

LESSON:

Cross Out Secondhand Smoke

Summary: Students read a brief science article and use 20 words from the article to complete a crossword puzzle.

Lesson type: Short Lesson—this lesson will take 20 to 30 minutes to implement.

EHP Article: "The Public Health Payoff of 'No Smoking Allowed'"
EHP Student Edition, September 2006, p. A370
<http://www.ehponline.org/docs/2006/114-6/ss.html#thep>

Objectives: By the end of this lesson students should be able to

1. recognize the meaning and use of 20 terms referenced in a science article;
2. describe the public health gains made in reducing exposure to secondhand smoke; and
3. identify the target groups still at risk from secondhand smoke-related illness.

Class Time: 25 minutes

Grade Level: 9–11

Subjects Addressed: Environmental Health, Health, Biology, Physiology

► Prepping the Lesson (5 minutes)

INSTRUCTIONS:

1. Download the article "The Public Health Payoff of 'No Smoking Allowed'" at <http://www.ehponline.org/docs/2006/114-6/ss.html#thep>.
2. Read the article and review the word bank provided with the puzzle.
3. Make copies of the Student Instructions, which includes the puzzle and word bank.

MATERIALS (per student):

- 1 copy of the article "The Public Health Payoff of 'No Smoking Allowed'"
- 1 copy of the Student Instructions

VOCABULARY:

- bronchitis
- cotinine
- metabolism
- milliliter
- nanogram
- nonsmoker
- serum
- sudden infant death syndrome (SIDS)

BACKGROUND INFORMATION:

All necessary information is provided in the article.

RESOURCES:

Environmental Health Perspectives, Environews by Topic page, <http://ehp.niehs.nih.gov>. Choose Environmental Tobacco Smoke/Smoking American Lung Association, Secondhand Smoke Fact Sheet, <http://www.lungusa.org/site/pp.asp?c=dvLUK900E&b=35422>

American Cancer Society, "What Is Secondhand Smoke?"
http://www.cancer.org/docroot/PED/content/PED_10_2X_Environmental_Tobacco_Smoke-Clean_Indoor_Air.asp

U.S. EPA Smoke-Free Homes Program (information on the recent Surgeon General's report on secondhand smoke and a program in which individuals pledge to keep their homes "smoke-free"), <http://www.epa.gov/smokefree/>



► Implementing the Lesson

INSTRUCTIONS:

1. Hand out the article to students and allow them to read it.
2. Hand out the crossword puzzle for them to complete.
3. See the Assessing the Lesson section for grading/answers.
4. (Optional) Share responses as a class.

NOTES & HELPFUL HINTS:

- Another way of doing this quick exercise is to do it on an overhead transparency as a class.
- For classes with a lower reading level, provide the word bank as a reference. For more sophisticated readers, cover the word bank when copying the puzzle and have students figure out the answers from the article.
- There are several good software programs available for making crossword puzzles for use in the classroom. This particular lesson was generated using the Crossword Weaver program. Many websites offer free demo use, while others charge a small fee or require a subscription for expanded applications.

► Aligning with Standards

SKILLS USED OR DEVELOPED:

- Communication (oral, written—including summarization)
- Comprehension (listening, reading)
- Critical thinking and response

SPECIFIC CONTENT ADDRESSED:

- Environmental health
- Secondhand smoke

NATIONAL SCIENCE EDUCATION STANDARDS MET:

Science in Personal and Social Perspectives Standard

- Personal and community health
- Environmental quality
- Natural and human-induced hazards
- Science and technology in local, national, and global challenges

► Assessing the Lesson

The completed crossword is on the next page.

► Authors and Reviewers

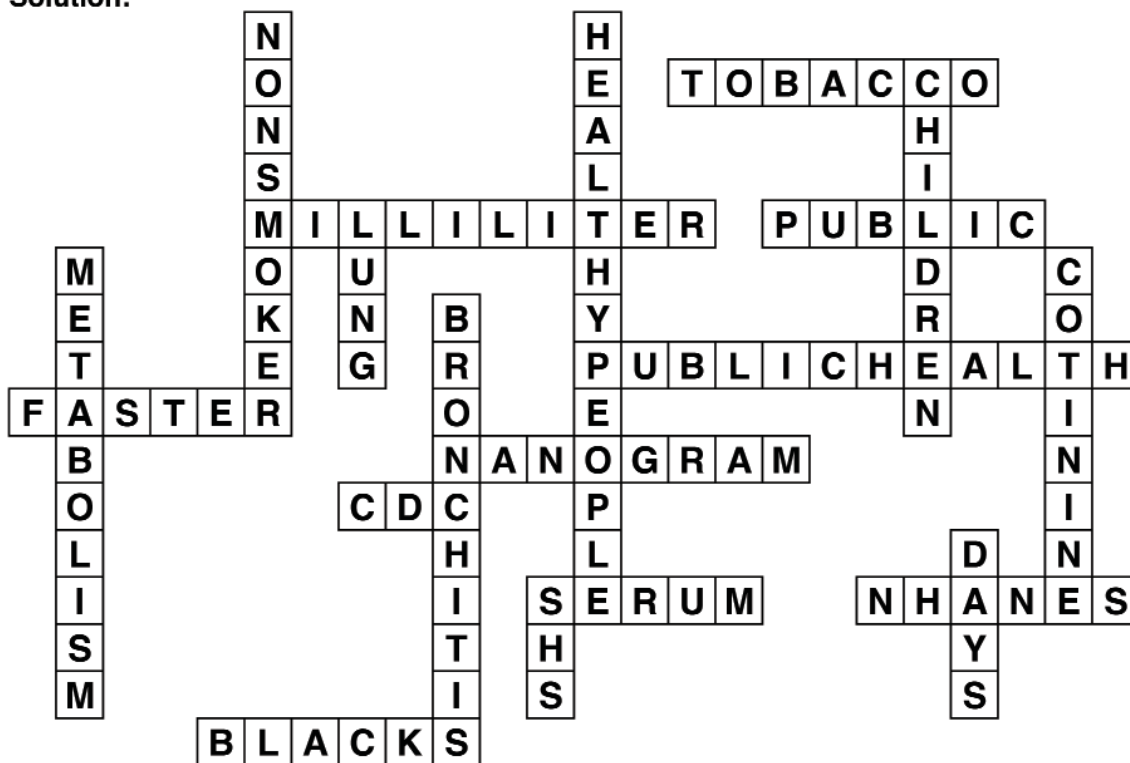
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Give us your feedback! Send comments about this lesson to ehpscienceed@niehs.nih.gov.



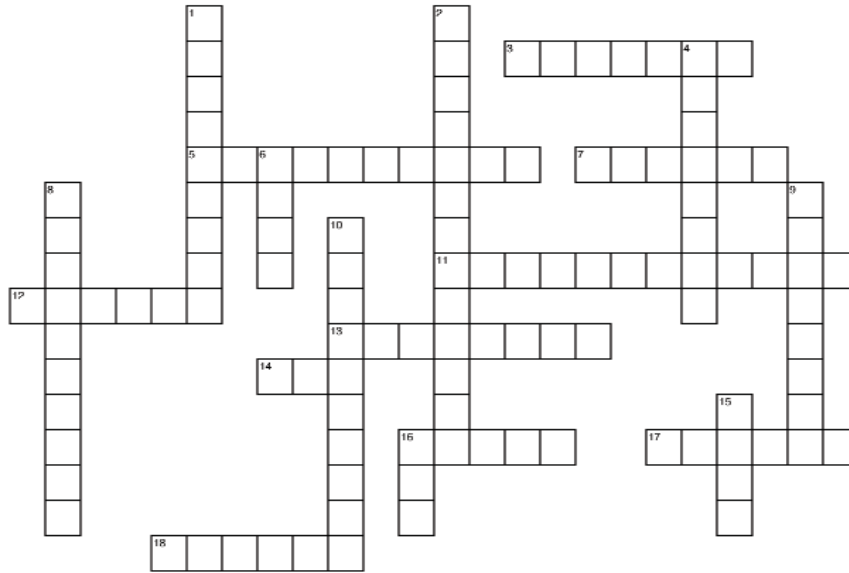
Solution:



STUDENT INSTRUCTIONS: Cross Out Secondhand Smoke

Step 1: Read the article "The Public Health Payoff of 'No Smoking Allowed.'"

Step 2: Complete the crossword puzzle below using words appearing in the article.



www.CrosswordWeaver.com

ACROSS

- 3 Plant which is the source of nicotine in cigarettes
- 5 One thousandth of a liter
- 7 Smoking bans in _____ places helped reduce exposure to SHS
- 11 The professional field which aims to improve the health of the population, not individuals
- 12 According to the study cited, exposure to secondhand smoke in the population has decreased much _____ than expected
- 13 One billionth of a gram
- 14 Agency whose researchers completed the secondhand smoke study (acronym)
- 16 The watery part of the blood (separate from the cells)
- 17 National survey which collected data on 29,849 nonsmokers (acronym)
- 18 Racial group which still faces significant exposure to secondhand smoke

DOWN

- 1 An individual defined by having less than 10 ng/mL cotinine in the serum
- 2 _____ 2010: The document which establishes national public health goals
- 4 Age-related group which should be targeted for continued efforts to reduce SHS exposure
- 6 Form of cancer most associated with smoking
- 8 This factor likely accounts for the difference in cotinine per cigarette smoked between racial groups
- 9 Primary byproduct when the body metabolizes nicotine
- 10 Lung infection associated with exposure to cigarette smoke
- 15 Cotinine lasts only a few _____ in the bloodstream
- 16 Abbreviation for "secondhand smoke"

Word Bank: blacks, bronchitis, CDC, children, cotinine, days, faster, Healthy People, lung, metabolism, milliliter, nanogram, NHANES, nonsmoker, Pirkle, public, public health, serum, SHS, tobacco

