish to spend time talking about asthma with ESOL students so they understand: (1) that it is a common chronic illness in the U.S.; and (2) that, in general, all asthma patients need to take medicine, monitor their breathing, and see a doctor on a regular basis. If necessary, allow time for the students to talk about asthma in their native languages to ensure that everyone understands the overall focus of the interview before reading.

You may use the interview material in this lesson in a role-play activity with ESOL students. After students have had an opportunity to read and discuss the text, challenge them to act out the interview, trying not to look back at the text. In carrying out a role-play, students should feel free to paraphrase the lines in the interview as long as the meaning remains the same. (Accurate paraphrases will be a sign that the students have
understood the meaning of the text.) This role-play activity can prepare the students to conduct their own interview with someone who has a chronic disease (see Follow-up Activities).

**Technology Tips**

For students who are learning more about asthma, here are some useful Web sites:

- **How is Asthma Diagnosed** (from the National Institutes of Health) at [http://www.nhlbi.nih.gov/health/dci/Diseases/Asthma/Asthma_Diagnosis.html](http://www.nhlbi.nih.gov/health/dci/Diseases/Asthma/Asthma_Diagnosis.html)

- **Healthy Roads Media.** Particularly useful for ESOL students. Site provides free audio, written, and multimedia health education materials in various languages on various chronic diseases, including asthma at [http://www.healthyroadsmedia.org/](http://www.healthyroadsmedia.org/).
About the reading: This is an interview with Aron, a 16-year old boy with asthma, and Clela, his mother. The interviewer is Sandra McCray, Executive Director of Colorado HealthSite, an electronic information service for people with chronic illnesses. The interview was conducted on November 6, 1999.

Interview with Aron

Sandra: Ok, Aron, let’s begin with you. How old were you when you were diagnosed with asthma?

Aron: I was about 7 years old, I was living in Wichita. I was at gymnastics camp, and I started to wheeze and had a hard time breathing, so I called my mom. She called the doctor and came and picked me up. There were other times when I was wheezing and having problems breathing. We went to doctor a lot and then after a few months, the doctor told me I had asthma.

Sandra: Aron, how did you feel when you learned that you had asthma?

Aron: At first, I was kind of scared, but the doctor was really nice and said that by taking the right medications and following directions, I would be fine. Plus, I knew my mom was worried about me.

Sandra: What kind of treatments did they give you to help with your asthma?

Aron: They gave me a nebulizer and some different inhalers, plus some pills I need to take every day.

Sandra: How did it feel to begin your treatments?

Aron: At first it was scary for both mom and me. My mom took charge of things in the beginning and as I got older and the treatment became more routine, I started taking my medication and using my inhaler on my own. Now, I pretty much do it myself.

Sandra: I once interviewed an asthma doctor, and he said that one of the problems with kids who have asthma is that they don’t want to take their inhalers to school. They don’t want to take medications in front of other kids and they don’t want their friends to know

* The interview with the asthma patient Aron and his mother Clela is based on an actual interview featured on the Colorado Health Web site at http://www.coloradohealthsite.org/.
they have asthma, because they are embarrassed and feel different. Did any of this happen to you?

Aron: In the beginning, I was embarrassed and was afraid that people would make fun of me. But pretty soon, I found out that some other kids that I knew had asthma, too, so I didn’t feel so strange anymore.

Sandra: How has asthma affected your life at school?

Aron: When I was younger, I had some problems and had to miss a lot of school. That made it hard to get good grades. But now, I’m doing better in school. I feel pretty normal. I don’t miss school all the time, and I play soccer. I just use one of my inhalers before I go out to play – it helps me breathe better. My friends hang on to the inhaler for me, in case I need it. The only problem I have sometimes is that the coach wants us to do some long training runs – I have a hard time breathing for those, but I do okay in the games.

Sandra: So, do you feel like your asthma is under control now?

Aron: Every day, I take a medicine when I get up in the morning. I take a different medicine sometimes, like when I am feeling symptoms of asthma or before I do sports or exercise. At night I take a pill which helps me breathe better and also helps me sleep without waking up. The medicine I am taking now works really well, so I’m doing alright.

Interview with Clela

Sandra: Clela, I’d like you to tell us what it’s like to have a child with asthma. Before the doctor told you, did you ever suspect that Aron had asthma?

Clela: Before that day, I had no idea that he had asthma. When they first called me and told me they thought he was having an asthma attack, I said that couldn’t be possible – he doesn’t have asthma. But I went and got him and that’s what the doctor said.

Sandra: How did you feel when you learned that Aron had asthma?

Clela: At first, I was shocked and then, of course, I was worried – what if he had more attacks? What if I was not there and something happened to him? How could we keep attacks from happening?
Sandra: What was it like to take care of Aron in the beginning?

Clela: I was so confused at first. The doctor used all these new words, like “nebulizer” and “inhaler” plus drug names. Plus, they gave me this thing called a “peak flow meter” and it took me a while to figure out how to use it to tell how well Aron’s lungs were working. I also had to teach Aron how to use the meter. Then I had to keep track of how he was doing to report back to the doctor. It was a lot of work, but I knew I had to do it for Aron. Now, it’s great. He’s so mature, he takes care of himself but I still worry a little.

Sandra: What worries you now?

Clela: Even though his teachers have been nice and have wanted to help, I had to fill out a whole bunch of forms to get permission for Aron to carry his inhaler with him, instead of having to go to the nurse’s office every time he needed to use it. I wish the school made it easier for people like us. Plus, now because of money, they are cutting back on having nurses at school, and teachers don’t know enough about how to deal with asthma attacks. That makes me a little nervous. Coaches can be even worse. Sometimes they make the kids work so hard. I think that if they knew more, they would be more flexible and not ask so much of the kids.

Sandra: Do you have any advice for parents of a child with asthma?

Clela: I think it’s natural that you want to protect your child, but you have to keep them out there in the world. It’s important to keep them active – he must not become a “couch potato.” It takes a lot of time and energy for parents, but it’s important for your kids. His younger years were pretty hard on both of us, but I am really proud of how well Aron does, how normal a life he has now.
Handout A (for Living with Asthma)

Tools for Treating Asthma *

Nebulizer
A nebulizer is an electrically powered machine that changes liquid medicine into a mist. This mist can be breathed directly into the lungs through a face mask or mouthpiece. To see a picture, go to the Cleveland Clinic Health Systems Web site at http://www.cchs.net/health/health-info/docs/0300/0352.asp?index=4297

Inhaler
An inhaler is a device that gets medicine directly into a person’s lungs. There are two kinds of inhalers. One kind is a metered dose inhaler, also known as puffers, which delivers the medicine in a mist or spray form. A second kind is a dry powder inhaler, which delivers the medicine in a fine powder form. To see a picture, go to the Cleveland Clinic Health Systems Web site at http://www.cchs.net/health/health-info/docs/2400/2415.asp?index=8694&pflag=1

Peak flow meter
A peak flow meter is a device that measures how fast air comes out the lungs when you exhale forcefully. To see a picture, go to the Cleveland Clinic Health Systems Web site at http://www.cchs.net/health/health-info/docs/1500/1545.asp?index=4298&pflag=1

* Some information adapted from the Cleveland Clinic Health Systems Web site on Asthma at http://www.cchs.net/health/getcontents.asp?DocID=center&cID=4
Handout B (for Living with Asthma)

Questions to Think About

1. In your own words, describe how Aron and Clela found out that Aron had asthma.

2. Make a list of the different feelings Aron and his mother have experienced since he learned he has asthma. What made Aron and his mother feel this way?

3. Read the interview again and make a list of the all the things Aron needs to do on a regular basis to take care of himself because he has asthma.

4. What advice does Clela offer parents whose children have asthma?

5. Make a list of the problems and concerns Clela faces in caring for Aron. What things did she need to learn to help care for Aron?

6. Think about your own experiences managing a chronic disease, or think about what you know about chronic diseases based on other people’s experiences.
   - How are your experiences (or that of someone you know) similar to or different from Aron and Clela’s experiences?
   - What things does a person need to learn to take care of him or herself if he or she has a chronic disease?
Lesson 2: (ABE) Developing Problem-Solving Skills *

Chronic Disease Management Task Addressed in this Lesson

- Students will strengthen their problem-solving skills in order to be better prepared to manage (or help others manage) a chronic disease.

Skills Focus

- Students will develop communication, critical thinking, and analytic skills used for problem solving.

ABE/ESOL Level

Intermediate to advanced ABE

Purpose

This lesson is designed to strengthen students’ problem-solving skills. Students will learn a process that will help them when they are faced with a problem. The lesson focuses on identifying problems and generating possible solutions. The students will also discuss how these problem-solving skills can help people who are learning to manage a chronic disease.

Steps

1. Distribute copies of the Decision Mountain template. Tell the students that they are going to make a decision by climbing the "Decision Mountain." By climbing the mountain, they will examine carefully the problem presented in several different stories that describe difficult situations faced by people who have a chronic disease.

Distribute the Problem-Solving Stories worksheet. Note that the full worksheet contains four stories. Depending on the size of the class and the time frame of the class session, you may wish to distribute only as many as you think your class can cover in a single class session.

Based on your own understanding of your students’ experiences with chronic disease, you may wish to add your own stories that address their particular concerns. As the students examine the stories, they will learn about key steps involved in decision-making. Be sure to point out that these decision-making skills are relevant to many aspects of everyday life – such as managing situations at work and in the home – and not just for managing a chronic disease.

* This lesson has been adapted from a Decision-Making lesson created by Lezlie A. Kelley of the Utah Law-Related Education Project of Salt Lake City, Utah. It is available online at http://www.eduref.org/cgibin/printlessons.cgi/Virtual/Lessons/Social_Studies/Psychology/PSY004.html.
2. Ask students to form small groups of three to four. Alternatively, if the class is small, you may wish to stay as a large group and discuss the stories as a class.

3. Explain that the class will examine the first story together. Ask each group to read the first story and identify the problem in the story. Allow five minutes or so for groups to discuss. A description of the problem is written at the bottom of the mountain illustrated on the board or on poster paper. Explain to the students that there are no “right” answers in this activity. It is possible that students will identify different problems in the same story, depending on how they interpret the character’s actions and feelings.

*Note to teacher:* The most challenging part of this activity will likely be identifying the problem, as this is usually the most difficult step for many individuals learning to manage a chronic disease. Patients sometimes have a vague sense that something is problematic or frustrating but they cannot identify the problem precisely enough to generate options. Another common problem is that patients identify the problem too globally. It requires some work to narrow the focus so that options can be generated. Group discussion can be very important in this process.

Note that, when students identify different problems, there is no need to choose the “best” answer. It is important to hear how students identified the problem. In response to the same story, one group of students may focus on problems related to a person’s behavior (e.g., forgetting to take medicine) while another group may focus on a person’s emotions and attitudes (e.g., feeling confused about the instructions for taking medicine). To help the students focus their interpretation of the stories, encourage them to think about the perspective of the person with the chronic disease in each story.

4. After groups have had the opportunity to identify the problem, ask each group to identify possible options for resolving the problem in Story #1. You (or a volunteer) will write down the suggested options on the mountain illustrated on the board or on poster paper.

5. Next, ask the students to identify possible consequences (positive or negative) for each of the listed options. List the consequences with the corresponding option number.

6. Ask the students to go back to their small groups and decide which options and corresponding consequences are best. Allow 10 minutes for this small group discussion. After the 10 minutes, ask each group to share their group decision.
7. Assign the remaining stories to pairs or small groups of students. Provide each group with extra copies of the Decision Mountain template for each story. Ask them to use this template to complete the following steps:

- Name the problem
- List possible options
- Write the consequence for each option
- Decide on the best option

Again, if the class is small, you may wish to work together as a class to fill out the Decision Mountain template for each story.

8. For each assigned story, ask the small groups to describe their final decision to the whole class. You may wish to copy the Decision Mountain template onto an overhead transparency or poster paper so that you (or a volunteer) can fill out the template as you discuss the students’ responses to each story.

9. After the groups have shared their ideas, discuss the decision-making process as a whole class. Consider using the following questions to facilitate whole-group discussion:

- Which story had a problem that was the easiest to solve? Which story had a problem that was the most difficult to solve? What made the problems easy or difficult to solve?
- Did any of the stories make you think of problems you or someone you know has faced? What did you (or the person you know) do? Were you or the person able to solve the problem?
- Did you find the Decision Mountain useful for thinking of a solution to the problem in each story? Why or why not?
- Would you recommend the Decision Mountain to someone who is learning to manage a chronic disease? Why or why not? Do you think you might use the Decision Mountain in your everyday life? If yes, explain how. If not, explain how you might solve problems differently. Are there other strategies you use to make decisions?

10. Note to the teacher about applications of lesson to chronic disease management:

   At the end of this lesson, it is useful to call attention to a few ideas related to problem-solving strategies, particularly as it relates to chronic disease management. These ideas are based on material in Living a Healthy Life with Chronic Conditions: Self-Management of Heart Disease, Arthritis, Diabetes, Asthma, Bronchitis, Emphysema & Others by Kate Lorig and colleagues. (See endnotes for full reference.) You may wish to talk about these points as a way of reflecting on the goals of the lesson with the students:
• **Managing a chronic disease involves problem solving.** Without a doubt, people who live with a chronic disease face many problems. There are physical and emotional challenges that make it hard to carry out normal, everyday activities, like going to work and having a social life. People with a chronic disease must do many things such as take medicines on a schedule, observe what makes them feel good and what makes them feel ill, make and keep appointments with doctors. It is easy for people to feel overwhelmed by the many tasks they have to do in order to take care of themselves.

• **Problems do not always have an obvious solution.** Sometimes the most difficult step in problem solving is identifying the problem. As noted earlier in this lesson plan, sometimes we don’t know exactly what the problem is; we only know that we feel frustrated, stressed, or confused. It requires some hard thinking to figure out what the problem might be. This takes practice. This lesson gives students an opportunity to practice identifying problems.

• **Problems do not have only one solution.** Another difficult step in problem solving is coming up with possible solutions. Sometimes the problem is not something that the person can solve alone. It is hard to think of all possible solutions by yourself. At the same time, a person may be reluctant to reach out to friends, family, or doctors because he or she may feel embarrassed about not knowing what to do. This lesson gives students an opportunity to problem-solve in collaboration with others. This reminds students that **asking** for help from others is an important step in the problem-solving process.

• There are cultural differences in the way people solve problems. Some people may feel it’s important to delegate decision-making responsibility, while others may place a strong emphasis on self-reliance in decision-making. Some people favor a majority-rule approach while others will prefer consensus. You may wish to point out that people’s cultural backgrounds may influence their problem-solving processes. This point is highly relevant for using this lesson with adult ESOL students.

• Finally, remind students of an important reality about chronic disease management: some problems, despite numerous attempts to solve them, may not go away. This doesn’t mean that the problem will never be solved, but it means that the problem cannot be solved right now. Encourage students to keep trying.
ESOL Teaching Tips

In an adult ESOL classroom, the diversity in racial and linguistic background and cultural assumptions and beliefs bring richness to the discussion of the problem-solving skills and processes. This lesson, in design, reflects only one possible (Western) approach to problem solving. When working with adult ESOL students from diverse backgrounds, you may wish to begin the lesson by pointing out that each individual in the class has his or her own style of expressing ideas, and making decisions. These styles are influenced by personality, family background, belief system, cultural background, and problem-solving experiences (e.g., on the job).

You may also want to set the stage for the lesson by calling attention to cultural differences in the way students solve problems. Students may wish to share differences in the way people communicate, disagree, or solve problems between their home country and the U.S. You may wish to make the topic of cultural differences in problem solving the topic of a follow-up writing activity.

ABE/GED Teaching Tips

To make the lesson more challenging for students, use the lesson as a writing exercise. Ask the students to write an essay (e.g., persuasive essay defending their response to one of the stories). You may wish to use the small discussion groups in Step 6 as an opportunity for the students to share their ideas with their peers and begin planning what they will write in their essays.

This lesson may also provide a useful context for teaching students about flowcharts. In teaching students about flowcharts, the goal is to provide them with an opportunity to take a step back and think about what must be done before attempting to solve a problem. Flowcharts provide a mechanism for describing the process in which a problem is solved or a decision is made. See Technology Tips for a suggested web-based resource.

Technology Tips

If you are interested in using this lesson to discuss flowcharts with your students, you may wish to search the Internet for information about the nature of flowcharts. The Web site for Florida Tech Net (www.floridatechnet.org) maintains a “Living Library” which houses a GED lesson bank. One of their science lessons is on interpreting flowcharts. The lesson is available in Adobe Acrobat: http://www.floridatechnet.org/GED/LessonPlans/Science/ScienceLesson16.pdf
Decision Mountain Template *

Decision Mountain

Decision

Consequences
1.  

2.  

3.  

4.  

Options
1.  

2.  

3.  

4.  

Define the Problem

* From a Decision-Making lesson created by Lezlie A. Kelley of the Utah Law-Related Education Project of Salt Lake City, Utah. It is available online at http://www.eduref.org/cgibin/printlessons.cgi/Virtual/Lessons/Social_Studies/Psychology/PSY0004.html.
Problem-Solving Stories

1. John and Steve had agreed to go to a baseball game together. When John arrived at Steve’s house to pick him up, he found that Steve was not ready. Steve tells John that he is not sure he wants to go because his arthritic knees are bothering him. John feels annoyed and says, “I wish you had told me earlier. I could have asked someone else to go with me to the game.” Steve replies angrily, “You just don’t understand. If you had pain like I do, you wouldn’t be so quick to get angry.” John says, “Well I guess I’m going to the game by myself.”

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Problem-Solving Stories (continued)

2. Joanne suffers from emphysema and heart disease and doesn’t always take her medicine regularly. "Sometimes I forget to put them in my purse," she says. "I'd dress for the day, leave the house, realize I forgot them and say, 'Oops, well I'll just take them tomorrow.'" One time she didn’t take her medicine and ended up in the emergency room because she couldn't breathe. Joanne’s doctor thinks she is forgetful and needs to think of ways to remind herself to take her medicine, such as setting an alarm clock. Joanne, however, is embarrassed about the real reasons why she doesn’t always take her medicine: she doesn’t understand the doctor's instructions on how and when to use each of her three different inhalers. "The doctor would start to tell me and I'd tune him out," she says. "I was overwhelmed. I really hate the idea that I’ll have to take drugs for the rest of my life."²

3. Javier has high blood pressure. His doctor talked to him about the link between having high blood pressure and being overweight. The doctor suggested that Javier try to lose some weight as one of the things he can do to help lower his blood pressure. Javier has tried different diets but nothing seems to work. He tells the nurse at his doctor’s office, “To tell you the truth, healthy food doesn’t taste the same as real food. When I eat, I want to eat something with substance, like meat and potatoes. The healthy stuff just doesn’t fill me up.”³

Problem-Solving Stories (continued)

4. Belinda is twenty-six years old and was recently diagnosed with diabetes. Her friends are worried about her because lately she has been spending a lot of time alone. She has not been returning phone calls. One afternoon, one of her friends, Maria, stops by Belinda’s house to see how she is doing. She finds Belinda sitting on the couch watching television. Maria wants to perk Belinda up so she immediately turns off the television and suggests they grab a bite to eat. Belinda tells her that she wants to stay home and watch television. Maria insists that they go out, saying, “Come on, getting some fresh air will be good for you.” Belinda gets angrier and says, “Good for me? I’m sick and tired of people telling me what’s ‘good’ for me. Do you know how hard being a diabetic is? I see candy bars and I have to stop and ask, can I have one? I want to exercise, but I have to remember to bring sugar tablets. I’d like to go out, but most of the time, I feel completely exhausted!”

Lesson 3: (ABE) How to Manage Your Medicines

Chronic Disease Management

Tasks Addressed in this Lesson
• Planning weekly schedules for taking multiple medicines
• Planning medicine refills

Skills Focus
• Learners will review vocabulary related to taking medicine.
• Learners will practice creating schedules for taking medicine.
• Learners will practice using calendars for planning medicine refills/purchases.
• Learners will practice reading a table for information.
• Learners will practice using basic math skills (addition, multiplication, division).

ABE/ESOL Level
Low to intermediate ABE

Time
1 ½ - 2 hours

Materials
• Student Handouts
• Optional Handouts
• Pill boxes (optional)
• Candy (optional)

Vocabulary
- aspirin
- daily
- diabetes
- dose
- dosage
- high blood pressure
- medications
- medicine
- monthly

- once-a-day
- once-a-week
- osteoporosis
- pill box
- pill organizer
- prescription
- refill
- twice
- weekly

Purpose
This lesson focuses on scheduling and organizational skills. The lesson has two parts, which can be taught in one lesson or as sequential lessons.
• In Part One, students discuss and practice planning a week’s medicine and using pillboxes as an organizing tool.
• In Part Two, students use a calendar to plan when to get prescriptions refilled.

Prerequisites
This lesson assumes that students have some understanding of what prescription drugs are and how they are obtained. (Note that the time management lesson in this packet includes a sample prescription label if you feel you need to review a label with your students.) In addition, students should have some familiarity with the use of calendars, and they should be able to carry out simple mathematical operations, including addition, multiplication, and division.

Steps

Introduction: Whole class discussion
1. Introduce the lesson by pointing out to students that in many instances, people need to take multiple medicines for one illness. In addition, people may have more than one health problem for which they need to take different medicines. In these kinds of cases, a person may need to take several medicines on the same day or within the same week.

2. Show students the picture of the man surrounded by pills, instructions, and a calendar. (You may use the picture as a handout or a transparency.) Ask students the following questions:
   • What is going on in this picture? (e.g., The man is confused because he has too many pills to take and too many instructions to follow.)
• What kinds of problems might this man face as he tries to take many different pills each week? (e.g., It is hard to remember which pill to take at which time; you run out of pills at different times; sometimes drugs interact and cause problems.)

Point out that in Part One of this lesson, students will look at some ways of organizing medicines when a person needs to take more than one on a regular basis. In Part Two, students will practice using calendars for planning when to buy medicines before they run out.

3. (Optional) Vocabulary Review

If your students are unfamiliar with the language of instructions for taking medicines, you may want to spend a few minutes reviewing some vocabulary.

Using the picture of the man surrounded by pills as a reference, ask students to choose a term from the picture and define it, or phrase it another way. (e.g., “daily” means “every day.”) After students have reviewed the terms, ask students if they can list other words or phrases related to directions for taking medicine. These might include the following:

- Every four hours
- Twice a day
- Two a day
- Three or four times a day
- As needed
- Every day
- Every hour
- Before meals
- After meals
- Once a week

Students might also think of expressions for the form or quantity of medicine like:

- Teaspoonfuls
- Pill
- Tablet
- Capsule
- ml (milliliters)

Ask if students have questions about any of these terms. If it seems necessary, check students’ understanding by asking a few questions such as “Look at the expressions: “two a day” (e.g., two pills a day) and “twice a day” (e.g., two times a day) – are they different, or can they mean the same thing; how would you know?” “How is a tablet different from a capsule?”

Once you feel that students are comfortable with these terms, go on to Part One of the lesson.
Part One

1. **Use a pill box to plan a weekly medication: Large group review and pair work**

   Distribute the *Pill Box* handout (1 page) to show students a simple pill box (also called a pill organizer) and explain how it is used.

   **Teaching note:** This lesson uses drawings to simulate the activity of filling a pill box. Ideally, students would benefit from the tactile experience of actually filling a real pill box – with candy serving as substitute pills. If it is not possible to have enough boxes for small group work, it would be most helpful to have at least one pill box on hand so that students can see and touch a real one.

   Ask if any students are familiar with pill boxes. If so, then ask a student to explain how they are used. As necessary, make the following points:

   - This is called a “pill box” or “pill organizer.” People use it to help them keep track of and organize their medicines.
   - You can put the medicines you need to take each day into the little boxes that are marked for each day of the week: S for Sunday, M for Monday, T for Tuesday, W for Wednesday, T for Thursday, F for Friday, and S for Saturday.
   - On any given day, you can tell how many pills you must take on that day. At any time of day, you can tell if you have already taken your medicine.
   - A pill box can be used with only one pill or with more than one pill.
   - You can purchase a pill box at a drug store and it is usually not very expensive.
   - Some people use multiple boxes – different colors for different parts of the day (morning, afternoon, evening).

   a) Explain that students will now practice reading directions and preparing a pill box. Ask students to take a few minutes to complete the activity on the worksheet, *Irene’s Weekly Medicines* (1 page), and to review their answers with a classmate.

   **Note to teacher:** The simple shapes used to represent pills in this lesson are intended to provide students with simple models for drawing. In the activity, it is not important for students to draw perfect shapes; the emphasis should be on distinguishing among the different pills and placing them properly in the “pillbox.”

   b) Point out that some people need to take pills more than once a day. Some pillboxes have separate spaces for morning and evening (or morning, afternoon, and evening). Distribute the *Angela’s Weekly Medicines* handout (2 pages). Ask students to work with a partner to “fill” the week’s boxes for Angela. Circulate and check students’ work. (As noted above, the emphasis should be on distinguishing among the different pills and placing them properly in the “pillbox,” not on drawing perfect shapes.)
c) Explain that you now want to give students a chance to practice speaking and writing. Distribute the Enrique’s Weekly Medicines handout (2 pages). Review the first sheet with students. Remind them that the pictures of pills are just examples and do not necessarily resemble actual pills. Ask pairs to look at the “pill box” (table) that contains Enrique’s medications for the week. Ask pairs to practice saying out loud and writing out sentences to describe how often Enrique takes each pill.

**Possible responses:**
- *He takes one cholesterol pill (or pill for his cholesterol) once a day (or every morning).*
- *He takes two pills for high blood pressure every morning.*
- *He takes one pill for arthritis every morning.*
- *He takes a blood thinner pill every other day.*
- *He takes two pills for depression every evening.*

2. **Share Reminder Strategies: Large group brainstorm**

   After everyone has completed the worksheets, reassemble the whole group and point out that students looked at one way to remember to take pills. Ask the class to brainstorm additional ways to help people remember when they need to take pills.

   Answers may include:
   (Note: The following list is included in an optional handout, **Tips for Remembering to Take Medicines.**)  
   - Schedule medicine around daily activities, such as meals, tooth brushing, etc.
   - Plan ahead for vacations or other days that are different from your regular routine.
   - Use an alarm on a small clock or watch.
   - Put notes in places where you will see them, such as doorknobs, mirrors, in the kitchen (but not over the stove!), etc. (Note that it is not a good idea to store medicines in the bathroom since the warmth and moisture of the room might damage some medicines. Also, always store medicines locked and out of the reach of children.)
   - Put medicines next to things you’ll use around the time you need to take them, such as next to your toothbrush or on your nightstand.
   - Have a friend or family member help to remind you to take medicine.
   - Use a color marker to color-code medicine bottles, or put large print labels on them. Never put medicines in containers meant to hold other things, especially food or beverage containers. Children might eat them. Always keep medicines in their original child-proof containers.
   - Draw a large clock and put color codes on the clock face to match colors on each medicine bottle.

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• Make sure you can see a clock or watch during the day.
• Create a chart listing the specific times when you need to take medicines.
  Leave a place on the chart to check off each medicine as you take it.
• Plan ahead three to five days (one to two weeks for mail order prescriptions),
  and get refills approved and filled before medicines are finished.

Part Two

1. **Use a calendar to plan for refills: Large group review and pair work practice**
   Remind students that taking medicines correctly also requires planning. You need to
   plan when to refill prescriptions before your medicines run out. Give students an
   opportunity to share what they know about obtaining refills by asking a few
   questions:

   • **How do you get another prescription when yours runs out?**
     (e.g., I go to the pharmacy and buy a refill; I order it over the phone and pick it
     up later.)
   • **How do you know where to go for a refill?**
     (e.g., I look at the label and go to the pharmacy where I bought the last bottle.)
   • **How many refills can you get for a prescription?**
     (e.g., It says on the label how many refills I can get. I can only buy one at time
     because my insurance only lets me buy a one month’s supply.)

Class Exercise

Remind students that we sometimes have to plan ahead to know when we will need to
buy more medicine, or get a refill for a prescription. **To help with this kind of
planning, we often need to use a calendar and a little simple math.**

a) Distribute the **March, April, and May calendar** handouts (3 pages).
   Tell students that you would like to talk about an example of someone (Marco)
   who must buy medicine when he uses up what he has. Describe the following
   example to students and ask the questions listed. You may wish to draw pictures
   of a pill pack (see picture below) to help learners follow the example. Encourage
   students to use the calendar handouts to help them.

** Depending on your students, the issue may come up that they need to give at least three days advance
notice for refills, particularly if they need a new prescription. Most pharmacies will honor a prescription
that allows refills for 12 months only. After that, the patient must get a new prescription from the doctor’s
office, and this may take one to three days.
Marco takes one kind of drug that comes in a package of 28 pills. He must take two pills a day.

- **How many days will one package last him?** (answer: 14 days)
- **If Marco bought a package of pills and started taking them on March 3, when would he finish that package?** (answer: March 16)
- **What if Marco started taking the pills on March 5?** (answer: March 18)

Ask for volunteers to share their answers. You may want to call attention to the fact that even though 14 days is the same as two weeks, we cannot just count two weeks on the calendar to answer the above questions. Counting for the purpose of planning medicines is slightly different than counting how time passes. We need to begin counting on the day that Marco starts taking the pills. That day will be day 1 of 14. Counting precisely is very important in cases where a person must not miss taking their medicine. Using a calendar to count out days is a useful skill for managing chronic diseases. In some cases, missing one pill or one day may cause serious health problems.

Continuing with the Marco example, ask the following questions of the whole class.

- **If Marco bought his pills on March 28 and took the first pill on March 30, when would he finish the package?** (he’ll finish on April 12)
- **When should Marco buy more pills?** (no later than April 13 – preferably before)
- **If Marco were able to buy bigger packages of 60 pills, how many days would that package last him?** (30 days)
- **If he bought the larger package on March 10 and took the first pill on March 11, when would he finish it?** (April 9)
- **When should he purchase more pills?** (no later than April 10)

b) Have students work in pairs to complete the **Calendar Planning Worksheet** (1 page). Circulate and answer any questions as necessary. After everyone has completed that sheet, distribute the worksheet for **Margaret’s Pills** (3 pages). You may want to review how to read a table of rows and columns. Adjust the pace and review process for these two worksheets as needed for your students.
Once everyone has finished the assignment, bring the class back together to share advice for traveling with medicines (Question 9 on Margaret’s Pills worksheet).

ANSWER KEY for Worksheets

Calendar Planning Worksheet
1. 30 days
2. May 4
3. 30 days
4. May 31
5. May 29

Margaret’s Pills Worksheet
1. 30 days
2. April 10
3. 30 days
4. May 3
5. 10 weeks
6. May 28
7. diabetes 20; blood pressure 10; arthritis 10; osteoporosis 2
8. blood pressure and arthritis
9. Answers may include:
   - Bags can be lost on planes, trains, or buses. Do not pack your medicines, but always keep them with you so they don’t get lost.
   - Always keep medicines in their original containers with labels so you will not confuse the drugs.
   - Take enough medicine for a few extra days in case you are delayed beyond your planned trip.
   - Take a copy of your prescriptions and your health insurance card with you.
   - Find a way to remind yourself to take your pills while you’re on a vacation schedule.
   - You might need to store medicine differently in a different climate.

After students have shared some answers, you may want to distribute the handout 10 Tips for Traveling with Medications (2 pages) and add to this list.

* Suggested answers adapted from 10 Tips for Traveling with Medications available at http://www.lifeway.com/lwc/article_main_page/0,1703,A%253D150092%2526M%253D50022,00.html
2. **Conclusion: Large group discussion**

To conclude the lesson, ask students to take one minute and think of one thing that they learned in this lesson that will be helpful to them or someone they know. Examples might include:

- Learning about pillboxes as a tool for managing medicines
- Planning with a calendar
- Planning ahead
- Tips for remembering to take medicines
- Traveling with medicines
Follow-up Activities

1. **Writing activities:** Ask students to do some free writing related to the topic of taking medicines or talking to pharmacists. Some writing prompts include: *Describe a time when you had a problem with taking medicines. How do you feel when you need to go to the pharmacy to buy medicine? What would make your visit to the pharmacy better?*

2. **Research on pill organizers:** If your students are interested in pill organizers, have them visit their pharmacy or go “on line” to explore different types of pill organizers. Have students write brief descriptions of the different boxes and note prices and where the boxes are available. This information can be presented in a written format, such as a simple table, or in an oral presentation in class.

3. **Research at a pharmacy:** Provide students with a list of commonly found medicines (e.g., cough medicine, pain medicine, eye drops, etc). Ask students to visit a pharmacy to locate these medicines (or some variation of them). Students should read package labels to determine how many days’ worth of medicine a package contains if a person takes the recommended dose listed on the package. Students might also do some price comparisons of generic and name brand medicines. Students should record the information they gather in a journal or be prepared to present their findings in class.

4. **Web-based reading and activities:** Some materials available on the web can serve as the basis for a range of follow-up activities.
   
a) Drug interactions are a common problem for people who take multiple medicines. Ask students to read *Managing multiple medications* at [http://www.umaine.edu/mainecenteronaging/documents/FactSheetManagingMultiple.pdf](http://www.umaine.edu/mainecenteronaging/documents/FactSheetManagingMultiple.pdf) (possibly in addition to *Medicines and Older Adults*, noted below) and ask them to write a paragraph or create a dialogue about what they learned. See [http://www.ismp.org/Consumer/BrownBag.html](http://www.ismp.org/Consumer/BrownBag.html) for more on this topic.

b) Visit the U.S. Food and Drug Administration Web site at [http://www.fda.gov/opacom/lowlit/7lowlit.html](http://www.fda.gov/opacom/lowlit/7lowlit.html). Select one of the easy to read publications that pertain to medicine (e.g., *Medicines and Older Adults*, *How to Give Medicine to Children*, *Use Medicine Safely*). Have students read one of the brochures and do one or more of the following:
   - Present the five most important pieces of information from the brochure to the class.
   - Write dialogues inspired by information contained in the brochure.
   - Write a letter to a real or imagined friend who takes multiple medicines, sharing what the student has learned.
ESOL Teaching Tips

If you decide to use this lesson with ESOL students, it may be especially important to leave time for the optional vocabulary review included in this lesson. In addition, you may wish to integrate some discussion of the process for obtaining medication in this country, because pharmacies may operate differently in other countries.

Additional Resources

  This is a 50-page ESOL teacher's guide that includes lessons for beginning, intermediate, and advanced level students. It teaches why it is important to read medicine labels, how to do so, and how to ask the pharmacist for help. The guide includes dialogues, key concepts and vocabulary, question-and-answer exercises, and an extensive teacher’s glossary. It is available from the Council on Family Health; 225 Park Avenue South, Suite #1700; New York, NY 10003; phone (212) 598-3617 for single copy; phone (212) 725-3200 for larger quantities; Free.

✓ Consumer Healthcare Products Association at
  This Web site includes several useful publications, especially My Medicine, a brochure that offers a pocket size table for listing medicines and important information.

✓ Safely Managing Medications at
  http://www.familycaregiversonline.com/newsletter-v-3-04.html
  By Romie J. Myers, RN, Web Manager, FamilyCaregiversOnline.net & Zanda Hilger, M. Ed., LPC, Caregiver Education, Area Agencies on Aging

✓ Taking Medicines Safely
  http://nihseniorhealth.gov/takingmedicines/takingmedicinessafely/01.html
  The site has sections on how to take and manage medicines. The site includes lots of good information, such as questions to ask a doctor about your medications, a simple medication record, and an on-line quiz to check understanding of the material. The FAQs (Frequently Asked Questions) are informative too. Some information is presented through video clips.

✓ Over the Counter - Understand Your Medicine Labels (3 pages - follow the links)
  http://www.nclnet.org/health/OTClabels/Labels.html

✓ The New Over-the-Counter Medicine Label: Take a Look
  http://www.fda.gov/cder/consumerinfo/OTClabel.htm
Illustration for How to Manage Your Medicines

© Maricel Santos and Lisa Soricone
Pill Box *

* This pill box (pill organizer) picture is from “Medicines and Older Adults,” a brochure available from the U.S. Food and Drug Administration Web site at http://www.fda.gov/opacom/lowlit/englow.html
Irene’s Weekly Medicines

Irene has to take three kinds of pills each week. She takes:
- 2 pills daily for diabetes
- 1 pill daily for high blood pressure
- 1 pill on Sunday for osteoporosis

Imagine that you are going to help Irene fill her pillbox. In the column for each day, draw the pills that she needs to take. Use the pictures in the box above to help you.
**Angela’s Weekly Medicines**

Angela has a number of health problems (diabetes, heart disease, high blood pressure, high cholesterol, osteoporosis) so she must take several different medicines.

*Every day,* she takes
- 2 pills for diabetes – one in the morning and one at night
- 2 pills for high blood pressure – one in the morning and one at night
- 2 pills for cholesterol – both in the morning
- 1 aspirin – in the evening

On *Mondays, Wednesdays, and Fridays,* she takes
- 1 water pill

On *Saturdays,* she takes
- 1 pill for osteoporosis

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</thead>
<tbody>
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<tr>
<td>Blood Pressure</td>
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<tr>
<td>Cholesterol</td>
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<td>Aspirin</td>
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<td>Water Pill</td>
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<tr>
<td>Osteoporosis</td>
<td><img src="diagram.png" alt="Blank" /></td>
</tr>
</tbody>
</table>
Imagine that you and a partner are going to help Angela fill her pillbox using the table below. In the column for each day, draw the pills that she needs to take. Use the different parts of each day to separate pills to be taken in the morning and evening.

- AM = morning
- PM = evening/night

<table>
<thead>
<tr>
<th>Sunday</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
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Enrique’s weekly medicines

Enrique has many health problems. To take care of himself, he takes five different kinds of pills each week, as shown below.

- Cholesterol
- High Blood Pressure
- Arthritis
- Depression
- Blood Thinner

The chart on the next page shows how often Enrique takes each pill. First, look at the chart and say out loud how often he takes each pill. For example, “Enrique takes his cholesterol pill... (every morning, once a day, etc.)” Next, in the spaces below, for each pill, write a sentence that tells how often Enrique must take it.

1. 

2. 

3. 

4. 

5. 
# Enrique’s Weekly Medicine Schedule

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Calendar Planning Worksheet

Use the sample calendars to help you answer the questions below.

1. Winston uses one needle every day to treat his diabetes. If needles come in packages of 30 needles, how long will one package last?

   __________________________________________

2. If Winston begins a new package of needles on April 5, when will he finish it?

   __________________________________________

3. Antoine takes two pills a day for a stomach problem. His prescription bottle holds 60 pills. How many days will this bottle last?

   __________________________________________

4. If Antoine takes his first pill from this bottle on May 2, on what day will he finish the bottle?

   __________________________________________

5. Celia must take one aspirin a day for her heart. She bought a bottle with 60 pills. If she took the first pill on March 31, on what day would she take the last pill from this bottle?

   __________________________________________
Margaret’s Pills

Margaret takes four different kinds of pills, as listed in the table below.

<table>
<thead>
<tr>
<th>What pill is for</th>
<th>How much she takes</th>
<th>Number of pills in a bottle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetes</td>
<td>2 pills a day</td>
<td>60</td>
</tr>
<tr>
<td>Blood pressure</td>
<td>1 pill a day</td>
<td>30</td>
</tr>
<tr>
<td>Arthritis</td>
<td>1 pill a day</td>
<td>30</td>
</tr>
<tr>
<td>Osteoporosis</td>
<td>1 pill per week</td>
<td>10</td>
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</table>

Answer the following questions about Margaret’s medicines.

1. How long will one bottle of her diabetes pills last?
   _____________________________________________

2. If she begins her bottle of diabetes pills on March 12, when will she take her last pill?
   _____________________________________________

3. How long will one bottle of Margaret’s blood pressure pills last?
   _____________________________________________

4. If she purchases a new bottle on April 1 but does not start it until April 4, by what date should she buy another bottle?
   _____________________________________________
5. How long will one bottle of Margaret’s osteoporosis pills last?

_________________________________________

6. If she starts her osteoporosis medicine on March 26, when will she finish it?

_________________________________________

7. If Margaret is going on vacation from April 10 to April 19, how many of each pill will she need while she’s away?

   diabetes                     ____________

   blood pressure               ____________

   arthritis                   ____________

   osteoporosis                ____________
   (note: Margaret takes this pill on Sundays)

8. On April 8, Margaret has the following pills left:

   a full bottle of diabetes pills
   8 blood pressure pills
   6 arthritis pills
   4 osteoporosis pills

   For which medicines will she need to order refills before she leaves on vacation?

   ____________________________________________

   ____________________________________________
9. What advice would you give to Margaret about traveling with her medicines? List some ideas below.

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

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________________________________________________________________________
Tips for Remembering to Take Medicines *

- Scheduling medicines around routine daily activities, such as meals, tooth brushing, etc.
- Use an alarm on a small clock or watch to schedule your medicines.
- Place reminder notes in places where you will see them, such as doorknobs, mirrors, in the kitchen, etc. (Remember -- it is not a good idea to store medicines in the bathroom since the warmth and moisture of the room might damage some medicines.)
- Put medications next to things you’ll use around the time you need to take them, such as next to your toothbrush or on your nightstand. But be sure to keep medicines where children can’t reach them!
- Ask a friend or family member to remind you to take medicines.
- Color-code medicine bottles by using a crayon or highlighter pen, or put large print labels on them. Remember; never put medicine in containers meant to hold other things. Keep medicines in their original child-proof containers.
- Draw a large clock and put color marks on it for each medicine. Match the colors to the bottles.
- Make sure you can see a clock or watch during the day.
- Create a chart listing the exact times when you need to take the medicines. Leave a place to check each one off as you take it.
- Plan ahead for vacations or other days that are not routine.
- Plan ahead three to five days and have refills approved and filled before medicines are gone.

* This list is adapted from “Ten Tips to Keep Up with Your Meds” found at http://www.thebody.com/pinf/whatsnew_600/treatment.html#10
10 Tips for Traveling with Medications *

In our mobile society, traveling is done year-round. With careful planning you can avoid medication mishaps. While you are away from home, keep in mind these ten suggestions about medications.

1. Keep medications with you in your carry-on luggage when traveling by plane, train, or bus. Bags you check may be delayed or lost. Take extra supplies to last beyond your planned trip. Always keep medications in their originally labeled containers so you will not confuse the drugs.

2. In some climates or weather conditions, you may need to carry your medicines in an insulated bag. Your doctor or pharmacist can advise you about the best method for storing medications for travel.

3. Keep a written list of the medications you take, including whether they are brand name or generic, the strength, the reason for their use, and specific dosages.

4. Keep your doctor’s name, address, and telephone number with you, as well as similar information about your regular pharmacist. Keep a list of your drug and food allergies and a description of the reaction, along with a list of your medical conditions. Take a copy of your prescriptions and your health insurance card with you.

5. When taking oral medications, take them with plenty of water, at least eight ounces, to help absorption. Taking such medications while standing or sitting upright will keep them from getting lodged in your throat.

6. Chew chewable tablets thoroughly before swallowing and then drink water.

7. Do not take medications with coffee, tea, or other hot beverages. Doing so can reduce the effectiveness of many medications.

8. When taking a medication on an empty stomach, take it at least one hour before eating or two or three hours after eating, unless otherwise directed.

* This article is courtesy of Mature Living Magazine available at http://www.lifeway.com/lwc/article_main_page/0,1703,A%253D150092%2526M%253D50022,00.html. Vivian M. Preston is a retired librarian in Barberton, Ohio.
9. If you are changing time zones, ask your doctor or pharmacist whether you need to adjust your medication doses or time schedule.

10. A little forethought and planning will insure your health needs will be met while you enjoy your trip.
Lesson 4: (ABE) How to Take Your Medicines on Time

Chronic Disease Management Task
Addressed in this Lesson
Learners will develop skills to determine the appropriate times to take medicine and to set up medicine schedules.

Skills focus
- Learners will practice calculating elapsed time.
- Learners will practice creating schedules for taking medicine.

ABE/ESOL Level
Intermediate ABE

Time
1 ½ -2 hours

Materials
Student Handouts (8)
- Cough Medicine Label
- Cough Medicine Label Worksheet
- Antibiotic Prescription Label
- Marlena’s Medicine Schedule Worksheet
- Marlena’s Medicine Schedule (more days)
- Lillian’s Medicine Schedule Worksheet
- Daily Schedule Worksheet
- Interview Schedule

Optional Handout (1)
- Tips for Remembering to Take Medications

Vocabulary
antibiotic
antitussive
dose
dosage
expectorant
inhaler
medication
medicine
over-the-counter (OTC)
prescription

Purpose
This lesson is designed to give students practice reading medicine labels to determine appropriate times and to set up schedules for taking medicine. The lesson involves the use of the clock and calculation of elapsed time.

Prerequisites
This lesson assumes that students have knowledge and experience in two areas: 1) Students should be able to read and understand a digital or analog clock before doing this lesson; and 2) Students should have some familiarity with basic parts of a medicine label.

For sample lessons and resources on how to read medicine label, see Additional Resources at the end of this lesson.

Steps
1. Introduction: Whole class discussion
Introduce the lesson with a large group discussion of the difficulties and challenges of taking medicine. Ask students the following question:

What do you find difficult about taking medicine?

Write responses on a chalkboard or flip chart. Some possible responses include:
- It’s hard to remember to take medicine
- Instructions are difficult to understand (too many words, long words)
- Not sure how much to take
- Not sure when to take it
- Can’t read the label (print is too small)

After learners have had a chance to share some ideas, explain that the day’s lesson will focus on reading medicine labels. Learners will find and use information on a label to figure out how much medicine to take and when to take it.
2. **Over-the-Counter (OTC) Medicine Dosage: Large Group Review and Practice**

   **a) Distribute the Cough Medicine Label and Worksheet** (2 pages) and ask students to review the label and answer the following questions:
   - *Have you ever seen a label like this before? On what kinds of products?* (e.g., yes, on cough medicine, sinus or allergy medicine)
   - *Were you able to walk into a store to buy this medicine, or did you need an order (prescription) from your doctor?* (e.g., could walk right in and buy it)

   Point out to students that this type of medicine is often referred to as “over the counter” medicine, which means that you can buy it without an official order (called a prescription) from a doctor. Sometimes people write OTC for short to refer to these kinds of drugs.

   Note: You may want to remind students that the terms “medication,” “medicine,” and “drugs” all mean the same thing.

   Ask the following questions to check comprehension and review new terms:
   - Why would someone take this medicine? (e.g., if they have a cold with cough and congestion)
   - What do the terms “antitussive” and “expectorant” mean? (Students can use dictionaries.)

   (An antitussive helps to stop a cough. An expectorant makes it easier to cough up mucus/phlegm/secrections from the lungs. This medicine works by increasing the production of mucus and by making it thinner and less sticky. Note that the word “expectorate” means to “cough up.”)

   Next, ask students to locate the section of the label that indicates when to take the medicine and how much a person should take. This information is found in the section entitled “Directions.” Point out that the term “dose or dosage” is often used to refer to the amount of medicine a person takes at one time and that this term may be found on many medicine labels.

   **Note to teacher:** If students are not very familiar or comfortable with reading medicine labels, you may want to spend more time reviewing the sections of a label by asking students to identify the information in each section. For example, you might ask, “What does the ‘Uses’ section tell us?” Ask students to explain in their own words the kind of information contained in each section.

   **Possible answers:** when this medicine should be used, why someone would take this medicine, what symptoms a person might have when they take this medicine, etc.
b) Next, ask students to imagine that they have a cold and need to take some medicine for a cough. Ask for volunteers to look at the label and answer the following questions:

- How much medicine can you take at a time? (4 teaspoonfuls)
- How often can you take this medicine? (every 4 hours)
- How many times can you take this medicine within 24 hours? (no more than 6 times)
- If you first took this medicine at 8 o’clock in the morning, at what time could you take it again? (12:00 noon)
- If you took it at 10:00 in the morning, at what time could you take it again? (2:00 pm)
- If you took it at noon? (4:00 pm)
- If you took it at 7:30 in the evening? (11:30 pm)

You may wish to point out that the medicine label does NOT say that they NEED to take the medicine every four hours. Rather, the important thing to remember is that they should not take it with less than four hours between doses.

Note to teacher: If your students are not very comfortable working with clocks, you may want to provide some additional practice for work with time intervals. For instance, you might want to have them work on a simple exercise such as, what time is it two hours after 10:00, what time is it three hours after 10:00, etc. This should be done before you move on to calculations that are more complex.

Next, ask students to look at question 1 on the Cough Medicine Label Worksheet. The question asks the students to imagine that they had a nasty cold and cough and needed to take some medicine. Students should imagine that they took this medicine at 7:00 in the morning. Ask students to take a few minutes to list the times when they could take the next five doses of the medicine again, if they needed to take it every four hours.

Review the answers as a class. Note that there may be a little variation during the night hours. The important things to remember are: 1) that medicine should not be taken less than 4 hours between doses, and 2) that a person should take no more than 6 doses within 24 hours.

7:00 am
11:00 am
3:00 pm
7:00 pm
11:00 pm
(sleep) or the person may wake up at 3:00 am, for example, and take some 7:00 am – begins a new 24 hour day
Ask students to look at question 2 on the **Cough Medicine Label Worksheet**. They should imagine that they have a 10-year-old daughter who comes down with a bad cold and cough. Ask students to note the appropriate dose for the girl and to list the times when they might give her cough medicine over the next 24 hours. Have students work independently and then ask volunteers to share their answers. (You may wish to remind students that if they have any questions or concerns about giving their child an over the counter medicine, they should talk to a pharmacist or pediatrician.)

*(Dosage: 2 teaspoonfuls; times may vary - possible answers include 3:00 pm, 7:00 pm, 11:00pm, 7:00 am, 11:00am, 3:00 pm)*

3. **Prescription Medicine Dosage: Large Group Review and Pair work Practice.**

   Reassemble the whole class and distribute the following handouts:
   - Antibiotic Prescription Label
   - Marlena’s Medicine Schedule Worksheet
   - Marlena’s Medicine Schedule (3 pages).

   Review the parts of the label. Be sure to answer any questions that students have about information on the label. Make clear that Ampicillin is given in different doses to treat different problems. This is just one example of a possible prescription for it.

   **Note to teacher:** You may want to review the information on the label, depending on students’ familiarity with prescription labels.

   Students may have questions about the following directions:
   # 1 *Finish all of this medication unless otherwise directed by physician.*
   # 2 *Take with full glass (8 oz.) of water.*

   Point out that the word “medication” is often used in place of the word “medicine.” Ask for a volunteer to explain why the following items might be included on a prescription label. If students are not sure, share the following:

   #1: It is important to complete antibiotic prescriptions for two reasons:
   1) The bacteria causing the infection may not be completely killed in less than the prescribed time.
   2) The bacteria that the drug is trying to kill may become resistant to the drug. This means that that antibiotic will not work against that kind of infection in the future. (However, a person might still be able to use the same antibiotic to treat a different kind of infection later on.)

   #2: It is important to drink water with antibiotics and other pills because water helps the medicine dissolve more quickly and get into your system faster. In some cases, medicines might do damage to the stomach if they sit un-dissolved for too long.
Next, focus on timing. Ask volunteers to answer the following questions:

- **How often can Marlena take this medicine?** (every 4 to 6 hours – not less than 4, not more than 6 hours apart)
- **How is taking this medicine different from taking the cough medicine we looked at earlier?** (It must be taken around meals.)
- **For how many days should Marlena take this medicine?** (5 days)

Ask students to work with a partner to carry out two tasks, as noted on the worksheet:

**Task 1:** Plan Marlena’s schedule for taking her pills for the first day

**Task 2:** Plan Marlena’s schedule for the next 4 days

You should circulate among pairs to see if anyone has questions or difficulties.

4. **Combine medicine schedules: Large Discussion and Pair/Small Group Work**

Ask students if they or any one they know are dealing with more than one chronic disease. Ask for some examples of the diseases people might have to manage and take medicine for. (e.g., heart problem, blood pressure, and diabetes).

Point out that in such cases, when a person has to manage several diseases, scheduling medicines can be complicated. People may need to take medicines at different times. Use the board to write out the following example for someone who takes 2 kinds of pills.

*Pill 1 should be taken twice a day, every 12 hours.*
*Pill 2 should be taken three times a day, every 4-6 hours.*
(Note that the pills may be taken at the same time.)

Ask students to work in pairs for 5 minutes to plan times for taking each pill. After 5 minutes ask three to four volunteers to list possible answers on the board and have the class review answers for accuracy. Answers might be as follows:

<table>
<thead>
<tr>
<th>Pill 1</th>
<th>Pill 2</th>
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<tbody>
<tr>
<td>8:00 am</td>
<td>8:00 am</td>
</tr>
<tr>
<td>8:00 pm</td>
<td>12:00 pm OR 1:00 pm</td>
</tr>
<tr>
<td>4:00 pm</td>
<td>6:00 pm</td>
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</table>

Next, distribute **Lillian’s Medicine Schedule Worksheet** (1 page). Now ask students to look at the case of Lillian, who takes different medicines for two diseases. Lillian needs to take medicine every day for both asthma and diabetes. She uses one inhaler and takes a pill to treat her asthma. She takes one pill to treat her diabetes.
Lillian’s instructions for taking her medicines are as follows:

- **Asthma Pill** (Theophylline with Montelukast Sodium): Take one pill in the evening.
- **Inhaler** (Triamcinolone acetonide): Inhale 2 puffs every 6 to 8 hours. Wait at least 1 minute between puffs.
- **Diabetes Pill** (Glyburide): Take one pill twice a day, one at breakfast and one at dinner.

Review the information given about Lillian on the top of the worksheet. Ask if any students are familiar with an inhaler. If not, explain that it is a small tool people use to breathe medicine into the lungs.

Point out that students do not need to learn the medicine names on the worksheet. They should focus on the different kinds of schedules required for the different medicines.

Ask pairs to create a schedule for Lillian to take her medicines. You should circulate among pairs to see if students have any questions or difficulties. If necessary, review some answers with the entire class before moving on to the final activity.

5. **Sharing strategies for remembering medicine: Large Group Brainstorm**
   Reassemble the large group and ask students to brainstorm ways of remembering to take medicines on time.

   Possible responses:
   - *I put my medicine near the bed so I see it everyday.*
   - *I put a note saying “TAKE MEDICINE” on my bathroom mirror.*
   - *I set my alarm on my watch to remind me to take medicine.*

   Additional suggestions are located in an optional handout, **Tips for Remembering to Take Medications**, included at the end of this lesson.

6. **Conclusion and Review**
   To conclude the lesson, review what you accomplished in this lesson:

   - You looked at two different kinds of labels – over-the-counter and prescription – to find information on how much medicine to take and when to take it.
   - You practiced making schedules for taking medicine.
   - You shared some useful ideas for remembering to take medicine.

   Ask if students have any questions on what you covered today.

   Point out that there are different ways to organize and record activities such as taking medicine. Ask students to look at their worksheets. Call attention to the different formats for creating a medicine schedule:
- A list of times with a number for each dose to be taken (Cough Medicine Label Worksheet).
- A list with times and activities (Antibiotic Prescription Label and Asthma and Diabetes Medicine Schedule Worksheet).
- A printed schedule of times that you fill in (Marlena’s medication schedule).

Point out that these formats can be used to keep track of other activities, such as eating and exercise.

Follow-Up Activities

1. **Develop Schedules**: Create your own personal schedule for a typical day. You need not note every activity. Include major activities such as waking or going to bed, eating meals, going to work or school, taking medicines, and other activities like exercise, reading, housework, etc. Use the Daily Schedule handout to record your answer.

2. **Interview Practice**: Interview someone you know who regularly takes medicines. Ask them questions about what times they take pills and do other things like eat, go to work, go to bed, etc. Create a schedule for the person, using the Interview Schedule handout provided.

Other Follow-up Ideas

You may want to build on this lesson in a number of ways. You could develop a lesson around measuring doses using different tools, such as cups, spoons, and syringes. Alternatively, you could develop a lesson that pertains to the pharmacy. You could focus on questions to ask a pharmacist, using the automated system to order refills, etc.

ESOL Tips

It is essential to assess how much your ESOL students know about medicine labels before teaching this lesson. Be sure to spend time walking through the parts of the label since some of the language or abbreviations used in this lesson may be too difficult without some prior work. Some ESOL students will be able to ‘get’ the timing aspects of the lesson without a problem, but they may not know how to describe in English what they are doing. Expressions like twice a day, otherwise directed, tsp vs. Tbs, etc., may be new to learners.

Technology Tips

If you have access to computers and your students are familiar with spreadsheet programs like Excel, you might want to have students create schedules using that type of software. The Web sites listed under Additional Resources can also serve as the source of reading, writing, and discussion activities.
Additional Resources

This is a 50-page ESOL teacher's guide that includes lessons for beginning,
intermediate, and advanced level students. It teaches why it is important to read
medicine labels, how to do so, and how to ask the pharmacist for help. The guide
includes dialogues, key concepts and vocabulary, question-and-answer exercises, and
an extensive teacher’s glossary.
Available from: Council on Family Health; 225 Park Avenue South, Suite #1700;
New York, NY 10003; phone (212) 598-3617 for single copy; phone (212) 725-3200
for larger quantities; free.

Web sites on reading medicine labels

✓ Over the Counter - Understand Your Medicine Labels (3 pages - follow the links)
  http://www.nclnet.org/OTClables/Labels.html

✓ The New Over-the-Counter Medicine Label: Take a Look
  http://www.fda.gov/cder/consumerinfo/OTClabel.htm

Web sites on taking medicines safely

✓ Taking Medicines Safely at NIH Senior Health
  http://nihseniorhealth.gov/takingmedicines/takingmedicinessafely/01.html
  This site has sections on how to take medicines and managing medicines. The site
  includes lots of good information, such as questions to ask a doctor about your
  medications, a simple medication record, and an on-line quiz to check understanding
  of the material. The FAQs (Frequently Asked Questions) are informative too. Some
  information is presented through video clips.

✓ Tips for Taking Medicine
  http://www.mamashealth.com/doc/medicine.asp

✓ Taking Medications Safely
  http://www.womensheartfoundation.org/content/HeartWellness/medication_safety.asp
# Cough Medicine Label

## Drug Facts

<table>
<thead>
<tr>
<th>Active Ingredients</th>
<th>Purposes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dextromethorphan HBr 5mg</td>
<td>Antitussive</td>
</tr>
<tr>
<td>Guaifenesin 100mg</td>
<td>Expectorant</td>
</tr>
</tbody>
</table>

*5mL = one teaspoonful

## Uses
- Temporarily relieves cough due to minor throat and bronchial irritation due to the common cold
- Helps loosen phlegm (mucus) and thin bronchial secretions to make coughs more productive

## Directions
- Take every 4 hours
- Do not take more than 6 doses in 24 hours

## Uses
- Temporarily relieves cough due to minor throat and bronchial irritation due to the common cold
- Helps loosen phlegm (mucus) and thin bronchial secretions to make coughs more productive

## Warnings

**Do not use** if you are now taking a prescription monoamine oxidase inhibitor (MAOI) (certain drugs for depression, psychiatric, or emotional conditions, or Parkinson’s disease) or for 2 weeks after stopping the MAOI drug. If you do not know if your prescription drug contains an MAOI, ask a doctor or pharmacist before taking this product.

## Inactive Ingredients
- Caramel, citric acid, D & C red no. 33, edentate disodium, FD&C red no. 40, flavors, poloxamer 407, polyethylene glycol, propyl gallate, propylene glycol, purified water, saccharin sodium, sodium benzoate, sodium chloride, sodium citrate, and sorbitol solution.

## Questions?
Call 1-800-123-4567 Monday to Friday, 9AM – 5PM EST
Cough Medicine Label Worksheet

1) Imagine that you have a nasty cold and cough. What is the correct dose for an adult? _______teaspoonfuls

If you take your first dose of cough medicine at 7 am, at what times can you take the next five doses (if you take the medicine every four hours)?

1. 7:00 am _______________
2. ______________________
3. ______________________
4. ______________________
5. ______________________
6. ______________________

2) Your ten-year-old daughter comes down with a bad cold and cough. What is the correct dose for her?

__________ teaspoonfuls

If you begin giving her the cough medicine when she gets home from school, at what times could you give it to her within 24 hours?

1. ______________________
2. ______________________
3. ______________________
4. ______________________
5. ______________________
6. ______________________
Antibiotic Prescription Label

Marlena Perez went to see her doctor for a sinus infection. Her doctor gave her a prescription for an antibiotic. Here is the label on the medicine bottle.

Friendly Pharmacy
123 Healthy Way
Livewell, WI 99999

PH. (987) 654-3210

DR. F. CARLTON

No. 0455825-333 Date: 1/12/05

MARLENA C. PEREZ
37 Easy Street, Livewell, WI 99999

TAKE 3 TABLETS A DAY, EVERY 4 - 6 HOURS.

*AMPICILLIN 250 MG

QTY 15 DAYS SUPPLY 5
NO REFILLS – DR. AUTHORIZATION REQUIRED
ORG DATE 1/12/05

*Note: Ampicillin is used to treat bacterial infections. Prescription dosages may vary. The dosage here is just an example.

The medicine bottle also had the following three stickers on it:

IMPORTANT: Finish all of this medication unless otherwise directed by physician.

Take with full glass (8 oz.) of water.

To be taken on an empty stomach: ½ hour before or 2 hours after meals
Marlena’s Medicine Schedule Worksheet

Marlena picked up her prescription on Monday at 10:00 am and took a pill right away. Keep the following information in mind:

- Marlena usually eats breakfast at 7:00 am, lunch at 12:00 pm, and dinner at 6:00 pm.
- She goes to bed at 11:00 pm.
- The doctor told Marlena that she does not need to take the medicine during the night.

**Task 1**
In the schedule below, note the times at which Marlena usually eats her meals. Then note the times at which she can take her pills during the first day of starting her prescription. Breakfast and the first pill are noted for you.

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:00 am</td>
<td>Eat Breakfast</td>
</tr>
<tr>
<td>10:00 am</td>
<td>Take Pill 1</td>
</tr>
</tbody>
</table>

**Task 2**
Marlena must take her pills for 5 days. Use the worksheet, **Marlena’s Medicine Schedule**, to create a schedule that Marlena can follow for the remaining days that she must take pills. Keep in mind her regular meal times and the time she needs between pills.
<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>6:30 am</td>
<td>WAKE UP</td>
</tr>
<tr>
<td>7:00 am</td>
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<td>5:30 pm</td>
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<td>6:00 pm</td>
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</table>
Lillian’s Medicine Schedule Worksheet

Lillian needs to take medicine every day for both asthma and diabetes. She needs to take a pill and use one inhaler to treat her asthma. She also must take a pill to treat her diabetes. Lillian’s instructions for taking her medicines are as follows:

- **Asthma Pill** (Theophylline with Montelukast Sodium): Take one pill in the evening.

- **Inhaler** (Triamcinolone acetonide): Inhale 2 puffs every 6 to 8 hours. Wait at least 1 minute between puffs.

- **Diabetes Pill** (Glyburide): Take one pill twice a day, one at breakfast and one at dinner.

Use the space below to create a daily schedule for Lillian to take her medicine. Start from the time she wakes up in the morning until she goes to bed. List the times when she eats her meals and the times when she needs to take her medicines. Sometimes she might eat a meal and take medicine at the same time.

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity (meals and medicine)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:00 am</td>
<td>Eat Breakfast</td>
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<tr>
<td>8:00 am</td>
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<tr>
<td>12:00 pm</td>
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### Daily Schedule Worksheet

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<th>Time</th>
<th>Time</th>
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<td>6:30 am</td>
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</table>
## Interview Schedule

**Schedule for ______________________ (first name only)**

**Interviewed by ______________________ (student full name)**

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
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</table>
**Tips for Remembering to Take Medications**

- Schedule medication (medicine) around routine daily activities, such as meals, tooth brushing, etc.

- Use an alarm, such as on a small clock or watch.

- Place reminder notes in places where you will see them. Some examples are: doorknobs, mirrors, in the kitchen (but not over the stove!). Remember -- it’s not a good idea to store medications in the bathroom since the warmth and moisture of the room might damage some medication.

- Put medications next to things you will use around the time you need to take them, such as next to your toothbrush or on your nightstand. Be sure to keep medicines where children can’t reach them!

- Have a friend or family member help to remind you to take medication.

- Color-code medication bottles (with highlighted pens or colored stickers) or put large print labels on them. Never put medications in containers meant to hold other things, especially food or beverage containers. Keep medicines in their original child-proof containers.

- Draw a large clock and put color codes on it for each medication matching the colors you put on the bottles.

- Make sure you can see a clock or watch during the day.

- Create a chart listing the specific times when you need to take medications. Leave a place to check each one off as you take it.

- Plan ahead for vacations or other days that are not routine.

- Plan ahead 3-5 days, and have refills approved and filled before medications are gone.

* This list is adapted from *Ten Tips to Keep Up with Your Meds* found at [http://www.thebody.com/pinf/whatsnew_600/treatment.html#10](http://www.thebody.com/pinf/whatsnew_600/treatment.html#10)
Lesson 5: (GED) Language for Describing Symptoms

<table>
<thead>
<tr>
<th>Chronic Disease Management</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task Addressed in this Lesson</td>
<td>This lesson is designed to strengthen students’ descriptive skills. Students are given an opportunity to discuss possible problems when they try to describe symptoms, particularly when the symptoms, such as pain, are not readily visible to the doctor. Students expand their expressive language skills for describing symptoms.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Skills Focus</th>
<th>Connection to GED Language Arts - Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Students will strengthen their ability to describe symptoms.</td>
<td>Tell students that this lesson addresses several skill areas assessed on the GED Language Arts - Reading section. The skills include the comprehension and interpretation of poetry, the ability to compare and contrast information, and the ability to identify literary elements, such as tone, point of view, and figurative language.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ABE/ESOL Level</th>
<th>Background information for the teacher</th>
</tr>
</thead>
<tbody>
<tr>
<td>High-intermediate to advanced GED</td>
<td>This lesson focuses on symptoms and signs of chronic disease. It is useful to think of symptoms as what the patient feels and signs as what the doctor observes. Symptoms, like fatigue and pain, are subjective experiences. The doctor cannot always measure or observe symptoms. Only the patient knows exactly what his or her symptoms feel like. Many people have problems when they try to translate a feeling into words. Doctors try to understand the nature and pattern of a patient’s symptoms in order to make a diagnosis. An accurate description of symptoms helps a doctor make a quick and early diagnosis. For this reason, it is critical that students understand their symptoms and can describe them as clearly and accurately as possible. What can ABE teachers do to strengthen their students’ communication skills in these areas? One approach is to expand the students’ descriptive language skills, specifically their knowledge of adjectives and figurative language devices.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time</th>
<th>Materials</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 hours (2 one-hour classes)</td>
<td>• Student Handouts&lt;br&gt;• Blackboard or poster paper&lt;br&gt;• Markers</td>
</tr>
</tbody>
</table>
Students can learn how to use words to paint a picture of what they are feeling in the mind of their doctor.

The focus on descriptive language in this lesson builds on findings from a study based in Canada, which examined the verbal descriptions of pain among cancer patients (Gagel, 1988). The study showed that patients with more years of education (high school and beyond) were more likely to use affective and sensory phrases and more figurative language (e.g., similes and metaphors) to describe their pain than were patients who had not completed high school.

Steps

1. Explain to the students that the goal of the day’s lesson is to improve their ability to describe symptoms when they speak to a doctor or nurse. In addition, tell the students that they will be working on the following skills that are assessed on the Language Arts-Reading section of the GED test: comprehension of poetry, compare/contrast skills, vocabulary development, and figurative language.

2. Write the following quotation on the board.

   There is the poverty of language…the merest schoolgirl when she falls in love has Shakespeare or Keats to speak her mind for her; but let a sufferer try to describe a pain in his head to a doctor and language at once runs dry. (By Virginia Woolf, author of “On Being Ill”)

   Ask the students:
   - In your opinion, what is Virginia Woolf saying about the relationship between language and pain?
   - What does the phrase “poverty of language” mean to you?
   - Do you agree with her ideas about pain? Why or why not?
   - Does this quotation make you think about your own experiences talking to doctors? If so, share your thoughts with the class.
   - What makes language “run dry” when a patient talks to a doctor? (In other words, what gets in the way when we try to describe symptoms?)

   You may want to facilitate a group discussion in response to any of the above questions or assign a short written response (e.g., free-write or personal essay). Ask students to share their responses with the whole class.

3. Explain that symptoms, such as fatigue and pain, are subjective experiences. This means that the doctor cannot always measure or observe symptoms. Only the patient

* See Verbal Description of Pain by Patients with Cancer, a master’s thesis completed by Mike Peter Gagel in 1988 at the University of British Columbia, online at http://healthpro.bc.ca/thesis/introduction.html
knows exactly what his or her symptoms feel like. Doctors try to understand the nature and pattern of a patient’s symptoms in order to make a diagnosis. An accurate description of a symptom helps a doctor make a quick and early diagnosis.

*Note to teacher:* These ideas may naturally come up as part of the discussion in response to the Woolf quotation. If so, there is no need to repeat the students’ comments. However, if these ideas do not come up, you can move the discussion along by explicitly calling attention to these ideas. Be sure to invite the students to respond after you present these ideas about the subjectivity of symptoms.

4. Explain that an important goal when talking to a doctor is to paint a picture in the doctor’s mind about what you, as the patient, are feeling. Tell the students that they will read two poems written by patients who suffer from arthritis. Indicate that this lesson will help students see how a rich vocabulary and good expressive communication skills enable a person to paint an accurate picture of their symptoms.

*Note to teacher:* Teachers and students should understand that students are not expected to become poets in order to communicate effectively with their doctors! Poetry is used in this lesson because it provides rich context to examine descriptive language. Poetry is also used because it is an important genre assessed on the GED.

5. Distribute the poem, *sometimes i’m* (*Student Handout A*).

6. **Distribute Student Handout B** for discussion questions.

**Follow-up Activities**

A) **Journal Writing Activity**

*Student Handout C* contains additional quotations on the subject of pain. Ask students to choose one and free-write a journal entry in response.

B) **Vocabulary Development**

With the students, create semantic maps, developing categories for related words used to describe symptoms. These maps can be organized around symptoms associated with a particular illness (e.g., cold, asthma), a part of the body (e.g., stomach), or a particular kind of symptom (e.g., headache, fever, tiredness).

C) **Interview Activity**

Interview someone who suffers from chronic pain, e.g., someone with chronic back problems or arthritis. Interview them about their symptoms and write down how they describe their symptoms. Share responses in class.
ESOL Teaching Tips

Using poetry in adult ESOL classrooms provides students with a rich opportunity to study language use, rhythm in language, and poetic devices (e.g., metaphors). The poem in this lesson make use of everyday language (as opposed to literacy language), which may make it easier for adult ESOL students to read and understand. Additionally, the poem *sometimes i’m* contains a predictable language pattern (the SUBJECT-VERB “i’m” followed by a NOUN which expresses how the author feels about her arthritis). Call the students’ attention to this pattern to ease their reading and comprehension. You may wish to give students the following prompts:

> Sometimes I’m...
>  I’d rather be...
>  But mostly I’m ...

Ask the students to compare themselves to an object or animal by completing the sentences with the name of an object or animal. The goal is to try to convey a state of mind, particular emotion, or feeling. For example,

> Sometimes I’m a mouse.
>  I’d rather be a lion.
>  But mostly I’m a doorbell.

You can also ask the students to expand their sentences using the same syntactic pattern (subject + verb + noun, followed by participial phrase) used in the poem.

> Sometimes I’m a mouse, staring out of a small hole in the corner of a larger house.
>  I’d rather be a lion, roaring so loud that people cover their ears.
>  But mostly I’m a doorbell, calling out only when pushed

Technology Tips

After completing this lesson, students may wish to explore information on pain available on the MedLine Plus Web site at [http://www.nlm.nih.gov/medlineplus/pain.html](http://www.nlm.nih.gov/medlineplus/pain.html). This source will provide links to information about diagnosis and treatment of pain. This source also provides a link to a useful diagram called the *Pain Drawing* produced by the American Academy of Physical Medicine and Rehabilitation available at [http://www.aapmr.org/condtreat/pain/paindrawing.htm](http://www.aapmr.org/condtreat/pain/paindrawing.htm). This drawing features a simple sketch of the human body. A patient is asked to mark on the picture those areas of the body where she or he feels pain. The patient is also asked to use symbols to indicate the intensity of the pain. The diagram applies some of the vocabulary introduced in this lesson and provides students with a useful tool they can use with their own doctors.

WebMd Health is another source that provides some basic information about pain, diagnosis, and treatment, available at [http://my.webmd.com/content/article/100/105615.htm?z=1826_00000_0000 rl_01](http://my.webmd.com/content/article/100/105615.htm?z=1826_00000_0000 rl_01)
sometimes i'm
by Liz Hall-Downs
for Christine Ferrari

sometimes i’m these cockatoos
flashing my sulphur crest and screaming

sometimes these unripe olives
bitter and small amongst silvered leaves

sometimes i’m that raven, too much to say
and saying too loudly, caw in the naked tree

and sometimes i'm currawong, defiant song
chasing everyone else away

i’d rather be these rocks
solid, serene, slow changing
or that red-breasted wren, twitching my tail
alert, but careful, delighting the new spring

i’d rather be that shy wallaby
self-protective, scratching my sleekness

then bounding away to where green shoots grow
alert and silently watching

but mostly i’m that old hills hoist
skewed and broken and rusting
my lines all stretched and sagging
useless for holding the washing

and thankful for the friend
who'll call maintenance in
to straighten me out again

* Previously published online in The Drunken Boat (http://www.thedrunkenboat.com/arthritic.html.)
Reprinted with the author's permission.
**Student Handout B:**
*Discussion questions for the poem, sometimes i’m*

1. How does the poet feel about having arthritis?

2. In the poem, underline key phrases and words that help you understand how the poet feels as a result of her arthritis. Be sure to state in your own words what you think these underlined phrases and words mean.

3. In the poem, identify any figurative language (similes, metaphors) that the poet uses to describe her experiences with arthritis. Why do you think the author chose these similes or metaphors to describe her experiences?

**About your own experiences**

Think about the last time you suffered from a headache, backache, or the flu. Alternatively, think about the last time you had to go to the emergency room or had to spend time as a patient in a hospital. Describe how you felt using five adjectives and at least one simile or metaphor. Work with a partner and use a thesaurus to include at least two new vocabulary words in your description.
Student Handout C


Pain is real when you get other people to believe in it. If no one believes in it but you, your pain is madness or hysteria.

---

Emily Dickinson, U.S. poet

Pain – has an element of blank –
It cannot recollect
When it begun – or if there were
A time when it was not.

---

John Locke, British philosopher

Joy and pain, like other simple ideas, cannot be described or their name defined... we get to know them only by experience.

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Miguel Cervantes, Spanish author

When the head aches, the whole body is out of tune.
Lesson 6: (GED) Using Bar Graphs to Learn about Literacy and Health Outcomes

Chronic Disease Management
Task Addressed in this Lesson
• Learners will increase their awareness of the link between literacy levels and health outcomes related to chronic diseases.

Skills Focus
• Learners will learn how to examine data in a bar graph.
• Learners will learn how to compare and contrast information in side-by-side bar graphs.

ABE/ESOL Level
Intermediate to advanced GED

Time
1 ½ hours

Materials
• Student handouts (3 pages)
• Appendix A

Vocabulary
Percentage
Data
Bar graph
Interpret

Purpose
This lesson has two main objectives: (1) to teach learners to interpret a bar graph and (2) to introduce learners to a relationship between literacy and health outcomes. Learners have an opportunity to share their reactions to data presented in a bar graph that indicate that adults with low literacy skills are less likely to understand medical instructions. Learners will develop their document literacy skills, particularly with respect to the way graphs show comparisons. In the follow-up activities to this lesson, learners have an opportunity to practice developing their own bar graphs.

Connection to GED Skills
You may wish to point out that nearly half of the questions on the GED Test in the Social Studies, Math, and Science sections make use of graphs (pie graphs, line graphs, bar graphs). This lesson is designed to help learners interpret graphs and present information in graphs. See the Harcourt Achieve’s Web site (www.gedpractice.com) for several sample GED test items that feature various kinds of graphs.

Steps
1. Warm-up. Introduce this lesson by posing the following questions to the whole class:
   • What is a graph?
   • What are graphs used for?
   • What kinds of graphs have you seen?
   • What information do we usually find in graphs?

You may wish to show examples of various kinds of graphs found in newspapers, magazines, or workplace documents. Examples of graphs will help the learners begin to understand different ways of presenting information. Point out to the class that the focus of the day’s lesson is on one kind of graph – bar graphs.
2. **Cooperative learning exercise: Analyze a bar graph**

Organize the learners into groups of three to four. This cooperative learning exercise provides learners with a **task** (in this case, analyzing a bar graph) and a **group structure** for carrying out the task. The group structure includes the assignment of one of four roles to each learner in the group:

**Facilitator:** This person helps the group by paying attention to how the group is interacting. This person also makes sure that everyone has an opportunity to speak or ask questions. If there is a disagreement, this person will help clarify the points of disagreement and offer suggestions for resolving the disagreement.

**Recorder:** This person takes notes on the group’s responses to the questions on the Student Handout.

**Time keeper:** This person makes sure that the group stays on task to complete the worksheet in the allotted time (35 minutes).

**Presenter:** This person summarizes and presents some highlights from the group’s discussion to the whole class during the large-group discussion that follows this small-group work. Specifically, the presenter will report his or her group’s responses to questions #10 and 11 on the student worksheet. These two questions elicit the learners’ interpretations and personal reactions to the information in the bar graphs.

*Note to teacher:* If learners are not familiar with cooperative learning formats, you may wish to explain that this kind of small-group work provides learners with an opportunity to examine a topic in-depth by listening to other people’s ideas. Learners can share their ideas, problem-solve with others, and work with others to make a decision or reach consensus. Cooperative learning helps learners develop important group interaction skills and critical thinking skills.

If learners work in groups of three, the facilitator can also act as the time keeper. We recommend that learners work in groups no larger than four. It is important that you allow learners to work in groups to figure out their preferred roles.

3. **Analyze the graph and answer questions: Small group work (35 minutes)**

Give each learner a copy of the following handouts:
- Handout: Using a Bar Graph to Learn About Literacy and Health Outcomes
- Bar Graph Example (Figure 1)
- Worksheet: Questions for Interpreting a Bar Graph

Ask each group to analyze the bar graph (Figure 1) and answer the questions about the graph on the worksheet.

The questions are designed to help learners understand how to read a bar graph (questions #1 - 9). Learners also have an opportunity to react to the health
information presented in the bar graph (questions #10 - #11). Note: An answer key to
the questions is provided in a separate handout for the teacher.

Note to teacher: The bar graphs in this lesson are based on a 1998 study conducted
with 483 asthma patients in an urban public hospital in Atlanta, Georgia. The study
examined the link between patients’ reading skills and their asthma knowledge and
self-care skills (e.g., how to use an inhaler). The Rapid Estimate of Adult Literacy in
Medicine (REALM) was used to assess patients’ reading skills. 65 patients were found
to read at or below 3rd grade, 130 patients read between 4th and 6th grade, 157 patients
read between 7th and 8th grade, and 131 patients read at a high school level. An oral
questionnaire was also used to assess patients’ knowledge of asthma and self-care
skills. The source of the study is Williams, M.V., Baker, D.W., Honig, E.G., Lee,
T.M., & Nowlan, A. (1998). Inadequate literacy is a barrier to asthma knowledge and
self-care. CHEST, 114, 4, 1008-1015.

4. Large group discussion: Report back on small-group discussions
Bring the class together and ask the presenter from each group to share their group’s
responses to questions #10 and #11 with the class. Allow the class to respond to each
other’s comments and ask questions about the graph.

Follow-up Activities
A. Writing exercise: More practice interpreting bar graphs
The appendix to this lesson provides an additional bar graph (Figure 2) which
illustrates more data about the relationship between literacy levels and patients’
knowledge about asthma. As a homework assignment, ask students to write a two-
paragraph essay in reaction to the graph by answering the following two questions.

What does this graph tell me?
Write a short description (1 paragraph) of the information in the bar graph.

What is my opinion about the information in this bar graph?
Write a personal reaction (1 paragraph) to the information in the bar graph.

B. Graphing exercise: Survey people with chronic diseases
Ask learners to create their own survey questions about people’s experiences
understanding and following a doctor’s instructions. Some possible survey questions
include:

- How well do you feel you understand your doctor’s instructions about the
  medicines you are taking?
  Choose from:
  Very Well, Moderately Well, Somewhat Well, Not Well at All

HALL/NCSALL Health Literacy Study Circles®  Skills for Chronic Disease Management
- Who do you go to for help if you do not understand how to take your medicines?
  Choose from:
  *Medical staff, Family member/Friend, Internet, Nobody, Other*

- What problems have you experienced because of confusion about your medicines?
  Choose from:
  *Missed a dose, Had a bad reaction, Symptoms got worse, Other*

Learners survey 10 people and then use their survey information to create bar graphs illustrating the numbers of people who responded in the various categories. Learners can share and discuss their bar graphs in class. See Technology Tips below for information on a Web-based tool you can use to create graphs.

**ESOL Teaching Tips**

You may wish to spend time talking about asthma with ESOL learners so they understand: (1) that asthma is a common chronic illness in the U.S.; and (2) that, in general, all asthma patients need to take medicine, monitor their breathing, and see a doctor on a regular basis. In addition, you may wish to ask ESOL learners to bring in examples of graphs from newspapers or magazines to jumpstart the discussion about graphs and their purposes.

You may also wish to provide ESOL learners with phrases to help them describe and interpret what they see in the bar graphs, such as:

- *The y-axis indicates that...* or *The x-axis shows that...*
- *According to the graph, ...* or *Based on this graph, ...*
- *Based on this graph, ___ percent of patients who read at a _____ level understand that people with asthma should seek help from a doctor even if they are not having an attack.*
- *In my opinion, I think that this graph tells us that...*
- *I think that the information in this graph is .... (interesting/shocking/not surprising) because ....*

**Technology Tips**

*Create a Graph* is an online tool that enables learners to input their own data (e.g., graph title, axis labels, and data values) and generate different types of graphs. This Web site also contains examples of different types of graphs. See the National Center for Education Statistics at [http://nces.ed.gov/nceskids/graphing/](http://nces.ed.gov/nceskids/graphing/)

Note that you may also use Microsoft Excel to input data and generate graphs.
Handout:
Using a Bar Graph to Learn About Literacy and Health Outcomes

Introduction
For this assignment, you should work in groups of three to four people. Each person in the group will take on one of the following roles:

**Facilitator:** This person helps the group by paying attention to how the group is interacting. This person also makes sure that everyone has an opportunity to speak or ask questions. If there is a disagreement, this person will help clarify the points of disagreement and offer suggestions for resolving the disagreement.

**Recorder:** This person takes notes on the group’s responses to the questions on the Student Handout.

**Time-keeper:** This person makes sure that the group stays on task to complete the worksheet in the allotted time (35 minutes).

**Presenter:** This person will summarize and present some highlights from the group’s discussion to the whole class during the large-group discussion that follows this small-group work. Specifically, the presenter will report his or her group’s responses to questions #11 and #12 on the student worksheet. These two questions elicit the learners’ interpretations and personal reactions to the information in the bar graphs.

Work with your group members to figure out who will carry out each role. If your group only has three members, the facilitator can also serve as the time-keeper.

<table>
<thead>
<tr>
<th>Role</th>
<th>Name of person in group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facilitator</td>
<td></td>
</tr>
<tr>
<td>Recorder</td>
<td></td>
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<tr>
<td>Time-keeper</td>
<td></td>
</tr>
<tr>
<td>Presenter</td>
<td></td>
</tr>
</tbody>
</table>
Bar Graph Example (Figure 1) *

_Instructions:_ Study the bar graph below and work with your group to answer the questions on the worksheet.

**Figure 1:** Percentage of asthma patients who know that they need to see their doctor about their asthma even if they are _not_ having an asthma attack.

Worksheet: Questions for Interpreting a Bar Graph

Instructions: Use the bar graph to answer the questions below.

1. Use the words below to label the parts of the graph.
   
   Graph title    x-axis (horizontal)
   Bars           y-axis (vertical)

2. What scale is used in the bar graph? (Hint: At what number does the vertical axis begin on each graph? At what number does it end?)

3. To what do the numbers on the y-axis refer? (i.e., what do the numbers on the vertical axis mean?)

4. What do the labels on the x-axis mean?

5. What do the bars in the graph tell you?

6. According to the graph in Figure 1, which group of asthma patients understood the most that people with asthma should see a doctor even if they are not having an asthma attack? Which group of patients did not really understand that people with asthma should see a doctor even if they are not having an asthma attack?

7. From the data in the graphs, can you figure out the exact number of patients who knew that people with asthma should see a doctor even if they are not having an attack?
8. Why do you think the bar graphs use percentages on the y-axis?

9. What does the increase across the bar heights in the graph mean?

10. Are you surprised by the information in the graph? Why or why not?

11. What do you think is the most important message to remember about the information in the graph? Discuss your ideas with your group members and try to agree on one or two most important messages.
Answer Key for the Teacher
Worksheet: Questions for Interpreting a Bar Graph

Answer Key to Questions about Figure 1.

1. Use the words below to label the parts of the graph.
   
   Graph title  x-axis (horizontal)  
   Bars  y-axis (vertical)

2. What scale is used in the bar graph? (Hint: At what number does the vertical axis begin on each graph? At what number does it end?)

   A scale is the range of values that are used on the y-axis (the vertical axis, sometimes called the frequency axis). The scale used in both graphs begins at 0 (zero) and ends at 100.

3. To what do the numbers on the y-axis refer? (i.e., What do the numbers on the vertical axis mean?)

   The numbers are percentages. They represent the amount of people who understand that patients need to see their doctor about their asthma even if they are not having an attack.

4. What do the labels on the x-axis mean?

   The labels (for example, \( \leq 3^{rd} \) or \( 4^{th}-6^{th} \)) are reading levels. The label \( \leq 3^{rd} \) refers to people who read at a third grade level or lower. The label \( 4^{th}-6^{th} \) refers to people who read at a grade level at or between \( 4^{th} \) and \( 6^{th} \) grade, and so on.

5. What do the bars in the graph tell you?

   The bars tell you the amount of patients at each reading level who understood that people with asthma should see a doctor about their asthma even if they are not having an attack. The amounts are measured in percent. Taller bars mean higher percents, in other words, more patients understood this fact about asthma, while shorter bars mean lower percents, and in other words, fewer patients understood this fact about asthma.

6. According to the graph in Figure 1, which group of patients understood the most that people with asthma should get help from a doctor even if they are not having an asthma attack? Which group of patients did not really understand that people with asthma should get help from a doctor even if they are not having an asthma attack?

   The height of each bar tells you the percent of patients who understood that people with asthma should see a doctor about their
asthma even if they are not having an attack. To figure out which group of patients understood this fact the most, we look for the tallest bar. The tallest bar in the graph is the one for the patients who read at a high school level. Likewise, to figure out which group of patients understood this fact the least, we look for the shortest bar. The shortest bar is the one for the patients who read at or lower than a third grade level.

7. From the data in the graphs, can you figure out the exact number of patients who knew that people with asthma should seek help from a doctor even if they are not having an asthma attack?

   This may be a tricky question. The learners need to note that the y-axis reports percents, not exact numbers of patients. The graph does not tell us the total number of patients, so we cannot calculate the exact number of patients. We only know the different percentages of patients who understood this fact about asthma, not the exact number of patients.

8. Why do you think the bar graphs use percentages on the y-axis?

   This question builds on the learners’ responses to questions #5-#6. The learners need to note that the graphs do not report exact numbers of patients, only percentages of patients. These bar graphs show the relationship between patients’ understanding about the need for regular care when you have asthma and their reading level. Because the bar graphs highlight this pattern (or trend), it is not necessary to report specific numbers of people.

9. What does the increase across the bar heights in each graph mean?

   The increase in bar heights across the different reading levels suggests that patients at higher levels of reading ability are more likely to understand that going to a doctor about their asthma is important, even if they are not having an asthma attack. This suggests that patients at higher levels of reading ability are more likely to see a doctor for routine follow-up care even if they are not having symptoms. This question is meant to show the students that one important way to interpret bar graphs is to look for decreases or increases in bar heights.

10. Explain why you are or are not surprised by the information in the graphs.

   Encourage learners to rely on their own experiences with chronic disease and their knowledge about why getting medical care from a doctor is important if you have a chronic disease. A sample response might be: Sometimes people don’t think they need to see a doctor if they don’t feel sick. That’s why they don’t go for regular check-ups.
The doctor may think the patient knows about regular check-ups this because it was written down somewhere or he said it one time. But, what if the patient can’t read well or doesn’t understand English well? How will the patient know to schedule regular check-ups?

11. What do you think is the most important message to remember about the information in these graphs? Discuss your ideas with your group members and try to agree on one or two most important messages.

- If you have a chronic disease, going to a see a doctor regularly, even when you are not feeling sick, can keep you from getting sicker.
- Doctors should do their best to make sure all their patients understand the importance of regular checkups if they have a chronic disease. Doctors should take their time and speak clearly to make sure we understand. They should not just give us materials to read and assume we know what to do.
- ABE teachers can help students improve their communication skills so they feel more confident about talking to their doctors and asking questions.
Appendix A: Additional Materials for Using Bar Graphs

Figure 2 is a Bar Graph you can use for follow-up activities. It features information about literacy and health outcomes.

Figure 2. Percentage of patients who believed asthma medications had no side effects

![Bar Graph]

Lesson 7: (ESOL) Communication between Patients and Doctors *

Chronic Disease Management

Tasks Addressed in this Lesson
• Work effectively with a doctor
• Examine barriers to good doctor-patient communication
• Identify strategies for improved doctor-patient communication

Skills Focus
• Students will learn and practice language for communicating with doctor, including expressions for asking questions, making requests, stating preferences, and getting clarification.

ABE/ESOL Level
Intermediate to advanced ESOL

Time
1 hour 15 minutes

Materials
• Student worksheet

Vocabulary
confidence
satisfied
unsatisfied
doctor’s visit
communication style
Could you…
Would you…
I am concerned about…
I have questions about…

Purpose
This lesson is designed to help ESOL students examine barriers to good doctor-patient communication and understand reasons for good communication. As part of this lesson, students will learn and practice tips for improving communication with doctors.

Note to teacher: Helping students feel prepared for a visit to the doctor is one of the best tips for improving doctor-patient communication. It is very important to bear in mind that there are no “quick-fix” solutions to problems in this regard. This lesson will likely raise issues of very sensitive topics for your students, such as stereotyping about linguistic and ethnic minorities, racial inequities, cultural differences, or poor access to quality health care. These are serious and legitimate concerns about the barriers to reform in doctor-patient communication. You do not need to comment or feel as if you need to be an expert on health topics.

Be clear about your goals as an ESOL teacher. You may wish to point out that you want to help students prepare for a doctor’s visit. Also, use your students as resources as much as possible and draw from their own experiences and knowledge.

* This lesson is based on materials used by the How to Talk to Your Doctor community education forum, produced by Excellence Center to Eliminate Ethnic/Racial Disparities (EXCEED) at the Baylor College of Medicine, Houston, Texas. Material has been adapted with permission from the authors.
Steps

1. **Going to the doctor: Large group discussion (30 minutes)**
   Tell the class that the day’s lesson focuses on how doctors and patients talk to each other. To begin the lesson, ask the students to think about the last time they had a visit to the doctor. If students can’t recall a recent visit to the doctor, they may wish to think about the last time they took a family member (e.g., an elderly parent, a child) for a visit to the doctor. Pose the following questions to the whole group. Be sure to write the questions on the board:

   **Questions:**
   1) *Did you feel confident talking about your health with your doctor?*
   2) *Did the doctor take time to answer your questions?*
   3) *Did you understand the doctor’s explanations and instructions?*
   4) *About how long did the visit last?*
   5) *How satisfied did you feel after your visit?*

   Choose one: Very satisfied; Satisfied; Unsatisfied; Very unsatisfied

   You might elicit responses from the students by asking for a show of hands to indicate who did or did not feel confident talking about their health with their doctor.

   - For question #4 about the length of the doctor’s visit, survey the class by asking each student to share their answers, record the responses on the board, and then calculate the average length of time for the entire class.
   - For question #5, survey the class and then tally the students’ responses to figure out the most prevalent response. After students have had an opportunity to share their responses, invite the students to explain their answers in greater detail. They might talk about what made them feel confident/satisfied or not confident/unsatisfied.
   - Generate a list of Things that make me feel not confident or unsatisfied about the doctor’s visit. A list of possible student responses is provided below.

   **Some sample responses:**
   Things that make me feel not confident or unsatisfied about the doctor’s visit:
   - I can’t speak English well so I don’t know if the doctor really understands me.
   - The doctor didn’t sit down. I didn’t think he wanted to stay and talk to me.
   - The doctor spoke too fast. She used a lot of words I did not understand.
   - I didn’t understand the doctor’s instructions but I felt too embarrassed to ask him to repeat what he was saying.
   - I felt terrible that I could not talk to the nurses and doctors. I just said “yes” and “thank you.”
   - I didn’t know what to say about the pain in my hip. I didn’t feel confident that the doctor really knew what I was feeling.
2. **Importance of good doctor-patient communication: Discussion and analysis**

Invite the students to comment on the question, *Why is good doctor-patient communication important?* Depending on the size of your class, you may wish to ask students to discuss this question as a large class, in pairs, or perhaps spend some time individually writing a response in their journals. As the students share their ideas, be sure that the following ideas are highlighted in the group discussion:

- **Doctor visits are usually very short.** Your doctor *should* talk to you in a clear and understandable way. Some doctors do a good job of talking to patients and some doctors do a bad job. Your actions, as a patient, are important too. By talking to your doctor, you can help him or her figure out how to take care of your health.

- **Talking to doctors can be especially difficult for adults who are not fluent in English or who are not familiar with the U.S. health system.** Poor communication between doctors and their patients can be a serious barrier to good health.

- **Many people – even those who do speak English fluently – do not go to see the doctor because they are anxious about talking to a doctor.** This anxiety is normal and common. However, putting off seeing a doctor can cause more problems.

*Note to teacher:* These comments are used to set the stage for a subsequent discussion of strategies for improving communication with doctors in Step #3. Avoid “lecturing” to the students. Be patient even if the discussion is slow-moving as students may not have thought about doctor-patient communication before. If the ideas are not mentioned in the students’ discussion, you may wish to briefly summarize the ideas and then invite students to comment on the ideas.

3. **Overcoming barriers and identifying strategies for improved doctor-patient communication: Small group work**

Organize the students into groups of two or three and distribute the *Student Worksheet: Problem-Solving around Doctor-Patient Communication.* Ask students to problem-solve in reaction to the various things that made them feel not confident or unsatisfied with their doctor visits.

In Column 1 on the worksheet, ask students to list two or three problems people face when they talk to doctors.

In Column 2, ask the students to think of things they can do to help themselves with this problem. Ask the question, *what can I do to overcome this problem?*

In Column 3, ask the students to list one or two sentences or phrases they might use to overcome these problems.
A few examples are provided below for you.

<table>
<thead>
<tr>
<th>Problems and barriers</th>
<th>What strategies can help me try and overcome these problems and barriers?</th>
<th>What can I say in English to help me overcome these problems and barriers?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doctors’ visits are too short. They sometimes last only about 10-15 minutes.</td>
<td>I can write down my questions on a card before my appointment. I can bring this card to my appointment so I don’t forget what I want to say.</td>
<td>“Dr. Tam, I have three questions about my diabetes. Could you answer these questions?”</td>
</tr>
<tr>
<td>The doctor uses a lot of medical words that I don’t understand.</td>
<td>I can ask the doctor to write down any words that I don’t understand. I can ask the doctor to explain these words in simpler language. I can bring a bilingual dictionary. I can ask for a trained interpreter.</td>
<td>“Dr. Tam, excuse me, I didn’t understand what you said. Could you write it down?” “Could you say it in simpler language?” “Could I request an interpreter, please?”</td>
</tr>
<tr>
<td>The doctor is talking too fast. I can’t say what I want to say.</td>
<td>I can ask the doctor to repeat what she or he said. I can ask the doctor to speak more slowly.</td>
<td>“Dr. Fernandez, excuse me, could you repeat what you said?” “Would you mind speaking more slowly?”</td>
</tr>
</tbody>
</table>

Allow the students to work in groups for at least 30 minutes. After groups have filled in the chart on two or three problems or barriers, bring the class together as a whole and invite each group to share some of their ideas. You may wish to record the students’ ideas on a blank handout that is transferred onto an overhead transparency or onto a large sheet of poster paper.

*Note to teacher:* Less proficient students will likely need help with vocabulary and the formation of questions. This lesson provides the instructor with an opportunity to reinforce the grammatical structure of questions (e.g., auxiliary verb + subject + main verb). In addition, the instructor can discuss the use of modal expressions to show respect and politeness (e.g., Will you…, Could you…?), and support the development of students’ pragmatic competence (e.g., the use of formal versus informal requests).

Also, be sure to emphasize that the students’ responses do not need to include all the possible problems and barriers that a patient might encounter. It is more important that students identify the problems that worry them the most and that they come up
with a strategy. This exercise provides strategies and language so they can feel more confident should they run into the same problem or barrier.

**Follow-up Activities**

**A. Survey activity**
Students interview five people outside of class. They ask the questions posed to the students in Step #1 about doctor visits. Students can share their information in the next class. The follow-up discussion can focus on what is similar about the people’s experiences.

**B. Skit activity**
Ask students to read the following scenario and identify the barriers or problems. Students should think about what the patient in the scenario should do to try to overcome these problems. Working in pairs, students can write a short skit between the patient and the doctor.

**Scenario:**
You haven’t felt like yourself lately and you’ve had a headache all day. You take Tylenol, but the headache doesn’t go away. You are worried because you are not sure what is causing the headaches. You don’t want to go the doctor because you’re afraid he’ll be mad at you for coming in for such a small problem.

You decide not to call, but the next day you still have a headache. Your husband or wife tells you, “If you don’t go to the doctor, something bad might happen.”

It’s your first time meeting this doctor.

**ABE/GED Teaching Tips**
Even those students who are native English speakers or who were born in English-speaking countries will likely find this lesson useful and relevant. Many people – whether they speak English fluently or not – feel intimidated or unsure about what to say when they visit a doctor.

* Adapted from material in *How to Talk to Your Doctor (and get your doctor to talk to you!)* published by Excellence Centers to Eliminate Ethnic/Racial Disparities (EXCEED) at the Baylor College of Medicine, Houston, Texas. Material has been adapted with permission from the authors.
At a conference (Health and Literacy Working Together) organized by the Iowa New Readers in 2005,* adult learners shared concerns about not being able to communicate well with their doctors. These students wanted to tell their doctors, “treat us with respect” and “we will treat you with respect.” These students also wished their doctors would spend more time with them. They want their doctors to give them clear instructions, for example, when getting a new prescription. The students shared concerns about doctors who assume their patients understand the doctor’s instructions and can read the documents they are given. The students were also concerned about the assumptions that doctors sometimes make about patients who cannot read well. The students asked that doctors not “feel sorry for us…we want (doctors) to try and understand us.”

You may wish to share some of these comments with your ABE/GED students as a way to jumpstart the discussion of doctor-patient communication issues.

**Technology Tips**

To view information about The *How to Talk to Your Doctor* community education forum, as well as the materials, produced by Excellence Center to Eliminate Ethnic/Racial Disparities (EXCEED) at the Baylor College of Medicine, Houston, Texas, visit their Web site: [http://www.bcm.edu/medicine/exceed/index.html](http://www.bcm.edu/medicine/exceed/index.html).

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* These comments were taken from conference proceedings but are not available on the Web. For more information about the conference, visit [http://www.ihi.org/IHI/Topics/Improvement/ImprovementMethods/Literature/HealthandLiteracyWorkingTogether.htm](http://www.ihi.org/IHI/Topics/Improvement/ImprovementMethods/Literature/HealthandLiteracyWorkingTogether.htm)
Student Worksheet: Problem-Solving Around Doctor-Patient Communication

<table>
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<th>Problems and barriers</th>
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<td>I can write down my questions <strong>before</strong> my appointment on a card. I can bring this card to my appointment so I don’t forget what I want to say.</td>
<td>“Dr. Tam, I have three questions about my diabetes. Could you answer these questions?”</td>
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</table>
**Lesson 8: (ESOL) Questions to Ask Your Doctor**

**Chronic Disease Management Tasks Addressed in this Lesson**
- Work effectively with a doctor
- Identify questions to ask the doctor before a visit
- Develop strategies for improved doctor-patient communication

**Skills Focus**
- Students will discuss and share personal opinions about communication styles of doctors and patients.
- Students will learn and practice language for communicating with a doctor, including expressions for asking questions, making requests, stating preferences, and getting clarification.

**ABE/ESOL Level**
Intermediate to advanced ESOL

**Purpose**
This lesson is designed to provide ESOL students with an opportunity to learn and practice asking questions. Students will discuss why thinking about questions before a doctor visit is important. They will also discuss possible barriers to good communication between doctors and patients. Students learn to ask questions about medical conditions, treatments, tests and procedures, as well as medicines and prescriptions.

*Note to teacher:* Helping students feel prepared for a visit to the doctor is one of the best ways to improve doctor-patient communication. It is very important to bear in mind that there are no “quick-fix” solutions to problems in this regard. This lesson will likely raise issues of very sensitive topics to your students, such as stereotyping about linguistic and ethnic minorities, racial inequities, cultural differences, or poor access to quality health care. These are serious and legitimate concerns about the barriers to reform in doctor-patient communication. You do not need to comment or feel as if you need to be an expert on health topics.

Be clear about your goals as an ESOL teacher. Point out that students will develop a plan to help them prepare for a doctor’s visit. Use your students as resources as much as possible. Their own experiences and knowledge are critical to the success of health literacy instruction.

<table>
<thead>
<tr>
<th>Vocabulary</th>
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<tr>
<td>dose</td>
<td>procedures</td>
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<td>interact</td>
<td>risks</td>
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<td>medical condition</td>
<td>side effects</td>
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<td>medication</td>
<td>test</td>
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<td>medicine</td>
<td>treat</td>
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<tr>
<td>prescription</td>
<td>treatment</td>
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*The materials in this lesson are based on materials in *Communicating With Your Doctor: The PACE System* produced by Dr. Donald J. Cegala, Ohio State University.*
Steps

1. **A Conversation between a Doctor and Patient: Pair work (10 minutes)**
   Distribute the **Student Handout #1: A Conversation between a Doctor and Patient.** Organize the students into pairs and ask the students to read the conversation aloud with their partners. Students can take turns being the patient and doctor so they get more practice reading the script aloud. Encourage students to use their dictionaries or ask one another for help if there are words or phrases that they do not understand.

   **(TEACHER’S COPY) Conversation Between a Doctor and Patient**
   This conversation takes place during a patient’s visit to her doctor. The doctor wants to prescribe a drug for the patient’s high blood pressure.

   **Doctor:** I would like you to take a medicine for your high blood pressure.
   **Patient:** What is the name of the medicine?
   **Doctor:** Acebutolol.
   **Patient:** What does it do?
   **Doctor:** This drug is used to treat high blood pressure. It helps to lower your blood pressure.
   **Patient:** Could you tell me if there are any side effects?
   **Doctor:** It might make you feel sleepy or dizzy. It might also make you feel weak and tired.
   **Patient:** How should I take it?
   **Doctor:** Please take it once a day. You can take the drug with food so it doesn’t upset your stomach.
   **Patient:** Thanks for your help.
   **Doctor:** You’re welcome. See you at your next visit.

2. **Analysis of the conversation between a doctor and patient**
   Discuss the conversation as a whole class. Pose the following questions:
   - Did any part of this conversation surprise you? Explain.
   - Is this conversation similar to conversations that you have had with your own doctor? (Or, how is this conversation different from conversations that you have had with your doctor?)
   - What makes talking to doctors difficult? List some problems.
   - Can you imagine this conversation taking place in your home country? How might the conversation be the same or different?

* Questions adapted from lesson plans featured on Western Pacific LINCS, Literacyworks, available at [http://www.literacynet.org/vtd/](http://www.literacynet.org/vtd/)
Invite students to share their thoughts and comments. Depending on the size of your class, you may wish to ask the students to keep working in pairs, or join another pair to form a group of four, so that all students have an opportunity to share their ideas. This discussion will likely raise the problems students have asking doctors questions. If the topic does not come up, be sure to raise it as a possible area of difficulty. Make a list of students’ responses on the board. Some possible responses are provided below.

**What is difficult about asking doctors questions?**
- I can’t speak English well so I don’t know how to ask my questions.
- I forget my questions when I get to the doctor’s office.
- I can ask the questions, but then I can’t understand the doctor’s answer.
- I feel too embarrassed to use my English.
- The doctor seems to get mad if I ask a lot of questions.

*Optional.* If time allows, ask the students to generate a list of ways in which health professionals in the U.S. act differently than do health professionals in their home countries. You can title this list **Cultural Differences in Patient-Doctor Communication.** Some possible student responses are provided below.

**Cultural Differences in Patient-Doctor Communication**
- In the U.S., doctors will tell you good and bad news. But in my country, doctors do not tell bad news to the patient.
- In my country, it is not respectful to ask the doctor too many questions. In the U.S., a patient is supposed to ask questions.
- In my country, you shouldn’t look right at the doctor. It’s rude. If I don’t look at the doctor in the U.S, the doctor might think something is wrong with me.

*Note to teacher:* In discussing the challenges of asking doctors questions and cultural differences, avoid lecturing to the students. As much as possible, use the students’ own experiences to drive the class discussion. After students have had a chance to share their ideas, tell them that the next part of the lesson will help them practice asking questions in English so they can be better prepared for visits to the doctor.

### 3. Questions I Can Ask My Doctor: Small group work

Organize the students into groups of two to three. Distribute the **Student Handout #2: Questions You Can Ask Your Doctor** to each student. The handout presents sample questions that patients can ask their doctor. The questions are organized into three categories:

- Questions for your doctor
- Questions about tests and procedures
- Questions about medicines
Assign one set of questions to each group. Ask the students to read the questions and underline any unfamiliar vocabulary. Students can use their dictionaries or ask their peers or the teacher for help. (Note: Depending on the level of your class, you may wish to read the questions aloud to the whole class to model correct pronunciation and intonation before organizing the students into small groups.)

**Ask each group to complete the following three tasks:**

1. Read the questions and make sure they understand what the questions mean. Encourage them to ask their peers or you for help. Students will discuss three questions:
   - Which questions do you already know how to use?
   - Are there questions that you would be nervous asking? (If so, why?)
   - Are there other questions you can add to the list?

2. Pick two to three new vocabulary words. One member of the group will teach these new words to the rest of the class.

3. Write a short skit (8-10 lines) between a doctor and a patient using some of the questions in the category. Two members of the group will do the skit for the whole class.

**Variation.** If time permits, you can provide the students with only one or two sample questions from the complete handout for each category and ask them to generate more questions on their own. Say to the students, “Think about the kind of questions you might ask about the medicines your doctor asks you to take. What kind of questions might you have?” After each group has had time to think of as many questions as possible for their category, you can distribute the complete list of questions so students can add to their lists. Give the groups about 15 minutes to think of some possible questions.

**Note to teacher:** Be sure to emphasize that the skits need not be completely accurate or too technical in terms of medical information. Rather, it is more important that students understand the meaning and the purpose for asking the questions. The skits are meant to be exercises that give students practice in asking questions. Hopefully, these exercises will boost the students’ confidence in asking these questions of a real doctor.

If students are eager to include accurate medical information in their skits, encourage them to search the Internet for medical information. For a list of useful Web sites, check the **List of Additional Resources**, a handout that was sent out before Session One of this study circle.
Follow-up Activities

Interview activity. Students interview someone with a chronic disease (or someone who takes care of someone with a chronic disease). Ask the person about their experiences talking to doctors. Some sample interview questions include:

- What is difficult (easy) about talking to doctors and asking them questions?
- How confident do you feel asking your doctor questions?
- What advice would you give someone with a chronic disease who is visiting a doctor for the first time?
- In your opinion, what should doctors do to communicate well with their patients?
- In your opinion, what should patients do to communicate well with their doctors?

Students can summarize their interview material in an oral presentation or in writing. Students can share their information with each other in class. As a class, discuss similarities across people’s experiences talking to doctors.

ABE/GED Teaching Tips

Even those students who are native English speakers or who were born in English-speaking countries will likely find this lesson useful and relevant. Many people – whether they speak English fluently or not – feel intimidated or unsure about what to say when they visit a doctor.

At a recent conference (Health and Literacy Working Together) organized by the Iowa New Readers, adult learners shared concerns about not being able to communicate well with their doctors. These students wanted to tell their doctors, “treat us with respect” and “we will treat you with respect.” These students also wished their doctors would spend more time with them. They want their doctors to give them clear instructions, for example, when getting a new prescription. The students shared concerns about doctors who assume their patients understand their instructions and can read the documents they are given. The students were also concerned about the assumptions that doctors sometimes make about patients who cannot read well. The students asked that doctors not "feel sorry for us…we want (doctors) to try and understand us.”

You may wish to share some of these comments with your ABE/GED students as a way to jumpstart the discussion of doctor-patient communication issues.

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* These comments were taken from conference proceedings but are not available on the Web. For more information about the conference, visit http://www.ihi.org/IHI/Topics/Improvement/ImprovementMethods/Literature/HealthandLiteracyWorkingTogether.htm
Technology Tips

To view information about *Communicating with Your Doctor: The PACE system* produced by Dr. Donald J. Cegala, Ohio State University, please visit their Web site: [http://patcom.jcom.ohio-state.edu](http://patcom.jcom.ohio-state.edu).
Student Handout #1: Conversation Between a Doctor and Patient

This conversation takes place during a patient’s visit to her doctor. The doctor wants to prescribe a drug for the patient’s high blood pressure.

Doctor: I would like you to take a medicine for your high blood pressure.

Patient: What is the name of the medicine?

Doctor: Acebutolol.

Patient: What does it do?

Doctor: This drug is used to treat high blood pressure. It helps to lower your blood pressure.

Patient: Could you tell me if there are any side effects?

Doctor: It might make you feel sleepy or dizzy. It might also make you feel weak and tired.

Patient: How should I take it?

Doctor: Please take it once a day. You can take the drug with food so it doesn’t upset your stomach.

Patient: Thanks for your help.

Doctor: You’re welcome. See you at your next visit.

Discuss with your classmates

1. Did any part of this conversation surprise you? Explain.

2. How is this conversation different from conversations that you have had with your doctor?)

3. What makes talking to doctors difficult? List some problems.

4. Can you imagine this conversation taking place in your home country? How might the conversation be the same or different?
Student Handout #2: Questions You Can Ask Your Doctor

On this handout, you will find three sets of sample questions that you can ask your doctor. The questions are organized into three categories:

- Questions for your doctor
- Questions about tests and procedures
- Questions about medicines

Your group will be assigned one set of questions. Please complete the following tasks:

1. Read the questions and make sure you understand what they mean. If you are unsure, ask your classmates or your teacher for help.
   - Discuss these questions in your group:
   - Which questions do you already know how to use?
   - Are there questions that you would be afraid to ask? (If so, why?)
   - Are there other questions you can think of?

2. Pick two or three new vocabulary words. One member of your group will teach these new words to the rest of the class.

3. Write a short skit (8-10 lines) between a doctor and a patient using some of the questions in the category. Two members of your group will do the skit for the whole class.
Questions for Your Doctor

1. What do I have?
2. Why do I have this problem?
3. How will this affect my normal activities?
4. How long will I have to take medicine?
5. How long do I need to follow the treatment plan?
   For example:
   - Take the medicine
   - Do the exercises
   - Stay in the hospital
   - Stay off my feet
   - Avoid certain foods or activities
6. How will I know if things are getting better or getting worse?
7. Where can I find more information about what I have?
8. Do you have information that I can read (in my language)?
9. Are there support groups for people who have this? If so, where may I contact them?
Questions about Tests and Procedures

Some examples of tests and procedures: an x-ray, a magnetic resonance imaging (MRI) scan, blood tests, ultrasound

1. Why do I need this test or procedure? What will it tell us?
2. Are there any risks in doing the test or procedure?
3. What does the test or procedure involve?
   For example:
   - Will it be painful?
   - How long does it take?
   - Will I be awake or asleep?
   - Do I need to bring someone with me?
   - Does it matter what I eat or drink?
   - Do I need to stop taking other medicine?
   - Who does the test or procedure?
   - How is it done, what steps are involved?
   - Where is it done?
Questions About Medicines

1. What is the name of the medicine (or drug)?
2. Why am I taking it? What does it do?
3. Does it have any side effects?
4. Will it be a problem with other medicines, vitamins, or herbs I am taking?
5. What should I do if I have a bad reaction?
6. Are there ways to treat my problem without medicine?
7. What will happen if I don't take the medicine?
8. How much better will I feel after taking the medicine?
9. How long until I feel better taking this medicine?
10. How should I take it? How often should I take it?
11. How long will I need to take it?
12. What should I do if I miss a dose?
Lesson 9: (ESOL) Talking About Symptoms to Your Doctor

Chronic Disease Management
Task Addressed in this Lesson
• Students will develop their skills for describing symptoms with greater clarity and accuracy.

Skills Focus
• Students will learn language expressions and adjectives for talking about symptoms.
• Students will develop communication strategies that can help them be as specific as possible about the nature of symptoms and the conditions under which symptoms appear.

ABE/ESOL Level
Intermediate to advanced ESOL

Time
1 ½ hours

Materials
• Student Handouts

Purpose
This lesson is designed to help students learn how to describe their symptoms clearly and effectively. This lesson begins by inviting the students to discuss how talking to a doctor about a health concern is a lot like talking to a car mechanic about a problem with their car. This analogy provides a framework for helping students understand the value of being clear and specific.

Students practice using details about symptoms, including their character, duration, onset, and conditions. A chart of vocabulary words used to describe symptoms is provided.

Steps

1. Whole class discussion. (15 minutes)
   Distribute the handouts. Ask students to look at the page titled Talking about Symptoms to Your Doctor. Discuss the question, How is talking to a car mechanic when you have a problem with your car a lot like talking to a doctor when you have a health problem?

   Brainstorm with the whole class.

* Material in this lesson is adapted from lessons in English Vocabulary in Use (Michael McCarthy and Felicity O’Dell, 1994, Cambridge University Press) and information published by the American Automobile Association (AAA) Web site, Communicating with Service Professionals at http://www.csaa.com/home
Some possible responses:

- It’s hard to know what’s wrong with a car and what’s wrong with our bodies sometimes. We have to explain a lot of things to a car mechanic and a doctor to figure out what is wrong.
- Sometimes the car mechanic doesn’t understand what the problem is with the car. Sometimes the doctor also doesn’t understand what the problem is with our body.
- Car mechanics and doctors both ask lots of questions.
- It can be hard to find words to describe noises and feelings or sensations.

After students have had an opportunity share some of their ideas, explain that the topic of the day’s lesson is on how to talk to your doctor about your symptoms. Write the word **SYMPTOM** on the board and ask students to help you define the word. Encourage them to use their dictionaries and to translate the word into their first language.

**Here is a suggested definition:**

It’s useful to think of symptoms as what the patient feels and signs as what the doctor observes. Symptoms, like tiredness (fatigue) and pain, are subjective experiences. The doctor cannot easily measure or observe symptoms. Only the patient knows exactly what his or her symptoms feel like. Doctors try to understand the nature and pattern of a patient’s symptoms in order to make a diagnosis.

2. **Small group work: Reading and discussion (1 hour)**
Organize the class into small groups of three to four people. Ask the groups to read the handout titled **Signs from Your Car, Signs from Your Body**. Explain that the reading talks more about the similarity between talking to your car mechanic and talking to your doctor. After the group reads the paragraph, they should answer the discussion questions for the handout.

Encourage the students to use their dictionaries or ask for help with unfamiliar vocabulary. Record any new words and their meanings on the board for all to see.

Check in with each group to make sure they do not have trouble understanding the ideas in the handout.

3. **Large group discussion: What does it mean to be CLEAR and SPECIFIC? (15 minutes)**
Invite the groups to share their responses to the discussion questions. Be sure to check the students’ understanding of what it means to be CLEAR and SPECIFIC when describing your symptoms to a doctor. The more information you give to a doctor, the more likely the doctor will be able to identify the problem.
Be sure to recognize the students’ worries and concerns about talking to a doctor about their symptoms. It is easy to be scared and nervous when talking to a doctor about your health, especially when you don’t feel very well. At the same time, if you are too scared or nervous, you may not be able to think clearly, describe your symptoms effectively, or ask good questions.

Not all doctors are good listeners. Students will need help as they think about what to say to a doctor. They need practice asking questions and planning skills to decide what to focus on. Many people are assertive in this way when they talk to a car mechanic because they want their car fixed quickly and in the right way. This is a useful way of thinking about talking to doctors to avoid delays in getting health care.

4. **Small group work: Practice describing symptoms (30 minutes.).**
   Ask students to turn to the handout titled **Practice: How to Describe Your Symptoms** which features several questions that can help the students know what to say to the doctor about symptoms. Ask the students to work in their small groups to read the questions and the examples of things to say to a doctor. Ask the students to practice what they might say to a doctor.

   Also, refer students to the handout titled **Vocabulary for Describing Symptoms,** which give examples of words used to describe pain, tiredness, and rashes. Encourage the students to use the words from this handout in their descriptions. Encourage students to add other symptoms (e.g., fever, stress) and add other related nouns, verbs, and adjectives to the list. The follow-up activities in this lesson describe ways to use this handout for vocabulary development.

**Follow-up Activities**

1. **Vocabulary for Describing Symptoms**
   Ask students to review the vocabulary in the handout, **Vocabulary for Describing Symptoms,** and to use a dictionary to learn the meanings of any new words. Students can work in pairs to explore the differences in meaning for a group of words related to a particular symptom. Students can discuss, for example, how a dull pain feels different from a sharp pain, or how a twinge is different from a throbbing pain. Encourage students to come up with strategies for remembering these differences, such as ordering these words on a continuum to indicate severity of pain. For example, students might generate mnemonics such as this:

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<th>0</th>
<th>5</th>
<th>10</th>
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<tbody>
<tr>
<td>no pain</td>
<td>mild</td>
<td>severe</td>
</tr>
<tr>
<td>dull</td>
<td>moderate</td>
<td>throbbing</td>
</tr>
</tbody>
</table>

   Students can also work in pairs to generate descriptive words for other symptoms, such as shortness of breath, fever, stress, or anxiety. Be sure to have a dictionary and thesaurus on hand for each group.
2. **Interview someone about their experiences with being sick and managing symptoms**

Students identify someone who has experience with being sick or managing a chronic disease. The students will interview the person about the range of symptoms the person had. This activity will help students understand the kinds of symptoms associated with particular illnesses or disease. Here is a suggested interview protocol:

- Please tell me about the last time you were sick. (Please tell me about your chronic disease.)
- What were your symptoms?
- When did you notice the symptoms? (When did the symptoms start?)
- What were you doing when the symptoms started?
- Did the symptoms happen all the time (constant) or only sometimes? When did you have the symptoms? (e.g., only at night?) How long did the symptom last (a few seconds, an hour, a week)? What seemed to make the symptoms worse?
- Did the symptoms make it hard for you to do everyday activities (e.g., eat, sleep, and work)? How?
- Did you do anything to feel better? (Did you take any medicine? Did you rest?)
- If you went to a doctor, were you able to explain your symptoms to the doctor? How? Was the doctor able to help you feel better? How?

The students can summarize the person’s responses into an oral presentation or a short descriptive essay. In a large group discussion, talk about common difficulties you have in understanding symptoms and talking to doctors about symptoms.

**ABE/GED Teaching Tips**

Even those students who are native English speakers or who were born in English-speaking countries will likely find this lesson useful and relevant. Many people – whether they speak English fluently or not – feel intimidated or unsure about what to say when they visit a doctor.

At a conference (Health and Literacy Working Together) organized by the Iowa New Readers,* adult learners shared concerns about not being able to communicate well with their doctors. These students wanted to tell their doctors, “treat us with respect” and “we will treat you with respect.” These students also wished their doctors would spend more time with them. They want their doctors to give them clear instructions, for example, when getting a new prescription. The students shared concerns about doctors who assume

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their patients understand their instructions and can read the documents they are given. The students were also concerned about the assumptions that doctors sometimes make about patients who cannot read well. The students asked that doctors not "feel sorry for us…we want (doctors) to try and understand us."

You may wish to share some of these comments with your ABE/GED students as a way to jumpstart the discussion of doctor-patient communication issues.

**Technology Tips**

Here are some suggested Web sites for learning more about patient-doctor communication and symptoms.

- **Talking With Your Doctor: A Guide for Older People, National Institute on Aging (NIA), part of the National Institutes of Health.** Features a section entitled *What Can I Do? Tips for Good Communication.*
  [http://mdchoice.com/Pt/consumer/talk.asp](http://mdchoice.com/Pt/consumer/talk.asp)

- **Improve communication with your doctor, Women’s Heart Foundation.**
  [http://www.womensheartfoundation.org/content/HeartWellness/improve_doctor_patient_communication.asp](http://www.womensheartfoundation.org/content/HeartWellness/improve_doctor_patient_communication.asp)
Talking About Symptoms to Your Doctor

1. **Warm-up.** Brainstorm with your classmates.

   How is talking to a car mechanic when you have a problem with your car a lot like talking to a doctor when you have a health problem?

   Write down your ideas. Share your ideas with your classmates.

2. **Short reading and discussion**

   Read the handout titled *Signs from Your Car, Signs from Your Body* and answer the discussion questions. Talk about your answers with your classmates.
Signs from Your Car, Signs from Your Body

You know your car better than anyone else does because you drive it every day. You know how it acts when it's running right. You also know when something is not quite right. When something is not right with your car, it sends you a signal. In the same way, you know what feels right with your body.

When something is not right with your body, it sends you a signal, just like a car does. The medical word for these signals is **symptoms**. A symptom is the way your body lets you know that something is not normal. A symptom may be a sharp pain or a shortness of breath or a lack of energy.

Talking to a mechanic about problems with your car is a lot like talking to your doctor about problems with your health. A mechanic will ask you many questions to find out what is wrong with the car. If you say, “My car doesn’t work,” the mechanic will have to ask you many questions to figure out the problem. But, if you say, “My car makes a loud noise when I drive fast on the highway,” this helps the mechanic find the problem faster. In the same way, your doctor can more easily figure out a health problem if you are CLEAR and SPECIFIC. If you say, “I feel sick,” the doctor will have to ask you many questions to find out what is wrong. But, if you say, “I have a sharp pain in my arm when I try to write,” you can help the doctor figure out the problem faster.
Discussion Questions

1. Think of a time when you or someone you know (a member of your family or a friend) was sick. What were the symptoms?

2. What can be difficult about talking to a doctor about your symptoms?

3. Why do you think it’s important to clearly explain your symptoms to a doctor?

4. What are ways that you can be CLEAR and SPECIFIC when you talk to a doctor about your symptoms?
Practice: How to Describe Your Symptoms

It is useful to think about what to say to the doctor before you go to the doctor’s office. Here are some questions that you can ask yourself. Your answers may help you be CLEAR and SPECIFIC when talking to your doctor about your symptoms.

- What is the symptom? (Is it a pain? Is it a rash? Is it a feeling of tiredness?)
- When did you notice the symptom? (When did the symptoms start?)
- What were you doing when the symptoms started?
- Do the symptoms happen all the time (constant) or only sometimes? When do you have the symptoms (e.g., only at night, when I’m moving)? What seemed to make the symptoms worse?
- How long does the symptom last (e.g., a few seconds, an hour)?
  How long have you had them (e.g., a week, a month)?
- Do the symptoms make it hard for you to do everyday activities (e.g., eat, sleep, and work)? How?
- Are you doing anything to try to feel better? (Do you take any medicine? Do you rest?)

Here are some examples of how to describe symptoms:

“Doctor, I have a red rash on my stomach. I saw the rash after dinner two nights ago. It hasn’t gone away.”

“Doctor, I have a sharp pain in my lower back. I was lifting a heavy box at work a couple of weeks ago when I first felt the pain. I took some aspirin and the pain went away for a little while. The pain is getting worse.”

“Doctor, I have a mole on my left arm. The mole used to be small, but I think it looks bigger and darker. I work outside and I sometimes use sunscreen, but I often forget.”
“Doctor, I have chills and feel very weak, especially in the late afternoon, before dinner.”

Don’t say, “Doctor, I don’t feel well. What’s wrong with me?”

**Practice:** Think of a time when you (or someone you know) didn’t feel well or had a health problem. What were the symptoms? Imagine that you were going to talk to a doctor about the problem. Answer as many of the questions as you can that are listed in the handout titled **Practice: How to Describe Your Symptoms.**

What do you want to tell the doctor? You can use the handout titled **Vocabulary for Describing Symptoms** to find words for describing symptoms, such as pain, fatigue, or a rash. Use a dictionary or ask your classmates or your teacher for help with any new words.

If you want to talk about a symptom that is not on the list, fill in a blank row with the symptom and the other nouns, verbs, and adjectives you would use to describe it.
## Vocabulary for Describing Symptoms

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Adjectives I can use to describe the NATURE of the symptom</th>
<th>Adjectives I can use to describe the DURATION of the symptom</th>
<th>Nouns with similar meaning</th>
<th>Expressions I can use to describe the symptom</th>
</tr>
</thead>
<tbody>
<tr>
<td>pain</td>
<td>dull, mild, moderate, severe, throbbing, sharp</td>
<td>constant, occasional, frequent</td>
<td>soreness, ache, twinge, throbbing</td>
<td>I feel sore. It aches. It twinges. It throbs.</td>
</tr>
<tr>
<td>fatigue</td>
<td>severe, mild, moderate</td>
<td>occasional, constant, frequent</td>
<td>tiredness, exhaustion, low energy</td>
<td>I tire out. I am exhausted. I have low energy.</td>
</tr>
<tr>
<td>rash</td>
<td>spotty, red, itchy, oozing, crusty, mild, severe, benign</td>
<td>frequent, occasional</td>
<td>reaction, inflammation, itchiness, irritation</td>
<td>I have a skin reaction. My skin is irritated. My skin is itchy. It flares up.</td>
</tr>
</tbody>
</table>
SESSION THREE:
Integrating Health Literacy Skills into Instruction
SESSION THREE:
Integrating Health Literacy Skills into Instruction

HEALTH LITERACY STUDY CIRCLES+
HALL/NCSALL 2005

Rima Rudd, Sc. D.
Lisa Soricone, Ed. D.
Maricel Santos, Ed. D.
Charlotte Nath, R.N., Ed. D.
Janet Smith, Ed. M.
About this Session

The first two sessions of this Study Circle* focused on helping participants enrich their understanding of health literacy skills related to chronic disease management. During Session Three, participants will have an opportunity to review the sample lessons they taught and consider other health literacy lessons they can develop. You will be helping the participants think ahead to the broader task of developing health literacy unit plans containing lessons that address their students’ needs.

You and the participants may also choose to expand this session to a full day in order to include activities focused on math skills needed for chronic disease management.

Introductory Activities
This session, like others, begins with a welcome and presentation of the session objectives and agenda.

Discussion and Analysis Activities
These activities focus on reviewing and analyzing the participants’ experiences teaching the sample lessons. After you introduce the idea of health literacy units, participants begin outlining their own health literacy units. Participants can refer to the newsprints with lists of tasks and literacy skills related to managing chronic diseases that they created during Session Two.

Planning Activities
The planning activities give participants an opportunity to begin developing health literacy lessons. You will ask participants to list the lessons they want to teach in their units and to choose one lesson idea to develop. Working in pairs, participants will review a lesson plan template and outline their own lessons. As in previous sessions, you should encourage participants to work together between sessions to complete the assignments.
Closure Activities
You will facilitate activities for participants to review both the content of the session and the discussion methods. Remember to leave time at the end of the session for participants to complete the session evaluation forms. After Session Three, review these forms and consider how to use the feedback.

(Optional) Expanded Session Activities
The optional expanded session activities enables participants to first explore their own feelings about teaching math and then examine some of the math challenges associated with managing a chronic disease. Teachers can use these insights as they develop lessons for their classes.

Note that the optional expanded session is three hours long and includes a one-hour break for lunch and two hours of activities. These activities are described after the Closure Activities in this booklet.

The Group Discussion Methods
You will use a variety of discussion methods to present information and facilitate activities. We hope that participants will find these methods helpful and consider using them in their own classrooms. As you facilitate the Study Circle+ activities, please keep in mind that you will be modeling these discussion methods for participants to use in the future.

The discussion methods used in Session Three include:

- **Pair work followed by large group discussion**: Participants work together in pairs to share details, often about an experience. Mutual sharing enables the pairs to process or analyze their ideas. They then prepare more general statements that they can present to the larger group. The large group sharing activity follows this more intimate work and enables all participants to hear the key issues discussed.

- **Private reflection**: Private reflection provides some time for participants to collect their thoughts and generate ideas on paper about a topic before they share their ideas.

- **Walk about**: This activity gives participants an opportunity to view the work completed by small groups.

- **The Dance and the Balcony**: This activity is a metaphor for analyzing the group discussion methods used during the session. The purpose of this activity is to highlight the different ways activities were structured during the session and to encourage teachers to consider using some of these methods in their own classes.
Overview: Session Three

Objectives

During Session Three, participants will:

- Analyze the experience of teaching a sample health literacy lesson
- Delineate key health literacy skills to be addressed in ABE/ESOL programs
- Develop ideas for health literacy units
- Begin to develop original lesson plans focused on health literacy skills

Time

- 3 hours (or 6 hours including lunch if you have planned to do the expanded session)

Session Three Agenda

Introductory Activities (15 minutes)
- Welcome, Session Objectives, and Agenda

Discussion & Analysis Activities (1 hour, 45 minutes)
- Review and Discuss the Sample Lessons Taught
- Consider Ideas for Health Literacy Units
- Outline Health Literacy Units
- – Take a 10-Minute Break –

Planning Activities (45 minutes)
- Consider Units and Lessons
- Develop a Lesson Plan

Closure Activities (15 minutes)
- Session Review
- Session Evaluation and Closing Notes

(Optional) Expanded Session Activities (3 hours including lunch)
Materials and Preparations

- Newsprints (flipcharts) and Markers
- Overhead Projector (optional)

Newsprints (flip charts) or Overhead Transparencies (3)
We typically refer to materials on flip charts as newsprints, but feel free to use overhead transparencies instead. Examples of most newsprints for this session are included in this booklet.

<table>
<thead>
<tr>
<th>To be prepared ahead</th>
<th>To be completed during the session</th>
</tr>
</thead>
</table>
| Chronic Disease Management Tasks and Skills  
(from Session Two) | Lesson Ideas  
Health Literacy Unit Ideas |

Handouts (9)
Make copies of the following handouts before the session begins. The handouts for each session are located after the session booklet.

1. Session Three Objectives and Agenda
2. Developing a Health Literacy Unit
3. My Health Literacy Unit Ideas
4. Tips for Planning
5. Directions for Planning Lessons
6. Overview and the Lesson Plan Template
7. Lesson Reflection Sheet (to be completed after teaching a lesson)
8. Session Three Evaluation Form
9. Expanded Session Materials (Make enough copies for each small group to have two sets of examples from the list below.)
   - Tables
   - Charts
   - Scales for Measuring Your Health
   - Liquid Measuring Tools for Medicines
   - Planning Tools for Taking Medicines

From Session Two (Sample Lesson Packet)

1. Post-Teaching Reflection Sheets that participants filled out after teaching a sample lesson
Session Three: Integrating Health Literacy Skills into Instruction
INTRODUCTORY ACTIVITIES (15 minutes total)

Welcome, Session Objectives, and Agenda (15 minutes)
Discussion Methods: Presentation by facilitator
Handouts: Session Three Objectives and Agenda

Welcome the group back and briefly review Session Two
Remind participants that, in Session Two, they focused on identifying chronic disease management tasks and specific literacy-related skills needed to accomplish these tasks. Participants had an opportunity to examine sample lessons that address literacy skills needed for managing chronic diseases. Everyone chose a sample lesson to try out with students and (hopefully) taught that lesson in class.

Provide an overview of Session Three
During this session, participants will reflect on their experiences teaching sample lessons. Next, they will consider other lessons they could develop to create a health literacy unit. Finally, they will focus on the assignment to develop one lesson and teach that lesson before Session Four.

Distribute the Session Three Objectives and Agenda
- Review the objectives and agenda and briefly describe the session activities.
- Ask if anyone has additional comments or questions.
DISCUSSION & ANALYSIS ACTIVITIES
(1 hour and 45 minutes total including a 10-minute break)

Review and Discuss the Sample Lessons Taught (30 minutes)
Discussion Methods: Pair work and large group discussion
Handouts: Post-Teaching Reflection Sheets (from the Sample Lesson Packet)

Work in pairs to review the Post-Teaching Reflection Sheets (15 minutes)
Participants will first work in pairs and then move to a full group discussion to identify insights gained from their teaching experiences.

- Ask participants to take out their completed Post-Teaching Reflection Sheet (from the Sample Lesson Packet). Allow a few minutes for participants to complete their reflection sheet if they have not done so.
- Ask participants to work with a partner who teaches in the same area (ESOL, ABE, or GED), works with the same learner level, or taught the same sample lesson.
- Ask pairs to share and discuss their responses to the questions on the Post-Teaching Reflection Sheet.
- Offer a 5-minute notice and ask pairs to take the last 5 minutes to consider the insights they gained – about teaching health literacy skills and/or about their students’ needs – as a result of teaching these lessons.

Bring the full group back together to share highlights of their pair discussions (15 minutes)

- Pose the following question to the full group and ask those who answer to name the lesson they taught.
  1. What did you learn about teaching health literacy skills from this experience?
  2. What did you learn about your students’ needs from this experience?

- Before you move on to another person, ask for comments from someone else who taught the same lesson.
Consider Ideas for Health Literacy Units (30 minutes)

Discussion Methods: Facilitated presentation, walk about, private reflection

Handouts: Tips for Planning
Developing a Health Literacy Unit

Newsprints: Newsprints from Session Two that list chronic disease management tasks and skills

Overview of units (10 minutes)

Offer an overview of the remaining study circle sessions. Explain that participants have had opportunities to define and identify specific health literacy skills – those skills their students need to be more successful in managing a chronic disease.

- Point out that Session Three begins the work of designing units and planning lessons.
- Define a “health literacy unit” as:
  A set of 6–8 separate but related lessons that address a set of skills needed for managing chronic diseases.
- Distribute the handout titled Developing a Health Literacy Unit and briefly review the examples of different ways to group lessons and generate unit ideas:
  - A unit can focus on a specific set of health literacy tasks with lessons addressing the skills needed for those tasks.
  - A unit can focus on a specific set of health literacy skills (such as measurement) with lessons using materials from different chronic diseases.

Review tasks and skills (10 minutes)

- Post the newsprints listing chronic disease management tasks and skills that participants completed during small group work in Session Two.
- Ask participants to walk about and review these lists to generate ideas for health literacy units.

Private reflection (10 minutes)

- Distribute the handout titled My Health Literacy Unit Ideas.
- Ask participants to think about the specific health literacy skills their students need to develop and the lessons participants could develop to address those skills.
- Ask participants to work alone and use the next 10 minutes for private reflection and note taking (not to be shared or handed in).
This activity forms the basis for the next group discussion activity.

Outline Health Literacy Units (35 minutes)

Discussion Methods: Small group and large group discussions
Handouts: Tips for Planning
Newsprints: Health Literacy Unit Ideas

Overview (5 minutes)

- Pass out Tips for Planning and remind participants to keep focused on skills needed for chronic disease management.
- Ask participants to form small groups of three people, preferably with some people they have not had a chance to work with before.

Small group discussions (15 minutes)

- Provide directions for participants.
  - Share and test out your health literacy unit ideas. Name the focus of your unit and sketch out the lesson ideas to be included in the unit.
  - Give everyone a chance to speak.
- Visit different groups to provide support and suggestions. You may need to help people focus on skills and not on health content. If needed, remind group members that they do not need to become experts in asthma, for example, but should instead focus their attention on the kinds of things people who have asthma or any chronic disease need to do.

Large group discussion about math skills (15 minutes)

- Ask if any of the groups considered math lessons.
- Ask individuals to share their thoughts about the math readings. You may want to begin by asking who read what. (Participants had a choice of three readings.) You may need to probe with questions such as: What did you learn from reading X?
- Ask participants to consider including math lessons within any unit. Pose the following questions to the group:
  1. What do you know about your students’ math skills?
  2. Can you assume that your students can do the following?
     - Tell time
     - Use the clock to plan events such as taking medicine
     - Use a calendar to plan events such as taking medicine or scheduling appointments
- Use liquid measures (i.e., teaspoon, tablespoon, ¼ cup, etc.)
- Use a scale
- Read a table on a medicine label to determine dosages for adults and children

- Post the newsprint titled Health Literacy Unit Ideas.
- Ask a volunteer to make notes on the newsprint and encourage participants to take notes on those ideas that are most relevant to their students.
- Pose the following question so that each group can report ideas and the recorder can list items:

  *What are some of your unit ideas that address literacy skills needed to manage a chronic disease?*

- Ask one or two volunteers to describe his or her unit in more detail by listing the focus of several lessons within the unit.

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### Health Literacy Unit Ideas

**Title (Unit X)**
- Lesson 1
- Lesson 2 . . .

**Title (Unit Y)**
- Lesson 1 . . .

---

- Explain that after the break, participants will choose ideas for lessons they want to develop and teach in their classrooms.

**TAKE A 10-MINUTE BREAK**
PLANNING ACTIVITIES (45 minutes total)

Consider Units and Lessons (15 minutes)
Discussion Methods: Private reflection
Newsprints: Lesson Ideas

During the rest of this session, you will help participants develop and prepare to teach their own health literacy lessons.

*Introduce the assignment and provide time for private reflection*

(5–10 minutes)

- Tell participants that the assignment for Session Four is to develop and teach a lesson focused on literacy-related skills for managing a chronic disease.
- Ask participants to review their unit outlines (lesson and unit ideas) and choose one lesson that they want to develop and teach before Session Four.
- This activity may take between 5 and 10 minutes. Check on progress and move on to the next activity when most participants appear to have chosen a lesson.

*Post lesson ideas* (5 minutes)

- Posts the newsprint titled Lesson Ideas, and ask for a volunteer to record the ideas suggested by participants.
- Ask each participant to describe the lesson and summarize the skills addressed in the lesson.

<table>
<thead>
<tr>
<th>Lesson Ideas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant’s Name</td>
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<td>---------------------</td>
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</tbody>
</table>
Develop a Lesson Plan (30 minutes)
Discussion Methods: Pair work
Handouts: Directions for Planning Lessons
Lesson Plan Template
Lesson Reflection Sheet

Ask participants to work with their partners (20 minutes)
- Explain that during the next 20 minutes, participants will work with a partner to review a lesson plan template and shape the lessons they plan to teach.
- Ask the partners to begin by exchanging contact information (names, phone numbers, e-mail addresses) and set up a date/time to talk to each other between sessions.
- Distribute three handouts: Directions for Planning Lessons, the Lesson Plan Template, and the Lesson Reflection Sheets.
- Walk around the room and check in with different pairs to see how they are doing. You should also note questions that come up so you can address them in the large group discussion.
- Give a 5-minute warning before you ask people to come back together as a group.

Ask participants to come together for questions and answers about the assignment (10 minutes)
- Take time to address questions about the assignment and the handouts.
- Remind participants that they need to bring TWO copies of their lesson plans and their completed Lesson Reflection Sheets to Session Four.
- Wish everyone good luck with their lessons and encourage them to work with their partners.
CLOSURE ACTIVITIES (15 minutes total)

Session Review (15 minutes)
Discussion Methods: Facilitated group discussion

Content Review
- Offer an overview of key content discussed in this session. Alternatively, you may want to ask if anyone in the group is willing to summarize key content areas or comment on insights or new information gained.

Methods Review
- If needed, remind participants of the Dance and the Balcony activity.
- Describe some of the discussion methods used during this session. Invite participants to identify the methods that they feel would be effective in their own classrooms. Use the table below to help you facilitate this discussion.

<table>
<thead>
<tr>
<th>Session Three Discussion Methods</th>
<th>Activity Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pair Work</td>
<td>Review and discuss sample lessons taught; plan to teach your own lessons</td>
</tr>
<tr>
<td>Private Reflection</td>
<td>Consider ideas for health literacy units</td>
</tr>
<tr>
<td>Small and Large Group Work</td>
<td>Outline health literacy units</td>
</tr>
<tr>
<td>Walk About</td>
<td>Review small group work on health literacy units</td>
</tr>
<tr>
<td>Private Reflection and Posting</td>
<td>Consider and then share ideas for health literacy lessons</td>
</tr>
<tr>
<td>The Dance and the Balcony</td>
<td>Reflect on the discussion methods used during this session</td>
</tr>
</tbody>
</table>
Session Evaluation and Closing Notes (5 minutes)

Handouts: Session Three Evaluation Form

Session Evaluation
- Distribute the Session Three Evaluation Forms and ask the participants to complete and return the evaluations before they leave.

Closing Notes
- Thank the participants for their contributions in this session.
- Address any logistical issues related to Session Four.
- Be sure to post the date, time, and place for Session Four.

(Optional) Expanded Session Three (3 hours total)

The following pages contain a description of the expanded session activities. These activities focus on teaching math-related skills with an emphasis on the application of skills to tasks involved in managing a chronic disease.

Note that the time for the expanded session includes a one-hour break for lunch and then two hours of activities in the afternoon. Please continue to the next page if you and the participants have decided in advance to expand this session to a full day.
(OPTIONAL) EXPANDED SESSION THREE (2 hours total)

Overview: Expanded Session Objectives (10 minutes)
Welcome the participants back from lunch and begin the afternoon session with a brief overview of the next two hours. Explain that the focus will be on teaching math-related skills with an emphasis on the application of skills to tasks involved in managing a chronic disease. The first part of the session will focus on the readings, and the second part on generating math-related lesson and unit ideas.

Reflections (30 minutes)
Discussion Methods: Live Likkert scale, partner discussion
Materials: Two small signs for different parts of the room with this text:
1 - NOT AT ALL COMFORTABLE
10 - VERY COMFORTABLE

Live Likkert Scale (15 Minutes)
Tell participants that they will trigger discussion with a short opening exercise called the Live Likkert Scale.

- Ask participants to envision a scale starting with number 1 and ending with number 10.
- Designate one corner of the room as #1 with the label: NOT AT ALL COMFORTABLE. Designate the opposite corner of the room as #10 with the label VERY COMFORTABLE.
- Ask participants to consider how comfortable they are teaching basic math.
  - Ask that all members of the group place themselves somewhere on the scale from 1 to 10.
  - Ask for a volunteer from the middle of the scale to explain his or her position.
  - Ask someone closest to #1 to explain his or her position and do the same with someone closest to #10.
  - Ask if anyone wants to move based on what he or she just heard.
  - If someone does change positions, ask him or her explain the reason for the move.
  - Ask a volunteer to step back from the scale to observe the placement of participants and make a summary statement about the groups’ comfort level with teaching math.
**Reading Reflections** (15 minutes)

Ask participants to note where they are on the scale from 1 to 10. Then ask them to pair up with someone from the opposite side of the scale.

- Ask each pair group to discuss the readings and to consider the following questions:
  1. *Which of the readings was of most interest to you? Why?*
  2. *Which of the readings provided the strongest argument for integrating math and other literacy skills?*
  3. *What, if anything, did you learn from the readings?*
  4. *What one insight or conclusion from the readings could you share with the group?*

- Bring the discussion to a close after about 10 to 12 minutes (earlier if you observe that groups have generally stopped talking about the readings).
- Ask volunteers to share an insight, observation, or conclusion.
- Provide a transition to the next activity by asking two pairs to come together to form small working groups of four.
- Explain that each group will examine some materials to help them develop ideas for math related lessons or units.

**Generating Ideas** (1 hour)

**Discussion Methods:** Small working groups with reports to large group

**Handouts:** Packets (five sets of materials) containing examples of tables, charts and graphs, scales, liquid measures, and planning tools for taking medicines.

**Working group discussions** (30 minutes)

- Hand out two different sets of materials to each group of four people. Note that each set contains a brief description with pictures and photographs.
- First, ask each group to examine the handouts.
- Then ask them to consider the difficulties involved in using each of the health related materials and the skills their students would need to use them appropriately.
- Ask the groups to engage in some brainstorming in order to generate ideas about how to develop lessons and units focused on needed skills. Each group may then begin to sketch out ideas for classroom activities.
Instruct the groups to think about what they want to report to the whole group.

**Report back to the larger group** (30 minutes)
- Ask each group to report to the full group. Each group should first identify the topics addressed in their materials and then share an idea (e.g., lesson, unit or activity) they developed.
- Be attentive to the time to be sure that each group has a turn.

**Closure** (20 min)
**Discussion Methods**: Facilitated group discussion
- Ask the participants to recall the *summary statement* made about the groups’ comfort level with teaching math (after the Live Likkert scale activity earlier in this session).
- Pose the following questions to the group:
  1. *How might you use chronic disease management tasks to teach math related skills?*
  2. *How might you introduce math skills into your health literacy unit?*
  3. *What particular skills would you focus on? Why?*
- As you bring the session to a close, remind participants that they will develop and teach lessons in their own classes before the next study circle session. Encourage participants to consider developing math related lessons.
The National Center for the Study of Adult Learning and Literacy (NCSALL) is a collaborative effort between the Harvard Graduate School of Education and World Education. The University of Tennessee, Portland State University, and Rutgers University are NCSALL’s partners. NCSALL is funded by the Educational Research and Development Centers program, Award Number R309B60002, as administered by the Institute of Education Sciences (formerly Office of Educational Research and Improvement), U.S. Department of Education. The contents of this publication do not necessarily represent the positions or policies of the Institute of Education Sciences, or the U.S. Department of Education, and you should not assume endorsement by the Federal Government.
SESSION FOUR:
Planning Lessons, Units, and Evaluations
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Planning Lessons, Units, and Evaluations

HEALTH LITERACY STUDY CIRCLES+
HALL/NCSALL 2005

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Charlotte Nath, R.N., Ed. D.
Janet Smith, Ed. M.
About this Session

In some respects, the study circle process thus far has put the “cart before the horse” by having participants experiment with teaching lessons before developing an overall plan for integrating health literacy skills into their work.

The activities and follow-up assignment for Session Four will enable participants to move the “cart” back behind the “horse.” You will help them clarify their thinking about a health literacy unit – a set of six to eight lessons focused on a group of related skills needed for managing chronic diseases. Participants will also consider different ways to measure and document their students’ success in developing these skills.

Introductory Activities
The introductory activities of Session Four are designed to help participants understand the structure and content of the session. You will begin the session as you have done in prior sessions, with a presentation of the session’s objectives and agenda. Be sure to allow a few minutes for any questions or comments from the last session.

Discussion and Analysis Activities
The discussion and analysis activities of Session Four provide opportunities for participants to share their teaching experiences and lesson ideas and to consider a health literacy unit plan. Participants then step back from the unit they have outlined to think about the results that they hope to achieve. You will help them consider ways to measure the success of their units.

Planning Activities
The planning activities prepare participants to outline a unit and evaluation plan. Participants will develop drafts between Sessions Four and Five, and prepare to share their drafts in the final session of the Study Circle+. Once again, you will ask participants to form partnerships to discuss the assignment between sessions.
Closure
You will review the session’s activities and the discussion methods used during this session. You will also ask participants to complete an evaluation.

The Group Discussion Methods
The discussion methods used in Session Four are designed to establish a relaxed atmosphere for sharing and for discussion.

*Facilitated Small and Large Group Work*: Participants work in pairs, small groups, and facilitated large group activities.

*Brainstorming*: Participants generate ideas and solutions without commentary so they can examine a broad range of topics.

*The Dance and the Balcony*: Participants review and analyze the discussion methods used during this session.
Objectives

During Session Four, participants will:

- Analyze the experience of creating and teaching a health literacy lesson
- Analyze lesson plans and unit ideas
- Examine and prepare to use a template as a planning tool
- Generate ideas for measuring success
- Prepare for the assignment between sessions

Time

3 hours

Session Four Agenda

Introductory Activities (15 minutes)
- Welcome, Session Objectives, and Agenda

Discussion & Analysis Activities (2 hours, 10 minutes including a break)
- Share Teaching Experiences
- Share Unit Ideas
- Review the Unit Plan Packet
- Take a 10-Minute Break
- Develop an Evaluation Plan

Planning Activities (20 minutes)
- Review the Assignment: Outline a Unit and Evaluation Plan

Closure Activities (15 minutes)
- Session Review
- Session Evaluation and Closing Notes


Materials and Preparations

Newsprints (flipcharts) and Markers
Overhead Projector (optional)

Newsprints (flip charts) or Overhead Transparencies (2)
We typically refer to materials on flip charts as “newsprints,” but feel free to use overhead transparencies instead. Examples of most newsprints for this session are included in this booklet.

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<tbody>
<tr>
<td></td>
<td>Unit Ideas</td>
</tr>
<tr>
<td></td>
<td>Evaluation Options</td>
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</tbody>
</table>

Handouts (3)
Make copies of the following handouts before the session begins. The handouts for each session are located after the session booklet.

1. Session Four Objectives and Agenda
2. Unit Plan Packet includes the following materials:
   - Unit Plan Packet: List of Materials and the Assignment
   - Unit and Evaluation Plans: Issues to Consider
   - Overview: Health Literacy Unit Template
   - Health Literacy Unit Template
   - Sample Health Literacy Unit
   - An Evaluation Plan for your Health Literacy Unit
   - Evaluation Plan Template
   - Sample Evaluation Plan
   - Discussion Questions

3. Session Four Evaluation Form

From Session Three

1. Lesson Reflection Sheet (with your notes about teaching your lesson)
Session Four: Planning Lessons, Units and Evaluations
INTRODUCTORY ACTIVITIES (15 minutes total)

Welcome, Session Objectives, and Agenda (15 minutes)
Discussion Methods: Presentation by facilitator
Handouts: Session Four Objectives and Agenda

Welcome the group back and briefly review Session Three
Remind participants that they shared their experiences teaching sample health literacy lessons during Session Three. They identified other skills they could teach in their classroom and considered ways that lessons could be organized into health literacy units. Between Sessions Three and Four, participants developed and taught their own health literacy lessons.

Provide an overview of Session Four
First, participants will share their experiences teaching lessons that they created. Then they will shift their attention to the development of health literacy units focused on skills needed for managing a chronic disease. They will also consider different ways to evaluate the effectiveness of their unit.

Distribute the Session Four Objectives and Agenda
- Review the objectives and agenda, and briefly describe the session activities.
- Ask if anyone has any comments or questions.
DISCUSSION & ANALYSIS ACTIVITIES
(2 hours and 10 minutes total including the break)

Share Teaching Experiences (30 minutes)
Discussion Methods: Small group work and discussion
Handouts: Lesson Reflection Sheet (handout from Session Three)

Ask participants to work in small groups to discuss their teaching experiences

Ask participants to form small groups of two or three people to share experiences teaching their own health literacy lessons.

Ask participants to use the questions from the Lesson Reflection Sheets they filled out after teaching their lessons to guide their discussions.

Tell participants to take about 5 minutes each to give a brief overview of their lessons and allow time for reactions and questions from their group members. Each overview should include:

- The focus or theme of the lesson
- A brief description of the lesson (objectives, skills focus, and activities)
- A brief description of their students’ reactions to the lesson

When people are meeting in small groups, try to sit with each group for a few minutes. Alert the groups when 5 minutes remain.

Note to Facilitator: You may want to collect copies of the participants’ lessons. If you have the time and resources, consider making copies of these materials to create a lesson packet for each participant that you can hand out during Session Five.

Share Unit Ideas (30 minutes)
Discussion Methods: Facilitated group discussion
Materials: Newsprint paper and markers or overhead transparencies

Facilitate a full group discussion about unit ideas

Ask participants to consider how their teaching experiences might help them design a health literacy unit. You might ask:

How has your teaching experience helped you shape or re-shape your ideas about a unit to teach literacy skills needed to manage chronic diseases?
Tell participants that you would like to create a list of their ideas for health literacy units so that everyone can see the range of ideas.

- Ask a volunteer to record the list on a newsprint or overhead transparency.
- Ask each participant to name the focus/theme of his or her health literacy unit

Ask a volunteer to comment on any patterns or areas of overlap on the list. For example, several units may focus on communication skills like talking to the doctor. Some units might focus on taking medicine.

You may want to suggest other unit ideas:

- Life Change: Adding Medicine to My Daily Routine
- New Responsibilities: Developing a Partnership with My Doctor
- Life as a Scientist: Observing and Recording Changes with My Chronic Disease

Ask one or two volunteers to sketch out the sequence of lessons that make up his or her unit.

**Review the Unit Plan Packet** (10 minutes)

**Discussion Methods:** Facilitated presentation

**Handouts:** Unit Plan Packet

*Distribute and review the Unit Plan Packet*

Explain that these materials were developed as tools to help participants plan and evaluate their units.

Quickly review the contents of the Unit Plan Packet.

1. Unit Plan Packet: List of Materials and the Assignment
2. Unit and Evaluation Plans: Issues to Consider
3. Overview: The Health Literacy Unit Template
4. Health Literacy Unit Template
5. Sample Health Literacy Unit
6. An Evaluation Plan for your Health Literacy Unit
7. Template for Evaluation Plan
8. Sample Evaluation Plan
9. Discussion Questions
Explain that participants will draft their own health literacy units using the Unit Template as a guide. Participants should feel free to adapt the template to suit their own teaching needs and styles. They should also bring two copies of their unit plans to Session Five.

Allow a few minutes for participants to review the Health Literacy Unit Template and to ask questions for clarification. If people need more time to review the template, tell them that you will be available during the break to answer additional questions.

Explain that, after the 10-minute break, the group will discuss ways to evaluate their students’ success in developing health literacy skills.

TAKE A 10-MINUTE BREAK

Develop an Evaluation Plan (50 minutes)
Discussion Methods: Brainstorming, small group discussion, large group summation
Materials: Newsprint paper and markers or overhead transparencies
Handouts: From the Unit Plan Packet:
Sample Health Literacy Unit
Sample Unit Plan
Sample Evaluation Plan
Discussion Questions

Brainstorm ways to measure success (10 minutes)
Facilitate a brief brainstorming activity focused on evaluation activities.

Begin by asking the participants to think about how they generally determine the success of their lessons and units.

Ask a volunteer to record ideas on a newsprint or overhead transparency.

Encourage participants to generate ideas, and remind them that ideas will be listed without critique or commentary.

Anticipate a list that includes many of the following:

- Administer a test.
- Provide practice opportunities and observe.
- Ask students to role-play.
- Ask students how confident they feel about specific tasks (such as making an appointment over the phone).
- Give assignments that require students to apply new skills.
- Ask students to report back when they have used new skills.

**Consider knowledge, perceptions, skills, and actions** (5 minutes)
Ask participants to look at the Sample Health Literacy Unit and consider additional ways to measure success for their health literacy units.

Explain that the unit design offers a focus on:
- **Knowledge**, such as new vocabulary
- **Perceptions**, such as increased sense of ability to ask questions
- **Skills**, such as the ability to prepare a folder with needed information
- **Actions**, such as completing a medical history or insurance form

**Examine ways to define and measure success** (25 minutes)
Ask participants to form groups of four or five members to review and discuss the sample unit and evaluation plans.

Hand out the Discussion Questions and give the following instructions:
- **Read the Sample Health Literacy Unit so you can use the same example as you consider evaluations.**
- **Review the Sample Unit Plan and the Sample Evaluation Plan.**
- **Focus on the discussion questions provided in the handout. Keep in mind the variety of health literacy skills included in the samples as you discuss these questions.**

Give the groups about 20 minutes for discussion. Make yourself available to help groups who need assistance thinking of possible strategies and methods for assessing and documenting changes.

**Summarize the work completed** (10 minutes)
After the smaller groups have had an opportunity to share their ideas, offer the following point to the whole group:

*Your students might experience a number of changes as they build health literacy skills.*

Ask participants to list examples:
- One way to measure mastery of a skill
- One way to measure an action taken outside the classroom
PLANNING ACTIVITIES (20 minutes total)

Review the Assignment: Outline Unit and Evaluation Plans
(20 minutes)
Discussion Methods: Facilitated presentation
Materials: Unit Plan Packet (handed out earlier in this session)

Briefly list accomplishments to date (5 minutes)

Note that participants have:
• Conducted a needs assessment with their students
• Identified skills their students are interested in developing
• Taught lessons focused on health literacy skills in their classes
• Considered a unit plan
• Considered “success” and how to measure it

Review assignment (15 minutes)

Tell participants that they will now bring all of these elements together to draft a health literacy unit and a plan for evaluating success. The health literacy unit should focus on skills related to managing a chronic disease.

Ask participants to look at the first page of the Unit Plan Packet to review the assignment.

Note that the Unit Plan Packet was designed to help participants create a unit plan and an evaluation plan. Encourage participants to use materials in the packet as a guide for the assignment.

Ask participants to review the Unit Plan Packet now and ask questions or raise any issues or concerns they may have.

Ask participants to look specifically at the Unit Template. Suggest that participants use the template to develop their units, but note that they may modify it as needed to better suit their individual styles.

Remind participants to bring two copies of their unit and their evaluation plans to the next session.

Ask participants to find partners for this assignment. They should plan to meet or have phone discussions as they work on this assignment to discuss any problems, review plans, and share observations.
CLOSURE ACTIVITIES (15 minutes total)

Session Review (15 minutes)
Discussion Methods: Facilitated group discussion

Content Review
Ask if anyone in the group is willing to summarize key content areas, or comment on insights or new information covered during this session. You or the volunteer will likely highlight the following:
- New lessons
- Teachers’ classroom experiences
- The unit template
- Definitions of “success” and measurement issues

Methods Review
If needed, remind participants about the Dance and the Balcony activity.
Refer to the following list to help you facilitate a brief discussion and evaluation of the different discussion methods used during this session.

<table>
<thead>
<tr>
<th>Session Four Discussion Methods</th>
<th>Activity Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small and Large Group Work</td>
<td>Share teaching experiences; share ideas for health literacy units and measurement options</td>
</tr>
<tr>
<td>Brainstorming</td>
<td>Consider ways to measure success</td>
</tr>
<tr>
<td>The Dance and the Balcony</td>
<td>Reflect on the discussion methods used during this session</td>
</tr>
</tbody>
</table>
Session Evaluation and Closing Notes (5 minutes)

Handouts: Session Four Evaluation Forms

Session Evaluation

Distribute the Session Four Evaluation Forms and ask the participants to complete and return the evaluations before they leave.

Closing Notes

Thank the participants for their contributions to this session. Address any logistical issues related to Session Five. Be sure to post the date, time, and place for Session Five.
The National Center for the Study of Adult Learning and Literacy (NCSALL) is a collaborative effort between the Harvard Graduate School of Education and World Education. The University of Tennessee, Portland State University, and Rutgers University are NCSALL's partners. NCSALL is funded by the Educational Research and Development Centers program, Award Number R309B60002, as administered by the Institute of Education Sciences (formerly Office of Educational Research and Improvement), U.S. Department of Education. The contents of this publication do not necessarily represent the positions or policies of the Institute of Education Sciences, or the U.S. Department of Education, and you should not assume endorsement by the Federal Government.
Skills for Chronic Disease Management

Session Four Materials

Newsprints (flip charts) or Overhead Transparencies (2)
We typically refer to materials on flip charts as “newsprints,” but feel free to use overhead transparencies instead. Examples of most newsprints are included in the session booklet.

<table>
<thead>
<tr>
<th>To be prepared ahead</th>
<th>To be completed during the session</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Unit Ideas</td>
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<tr>
<td></td>
<td>• Evaluation Options</td>
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</tbody>
</table>

Handouts (3)
Make copies of the following handouts before the session begins.

1. Session Four Objectives and Agenda
2. Unit Plan Packet includes the following materials:
   • Unit Plan Packet: List of Materials and the Assignment
   • Unit and Evaluation Plans: Issues to Consider
   • Overview: The Health Literacy Unit Template
   • Health Literacy Unit Template
   • Sample Health Literacy Unit
   • An Evaluation Plan for your Health Literacy Unit
   • Evaluation Plan Template
   • Sample Evaluation Plan
   • Discussion Questions
3. Session Four Evaluation Form

From Session Three
1. Lesson Reflection Sheet (with your notes about teaching your lesson)
Skills for Chronic Disease Management

Session Four

Objectives
During Session Four, participants will:

- Analyze the experience of creating and teaching a health literacy lesson
- Analyze lesson plans and unit ideas
- Examine and prepare to use a template as a planning tool
- Generate ideas for measuring success
- Prepare for the assignment between sessions

Session Four Agenda

Introductory Activities (15 minutes)
- Welcome, Session Objectives and Agenda

Discussion & Analysis Activities (2 hours, 10 minutes including a break)
- Share Teaching Experiences
- Share Unit Ideas
- Review the Unit Plan Packet
- ~ Take a 10-Minute Break ~
- Develop an Evaluation Plan

Planning Activities (20 minutes)
- Review the Assignment: Outline a Unit and Evaluation Plan

Closure Activities (15 minutes)
- Session Review
- Session Evaluation and Closing Notes
Unit Plan Packet:  
List of Materials and the Assignment

The materials in this packet were designed to help you create a unit plan and an evaluation plan for that unit. You can use this packet as a guide for the assignment.

This packet includes the following materials:

- Unit and Evaluation Plans: Issues to Consider
- Overview: The Health Literacy Unit Template
- Health Literacy Unit Template
- Sample Health Literacy Unit
- An Evaluation Plan for your Health Literacy Unit
- Evaluation Plan Template
- Sample Evaluation Plan
- Discussion Questions

**Your assignment for Session Five**

1. Create a draft of your health literacy unit plan focused on skills related to managing a chronic disease.
2. Create an outline for evaluating your health literacy unit.
3. Bring two copies of your unit and evaluation plans to Session Five.
Unit and Evaluation Plans:
Issues to Consider

Feasibility
In addition to determining lesson plans and evaluation tools, a number of issues may influence how you choose to design a unit and a plan for evaluation of that unit. The list below is designed to highlight several such issues. Review these items before you complete your assignment for Session Five.

**Time:** Think about how much time in your classes you can realistically devote to skills related to managing a chronic disease. You might have time for only a few lessons; you may want to carve out a lesson a week; you may have a full week or a month.

**Integration:** Review other lessons you currently use or might develop that would provide some context or support for your plan. For example:

- You may already have a lesson on asking for clarification at work/at children’s school, and you could build on this lesson as you translate the same skills into medical or social service settings.
- You might currently do a life skills lesson on finding desired items in a grocery store, and you might follow up with a lesson that looks at the organizational logic used to shape health centers.
- You may find that you already teach lessons on percentages and fractions and only need to use the example of benefits calculation.

**Resources:** You will want to consider the resources you have available or might locate to help you develop and carry out your plans. For example, you might already have or can easily find authentic materials, community health resources, possible guest speakers, Web sites and publications on specific topics, and articles with background information on health.

**Challenges:** You will need to anticipate problems you might encounter in carrying out your plans, and think about how to overcome them. You may face issues such as having relatively little discretionary time because you must prepare students for GED tests; you may find that other program staff do not understand the point of health literacy skill development and are therefore not supportive.
Process
The process of developing a plan is an iterative one. We develop goals and plans based on those goals. However, some goals are not easily achievable. Therefore, we suggest that once you have drafted your unit and evaluation plans, you go back and review the goals and objectives. You may need to modify your goals and/or your objectives based on the time you have. You may need to increase time for the unit by building in practice time between lessons.

Review and assess the goals and objectives you have set and the lessons/activities you have designed to achieve them. Be sure that they are logically connected. Consider the following questions:

1. Is the goal achievable within the time available?

2. Will the objectives listed lead to the goals you’ve defined?

3. Will the lessons and activities help accomplish those objectives?

4. Will you be able to determine if the unit has been successful with the evaluation plans you’ve outlined?
Overview:
The Health Literacy Unit Template

The Health Literacy Unit Template is adapted from an organizational format developed by John Dirkx and Suzanne Prenger (1997).* The template features the following components:

**Thematic focus and/or title**
The thematic focus is the grouping of health literacy tasks addressed in the unit. The focus will be a subset of one of the three critical areas addressed in the Health Literacy Study Circle+ Series: Access and Navigation; Chronic Disease Management; and Disease Prevention and Screening.

For example, if you are working with Chronic Disease Management, you might consider a thematic focus on issues related to planning and scheduling. This would include lessons on skills related to the use of a clock and of a calendar. As another option, you might prefer to focus on skills related to scales and measures, with examples drawn from measurement tools. A focus on medicine might enable you to develop lessons focused on reading labels, using charts, or measuring amounts.

**Student population**
Identify the student population (e.g., beginning ESOL, pre-GED, and parents in a family literacy program) and the skill level (e.g., beginning literacy, advanced math) so that others will know for whom the health literacy unit was designed.

**Major tasks addressed in this unit**
Identify the various literacy tasks related to managing a chronic disease that are addressed in the six to eight lessons in the unit. These tasks should be specific things that people are expected to do when dealing with chronic diseases.

Note: Think about the different kinds of tasks that have been identified during different study circle discussions to help you.

**Inspiration for unit**
Write down your students’ words or describe one of their experiences that prompted you to think about the need for this health literacy unit. This will help you focus on students’ concerns and needs as you plan the health literacy lessons.

---

Unit objectives
State the learning objectives that guide your decisions about which six to eight lessons will make up this unit. Objectives should be specific, achievable, and measurable.

One such objective might be -- Students will be able to fill out a medical history form. Another might focus on efficacy building -- Students will indicate that they feel more confident about being able to ask questions for clarification.

Lesson ideas
Identify six to eight lesson topics that will help you achieve your unit objectives. You may want to create all of your own lessons, or you may want to include lessons developed by others. You may wish to consider how the lessons are sequenced. Ask yourself, how do my lessons build on each other? Should certain lessons come before others?

One effective way to help learners acquire complex health literacy skills is to identify the prerequisite skills needed for a particular task, and determine where your learners have mastered them. For example, if you want to teach an ESOL lesson on how to make and keep a doctor’s appointment, you may first want to teach a lesson on how to use a calendar and how to tell time. A lesson on using labels to determine correct dosage might be proceeded by a lesson about tables — how they are organized and how to read them.

Skills to be addressed
In order to accomplish health literacy tasks, people need a variety of skills. Lesson plans should focus on reading, writing, speaking, listening, and math skills, as well as efficacy and advocacy. Some examples include reading a chart or a map of a hospital, filling out a form, communicating with medical professionals, or determining eligibility for health care coverage.

Group discussion methods
Identify the discussion methods you might want to use with each lesson. Various methods might include pair work, individual reflection and writing, small group discussions, and brainstorming. You will then be able to review the list of discussion methods in the unit to determine if you have used a variety of instructional formats to address various learning styles.
# Health Literacy Unit Template *

<table>
<thead>
<tr>
<th>Thematic focus and/or title of unit:</th>
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<tbody>
<tr>
<td>Student population and level:</td>
<td>Major tasks addressed in this unit:</td>
</tr>
<tr>
<td>Inspiration for unit:</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Unit objectives: Learner will…</th>
<th>Lesson ideas (6-8):</th>
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<td>8.</td>
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</table>

<table>
<thead>
<tr>
<th>Skills to be addressed (e.g., reading, writing, math, oral communication, self-efficacy, self-advocacy)</th>
<th>Group Discussion Methods (e.g., pair-work, brainstorming, small group discussion, individual presentations, role play)</th>
</tr>
</thead>
</table>

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# Sample Health Literacy Unit

<table>
<thead>
<tr>
<th><strong>Thematic focus and/or title of unit:</strong> Timing and scheduling medicine</th>
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<tbody>
<tr>
<td><strong>Student population and level:</strong> Intermediate ABE</td>
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</table>

<table>
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<tr>
<th><strong>Major tasks addressed in this unit:</strong></th>
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<tr>
<td>• Determine the necessary time between doses of medicine</td>
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<td>• Use cues to remember medicine</td>
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<tr>
<td>• Read a medicine label</td>
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<tr>
<td>• Communicate with medical professionals to ask questions about new medicine</td>
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</table>

**Inspiration for unit:** I visited my mother to help her set up her weekly medicines and realized how difficult this task could be. I considered the needs of my students -- some of whom were caring for children or parents with a chronic disease, or taking care of their own chronic disease. I asked my students to identify the most difficult tasks they have to do. Many of them mentioned how hard it was to remember to take their medicine. Others stated that they did not know what to do if they missed a dose.

**Unit objectives:**
- Learners will be able to identify five common problems people face when they need to take medicine on a regular basis.
- Learners will be able to formulate questions about new medicine to ask professionals.
- Learners will be able to read two medicine labels and complete a calendar schedule for correct dosage throughout the day and week.
- Learners will be able to list two ways to organize medicines (by time of day, by day of week).
- Learners will be able to list three cues to action – strategies for remembering to take medicine.

**Lesson ideas:**
1. Conduct interviews with people managing a chronic disease about problems they faced remembering medicine and strategies they developed.
2. Present interview findings to class, and write a booklet addressing strategies for taking medicine.
3. Create skits that help students practice questions for a health professional about proper use of medicine.
4. Read and analyze a variety of prescription labels on medicine bottles to figure out needed timing. Use an analogue clock to set the correct times.
5. Read the directions for over-the-counter medicines and determine how much to take over the course of a day.
6. Read a story about a person who must take different medicines for arthritis. Develop a calendar to show when to take the medicine.

**Skills to be addressed:**
- **Oral communication:** Request clarification
- **Plan:** Use a calendar to schedule
- **Read:** Prescription labels
- **Write:** A pamphlet about how to remember to take medicine
- **Use tools:** A clock and a calendar
- **Self-efficacy:** Feel confident about asking a doctor to explain the purpose of a medicine, signs of trouble, and what to do if a dose is missed

**Group Discussion Methods:**
- Pair-work
- Brainstorming
- Small group discussion
- Individual presentations
- Role play
An Evaluation Plan for Your Health Literacy Unit

Many evaluators suggest that we focus on two levels of evaluation: process evaluation and outcome evaluation.

Process Evaluation
Carol H. Weiss, a well-known expert on evaluation, defines process evaluation as “a study of what goes on while a program is in progress.”* The purpose of this evaluation will be to understand whether the teaching process is going as planned, whether the students are as engaged as anticipated, and whether activities you designed to build skills are indeed accomplishing what you had hoped they would. Process evaluations enable us to pause and redesign our plans as needed.

Outcome Evaluation
As Weiss notes, outcome evaluation looks at “whether or not the program produced the intended program effects.”** In this instance, an outcome evaluation will determine whether your unit has achieved what you hoped it would. In your outcome evaluation, you will want to consider the effect of the unit on students’ skills, knowledge, attitudes/beliefs, and actions.

How to Draft an Evaluation Plan
The attached two-page template provides one way of organizing your plans for evaluating your unit. Ultimately, you may prefer to use a different format. The purpose of this exercise is to allow you the opportunity to think through what you want to evaluate for your unit, and how you might go about doing it. The partially filled-in template is provided as an example.

Notes on Process Evaluation
We rarely have the time and luxury to evaluate everything. You will need to determine when feedback is most useful. Consider which aspects of your lessons, such as planned activities or time for practicing a new skill, that you want to examine more closely.

Consider how you might get feedback from students as well as peers. For instance, you might have an informal discussion with your students after a lesson. Ask them “What did you learn?” or “Did you have enough time?” or “What did you value most or least?” You might also ask a colleague to observe a lesson so they can share insights with you.

** Ibid, p.334.
Notes on Outcome Evaluation

Outcome evaluations help you determine whether a lesson or a full unit achieved the results you expected. Many evaluators urge us to focus on proximal and distal outcomes.

- **Proximal outcomes** are those that can be evaluated immediately, such as increased knowledge, perceptions, and skills.
- **Distal outcomes** are those that come a bit later and that generally focus on results when new knowledge, perceptions, and skills are applied to real life circumstances.

The Study Circle+ authors have proposed a framework for capturing these different outcomes as a way of organizing your evaluation plan. Again, this is one of many ways to organize evaluation plans.
# Evaluation Plan Template

<table>
<thead>
<tr>
<th>Unit Focus/Theme:</th>
<th>Sequence of lesson topics:</th>
</tr>
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<tbody>
<tr>
<td></td>
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<table>
<thead>
<tr>
<th>Major Objectives:</th>
<th>Students will be able to do the following:</th>
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<thead>
<tr>
<th>Level of Evaluation</th>
<th>Possible Evaluation Questions</th>
<th>Evaluation Measures (How I will get feedback)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process Evaluation</td>
<td>• Do the lessons address student needs?</td>
<td></td>
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<td></td>
<td>• Are students engaged in lessons?</td>
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<td></td>
<td>• Do the activities help students increase their knowledge?</td>
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<tr>
<td></td>
<td>• Do the activities help students change their perceptions?</td>
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<tr>
<td></td>
<td>• Do the activities help students develop new skills?</td>
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</tbody>
</table>
### Evaluation Plan Template (p. 2)

<table>
<thead>
<tr>
<th>Level of Evaluation</th>
<th>Possible Evaluation Questions</th>
<th>Evaluation Measures (How I will get feedback)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Outcome Evaluation</strong></td>
<td><strong>Proximal Outcomes:</strong> Have students acquired new knowledge, perceptions, attitudes, and/or skills?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Did students increase knowledge? (e.g., vocabulary)</td>
<td></td>
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<tr>
<td></td>
<td>• Did students change perceptions? (e.g., increased self efficacy for interacting with social service staff)</td>
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<td></td>
<td>• Did students develop new skills? (e.g., fill out family health history form)</td>
<td></td>
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<tr>
<td></td>
<td><strong>Distal Outcomes:</strong> When, where, and under what circumstances have students applied new knowledge and new skills?</td>
<td></td>
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<tr>
<td></td>
<td>• What actions have students taken outside the class?</td>
<td></td>
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<td>• Have students taught or helped others?</td>
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<td>• What benefits have students reported?</td>
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</table>
### Sample Evaluation Plan

**Unit Focus/Theme:**
Timing and Scheduling Medicine

**Goal:** Build skills needed for proper dosing, timing, and scheduling of medicines

**Objectives:**
- Students will be able to read a medicine label to determine dosage and timing.
- Students will be able to request information and clarification about the purpose and correct use of medicines.
- Students will be able to use a clock and/or a calendar to schedule medicines.

**Sequence of lessons**

1. Needs assessment: Identify barriers people face when they need to take different medicines to manage a chronic disease.
2. Conduct interviews with people managing a chronic disease about problems they faced remembering medicine and strategies they developed.
3. Present interview findings to class and write a booklet addressing strategies for taking medicine.
4. Create skits that help students practice questions for a health professional (doctor, nurse, and/or pharmacist) about proper use of medicine.
5. Vocabulary building: words we find on medicine labels.
6. Read and analyze a variety of prescription labels on medicine bottles to figure out needed timing. Use an analogue clock to set the correct daily times, and a calendar to determine how many days to take the medicines.
7. Read the directions for over-the-counter medicines, and determine how much to take each day.
8. (Optional) With your students, read the article, “Use Medicine Safely” from the FDA web site at [http://www.fda.gov/opacom/lowlit/englow.html](http://www.fda.gov/opacom/lowlit/englow.html).

<table>
<thead>
<tr>
<th>Level of Evaluation</th>
<th>Evaluation Question</th>
<th>Evaluation Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process Evaluation</td>
<td>Do the lessons address student needs? Are students engaged in lessons? Is there sufficient time for students to practice and build skills?</td>
<td>1. Observation: Match unit goal with findings from needs assessment; ask students 2. Class activity: Ask students</td>
</tr>
</tbody>
</table>
Sample Evaluation Plan (p. 2)

| Outcome Evaluation | Proximal: Did the students increase their knowledge? Did the students change their perceptions? Did the students increase skills? | 1. Vocabulary test (10 key words)  
2. Class activity: Ask students to read a medicine label and identify time of doses for a 24-hour period.  
3. Observation: Ask students to role-play a patient who needs to ask the doctor about the purpose of a new medicine and the correct usage.  
4. Problem solving test: Ask students to read a story about Mr. Smith and use a calendar to plan his week’s medicine. |
| | Distal: Have students applied new skills? | 1. Ask students to keep a journal and describe the actions they have taken for themselves or for others.  
2. Ask students to write a story.  
3. Ask class to tally action taken by members of the class. |
Discussion Questions

1. What will the students be able to do after you teach this unit?

2. Does the focus on knowledge, perceptions, skills, and actions cover the kinds of changes you hope to see in your students?

3. What can you do to document that these changes have taken place in students’ knowledge, perceptions, skills, and actions?
Please complete the following evaluation and turn it in before you leave today.

1. What was the most valuable thing that you gained from today’s session? (for example, an insight, a practical idea, specific information, etc.)

2. How would you improve this session?
SESSION FIVE:
Developing Strategies for Success
SESSION FIVE:
Developing Strategies for Success

HEALTH LITERACY STUDY CIRCLES+
HALL/NCSALL 2005

Rima Rudd, Sc. D.
Lisa Soricone, Ed. D.
Maricel Santos, Ed. D.
Charlotte Nath, R.N., Ed. D.
Janet Smith, Ed. M.
About this Session

This final session gives participants an opportunity to review drafts of their health literacy units and evaluation plans. This session also devotes time towards the end for participants to discuss ways they can stay in touch with each other and continue the work they have started in this study circle.

Introductory Activities
The introductory activities are designed to help participants understand the structure and content of the session. It is especially important at this time to address any remaining questions or comments from prior sessions.

Discussion and Analysis Activities
The discussion and analysis activities enable participants to share their health literacy units and evaluation plans. Participants offer and receive a peer review of their health literacy units and evaluation plans during this first activity. Participants then analyze the barriers and supports to the integration of health literacy skills related to chronic disease management into their programs.

Planning Activities
These brief activities focus on how participants can keep in touch with each other beyond the study circle experience.

Closure
The closure activities are critically important for several reasons. These activities give participants time to reflect on this study circle experience as a whole, and to recognize what they have achieved and what the experience has meant to them.
This final session of the study circle includes an expanded set of closing activities.

You will ask participants will review the Study Circle’s Goals and Objectives and consider the main ideas presented during the study circle sessions.

You will conduct an evaluation of the study circle experience by leading an exercise called Head, Heart, Hands, & Feet.

The Group Discussion Methods

The Discussion Methods used in Session Five are designed to let participants share their teaching plans with each other, and to stimulate participants’ thinking about the context in which they will be implementing health literacy skill development.

The discussion methods for this session include:

Peer Review: Participants work in pairs so that each member can offer feedback in a comfortable and relatively private discussion.

“Corners” discussion: Participants move to different corners of the room that represent different perspectives. Participants discuss issues with others in their corner, and then come back together as a group to share ideas from the different perspectives. This format is useful when participants need to consider multiple viewpoints on a topic or need to problem-solve from multiple perspectives.

Brainstorm: Participants generate solutions and ideas.

Walk about: After small group work, groups post ideas and participants circulate to review the ideas of other groups.

Head, Heart, Hands, & Feet: This exercise uses the metaphor of the human body as a framework for responding to a set of evaluation questions. Participants first respond individually to several questions on Post-it notes. Then they place their Post-it notes on specific parts of a stick-figure diagram to indicate insights gained (head), skills developed (hands), what they liked (heart), what they would like to discard (feet), and useful ideas they will take with them from the study circle (basket). This exercise is designed to encourage participants to talk about the range of positive and negative elements of their Study Circle’s experience.
Objectives

During Session Five, participants will:

- Share and critique unit and evaluation plans
- Identify supports and barriers to the integration of health literacy skill development into instruction
- Develop strategies for staying in touch and supporting one another’s work in health literacy

Time

3 hours

Session Five Agenda

*Introductory Activities* (10 minutes)

- Welcome, Session Objectives and Agenda

*Discussion & Analysis Activities* (2 hours)

- Share Plans and Strategies (Peer Review)
  - Take a 10-Minute Break –
- Identify Barriers and Supports
- Develop a Strategy for Action

*Planning Activities* (10 minutes)

- Discuss How to Stay in Touch

*Closure Activities* (40 minutes)

- Study Circle Summary
- Final Evaluation
**Materials and Preparations**

- Newsprints (flip charts) and Markers
- Overhead projector
- Dot stickers (4 per person)
- Post-it Notes (10 per person)

**Newsprints (flip charts) or Overhead Transparencies (2)**

We typically refer to materials on flip charts as “newsprints,” but feel free to use overhead transparencies instead. Examples of most newsprints for this session are included in this booklet.

<table>
<thead>
<tr>
<th>To be prepared ahead</th>
<th>To be completed during the session</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head, Heart, Hands, &amp; Feet Diagram</td>
<td>Identify Barriers and Supports</td>
</tr>
</tbody>
</table>

**Handouts (5)**

Make copies of the following handouts before the session begins. The handouts for each session are located after the session booklet.

1. Session Five Objectives and Agenda
2. Skills for Chronic Disease Management – Goals and Objectives
3. Study Circle Group Discussion Methods
4. Head, Heart, Hands, & Feet
5. List of Participants (from Session One)

**Optional**

Copies of health literacy lessons written by participants (one complete packet for each participant).
Session Five: Developing Strategies for Success
INTRODUCTORY ACTIVITIES (10 minutes total)

Welcome, Session Objectives and Agenda (10 minutes)
Discussion Methods: Presentation by facilitator

Welcome the participants back and offer a brief review of Session Four
Remind participants that they shared their experiences creating and teaching new lessons during the last session, and discussed health literacy units and ways to measure success. Between Sessions Four and Five, participants were asked to outline their own health literacy units and draft evaluation plans.

Provide a brief overview of Session Five
Participants will review their health literacy units and evaluation plans with each other. They will also analyze the barriers and supports to the integration of health literacy skill development into their programs. This session also provides time to help participants stay in touch and continue the work they have started in this study circle.

Distribute the Session Five Objectives and Agenda
   Review the objectives and agenda and briefly describe the session activities.
   Ask if anyone has additional comments or questions.
DISCUSSION & ANALYSIS ACTIVITIES
(2 hours total including a 10-minute break)

Share Plans and Strategies (Peer Review) (50 minutes)
Discussion Methods: Peer review and facilitated full group discussion

Ask participants to share challenges they faced as they drafted their units
(15 minutes)
In the large group, ask participants to discuss the challenges they faced as they completed this assignment. Encourage participants to take notes on this discussion and write down any ideas that are particularly helpful with respect to their own teaching situation.

Ask the following questions to guide this discussion:
1. What challenges did you face with this assignment?
   (e.g., my class is open enrollment and meets fewer than 10 hours a week, because most students work full-time and cannot commit more time to going to school. It is hard for me to imagine how I might carry out a unit, when students do not come regularly and new students drop in all the time.)
2. Did anyone else face this same issue?

Introduce the Peer Review Method (5 minutes)
Explain that participants will now have a chance to see how others developed a unit, and share thoughts, questions, and suggestions.
Propose the following guidelines for giving feedback, and then ask participants if they would like to add anything else to the list (you might want to write these on the board or on newsprint).

• Ask questions for clarity before you offer suggestions for change
• Offer ideas and suggestions but not criticism
• Share what has worked for you in similar situations, as appropriate
• Tell the author what you like about the unit and evaluation plan

Ask participants to work in pairs (30 minutes)
Ask participants to pair up to discuss their health literacy units and evaluation plans.
Ask participants to take about 10 minutes to read their partner’s unit plan, and then take 10 minutes to discuss each plan.
Suggest the following questions to guide the discussions:

1. What are the strengths of the unit and evaluation plan?
2. Is there anything that needs clarification in the unit and evaluation plan?
3. What other skills might be included as part of this unit?
4. What additional activities can you suggest for teaching the skills included in this unit?
5. What other ways of evaluating the effectiveness of this unit can you suggest?

Tell participants that they will focus on identifying supports and barriers related to their health literacy work after the break.

TAKE A 10-MINUTE BREAK

Identify Barriers and Supports (30 minutes)

Discussion Methods: “Corners” Discussion with a focus on a Force Field Analysis

Materials: Newsprints, markers, dot stickers

Newsprints: Identify Barriers and Supports

Introduce the Force Field Analysis and “Corners” discussion format (10 minutes)

Describe the Force Field Analysis by sharing the following information with the group.

This exercise draws from Kurt Lewin’s work in the 1940s. Lewin is often called the “grandfather of behavioral sciences” for his research on and insights about change.

Lewin determined that an effective action plan most easily comes out of this group method if the group focuses on removing barriers before they consider adding supports.

This method will be used to help participants understand the range of barriers and supports that affect their ability to integrate and sustain a focus on the development of health literacy skills in ABE/ESOL programs.
Next, explain that participants will now conduct a force-field analysis to identify the range of barriers and supports to the integration of health literacy skill development in their own programs.

Assign participants to one of four levels of analysis: Individual, Classroom, Program, and Community. Ask each group to generate a list of those factors specific to that level that either support or hinder the integration of health literacy skill development into instruction.

• **Individual**: How do your individual limitations or strengths hinder or support the integration of health literacy into instruction?

• **Classroom**: How does the classroom setting hinder or support the integration of health literacy into instruction?

• **Program**: How does the program hinder or support the integration of health literacy into instruction?

• **Community**: How does the community hinder or support the integration of health literacy into instruction?

**Participants work in their “Corners”** (20 minutes)

Give each group a blank page of newsprint, and ask each group to write the title (Identify Barriers and Supports) and the assigned level on the newsprint.

A “force-field analysis” is a method based on a theory of change. Sociologist Kurt Lewin was interested in how people make changes in their lives. Lewin recognized that most people are uncomfortable with change. He envisioned individuals functioning within a “force field” that is full of both negative and positive forces. Some of these forces are pressures for change, and some of these forces support things just the way they are.

The *(positive)* forces for change support new action.

The *(negative)* forces for staying the same are barriers to change.

Lewin suggests that we can support change best if we focus on removing barriers.

Note: This theory is discussed in NCSALL Report #12, *Persistence Among Adult Basic Education Students in Pre-GED Classes* by J. Comings, A. Parrella and L. Soricone.
Ask participants to focus on their assigned level, and generate as many supports and barriers as they can.

Each group should ask one person to serve as the facilitator and another as the recorder. The facilitator should help the group brainstorm about the range of barriers and supports specific to the assigned level. The recorder should record the group’s ideas on a newsprint titled Identify Barriers and Supports.

While the four groups are discussing barriers and supports, you should circulate around the room so that you can observe the discussions.

Provide a 5-minute warning so that the groups can prepare their newsprints. Ask the groups to post their newsprints on the wall when they are finished.

Identify Barriers and Supports

<table>
<thead>
<tr>
<th>Level of Focus: Individual, Classroom, Program, or Community</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barriers</td>
</tr>
</tbody>
</table>

Develop a Strategy for Action (30 minutes)

**Discussion Methods:** Walk about followed by large group discussion

**Introduce the walk about activity** (15 minutes)

Explain that participants will now have an opportunity to review ideas from other groups. They will also highlight those barriers that are of immediate concern and those supports that are essential for the integration into instruction of health literacy skills needed for managing a chronic disease.

Give each participant four dot stickers.
Ask participants to walk about the room and read the list of barriers and supports generated by each group.

After they have read all of the lists, ask them to place dots next to two barriers that they consider to be of immediate concern and two supports that they feel are essential to successful integration.

Participants can also add new barriers and supports to the lists.

As the walk-about is wrapping up and the participants are settling back into their seats, you (or a volunteer) should do a quick tally of the stickers to determine the barriers and supports that participants identified as being the most important.

**Facilitate a large-group discussion: Analysis of priorities (15 minutes)**

Ask volunteers to comment on the barriers and supports that received the greatest number of stickers. You may note whether the highlighted items were concentrated in one particular level, such as the classroom level, or whether they were distributed across the levels.

Pose the following questions to start the discussion:

1. **Look at the barriers we have identified as most important.**
   What could you do to address these barriers as an individual? As a work group?

2. **Look at the supports we have identified as most important.**
   What could you do to strengthen these supports as an individual? As a work group?
PLANNING ACTIVITIES (10 minutes total)

Discuss How to Stay in Touch (10 minutes)
Discussion Methods: Full group discussion
Handouts: List of Participants

Discuss opportunities for participants to keep in touch and continue their health literacy work

Ask if everyone has the List of Participants. If not, provide copies.
Read the following suggestions and ask participants how they would like to keep in touch.
1. Set up a listserv so that participants can email one another about their ideas and questions. (Ask if anyone will volunteer to set this up.)
2. Exchange lesson ideas.

Note that the Health Literacy Study Circle+ was also designed to foster a community of practitioners who are interested in integrating health literacy skills in the ABE/ESOL field. Read the following list and ask the participants to consider working together to:
1. Arrange to meet at adult education conferences to exchange lesson ideas
2. Collaborate to develop a presentation at an adult education conference
3. Set up meetings to determine how to offer workshops to other teachers in their programs
CLOSURE ACTIVITIES (40 minutes total)

This closing activity offers a brief overview of the entire Study Circle+ and introduces a new evaluation exercise.

Study Circle Summary (10 minutes)
Discussion Methods: Full group discussion
Handouts: Skills for Chronic Disease Management – Goals and Objectives
Study Circle+ Discussion Methods

Distribute the two handouts

Distribute the handout titled Skills for Chronic Disease Management – Goals and Objectives.
Distribute the handout titled Study Circle+ Discussion Methods.
Point out that participants may want to refer to it for the next activity and keep it as a reference for their own teaching.

Pose the following question to review accomplishments and activities

1. What have you learned about health literacy skills?
2. What can you do now to continue this work?

Final Evaluation (20 minutes)
Discussion Methods: Head, Heart, Hands, & Feet exercise
Handout and Materials: Head, Heart, Hands, & Feet handout and Post-it notes
Newsprints: Head, Heart, Hands, & Feet

Conduct the Head, Heart, Hands, & Feet Activity (15 minutes)

Explain that this evaluation activity gives participants an opportunity to reflect on their Study Circle+ experience. This activity also serves as a summary evaluation of the study circle for you, the facilitator.

Post the Head, Heart, Hands, & Feet newsprint (see the diagram on the handout). You might want to note the fitting use of a body for this evaluation of health-related activities.
Distribute the handout titled Head, Heart, Hands, & Feet and 10 Post-it notes to each participant.
Read each question to participants and ask them to write at least one comment for each part of the diagram.
Ask the participants to stick their notes on the newsprint diagram.


Review the Post-it notes (5 minutes)

When all notes are posted, ask a volunteer to read the notes for each part to the whole group.
Suggest that participants may want to use this kind of activity in their classes when appropriate.

Closing Notes

Thank group members for their participation, hard work, and interest in health literacy education.
Encourage the participants to stay in touch with each other and continue sharing their health literacy ideas and experiences.
Skills for Chronic Disease Management

Session Five Materials

Newsprints (flip charts) or Overhead Transparencies (2)
We typically refer to materials on flip charts as “newsprints,” but feel free to use overhead transparencies instead. Examples of most newsprints for this session are included in the session booklet.

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<tbody>
<tr>
<td>• Head, Heart, Hands, &amp; Feet Diagram</td>
<td>• Identify Barriers and Supports</td>
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3. Study Circle+ Group Discussion Methods
4. Head, Heart, Hands & Feet
5. List of Participants (from Session One)

Optional
Copies of health literacy lessons written by participants (one complete packet for each participant)
Head, Heart, Hands, & Feet

~ Draw this diagram on newsprint ~
Skills for Chronic Disease Management

Session Five

Objectives
During Session Five, participants will:
- Share and critique unit and evaluation plans
- Identify supports and barriers to the integration of health literacy skill development into instruction
- Develop strategies for staying in touch and supporting one another’s work in health literacy

Session Five Agenda

Introductory Activities (10 minutes)
- Welcome, Session Objectives and Agenda

Discussion & Analysis Activities (2 hours)
- Share Plans and Strategies (Peer Review)
- ~Take a 10-Minute Break~
- Identify Barriers and Supports
- Develop a Strategy for Action

Planning Activities (10 minutes)
- Discuss How to Stay in Touch

Closure Activities (40 minutes)
- Study Circle Summary
- Final Evaluation
Skills for Chronic Disease Management

Goals and Objectives

Study Circle+ Goals
The overall goal of the Health Literacy Study Circle+ is to build the capacity of adult education instructors to incorporate health literacy skills into their curricula and instruction.

The goal for the Chronic Disease Management Study Circle+ is to prepare participants to help their students develop basic skills needed for managing a chronic disease. These skills include filling out forms, managing medicines, following verbal and written directions, talking with the doctor, and maybe using tools to monitor their conditions.

Study Circle+ Objectives
Participants in the Chronic Disease Management (CDM) Study Circle+ will:

1. Develop a shared definition of “health literacy.”
2. Identify the activities people engage in when they are trying to manage a chronic disease.
3. Identify literacy related barriers and issues faced by people who are managing a chronic disease.
4. Identify literacy skills needed to accomplish the many tasks involved in managing a chronic disease.
5. Teach, modify, and critique sample lessons designed to build students’ literacy and numeracy skills related to chronic disease management.
6. Create and teach a lesson based on students’ needs.
7. Outline a sequence of lessons for a health literacy unit, and draft an evaluation plan
8. Develop strategies for incorporating health literacy skills into classroom activities
# Study Circle+ Group Discussion Methods

This handout summarizes the different discussion methods used during this Health Literacy Study Circle+. You may want to keep this list as a reference, and use or adapt any methods that are appropriate for your own teaching.

<table>
<thead>
<tr>
<th>Session One Discussion Methods</th>
<th>Activity Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presentation</td>
<td>Introductions and overview of the Health Literacy Study Circle+</td>
</tr>
<tr>
<td>Small Group (Pairs) Discussion</td>
<td>Review readings and health literacy definitions</td>
</tr>
<tr>
<td>Report Out</td>
<td>Share ideas from the small group discussions on readings and health literacy definitions</td>
</tr>
<tr>
<td>Trigger and Facilitated Large Group Discussion</td>
<td>View and discuss DVD or photographs</td>
</tr>
<tr>
<td>Expanding Discussion (from small to larger groups)</td>
<td>Discuss experiences and observations about managing chronic diseases</td>
</tr>
<tr>
<td>The Dance and the Balcony</td>
<td>Reflect on the discussion methods used during this session</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Session Two Discussion Methods</th>
<th>Activity Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large Group Facilitated Discussion</td>
<td>Review results of the in-class needs assessments</td>
</tr>
<tr>
<td>Brainstorm</td>
<td>Identify chronic disease management activities and tasks</td>
</tr>
<tr>
<td>Small Group Project</td>
<td>Identify skills needed to manage chronic diseases</td>
</tr>
<tr>
<td>Walk About</td>
<td>Review small group work</td>
</tr>
<tr>
<td>Small Group (Pairs) Discussion</td>
<td>Review sample lessons</td>
</tr>
<tr>
<td>The Dance and the Balcony</td>
<td>Reflect on the discussion methods used during this session</td>
</tr>
</tbody>
</table>
## Session Three

### Discussion Methods

<table>
<thead>
<tr>
<th>Activity Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pair Work</strong></td>
</tr>
<tr>
<td>Review and discuss sample lessons</td>
</tr>
<tr>
<td>taught; plan to teach your own lessons</td>
</tr>
<tr>
<td><strong>Private Reflection</strong></td>
</tr>
<tr>
<td>Consider ideas for health literacy</td>
</tr>
<tr>
<td>units</td>
</tr>
<tr>
<td><strong>Small and Large Group Work</strong></td>
</tr>
<tr>
<td>Outline health literacy units</td>
</tr>
<tr>
<td><strong>Walk About</strong></td>
</tr>
<tr>
<td>Review small group work on health</td>
</tr>
<tr>
<td>literacy units</td>
</tr>
<tr>
<td><strong>Private Reflection and Posting</strong></td>
</tr>
<tr>
<td>Consider and then share ideas for</td>
</tr>
<tr>
<td>health literacy lessons</td>
</tr>
<tr>
<td><strong>The Dance and the Balcony</strong></td>
</tr>
<tr>
<td>Reflect on the discussion methods</td>
</tr>
<tr>
<td>used during this session</td>
</tr>
</tbody>
</table>

## Session Four

### Discussion Methods

<table>
<thead>
<tr>
<th>Activity Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Small and Large Group Work</strong></td>
</tr>
<tr>
<td>Share teaching experiences; share</td>
</tr>
<tr>
<td>ideas for health literacy units and</td>
</tr>
<tr>
<td>measurement options</td>
</tr>
<tr>
<td><strong>Brainstorming</strong></td>
</tr>
<tr>
<td>Consider ways to measure success of</td>
</tr>
<tr>
<td>health literacy lessons and units</td>
</tr>
<tr>
<td><strong>The Dance and the Balcony</strong></td>
</tr>
<tr>
<td>Reflect on the discussion methods</td>
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<tr>
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</tbody>
</table>

## Session Five

### Discussion Methods

<table>
<thead>
<tr>
<th>Activity Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Peer Review</strong></td>
</tr>
<tr>
<td>Share teaching plans</td>
</tr>
<tr>
<td><strong>“Corners” Discussion</strong></td>
</tr>
<tr>
<td>Identify barriers and supports to</td>
</tr>
<tr>
<td>implementing chronic disease</td>
</tr>
<tr>
<td>management skill development</td>
</tr>
<tr>
<td><strong>Brainstorming</strong></td>
</tr>
<tr>
<td>Identify strategies for implementing</td>
</tr>
<tr>
<td>chronic disease management skill</td>
</tr>
<tr>
<td>development</td>
</tr>
<tr>
<td><strong>Walk About</strong></td>
</tr>
<tr>
<td>Review ideas from small group work</td>
</tr>
<tr>
<td><strong>Head, Heart, Hands &amp; Feet</strong></td>
</tr>
<tr>
<td>Evaluate the study circle experience</td>
</tr>
</tbody>
</table>
**Head, Heart, Hands, & Feet**

<table>
<thead>
<tr>
<th><strong>Posting Place</strong></th>
<th><strong>Questions</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Head</strong></td>
<td>What information did you learn or insights did you gain during this Study Circle? (e.g., new knowledge, ideas, concepts)</td>
</tr>
<tr>
<td><strong>Heart</strong></td>
<td>What about the Study Circle made you feel good? What did you enjoy?</td>
</tr>
<tr>
<td><strong>Hands</strong></td>
<td>What skills did you gain?</td>
</tr>
</tbody>
</table>
| **Feet**          | What activities or materials would you like to “kick out” (leave out) or change?  
Note that suggestions here may be related to discussion methods and/or content (e.g., readings, hand-outs, topics) |
| **Basket**        | What is the most useful idea or concept that you will take away from this Study Circle? |