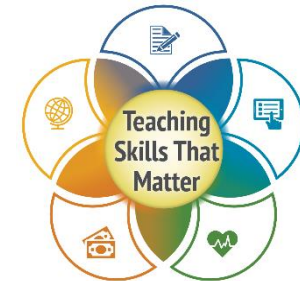# Health Literacy: The Cost of Smoking Integrated and Contextualized Learning Lesson

Background: 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.

NRS Level(s): Low Intermediate Basic Education, Low to High Intermediate ESL

Lesson Title: The Cost of Smoking	**Approximate Length of Lesson:** 80 minutes
Instructional Objective *(written in teacher language primarily derived from content standards and includes evidence of mastery)*: By the end of this lesson, the students will be able to: • Process and analyze data about the cost of smoking. • Think critically about smoking as a threat to good health.	**Learning Target Statements** *(written in student-friendly language and helps learners reflect on what they are able to do as a result of the lesson)* for learners' exit tickets, learning logs, or reflection: • I can analyze information about costs. • I can solve word problems using multiplication. • I can interpret graphs with information and data. • I can talk about smoking and its impact on health.

ELA/Mathematics/ELP Standard(s) Addressed:	**Main Standards Addressed**: **CCR Level C:** R7: Evaluate content presented in diverse formats. Math, Number and Operations, Level C: Use place value understanding and properties of operations to perform multi digit arithmetic. **ELPS Levels 4 and 5:** ELPS 1: Cite specific details and evidence from texts. ELPS 2: Participate in extended discussions. Express self clearly and persuasively.

Central Skills Taught:	☐ Adaptability and Willingness to Learn	☐ Problem-Solving
	☑ Communication	☑ Processing and Analyzing Information
	☑ Critical Thinking	☐ Respecting Differences and Diversity
	☐ Interpersonal Skills	☑ Self-Awareness
	☐ Navigating Systems	

Language Demands: *(Include academic language, language skills, etc.)*	Use academic language to talk about health data, such as *According to the chart ..., The data indicate …, Health experts agree …, It appears that smoking leads to…, Doctors attribute smoking to ...,* etc. Use domain-specific academic vocabulary such as *coronary, pulmonary, mortality rate, attributed to,* etc., to talk about smoking and its impact on health.

Assessing Mastery of the Objective(s) and Central Skills: *(Indicate <u>when</u> and <u>how</u> assessment—formative and/or summative—will occur during the lesson.)*	**Proof of Learning:** ☐ Via observation of a team task (e.g., discussion, work on project) ☐ Via team self-assessment ☐ Via individual self-assessment ☑ Via team product ☑ Via individual product ☐ Other_____	**Proof of Learning Tools:** ☐ Rubric ☐ Checklist ☐ Quiz ☑ Other <u>Multiplication Worksheet and Graph Interpretations</u>	**Ongoing Formative Assessment** ☐ Nonverbal responses to comprehension questions (e.g., answer cards, Kahoot) ☐ Peer-to-peer quizzing ☑ Exit/admit tickets ☐ KWL charts ☐ Other _____

Adaptations and/or Accommodations: *(How will you increase access to the content of the lesson? Identify differentiation strategies.)*	Support students' academic language with sentence prompts, such as *According to the data …, The chart indicates that …, Can you explain how you came to that conclusion?* etc.		
	For lower level students: 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.		
	For more advanced students: 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!		

		CENTRAL SKILLS	**MATERIALS**
Introduction: How will you introduce the lesson objective and how it fits into the unit/LOI? Identify its relevance to learners' needs and goals. **Timing:** 10 minutes	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.). 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.	• Critical thinking • Self-awareness	•
Explanation and Modeling: *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?* **Timing: 20 minutes**	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.	• Critical thinking	• Multiplication practice (Appendix A)

Guided Practice: *Which tasks and learning activities will you use to engage learners with the content and skills? How will you structure the tasks or other learning activities to support learners' success?* **Timing: 25 minutes**	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 question and explain where on the graph they found the information.	• Critical thinking • Processing and analyzing information	• Interpreting graphs (Appendix B)
Application/Extended Practice: *What will learners do to demonstrate their acquisition of content knowledge, basic skills, and key soft skills?* **Timing: 20 minutes**	Following the activity, ask these questions to promote processing and analyzing of information, communication, critical thinking and self-awareness: • What are the financial costs of smoking? • How much would Julie, Maria, Frankie, and Stan save if they did not smoke? • What could they do with the money they saved? • What are the health costs of smoking? • If someone wanted to quit smoking, where could they go for help?	• Communication • Critical thinking • Processing and analyzing information • Self-awareness	
Student Reflection on Learning Targets, Closure, and Connection to Future Learning **Timing:** 5 minutes	**Exit cards** 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.	• Self-awareness	• Index cards for exit tickets

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 Brenda 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, accessed June 21,2019.

Each Year About 480,000 Deaths in the U.S. Are Attributed to Cigarette Smoking
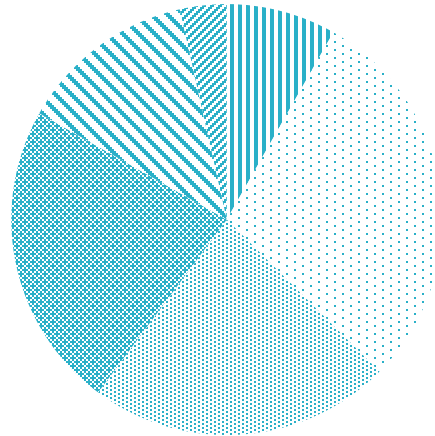
- 1 Other Cancers – 36,000
- 2 Lung Cancer – 127,700
- 3 Coronary Heart Disease – 99,300
- 4 Chronic Lung Disease – 100,600
- 5 Other Diseases – 58,100
- 6 Stroke – 15,300

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.**

   _____

   _____

   _____