



ScienceWorld®

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ISSUE DATES	9/3	9/17	10/8	10/22	11/12-26	12/10	1/14	2/4	2/18	3/10	3/31	4/21	5/12
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YOUR VOICE COUNTS! *Science World* encourages kids to speak up about the environment. “Science Explorations,” our partnership with the American Museum of Natural History in New York, is proud to present the Kids’ Environmental Report Card, a fun and easy way to explore and speak up about the planet’s most pressing environmental issues. To learn more, visit www.scholastic.com/reportcard.

As always, we welcome your suggestions. E-mail us at scienceworld@scholastic.com. — The Editors

Features

PAGE	CONTENT	TITLE SUMMARY	NATIONAL SCIENCE EDUCATION STANDARDS	LESSON IDEAS
8	Life: Parasites	Beware the Body Snatchers Life cycle of a parasite	Grades 5-8: Regulation and behavior Grades 9-12: Behavior of organisms	The story-comprehension activity on TE 5 will help boost students’ reading and writing skills.
12	Physical: Chemistry	Name That Element! Chemistry game	Grades 5-8: Properties and changes of properties in matter Grades 9-12: Structure of atoms • Structure and properties of matter	Test students’ vocabulary with the crossword puzzle on TE 7 .
16	Life: Forensics	Real-Life CSI Meet a teen coroner	Grades 5-8: Science as a human endeavor Grades 9-12: Science as a human endeavor	Try the activity recommended in this issue’s “Teacher to Teacher” (see below).
18	Earth: Water	A Dwindling River Saving the Colorado River	Grades 5-8: Natural hazards • Structure of the earth system Grades 9-12: Natural and human-induced hazards	For more information about the youinnovate21...It’s Your Environment challenge, turn to TE 8 .

Coming Next Issue

- Visit a bat hospital
- Yo-yo physics
- Mars mission simulation

Teacher to Teacher

Tips for using *Science World* in the classroom

After reading “Real-Life CSI” (p. 16) try this activity from **Maureen Van Ackoo of Union Vale Middle School in LaGrangeville, New York:**

Set up a “crime scene” by putting a rectangle of yellow tape on top of a lab table. I place “evidence” inside the rectangle—I often use a stone, a key, a bottle of colored liquid, and a latex glove with black smudges on the fingertips. Then, I have students assume the role of detectives. They record their observations by sketching the crime scene and taking metric measurements of the location of each piece of evidence. After that, they remove each object (except the glove) to measure its volume and mass. Then I have each student use the evidence to write a story about what may have happened during the “crime.”

TIP FINDER: Do you have an exciting activity to help students learn about the periodic table? Please e-mail a tip to scienceworld@scholastic.com by November 30, 2007.



Maureen Van Ackoo





LIFE: Parasites
Beware the Body Snatchers

PRE-READING PROMPT

- What is a parasite? How does a parasite survive?

DID YOU KNOW?

- *Toxoplasma gondii* can cause deadly brain infections in endangered southern sea otters. One way they become infected: As humans in parts of California flush parasite-infested cat litter down the toilet, some of the sewage runs into waters off California—where sea otters dwell. They become infected by the contaminated waters.

CRITICAL THINKING:

- How might some parasites benefit their hosts? Explain your answer. (Note: Have students review mutualism.)

CROSS-CURRICULAR CONNECTIONS:

ART: Have each student research a different species of parasite besides *T. gondii*. Then, have him or her draw a life cycle diagram of the selected parasite.

RESOURCES

- Parasite Sleuth is a kid-friendly site that shows how some common parasites live and breed. Visit: <http://net.unl.edu/wonderwise/12parasi/kidactivity/index2.htm>
- For detailed information on how parasites affect humans, visit this Web site: www.dpd.cdc.gov/dpdx/Default.htm



PHYSICAL: Chemistry
Name That Element!

DID YOU KNOW?

- Potassium is the seventh most abundant element on Earth. It makes up 2.4 percent of the weight of Earth's crust.
- Potassium, like all alkali metals, is soft and is a good conductor of heat and electricity.

CRITICAL THINKING:

- A serving of cantaloupe (1 cup) contains 494.4 milligrams of potassium. A serving of banana (one) contains less: 467.28 mg. Athletes are more likely to eat bananas than cantaloupes to replenish potassium levels after a workout. Why might this be?

CROSS-CURRICULAR CONNECTIONS:

HEALTH/MATH: How much potassium is in certain foods? Have students find out by studying the nutrition information chart at this Web site: www.whfoods.org/genpage.php?tname=nutrient&dbid=90#foodsources Then, have each student select five foods from the chart to create a bar graph comparing the foods' potassium levels.

RESOURCES

- For more information on potassium, visit this Web site: www.radiochemistry.org/periodictable/elements/19.html
- Proton Don is a game that helps students learn the periodic table. Visit: www.funbrain.com/periodic/index.html

ANSWERS

answers available
 in print edition
 of the
 teachers edition



LIFE: Forensics **Real-Life CSI**

PRE-READING PROMPT

- What types of physical evidence might a coroner look for to determine a person's cause of death?

DID YOU KNOW?

- Coroners have been around for approximately 800 years. The first coroners worked for the King of England. They performed many legal functions, including investigating suspicious deaths.

CRITICAL THINKING:

- Solving a real-life crime is never as easy as it looks on TV. How might an actual investigation be different from a fictional one?

CROSS-CURRICULAR CONNECTIONS:

LANGUAGE ARTS: Write a short mystery. Include details about how the investigators in your story use science to unravel the mystery.

RESOURCES

- For tips on how to turn your classroom into a crime lab, visit this Web site from Scholastic's *Instructor* magazine: <http://content.scholastic.com/browse/article.jsp?id=10600>
- Read this title from the "24/7: Science Behind the Scenes: Forensic Files" series: *Toe Tagged: True Stories From the Morgue*, by Jaime Joyce, Franklin Watts, March 2007.



EARTH: Water **A Dwindling River**

PRE-READING PROMPT

- What factors could lead to a shortage of fresh water in the United States?

DID YOU KNOW?

- According to the United Nations Environment Programme, groundwater aquifers provide 50 percent of global drinking water.

CRITICAL THINKING:

- Desalination plants remove salt from ocean water to make fresh water. What are some pros and cons of using this technology? (For possible answers, read the story found on this Web site: <http://news.bbc.co.uk/2/hi/science/nature/6767533.stm>)

CROSS-CURRICULAR CONNECTIONS:

MUSIC: Many cultures around the world use water to create music. Do research and write a report on a water-based musical instrument.

RESOURCES

- For teaching materials about conserving the Colorado River, visit this Web Site: www.crwcd.org/page_104
- "Test Your WaterSense" is a game that quizzes kids on water usage. Find it at: www.epa.gov/watersense/quiz/index.htm

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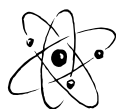
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Name: _____

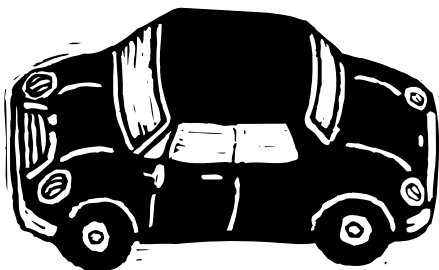


Science News



DIRECTIONS: Read the Science News section on pages 3 to 7.

Then, test your knowledge by filling in the letters of the correct answers below.



1. How is the artificial reef made of car tires in Florida harming the environment?

- Ⓐ A fungus, which is deadly to marine life, is growing on the tires.
- Ⓑ It is leaking petroleum, a toxic substance.
- Ⓒ It is contributing to beach erosion.
- Ⓓ Loosened tires are destroying natural reefs.

2. By removing the tire-made reef, scientists hope that

- Ⓐ oil from the wheels will evaporate.
- Ⓑ food sources for marine life will increase.
- Ⓒ natural coral reefs will recover.
- Ⓓ fish will no longer die after eating toxins from the wheels.

3. Ecluse the zebroid looks the way she does because of her

- Ⓐ genes.
- Ⓑ mutations.
- Ⓒ mom's recessive trait.
- Ⓓ surrounding climate.

4. Sensors on the new electronic toilet paper dispenser detect

- Ⓐ ultraviolet rays.
- Ⓑ sound waves.
- Ⓒ motion.
- Ⓓ odor levels.

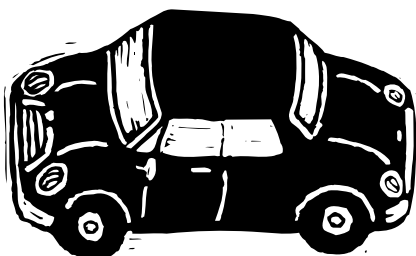
5. According to the WHO study, which of the following is NOT a risk factor that contributes to teen fatalities in car crashes?

- Ⓐ reckless behavior
- Ⓑ lack of driving experience
- Ⓒ not wearing seat belts
- Ⓓ an underdeveloped sense of direction



6. Which of the following groups is most at risk of dying in a car crash?

- Ⓐ females, ages 10 to 14
- Ⓑ males, ages 15 to 19
- Ⓒ females, ages 15 to 19
- Ⓓ males, ages 20 to 24



7. Permafrost prevented the baby mammoth Lyuba from decaying because

- Ⓐ it sealed her body from flesh-eating nitrogen.
- Ⓑ the cold prevented bacteria growth.
- Ⓒ its chemicals fossilized her thick skin.
- Ⓓ it drew out all the liquids in her body.

8. This would be an appropriate alternate title for the article about Lyuba:

- Ⓐ Mammoths Were Ancient Elephants.
- Ⓑ Mammoths Are Cute.
- Ⓒ Ice-Age Mystery: SOLVED!
- Ⓓ Frozen in Time.

9. Which of the following statements about the Burj Dubai is an opinion?

- Ⓐ No building will ever be as beautiful as Burj Dubai.
- Ⓑ It is in the United Arab Emirates.
- Ⓒ It will have 24 staggered sections.
- Ⓓ It is taller than Taipei 101.

10. The world's largest Hula-Hoop has a 500-centimeter diameter. What is its radius?

- Ⓐ 250 millimeters
- Ⓑ 500 millimeters
- Ⓒ 250 centimeters
- Ⓓ 1 meter

Name: _____

PAGE **8** Beware the Body Snatchers**DIRECTIONS:** Complete the following as you read the story on pages 8 to 10.

1. Look at the images on pages 8 to 10. Then, read the article's headline and the subheadline. Based on this information, what do you think this article is about? Why?
2. Below are three vocabulary words. Read the story to find the definition of these words.

Host:

Amygdala:

Schizophrenia:
3. The last sentence of the section titled "Bitsy Brainwasher" says: If a species—one less likely to be eaten by a cat—were to become infected with *T. gondii*, then the parasite's cycle would end. Explain why.
4. Study the life cycle diagram on p. 9. How would the spread of *T. gondii* change if cows were removed from the diagram? Why?
5. Use the information in the story to help you *defend* or *dispute* this statement: Americans are more at risk than others for contracting a *T. gondii* infection. (**Hint:** Defend means to explain why a statement is correct. Dispute means to explain why a statement is incorrect.)
6. Summarize the entire article in two sentences.
7. Come up with a question about the story that you don't know the answer to, but that you're interested to know.

Name: _____

PAGE **16** Real-Life CSI

DIRECTIONS: Answer the following in complete sentences.

1. What does a coroner do?
2. What is forensics?
3. What might a coroner learn by measuring the temperature of the deceased?
4. What can a blood test reveal about a person's cause of death?
5. What is an autopsy, and what type of scientist performs this procedure?

PAGE **18** A Dwindling River

DIRECTIONS: Fill in the blanks to complete the following sentences.

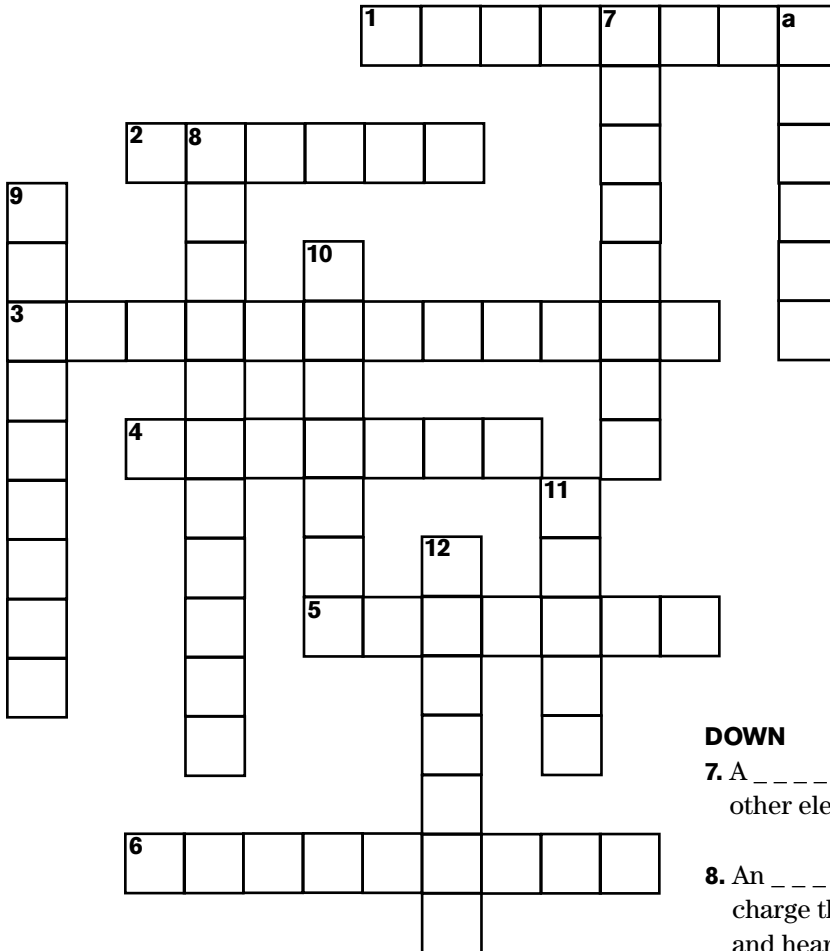
1. Roughly _____ percent of Earth's surface is covered by water. More than 97 percent of Earth's water is _____. The remainder is _____.
2. _____ is underground water that is stored in the tiny spaces in soil, _____, gravel, and _____.
3. A _____ is the area where a river meets the sea.
4. About _____ of the water that flows from the Colorado River is used to irrigate millions of acres of _____.
5. _____ is responsible for the largest percent of worldwide water usage. It accounts for _____ percent. People in this country use more water than people anywhere else in the world: _____.

ANSWERS ON TE 2

Name: _____

It's Elemental!

DIRECTIONS: First, read "Name That Element!" (p. 12). Then, solve the clues below to complete this crossword puzzle. To spell out the bonus word, unscramble the letters in parentheses.



ACROSS

1. _____ are uncharged particles.
2. A row in the periodic table is called a _()_____.
3. _____ is a process that uses electric current to break chemical bonds.
4. _____() are positively charged particles.
5. _____ are nerve cells.
6. Elements combine to form _____()_____.

DOWN

7. A _____ element combines easily with other elements.
8. An _____ is a salt with an electrical charge that helps your muscles, nervous system, and heart work properly.
9. _____()_____ are negatively charged particles.
10. Skin contains the _____ (chemicals made of chains of amino acids) collagen.
11. Elements in the same _____()_____ share the same column on the periodic table.
12. An atom's ()_____ is its center.

Bonus:

- a. Potassium is the _____ lightest known metal.

ANSWERS ON TE 2



It's Your Environment - Meet the Challenge!

Take the youinnovate21...It's Your Environment challenge. Solve an environmental problem with your innovation, and you could win a trip to New York City!

Today's pressing environmental problems need innovative solutions. Scholastic and the American Museum of Natural History invite students in grades 6-10 to be true innovators for the 21st century. When you take the youinnovate21...It's Your Environment challenge, you'll tackle a real-life environmental issue with your creativity and science smarts. Your innovation could help change the world!

You may enter as an individual or as a class (see below). Winners will be announced in the April 21, 2008 issue of *Science World* and online at scholastic.com/scienceexplorations and at youinnovate21.net.



further work on the innovation

- a library of books (\$2,500 estimated retail value) chosen by Scholastic for the winner's classroom.

One class grand-prize winner will receive:

- a conference call with an American Museum of Natural History scientist to talk about the innovation
- a \$2,000 award to help finance further work on the innovation
- a library of books (\$2,500 estimated

retail value) chosen by Scholastic for the winning classroom.

Four runners-up (two individuals and two classes) will also be featured, along with grand-prize winners, in *Science World* and online at scholastic.com/scienceexplorations.

THE CHALLENGE

Write a 300-500 word essay explaining your environmental innovation. Incorporate the four phases of innovation:

- 1. EXPLORE** (What specific environmental problem do you want to address? What information do you need to think through your idea? Have other solutions been posed?)
- 2. CREATE** (What is your idea? Where and how will it work? Who needs to be involved?)
- 3. SOLVE** (How will your idea specifically help solve or address the problem you identified?)
- 4. EXPAND** (How would you let people know about your innovation? How might your innovation help others think of even more environmentally friendly ideas?)

Winning innovations will be selected based on creativity, scientific and practical soundness, writing skills, and overall presentation, by a panel of judges including *Science World* editors and scientists and educators from the American Museum of Natural History.

THE PRIZES

One individual grand-prize winner will receive:

- a trip to New York City (with parent or legal guardian) and a behind-the-scenes tour and meeting with an American Museum of Natural History scientist to talk about the innovation
- a \$500 award to help finance

HOW TO ENTER

- **No purchase necessary.** Open to students enrolled in grades 6-10 who are legal U.S. residents.
- **You may enter as an individual or as a class.** Each individual student who submits an essay will be entered into the contest. Teachers may submit one group-project innovation for the entire class. The individual entries and the class entries will be judged separately. One grand-prize winner will be selected from each category of entries. Two runners-up in each category will also be selected.
- **You may enter online or by mail.** To enter online, go to www.scholastic.com/scienceexplorations. To enter by mail, include with your essay: your first and last name, age, and hometown (including state). On the back of the entry, provide your home address (street, city, state, and ZIP code), home phone number, and parent/legal guardian's name; also include your grade, school name, and teacher's name. Mail entries to *Science World*, 557 Broadway, 4th floor, New York, NY 10012, Attn: youinnovate21 Contest.
- **Deadline for entries is December 15, 2007.** Online entries must be received no later than midnight, December

15, 2007. Entries by mail must be postmarked no later than December 15, 2007.

- **Void where prohibited.**

For complete contest rules, go to www.scholastic.com/scienceexplorations

TIPS FOR A WINNING ENTRY

- **Narrow your focus.** Concentrate on one area of environmental concern, such as wildlife habitat destruction, climate change, water resources, or energy resources.
- **Be concrete.** Within an area of environmental concern, consider choosing a specific and local environmental problem.
- **Be innovative!** Explore what it means to be an innovator at www.youinnovate21.net.