



# Health Literacy: The Cost of Smoking Integrated and Contextualized Learning Lesson

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Lesson Background	NRS Levels
This approach to teaching health literacy is designed to be relevant to students studying for high school equivalence examinations. The lesson integrates information about the harmful effects of smoking with practicing math, specifically solving word problems and interpreting graphs.	Low Intermediate Basic Education, Low to High Intermediate ESL

### Recommendations for Direct Instruction

This lesson currently does not offer steps for direct math instruction. There are opportunities for learner discovery through doing and lots of opportunities to practice. Materials are rigorous and the lesson also references other websites for advanced learners. For an ELA class, it is recommended that the instructor scaffold in math instruction depending on learners' backgrounds.

Project Title	Approximate Instruction Time
The Cost of Smoking	80 minutes

<b>Instructional Objectives</b> <i>(written in teacher language primarily derived from content standards and includes evidence of mastery):</i>	<b>Learning Target Statements</b> <i>(written in student-friendly language and helps learners reflect on what they are able to do as a result of the project)</i> for learners' exit tickets, learning logs, or reflection:
By the end of this project, students will be able to: <ul style="list-style-type: none"><li>• Process and analyze data about the cost of smoking.</li><li>• Think critically about smoking as a threat to good health.</li></ul>	<ul style="list-style-type: none"><li>• I can analyze information about costs.</li><li>• I can solve word problems using multiplication.</li><li>• I can interpret graphs with information and data.</li><li>• I can talk about smoking and its impact on health.</li></ul>

Lesson Area	Lesson Information
<b>ELA/Mathematics/ELP Standard(s) Addressed:</b>	<b>R7</b> - Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.
<b>Central Skills Taught:</b>	<input type="checkbox"/> Adaptability and Willingness to Learn <input checked="" type="checkbox"/> Communication <input checked="" type="checkbox"/> Critical Thinking <input type="checkbox"/> Interpersonal Skills <input type="checkbox"/> Navigating Systems <input type="checkbox"/> Problem Solving <input checked="" type="checkbox"/> Processing and Analyzing Information <input type="checkbox"/> Respecting Differences and Diversity <input checked="" type="checkbox"/> Self-awareness
<b>Language Demands:</b> (Include academic language, language skills, etc.)	Use academic language to talk about health data, such as <i>According to the chart ..., The data indicate ..., Health experts agree ..., It appears that smoking leads to ..., Doctors attribute smoking to ..., etc.</i>  Use domain-specific academic vocabulary such as <i>coronary, pulmonary, mortality rate, attributed to, etc.</i> , to talk about smoking and its impact on health.

Lesson Area	Lesson Information
<b>Assessing Mastery of the Objective(s) and Central Skills:</b>	<b>Proof of Learning:</b> <input type="checkbox"/> Via observation of a team task (e.g., discussion, work on project)

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(Indicate <u>when</u> and <u>how</u> assessment – formative and/or summative - will occur during the project.	<ul style="list-style-type: none"> <li><input type="checkbox"/> Via team self-assessment</li> <li><input type="checkbox"/> Via individual self-assessment</li> <li><input checked="" type="checkbox"/> Via team product</li> <li><input checked="" type="checkbox"/> Via individual product</li> <li><input type="checkbox"/> Other (Please list):</li> </ul> <p><b>Proof of Learning Tools:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Rubric</li> <li><input type="checkbox"/> Checklist</li> <li><input type="checkbox"/> Quiz</li> <li><input checked="" type="checkbox"/> Other (Please list): <u>Multiplication Worksheet and Graph Interpretations</u></li> </ul> <p><b>Ongoing Formative Assessment</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Nonverbal responses to comprehension questions (e.g., answer cards, Kahoot!)</li> <li><input type="checkbox"/> Peer-to-peer quizzing</li> <li><input checked="" type="checkbox"/> Exit/admit tickets</li> <li><input type="checkbox"/> KWL charts</li> <li><input type="checkbox"/> Other (Please list):</li> </ul>

Lesson Area	Lesson Information
<p><b>Adaptations and/or Accommodations:</b>  <i>(How will you increase access to the content of the project? Identify differentiation strategies.)</i></p>	<p>Support students' academic language with sentence prompts, such as <i>According to the data ...</i>, <i>The chart indicates that ...</i>, <i>Can you explain how you came to that conclusion?</i> etc.</p> <p><b>For lower-level students:</b> Use visuals to support vocabulary or adjust the pie chart and follow-up questions to show fewer categories at once to avoid overwhelming the students. Complete one word problem at a time. Read each word problem aloud. Have the students complete the calculation and check their work before moving on to the next problem. Back up and review multiplication as needed.</p> <p><b>For more advanced students:</b> Have the students complete the word problem calculations independently. They can also do additional research on smoking-related illnesses as well as rates for smoking and related diseases/deaths in their local area. The teacher can provide the students with the state health department websites or related public health sites, for example, and ask more advanced students to gather and share their findings with the class. Comparisons might be made with other states and/or countries around the frequency of smoking and its impacts on health. Cultural norms regarding smoking (age, gender, where it's okay/not okay) make for an interesting discussion as well!</p>

Procedure	Description	Central Skills	Materials
<p><b>Introduction:</b></p> <p>How will you introduce the lesson objective and how it fits into the unit/LOI? Identify its relevance to learners' needs and goals.</p> <p><b>Timing:</b> 10 minutes</p>	<p>Ask the students if they know how much smoking costs. How would they figure it out? Discuss the different types of costs this might involve (financial, health, social, etc.).</p> <p>Explain to the students that they will be solving word problems while analyzing information about the cost of smoking and that then they will practice interpreting graphs while analyzing information about the health effects of smoking.</p>	<ul style="list-style-type: none"> <li>• Critical Thinking</li> <li>• Self-awareness</li> </ul>	
<p><b>Explanation and Modeling:</b></p> <p><i>What type of direct instruction do learners need? Are there ways for learners to access the new content independently? What types of models will you provide and when?</i></p> <p><b>Timing:</b> 20 minutes</p>	<p>Give students copies of the Multiplication Practice handout (Appendix A). Students practice multiplication by calculating the weekly, monthly, and annual costs of smoking. Complete the first word problem together as a group. Then have students complete the remaining word problems independently. Have students correct their own answers as you review the correct answers and calculations as a large group.</p>	<ul style="list-style-type: none"> <li>• Critical Thinking</li> </ul>	<ul style="list-style-type: none"> <li>• Multiplication practice (Appendix A)</li> </ul>
<p><b>Guided Practice:</b></p> <p><i>Which tasks and learning activities will you use to engage learners with the</i></p>	<p>When they are done, give the student copies of the Interpreting Graphs handout (Appendix B). The students work in small groups to answer the questions. Discuss the answers to each question with the whole class. Have each small group answer one</p>	<ul style="list-style-type: none"> <li>• Critical Thinking</li> <li>• Processing and Analyzing Information</li> </ul>	<ul style="list-style-type: none"> <li>• Interpreting graphs (Appendix B)</li> </ul>

Procedure	Description	Central Skills	Materials
<p><i>content and skills? How will you structure the tasks or other learning activities to support learners' success?</i></p> <p><b>Timing: 25 minutes</b></p>	<p>question and explain where on the graph they found the information.</p>		
<p><b>Application/Extended Practice:</b></p> <p><i>What will learners do to demonstrate their acquisition of content knowledge, basic skills, and key soft skills?</i></p> <p><b>Timing: 20 minutes</b></p>	<p>Following the activity, ask these questions to promote processing and analyzing of information, communication, critical thinking and self-awareness:</p> <ul style="list-style-type: none"> <li>• What are the financial costs of smoking?</li> <li>• How much would Julie, Maria, Frankie, and Stan save if they did not smoke?</li> <li>• What could they do with the money they saved?</li> <li>• What are the health costs of smoking?</li> </ul> <p>If someone wanted to quit smoking, where could they go for help?</p>	<ul style="list-style-type: none"> <li>• Communication</li> <li>• Critical Thinking</li> <li>• Processing and Analyzing Information</li> <li>• Self-awareness</li> </ul>	
<p><b>Student Reflection on Learning Targets, Closure, and Connection to Future Learning</b></p> <p><b>Timing: 5 minutes</b></p>	<p><b>Exit cards</b></p> <p>Ask each student to write down one thing they learned, one thing that surprised them, and one question they still have on an index card and return it to you as they exit the classroom.</p>	<ul style="list-style-type: none"> <li>• Self-awareness</li> </ul>	<ul style="list-style-type: none"> <li>• Index cards for exit tickets</li> </ul>

## Appendix A. Multiplication Practice

Practice multiplication by calculating the cost of buying cigarettes.

1. Julia buys six packs of cigarettes each week. Each pack costs \$5.00. How much does Julia spend on cigarettes each week?
  - a. \$15.00
  - b. \$24.00
  - c. \$30.00
  - d. \$35.00
  
2. Maria buys six packs of cigarettes each week. Each pack of cigarettes costs \$6.50. Calculate how much Maria spends on cigarettes in 1 month (1 month = 4 weeks).
  - a. \$38.00
  - b. \$76.00
  - c. \$124.00
  - d. \$156.00
  
3. Frankie buys seven packs of cigarettes each week. His cigarettes cost \$7.25 per pack. Calculate what Frankie spends on cigarettes each year (1 year = 52 weeks).
  - a. \$50.75
  - b. \$377.00
  - c. \$983.50
  - d. \$2,639.00



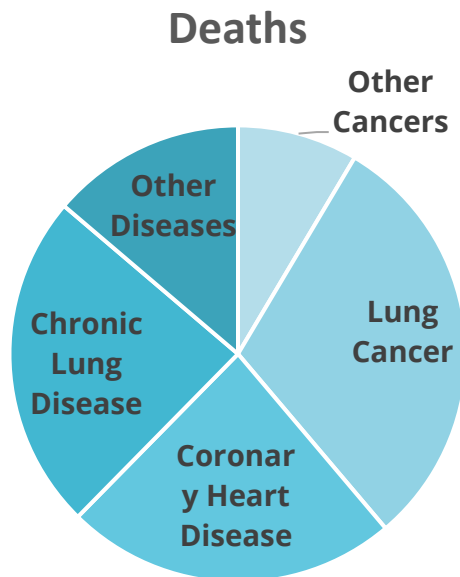
4. Stan buys three cartons of cigarettes each week for himself and his wife. Each carton (10 packs of cigarettes) costs \$52.00. How much do Stan and his wife spend on cigarettes in 1 year (1 year = 52 weeks)?
- a. \$8,112.00
  - b. \$5,124.00
  - c. \$2,704.00
  - d. \$978.00

## Appendix B. Interpreting Graphs

### Annual Deaths Due to Smoking Cigarettes United States 2005–2009

Data Source. "Tobacco – Related Mortality," Centers for Disease Control and Prevention, [https://www.cdc.gov/tobacco/data\\_statistics/fact\\_sheets/health\\_effects/tobacco\\_related\\_mortality/index.htm#diseases](https://www.cdc.gov/tobacco/data_statistics/fact_sheets/health_effects/tobacco_related_mortality/index.htm#diseases), accessed June 21, 2019.

### Each Year About 480,000 Deaths in the U.S. Are Attributed to Cigarette Smoking



Types of Deaths Related to Cigarette Smoking
Other Cancers - 36,000
Lung Cancer - 127,700
Coronary Heart Disease - 99,300
Chronic Lung Disease - 100,600
Other Diseases- 58,100
Stroke 15,300

Smoking harms human health and is the leading preventable cause of death in the United States. Based on the data in the pie chart, answer the questions that follow.

- 1. About how many deaths each year are due to smoking-related disease?**
- 2. Which disease kills about 99,300 people who smoke each year?**
- 3. About how many smoking-related deaths each year are due to cancer (lung and other cancers)?**
- 4. About what percentage of smoking-related deaths each year are due to lung cancer?**
- 5. Write a sentence to describe what information this pie chart shows.**