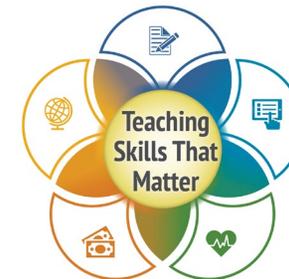# Health Literacy: Integrated and Contextualized Learning

The Cost of Smoking

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.

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.

Ideal class: ESL or ABE (see suggested adjustments for ASE at the end of this example)
Ideal level: Intermediate ESL or Low Intermediate ABE (see suggested adjustments for different levels at the end of this example)
Time: 90 minutes

Steps of a Successful Integrated Activity	Description	Materials	The Skills That Matter Addressed or Evident
Step I **Introduction** Time: 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.		**Self-awareness** **Critical thinking**
Step II **Guided practice tasks** Time: 45 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. 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.	• Multiplication practice (Appendix A) • Interpreting graphs (Appendix B)	**Critical thinking**
Step III **Follow-up** Time: 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?		**Processing and analyzing information** **Communication** **Critical thinking** **Self-awareness**

Steps of a Successful Integrated Activity	Description	Materials	The Skills That Matter Addressed or Evident
Step IV **Assessment** **Time: 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.	• Index cards for exit tickets	

Possible adjustments for context or level

- **English as a Second Language:** Not applicable. If you are teaching mathematics to learners in their first language, translate the student handouts before using.
- **Beginner:** 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.
- **Intermediate:** Complete one word-problem at a time. Ask the students to read the word problems aloud. Have the students complete the calculation and check their work before moving on to the next problem.
- **Advanced:** Have the students complete the word problem calculations independently. Call on students to share their calculations on the board as you check the answers with the whole class.

Appendix A. Multiplication Practice

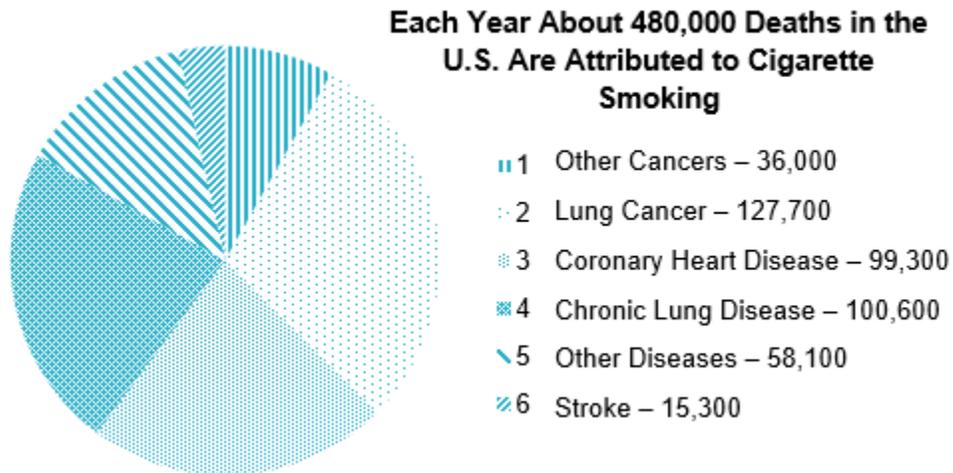Practice multiplication by calculating the cost of buying cigarettes.

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.

   _____

   _____

   _____