

**Sci-Triv Game** (Page 2)

**Answers**

**Health Science**

1. True. Both have seven vertebrae.
2. B, 3. Nicotine is an addictive chemical in tobacco.
4. chest, 5. A pathogen is a disease-causing agent.

**Earth Science**

1. True. Many animals are sensitive to changes in barometric pressure and will become irritable and noisy when the pressure falls, according to George Freier, a former physics professor and the author of *Weather Proverbs*. Birds, in particular, are noted for making a racket before a rain. That explains the rhyme about roosters crowing at bedtime.
2. C, 3. An estuary is an area where freshwater from rivers and streams spills into an ocean.
4. life, 5. Trojan asteroids are asteroids that share the orbit of a planet around the sun.

**Mathematics**

1. True. Absolute value is the value of a number regardless of its sign.
2. B, 3. Collinear points are points that lie on the same straight line.
4. Multiplication, 5. 11. The mode is the number that occurs most often in a set of information.

**Life Science**

1. False. The *pistil* is the female reproductive part of a flower.
2. A. A canine is a member of the Canidae family, which includes dogs, coyotes, foxes, and wolves. A dingo is a wild Australian dog.
3. Plantae is one of the kingdoms in nature. It includes all plants.
4. tadpoles, 5. It grooms and maintains its feathers.

**Physical Science**

1. True. The words *flammable* and *inflammable* both mean “easily set

- on fire.”
2. B, 3. electrons, 4. clutch, 5. A hydrate is a compound containing water.

**Optricks** (Page 24)

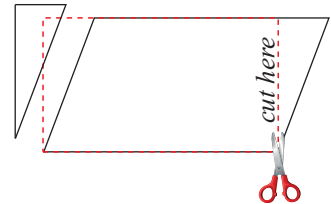
**Mystery Photos:**

**Top:** unassembled cardboard boxes

**Middle:** zipper

**Bottom:** thumb

**Bend Your Mind:** One cut is all it takes. Join the triangle created by the cut to the other end of the parallelogram to form the rectangle.



**Whatizit?** kidney stone

**SKILLBUILDERS ANSWER KEY**

Page 2

**Body Chemistry**

1. F. A synthetic chemical is one made by humans.
2. T, 3. F. PBDEs are synthetic chemicals.
4. T, 5. T, 6. F. Methylmercury is ingested when people eat contaminated seafood.
7. F. The European Union made the demand.
8. F. The tests that linked PBDEs to cancer and impaired brain development were done in rats.

**Play Time**

1. Scientists define play as behavior, either mental or physical, that has no immediate purpose or goal.
2. birds and mammals
3. When young rats play, they emit high-frequency chirps. Chirping is considered a sign of enjoyment because it is accompanied by the release of chemicals in rat brains that create a feeling of pleasure.

4. A Canadian scientist separated rats into two groups. The first group had a lot of playtime; the second didn't. The brains of the rats in the first group had better-developed prefrontal cortexes. The prefrontal cortex is an area of the brain thought to play a role in controlling complex behaviors.
5. Scientists believe those types of behaviors are rehearsals for adulthood. The animals are practicing skills they will use to hunt and to protect themselves.

Page 3

**High and Dry**

1. C, 2. B, 3. A, 4. A, 5. C, 6. C, 7. C, 8. B

**Big Guns**

1. B, 2. C, 3. A, 4. A, 5. B, 6. C, 7. B, 8. C

Page 4

**Light Fantastic**

1. D, 2. B, 3. A, 4. E, 5. H, 6. C, 7. F, 8. G

**Auto Pilot**

1. air, 2. Aerodynamic, 3. 2.6, 4. downward, 5. coaxial, 6. lighter, 7. radiator, 8. upward

Page 5

**Discoveries**



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# CURRENT SCIENCE®

ASIA EDITION

2010 • Issue 1

Supplements for Science and Geography needs in school



## THIS ISSUE AT A GLANCE

### HEALTH SCIENCE

#### Body Chemistry

Pages 4–5

##### Critical Thinking

- Would you have your body tested for chemicals the way David Ewing Duncan did? Explain your answer.
- PBDEs are valuable flame retardants. They also have been linked to cancer and impaired brain development in rats. Should they be banned?
- *Science and technology in local, national, and global challenges*: risks and benefits of technology

### EARTH SCIENCE

#### Big Guns

Pages 10–11

##### Critical Thinking

- What might be the risks of using big guns to trigger avalanches?
- Should skiers be required to pay for emergency rescue and medical help if they choose to venture into areas where the risks of avalanches are high? Should skiers be forbidden by law from going into those areas?
- *Natural hazards*: avalanches
- *Science and technology in society*: quality of life

### LIFE SCIENCE

#### Play Time

Pages 6–7

##### Critical Thinking

- Some educators say that today's children are missing valuable playtime because they are over-scheduled with extracurricular activities. Discuss.
- In what ways might reading a novel or seeing a play or a movie be considered play?
- *The behavior of organisms*: patterns of animal behavior
- *Structure and function in living systems*: the brain

### PHYSICAL SCIENCE

#### Light Fantastic

Pages 12–13

##### Critical Thinking

- What might building-sized TV screens be used to broadcast?
- In what new ways might flexible organic light-emitting diodes be put to use?
- Which types of screens do the computers and TVs in your home use? Which types of screens would you prefer?
- *Transfer of energy*: electricity and light

### EARTH SCIENCE

#### High and Dry

Pages 8–9

##### Critical Thinking

- Where does the water consumed by the people in your town or city come from?
- The climate of the U.S. Southwest is becoming drier. Should the High Plains aquifer be tapped to supply the people of the Southwest with water for drinking and for agriculture?
- *Natural resources*: human consumption and resource depletion

### PHYSICAL SCIENCE

#### Auto Pilot

Pages 14–16


##### Critical Thinking

- How might Jane address the second challenge, designing a liquid-cooled car that's light enough to fly?
- What challenges might society face if millions of people were able to commute and travel in flying cars?
- *Understandings about science and technology*: creativity and imagination in science and technology

### Current Science

#### Online

You can find **Student's worksheet and online resources** at our web site: <http://www.nurturecraft.com/html/currentscience.htm>

Readers, look for the book  throughout this issue to guide in learning **Physics, Chemistry, Biology & Geography** in line with the MOE curriculum.

## NOVA

#### Avalanche!

("Big Guns," p. 10)

[www.pbs.org/wgbh/nova/teachers/activities/2418\\_avalanch.html](http://www.pbs.org/wgbh/nova/teachers/activities/2418_avalanch.html)

Investigate the complexities of snowpack formation.

**Kryptos: Explore pixels and the nature of digital images** ("Light Fantastic," p. 12)

[www.pbs.org/wgbh/nova/teachers/viewing/0301\\_03\\_nsn.html](http://www.pbs.org/wgbh/nova/teachers/viewing/0301_03_nsn.html)

Understand pixels by examining images from magazines and newspapers.

**SKILLBUILDERS**

Issue 1 2010

**CURRENT  
SCIENCE®****Body Chemistry** (Page 4)**True or False**

Read each statement, and decide whether it is true (T) or false (F). Write your response in the bracket provided.

1. A synthetic chemical is one that occurs in nature. ( )
2. Mercury is released into the air by coal-burning power plants and waste incinerators. ( )
3. PBDEs are naturally existing chemicals that are used as flame retardants. ( )
4. Methylmercury is a form of mercury that can build up in the human body and damage it. ( )
5. David Ewing Duncan tested positive for roughly half of the human-made chemicals his body was tested for. ( )
6. Methylmercury is taken up by the human body through the air people breathe. ( )
7. The U.S. government has demanded that chemicals be tested for safety before they're put in consumer products. ( )
8. High levels of PBDEs in humans have been linked to cancer and impaired brain development. ( )

**Play Time** (Page 6)**Short Answer**

1. How do scientists define play? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
2. Play has been observed most frequently in what two groups of animals? \_\_\_\_\_  
\_\_\_\_\_
3. How do scientists know that young rats enjoy playing? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
4. What experimental evidence suggests that plenty of playtime fosters the control of complex behaviors?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
5. What do scientists think is the survival value of running, chasing, leaping, and wrestling behaviors among young animals? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**SKILLBUILDERS**

Issue 1 2010

**CURRENT  
SCIENCE®****High and Dry** (Page 8)**Multiple Choice**

Choose the response that best completes each statement or answers each question. Write the letters in the brackets.

1. The gradual breakdown of mountains by wind and water is called **(A)** downsizing. **(B)** erosion. **(C)** weathering. ( )
2. The High Plains aquifer lies under most of which state? **(A)** Kansas, **(B)** Nebraska, **(C)** Oklahoma ( )
3. A scientist who studies water on or below Earth's surface is a **(A)** hydrologist. **(B)** meteorologist. **(C)** waterologist. ( )
4. What are High Plains farmers doing to conserve water? **(A)** installing drip irrigation systems, **(B)** planting less wheat, **(C)** planting more corn ( )
5. In which state have water levels dropped the most in the High Plains aquifer? **(A)** Kansas, **(B)** Nebraska, **(C)** Texas ( )
6. Earth's rigid shell is subdivided into enormous sections called **(A)** continents. **(B)** hemispheres. **(C)** tectonic plates. ( )
7. In the past five years, enough water was pumped from the High Plains aquifer to roughly equal the volume contained in how many Colorado Rivers? **(A)** 18, **(B)** 45, **(C)** 90 ( )
8. In which state have water levels dropped the least in the High Plains aquifer? **(A)** Kansas, **(B)** Nebraska, **(C)** Texas ( )

**Big Guns** (Page 10) **Multiple Choice**

Choose the response that best completes each statement or answers each question. Write the letters in the brackets.

1. A loose snow avalanche is composed of **(A)** chunks of ice. **(B)** powdery snow. **(C)** wet, dense snow. ( )
2. When a big gun is used to create avalanches, what triggers the avalanche? **(A)** seismic waves produced by the firing of the gun, **(B)** sound waves produced by the firing of the gun, **(C)** the impact of the gun's ammunition ( )
3. Snowpack is **(A)** a buildup of snow that has accumulated over time. **(B)** a dump of fine, dry snow. **(C)** a layer of slick ice. ( )
4. A wet snow avalanche travels at a speed of about **(A)** 50 miles per hour. **(B)** 80 miles per hour. **(C)** 130 miles per hour. ( )
5. Depth hoar is a weak layer of **(A)** light, fluffy snow. **(B)** sugary snow. **(C)** heavy, wet snow. ( )
6. Where is the risk of deadly avalanches greatest in the United States? **(A)** at ski resorts, **(B)** on ski hill roads, **(C)** in the backcountry ( )
7. A howitzer is a **(A)** handheld rifle. **(B)** short cannon. **(C)** tank. ( )
8. What can trigger the most dangerous type of avalanche? **(A)** a sudden drop in temperature, **(B)** a strong wind, **(C)** the weight of a skier venturing onto a mountain slope ( )

**SKILLBUILDERS**

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**CURRENT  
SCIENCE®****Light Fantastic** (Page 12)**Vocabulary Challenge***Match each numbered word or phrase with its correct description. Write the letter of the description in the bracket provided.*

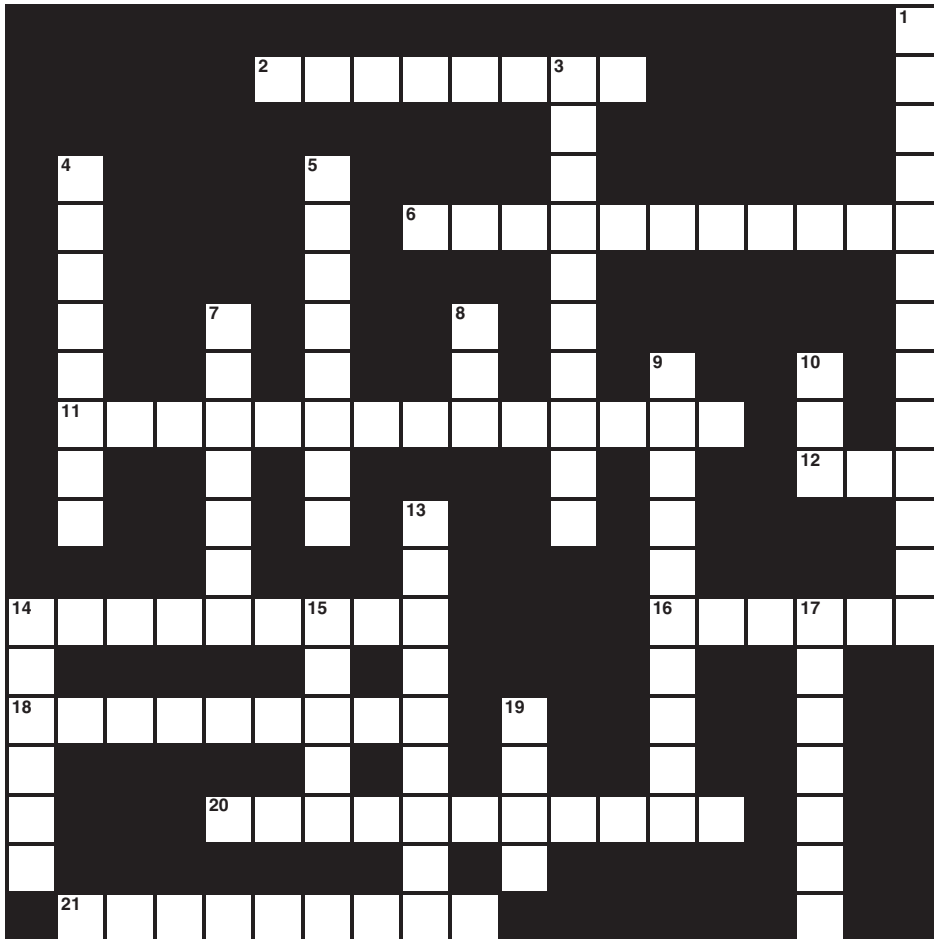
- |                                 |     |   |
|---------------------------------|-----|---|
| 1. pixel                        | ( ) | A. electrically charged gas   |
| 2. light-emitting diode         | ( ) | B. contains semiconductors that glow when electricity passes through them   |
| 3. plasma                       | ( ) | C. a substance in which the molecules line up in a regular pattern similar to the arrangement of particles in a solid crystal |
| 4. cathode-ray tube             | ( ) | D. a tiny dot of light that can change color and brightness   |
| 5. organic                      | ( ) | E. a technology found in TVs in which electrons are fired at a screen from behind   |
| 6. liquid crystal               | ( ) | F. a type of light-emitting diode in which the semiconductors are flexible plastics   |
| 7. organic light-emitting diode | ( ) | G. a material that can conduct electricity, though not as well as a metal   |
| 8. semiconductor                | ( ) | H. anything containing carbon   |

**Auto Pilot** (Page 14)**Fill in the Blanks***Write the word or words that best complete each sentence.*

- Most small planes have engines that are cooled by \_\_\_\_\_.
- \_\_\_\_\_ force is the pressure that passing air puts on moving objects.
- No vehicle on the road today can be wider than \_\_\_\_\_ meters.
- Cars are designed so that the force in Question 2 acts on them in a(n) \_\_\_\_\_ direction.
- A \_\_\_\_\_ helicopter has two sets of propeller blades that share the same axis.
- In terms of weight, an airplane engine is \_\_\_\_\_ than a car engine.
- The \_\_\_\_\_ is a fan-equipped device in a car that cools the fluid that keeps the engine from overheating.
- Planes are designed so that the force in Question 2 acts on them in a(n) \_\_\_\_\_ direction.

**SKILLBUILDERS**

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**CURRENT  
SCIENCE®****Discoveries** (Page 17)**Crossword****Across**

- 2.** a science fiction TV and movie series (two words)  
**6.** one-quadrillionth of a second  
**11.** enormous slabs of Earth's crust that are constantly in motion (two words)  
**12.** a form of matter  
**14.** one consequence of a spinal cord injury  
**16.** a type of particle that exists in an atomic nucleus  
**18.** a continent west of New Zealand  
**20.** an ancient civilization (two words)  
**21.** short-lived

**Down**

- 1.** the wide-angle view that the eyes provide of the world (three words)

- 3.** a geological event that happened in New Zealand in July  
**4.** a modern country where 20 Across was located  
**5.** a new form of matter: transparent \_\_\_\_\_  
**7.** a form of basketball  
**8.** a molecule that transports chemical energy within cells (abbr.)  
**9.** half of the brain  
**10.** a type of blue dye (abbr.)  
**13.** a body of water west of New Zealand (two words)  
**14.** a form of matter that occurs when gases are superheated  
**15.** a form of matter  
**17.** a type of large wave in the ocean  
**19.** the type of light that was used to create 5 Down