Contents

Level V

Almanac
Level **V**

Text Type: Almanac

Summary: Imagine a life without cell phones and airplanes. These pages offer facts about inventors who have changed our world.

Themes/Ideas: learn who invented several objects people use every day; understand how an idea can become an invention and how one inventor may build on others' discoveries

Informational Text Features: section headings, photos, bullet list, time line

Academic Vocabulary:

- ***patent:*** a document that credits someone as the inventor of a device and gives that person the legal right to be the only one to produce and sell an invention
- ***phonograph:*** a device that plays music by rotating a disc or cylinder that reproduces recorded sounds

Domain-Specific Vocabulary:

- ***incandescent:*** giving off light when heat is applied
- ***radar:*** a device that uses radio waves to locate objects and determine how fast they're moving
- ***magnetrons:*** tubes often used in microwaves that give off short bursts of high power

Inventors & Inventions

Focus Question: How do ideas become inventions?

First Reading

Read the title noting that these pages are from an almanac. Point out the text features, including the playful headings, time line, and photographs. Have students read through the text on their own. Then discuss the main ideas.

Guided Close Reading

Text Structure *Reread the first paragraph. How does it prepare readers for the rest of the information given in the text?* ❶

Connect Ideas *"Flip a Switch and Say Thanks" and "Phoning It In" each mentions a pair of inventions. What is similar about the pairs of inventions?* ❶ ❷

> **Think Aloud** *In the first section, the author explains Franklin's experiments with electricity and mentions that it led to Edison's invention of an incandescent light bulb. Likewise in the second section, the author explains that Alexander Graham Bell invented the telephone 100 years before the cell phone was invented. The connection is that some inventions lead to others.*

Text Features *The author divides information into different sections. How do the section headings invite the reader to read the text within each section?* ❶–❺

Key Ideas and Details *How were the microwave and the Popsicle invented? What do these examples tell you about the way some inventions come to be?* ❹ ❺

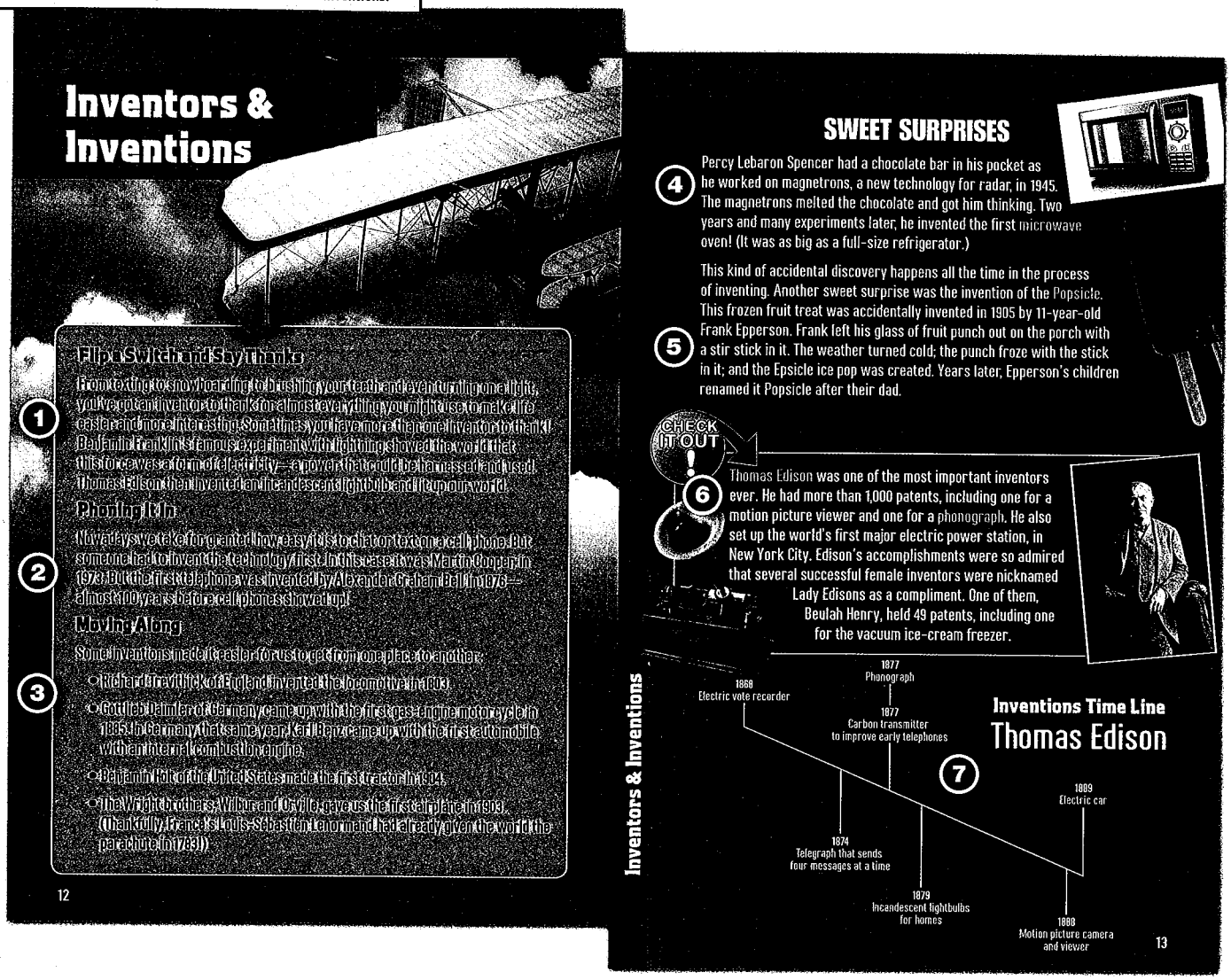
> **Think Aloud** *Spencer got the idea for the microwave while he was working on something else. Epperson invented the Popsicle by accident. These examples tell me that sometimes inventors find inspiration in unlikely places and that not everything is invented on purpose.*

Draw Conclusions *To get a patent, an inventor has to prove that he or she was the first person to create an invention. When an inventor holds the patent on an invention, no one else can make it or sell it. Based on the information given in the almanac, why is it important to get a patent on something you've invented?* ❻

Words and Phrases in Context *The author writes that female inventors were called "Lady Edisons." What does this nickname mean, and why was it considered a compliment?* ❻

Text Features *Review the information about Thomas Edison in the main text, and examine the "Inventions Time Line." How do the text and time line work together to help you to appreciate Edison's accomplishments as an inventor?* ❶ ❻ ❼

An almanac is a reference book that gives current facts and stats about different subjects. These excerpts are about inventors and inventions.



Inventors & Inventions

Flip a Switch and Say Thanks

1 From texting to snowboarding to brushing your teeth and even turning on a light, you've got an inventor to thank for almost everything you might use to make life easier and more interesting. Sometimes you have more than one inventor to thank! Benjamin Franklin's famous experiment with lightning showed the world that this force we see as a form of electricity—a power that could be harnessed and used. Thomas Edison then invented an incandescent lightbulb and lit up our world.

Phoning It In

2 Nowadays we take for granted how easy it is to chat or text on a cell phone. But someone had to invent the technology first. In this case, it was Martin Cooper in 1973. But the first telephone was invented by Alexander Graham Bell in 1876—almost 100 years before cell phones showed up!

Moving Along

3 Some inventions made it easier for us to get from one place to another:

- Richard Trevithick of England invented the locomotive in 1803.
- Gottlieb Daimler of Germany came up with the first gas-engine motorcycle in 1885. In Germany that same year, Karl Benz came up with the first automobile with an internal combustion engine.
- Benjamin Holt of the United States made the first tractor in 1904.
- The Wright brothers, Wilbur and Orville, gave us the first airplane in 1903. (Thankfully, France's Louis-Sebastien Lenormand had already given the world the parachute in 1783!)

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SWEET SURPRISES

4 Percy Lebaron Spencer had a chocolate bar in his pocket as he worked on magnetrons, a new technology for radar, in 1945. The magnetrons melted the chocolate and got him thinking. Two years and many experiments later, he invented the first microwave oven! (It was as big as a full-size refrigerator.)

5 This kind of accidental discovery happens all the time in the process of inventing. Another sweet surprise was the invention of the Popsicle. This frozen fruit treat was accidentally invented in 1905 by 11-year-old Frank Epperson. Frank left his glass of fruit punch out on the porch with a stir stick in it. The weather turned cold; the punch froze with the stick in it; and the Epsicle ice pop was created. Years later, Epperson's children renamed it Popsicle after their dad.

CHECK IT OUT!

6 Thomas Edison was one of the most important inventors ever. He had more than 1,000 patents, including one for a motion picture viewer and one for a phonograph. He also set up the world's first major electric power station, in New York City. Edison's accomplishments were so admired that several successful female inventors were nicknamed Lady Edisons as a compliment. One of them, Beulah Henry, held 49 patents, including one for the vacuum ice-cream freezer.

Inventors & Inventions

Inventions Time Line

Thomas Edison

7

1868 Electric vote recorder

1874 Telegraph that sends four messages at a time

1877 Phonograph

1877 Carbon transmitter to improve early telephones

1879 Incandescent lightbulbs for homes

1889 Electric car

1890 Motion picture camera and viewer

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Revisit the Text: Ideas for Discussion

Share and discuss the following questions to sum up your exploration of the text. You may wish to use the questions as prompts for a Turn and Talk activity before your discussion. Encourage students to support their thinking and ideas with evidence from the text.

- *An almanac gives facts and statistics about different topics. Why is it important that the author included section headings, photos, and a time line in this almanac excerpt?*
- *The author includes several examples of important inventions, but there are many more he or she could have listed. Why do you think the author chose these examples?*
- *What new information did you learn about inventors and inventions? Which fact was most surprising? Why?*

Write About Reading

Have students choose either one of the following options for writing, or do both.

- How do inventors turn ideas into inventions? Use details from the text to write a short summary of how one of these inventions came to be. **(Informative/Explanatory)**
- Which of the inventions listed in the almanac excerpt is the most important? Use details from the text to write a well-developed opinion paragraph supporting your claim. **(Opinion)**

Connect to the Internet

To learn more information about Thomas Edison, direct students to the following websites: www.nps.gov/edis/forkids/a-brief-biography-of-thomas-edison.htm and http://memory.loc.gov/ammem/edhtml/edbio.html.

Essay
Level V

Text Type: Essay

Summary: This essay traces the Vikings' exploration of North America in the late tenth and early eleventh centuries.

Themes/Ideas: recognize why the Vikings voyaged to North America; understand why the Vikings were unable to keep a settlement in North America

Informational Text Features: map

Academic Vocabulary:
- ***raiding:*** attacking suddenly
- ***lush:*** filled with plant life
- ***accounts:*** descriptions of events

Domain-Specific Vocabulary:
- ***population:*** the number of people in a place
- ***settlement:*** a community established in a previously underdeveloped area
- ***native:*** originating in a certain location
- ***ruins:*** objects or buildings that remain after something is destroyed or decays

Viking Voyages

Focus Question: Why did the Vikings explore parts of North America, and what did they find in that new world?

First Reading

Read the title and preview the text, noting that this is an essay about the Vikings' exploration of North America. Point out the map included with the essay. Explain that students can use the map to trace the path of the voyages. For the first reading, have students read through the essay on their own. Then discuss its main ideas.

Guided Close Reading

Key Ideas and Details *In the first paragraph, the author mentions that Leif Eriksson explored North America some 500 years before Columbus. Why is this significant?* ❶

> **Think Aloud** *This is significant because most people consider Christopher Columbus the first European to discover the New World. Because Eriksson traveled to the continent of North America 500 years before Columbus, he is really the first European to discover the New World.*

Vocabulary *What does the use of the word* raiding *communicate about the Vikings? How is this supported by other details in the essay? What about Vikings who were not raiders? What did they do?* ❷ ❸

Key Idea and Details *What did Leif Eriksson name the land he explored?* ❺

Connect Ideas *What did Heijolffson notice about North America's land on his trip to Greenland? Why would the Norse have found this appealing?* ❷ ❹

Make Inferences *What threatened the Norse settlement on Vinland? How does this go against other ideas about the Vikings expressed in the essay? What can you infer about the Vikings based on these contradictions?* ❷ ❼ ❽

> **Think Aloud** *Attacks by native people threatened the Norse settlement in Vinland and led to the Vikings' retreat. Because the Vikings robbed, killed, and enslaved Europeans, it seems surprising that they were threatened by these attacks.*

Key Ideas and Details *Why was the 1960 discovery of Norse ruins such an important find?* ❾

Text Structure *This essay uses time order as its main text structure. What does the use of this text structure help to communicate about the Vikings' exploration of North America? How does the structure affect readers' interest?* ❷ – ❾

Text Features *Look at the map of the Vikings' exploration routes. How does the map help you understand* why *the Norse explored North America?* ❿

Viking Voyages

1. A thousand years ago, Leif Eriksson, a Norse chief, sailed to North America. His voyage marked the first time that Europeans had set foot in the New World. This was around 1000 A.D.—almost 500 years before Columbus.

2. The Norse came from Scandinavia, which includes the present-day countries of Norway, Sweden, and Denmark. The Norse made their living by farming, fishing, and raising cattle. But by the 800s, population growth had caused a shortage of farmland. So the Norse looked to the sea. Norse warriors set out on raiding trips. They were called Vikings, which means "sea raiders." The Vikings attacked villages along the coast of Europe. They robbed and killed and took slaves back home.

3. But not all Vikings were warriors. Some were explorers and settlers. By the end of the 900s, Vikings had settled in Iceland and Greenland.

4. How did the Norse reach North America? A Norse trader named Bjarni Heijolffson was blown off course while sailing from Iceland to Greenland in 985. He saw a lush new land. He reported his discovery when he finally got to Greenland.

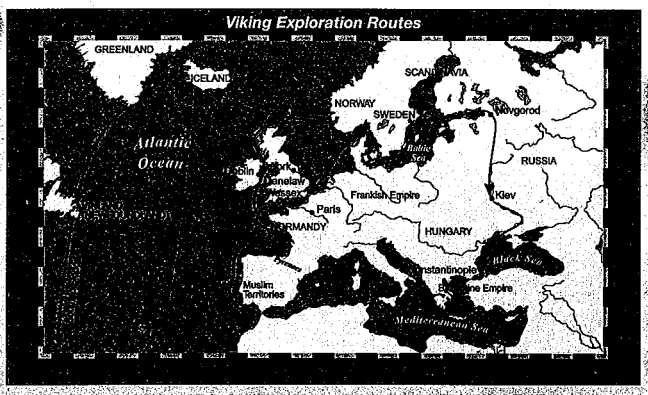
5. When Leif Eriksson heard about this new land, he decided to see it for himself. He set sail with a crew of 35 men in about the year 1000. They set out west and sailed across the North Atlantic Ocean. Eventually, they came to a land that was covered in beautiful trees. They landed and built houses for the winter. Then, the Norsemen began to explore the new land. When they discovered grapes growing in abundance, Leif Eriksson named the land Vinland.

6. In the spring, Leif Eriksson returned to Greenland to report his discovery. The following year his brother Thorvald headed back to Vinland with a crew of around 30 men. They found the settlement Leif Eriksson's crew had built. They also found three strange mounds on the beach. These turned out to be nine native people, hiding under three canoes.

7. Today, historians believe that the people may have been either Algonquin or Inuit. The Norsemen killed eight of the native people, but the ninth escaped. He returned later that night with others and attacked the Norse.

8. This became a pattern in the early attempts by the Norse to settle the New World. Eventually, they left Vinland and retreated to Greenland. The Norse did not have the resources to deal with the native people.

9. For many years, experts were not sure if the Norse had really made it to the New World. Ancient Norse accounts described voyages to what seemed to be North America, but there was no real evidence to show they had come. Then, in 1960, Norse ruins were discovered in Newfoundland, Canada. Finally, there was proof that the Vikings had indeed been to our side of the Atlantic Ocean!

10. 

Revisit the Text: Ideas for Discussion

Share and discuss the following questions to sum up your exploration of the text. You may wish to use the questions as prompts for a Turn and Talk activity before your discussion. Encourage students to support their thinking and ideas with evidence from the text.

- *Reread the second paragraph of the essay. How is it different from the other paragraphs? What purpose does it serve in the essay?*
- *The author includes the meaning of the Vikings' name, "sea raider," which is how many people think of the Vikings. What other ideas about the Vikings does this essay introduce?*
- *This essay offers a new narrative for an important part of history—the first Europeans in the New World. What does this tell you about our understanding of history?*

Write About Reading

Have students choose either one of the following options for writing, or do both.

- What conditions led to the Norse's exploration of the New World? **(Informative/Explanatory)**
- Do you think that the story of Eriksson's exploration of the New World will become as common or more common than the story of Columbus's arrival in the New World? Use details from the essay to support your answer. **(Opinion)**

Connect to the Internet

To read more about the Vikings' exploration of North America, go to www.mnh.si.edu/vikings/index.html or www.pc.gc.ca/eng/lhn-nhs/nl/meadows/natcul.aspx.

Guidebook
Level V

Text Type: Guidebook

Summary: These pages from a guidebook provide interesting and practical information for visitors to Crater Lake and Yosemite Falls.

Themes/Ideas: learn the history of and basic facts about Crater Lake and Yosemite Falls; understand information for visiting Crater Lake and Yosemite Falls

Informational Text Features: headings, maps, photos, bold text, captions, text boxes

Academic Vocabulary:
- ***breathtaking:*** very surprising, great
- ***estimate:*** to judge a value based on experience, not scientific measurement
- ***majestic:*** grand, breathtaking
- ***retreating:*** going away or backing up from something

Domain-Specific Vocabulary:
- ***caldera:*** a large hole caused by the collapse of a volcano
- ***crater:*** a hole around the opening of a volcano
- ***cascades:*** steep waterfalls
- ***glaciers:*** large, slow-moving bodies of ice

Deepest Lake and Highest Waterfall

Focus Question: How were Crater Lake and Yosemite Falls formed, and how do visitors get to experience them?

First Reading

Read aloud each page's title and preview the text, noting that these pages are from a guidebook. Point out the two maps and location information for each feature. Have students read through the text on their own. Then discuss the things readers can learn about from reading these guidebook pages.

Guided Close Reading

Text Features *How is the text organized on the first page? How do the main sections help the reader understand the topic and find information? Why is this type of organization useful for a guidebook?* ❶–❹

Key Ideas and Details *How does Crater Lake compare in depth with other lakes in the United States and in the world? Describe how Crater Lake was formed. What natural events preceded it? What is unique about the water in Crater Lake?* ❷ ❸

Author's Purpose *Why does the writer provide photos, captions, and "Fantastic Facts"? How do they add to the reader's information? How do they support the purpose of a guidebook?* ❺ ❽

Photos and Text *What information does the photo of Crater Lake provide? What additional information does the caption provide? How does the photo help readers to better understand Crater Lake?* ❺

Author's Craft *What words does the author use to show what he thinks about Yosemite Falls? What details does he include in a caption near the picture to convince readers about how amazing they are?* ❼ ❽

> **Think Aloud** *The author uses the words* majestic *and* breathtaking *to describe Yosemite Falls. In a caption, the author gives an amazing comparison, telling us that the falls are as tall as the Willis Tower (in Chicago) and the Eiffel Tower (in Paris) combined.*

Words and Phrases in Context *The author uses the word* estimate *twice in the text. What does* estimate *mean? Why does the author use the phrase "Scientists estimate" in both of these contexts?* ❺ ❽

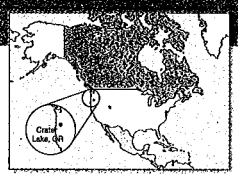
> **Think Aloud** Estimate *means "to make an approximate guess based on experience rather than direct study." The author says "Scientists estimate" because scientists are not able to measure exactly how long Crater Lake took to fill or exactly how much water goes over Yosemite Falls every second.*

Make Inferences *Based on the features on these pages, what conclusion might you draw about other pages in the guidebook from which these pages are taken? What kinds of information would you expect to find?* ❶–❽

Deepest Lake and Highest Waterfall

A guidebook is a reference book that you carry with you. These excerpts are from a guidebook about dramatic water sites in the USA.

DEEPEST LAKE



CRATER LAKE

1

Location: Crater Lake, Oregon
Depth: 1,943 feet (592.2 m)

2 **Discover**

Crater Lake is the deepest lake in the United States, and it's the ninth-deepest lake in the world. Crater Lake's water is incredibly clear and blue. How clear? You can look down and see what's going on 134 feet (40.84 m) below.

3 **History**

- More than 7,000 years ago, a volcano called Mount Mazama collapsed following a powerful eruption. This collapse left a huge depression, or caldera, in the ground.
- The caldera eventually filled with water from rain and melting snow. The lake doesn't draw water from any rivers, so no dirt or other materials come into the lake, just rain. That's how the water remains pure.

4 **Explore**

- Visitors can enjoy Crater Lake while camping, biking, hiking, or by taking bus tours.
- The 33-mile (53.1-km) Rim Drive around the lake provides wonderful views. The area also has 90 miles (144.8 km) of hiking trails.

Scientists estimate that it took 720 years for the crater to be filled with water from rain and snow.

Fantastic Facts

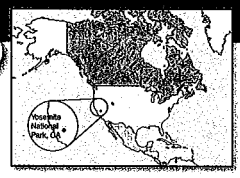
Winters often produce more than 40 feet (12.2 m) of snow at Crater Lake. There is so much snow that it can stay on the ground until July.

5

If You Visit

Visit www.nps.gov/crla to see the wonders of Crater Lake and to plan your visit.

HIGHEST WATERFALL



YOSEMITE FALLS

6

Location: Yosemite National Park, California
Height: 2,425 feet (739.1 m)

7 **Discover**

The majestic Yosemite Falls is really three separate falls. The Upper Fall is 1,430 feet (435.9 m) high. The middle cascades are 675 feet (205.7 m). The Lower Fall is 320 feet (97.5 m). They all add up to one of the most breathtaking natural sites in the country.

Yosemite Falls is as tall as the Willis Tower and the Eiffel Tower combined!

History

- Millions of years ago, retreating glaciers dug the falls and Yosemite Valley out of rock.
- The flowing water continues to change the shape of the falls.
- If there is little snow during the winter, the falls may stop flowing in late summer and fall. However, late summer rainstorms get the water flowing again.

Explore

- Hiking is the best way to explore the falls. The Lower Fall is easily reached by a 1-mile (1.6-km) loop that takes only 30 minutes.
- If you are in really good shape, you can hike the 7.2-mile (11.6-km) round-trip on the Upper Yosemite Falls Trail. This is a difficult hike with only a few handrails, so be careful!

8 **Fantastic Facts**

Scientists estimate that 2,400 gallons (9,085 L) of water go over the falls every second.

If You Visit

Visit www.nps.gov/yose for more information.

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Revisit the Text: Ideas for Discussion

Share and discuss the following questions to sum up your exploration of the text. You may wish to use the questions as prompts for a Turn and Talk activity before your discussion. Encourage students to support their thinking and ideas with evidence from the text.

- *What different text features does the author use to convey information? How do these features help organize the text?*
- *Why is Crater Lake's water so clear and blue? Would the water under Yosemite Falls be as clear? Why or why not?*
- *Both Crater Lake and Yosemite Falls are located in national parks. Why should sites like these be protected? How can such sites benefit people?*

Write About Reading

Have students choose either one of the following options for writing, or do both.

- Compare and contrast Crater Lake and Yosemite Falls using a Venn Diagram. Compare and contrast details such as type of feature, location, history, and age. **(Informative/Explanatory)**
- Based on the text, would you rather visit Crater Lake or Yosemite Falls? Why? Support your opinion with information from the text. **(Opinion)**

Connect to the Internet

To learn more information about national parks near you, have students visit www.nps.gov/findapark/index.htm and click your state.

How-to

Level V

Text Type: How-to

Summary: Read these pages to learn about two science activities that demonstrate the effects of acid on the materials that make up bones and teeth.

Themes/Ideas: understand how acid acts on eggshells; explain the relationship between scientific concepts

Informational Text Features: text box, bulleted lists, photographs, numbered steps

Academic Vocabulary:

- ***react:*** to behave in a certain way after something happens
- ***inflates:*** fills with air or gas
- ***observe:*** to watch, study
- ***flexibility:*** ability to bend without breaking

Domain-Specific Vocabulary:

- ***acid:*** chemical compound that dissolves in water and has a low pH level
- ***compound:*** something formed of multiple parts or elements
- ***osmosis:*** movement through a membrane that allows some but not all molecules through
- ***acidity:*** degree or level of acid in a material

The Acid Effect

Focus Question: How can common household objects help show the effects of acid on bones and teeth?

First Reading

Read aloud the title and first paragraph. If needed, review important science concepts with students, such as *acid, chemical reaction,* and *dissolve/solution.* Call attention to the text features on these pages and ask students to consider how the text features help them determine the genre of the text. Note that this how-to includes materials and numbered steps describing the process of a science experiment. For the first reading, have students read the card independently. Then discuss the central ideas.

Guided Close Reading

Main Idea and Details *What is the main idea of this text? How do both experiments contribute to the main idea?* ❶-❻

Connect Events *What is the relationship between calcium carbonate and bubbles that form on the eggshell and bones? What words or phrases in the text help clarify that relationship?* ❶-❸ ❹

Words and Phrases in Context *Look at Step 7 in the first experiment. Why does the author describe the egg as "rubber"? Is the egg actually made of rubber? How do you know?* ❸ ❹

Text Features *What text features help you identify the text type? What features help you determine how each section fits within the overall structure? Why are numbered steps a good structure for a how-to text or an experiment?* ❷-❹

> **Think Aloud** *The numbered steps identify the text as a how-to. Each activity begins with a heading. The first activity uses blue boldface type, and the second activity uses orange boldface type. The numbered steps are important because a how-to or experiment needs steps to be followed in order to work.*

Photos and Text *Look at the photographs on the front of the card. How is the first photo of the egg different from the last? How does that difference show the effect of the acid?* ❷-❹

Connect Ideas *What questions does the author ask at the end of the second activity? What information in the text can you use to help you answer those questions?* ❶-❻

> **Think Aloud** *The author asks about the flexibility of the bones soaked in various liquids. "Which bone is the most flexible? . . . what does that tell us about the acidity in the different liquids?" I can use information from the introduction and first activity about the acidity of vinegar to help answer the questions about the bones.*

THE ACID EFFECT

Did you know that too much acid in food can weaken our bones and teeth? Our bones and teeth contain calcium, which makes them hard and strong. Acid causes the calcium compound in our bones to break down into its two elements, calcium and carbon. The following two activities show us how "effective" acid can be!

HOW DO BONES AND TEETH REACT TO ACID?

To see how bones and teeth react to acid, you may want to try the following experiment. It uses an egg because, like bones, eggshells are high in calcium. REMINDER: ALWAYS WORK WITH AN ADULT HELPER.

MATERIALS

- 1 uncooked egg, in its shell
- Bottle of white vinegar
- Tall glass or plastic container

DIRECTIONS

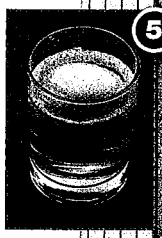
STEP 1 Place the egg in a tall glass.

STEP 2 Pour vinegar over the egg until its shell is entirely covered. Look closely at the egg. The bubbles forming on the shell show that the shell is beginning to react to the acid. Calcium has been pulled out of the shell and floats in the solution. The carbon parts form carbon dioxide bubbles on the shell.

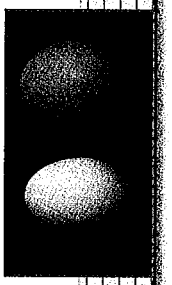
STEP 3 Leave the egg in the vinegar for a full 24 hours.

STEP 4 After 24 hours, carefully remove the egg and pour the used vinegar down the drain. Cover the egg with fresh vinegar.

STEP 5 Now, place the glass with the vinegar and egg in a safe place for one week. Don't disturb the egg, but pay close attention to the bubbles forming on the shell's surface.



STEP 6 After one week, again pour off the vinegar. Carefully rinse the egg with water. The egg will be translucent, or see-through, because the outside shell is gone. All that remains is the membrane of the egg.

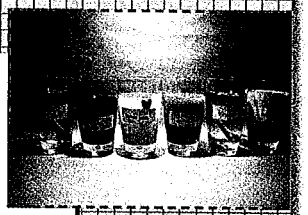


The vinegar has crossed over the membrane, through a process called osmosis. This slightly inflates the egg, causing the egg to get a little bigger.

STEP 7 You will now be able to gently bounce or squeeze the rubbery egg. Make sure not to drop the egg too hard. Even without its shell, an egg is easy to break!

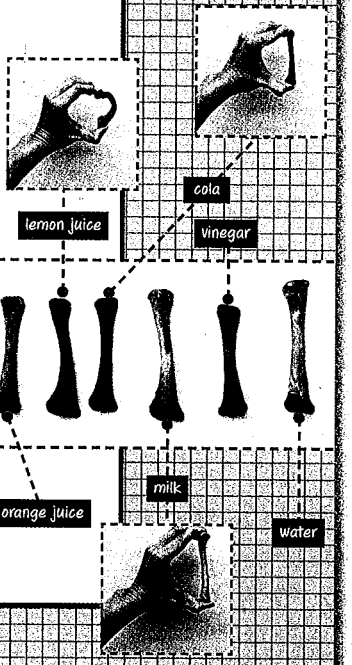
HOW DO BONES REACT TO DIFFERENT ACIDS?

We've just seen what the acid in vinegar does to the calcium carbonate of an eggshell. But not all foods have the same acidity. Let's use several liquids to see how bones react to them.



MATERIALS

- 6 chicken bones of similar thickness
- Tall glass of water
- Tall glass of milk
- Tall glass of orange juice
- Tall glass of cola
- Tall glass of lemon juice
- Tall glass of vinegar



DIRECTIONS

STEP 1 Label each glass according to the liquid it contains.

STEP 2 Place a chicken bone in each glass. Look closely at the bone. Do bubbles form on the bone?

STEP 3 Place the glasses in a safe place for a full week.

STEP 4 One week later, pour out the liquids. Observe the bones. How have they changed?

STEP 5 Try bending the bones. Which bone is the most flexible? Depending on the flexibility of the bone, what does that tell us about the acidity in the different liquids?

Revisit the Text: Ideas for Discussion

Share and discuss the following questions to sum up your exploration of the text. You may wish to use the questions as prompts for a Turn and Talk activity before your discussion. Encourage students to support their thinking and ideas with evidence from the text.

- *The text contains two accounts, each of a similar activity demonstrating the effects of acid on a calcium compound. How does each activity elaborate on the same concept? How is the structure of the activities similar? How does this help you understand the information?*
- *What inferences about human teeth and bones can you make based on information in the text? What words and phrases help you make your inferences?*
- *After reading the entire card, what predictions can you make about the outcome of the second activity? What clues in the text help you make these predictions?*

Write About Reading

Have students choose either one of the following options for writing, or do both.

- Write a paragraph that explains how the effect of acids on eggshells demonstrates the possible effect of acids on bones. Cite facts and details from the text as support. **(Informative/Explanatory)**
- Which is more impressive: the "rubber egg," or the bendable bones? Write an opinion statement, and use details from the text to support your answer. **(Opinion)**

Connect to the Internet

To further students' understanding of the effects of vinegar on eggshell and to watch a short video, go to http://faraday.physics.uiowa.edu/Movies/MPEG/4d50.70a.mpg. To learn more information about the science of the rubber egg, go to http://van.physics.illinois.edu/qa/listing.php?id=461.

Journal
Level V

Text Type: Journal

Summary: This journal entry describes Lewis and Clark's first sight of the Columbia River.

Themes/Ideas: learn to read a historical journal entry; understand the importance of Lewis and Clark's expedition

Informational Text Features: map, illustration

Academic Vocabulary:
- ***stout:*** strong or forceful
- ***toilsome:*** needing much effort
- ***allaying:*** making calm or reducing
- ***exultingly:*** very joyfully

Domain-Specific Vocabulary:
- ***principal:*** most important
- ***fork:*** the place where something, such as a river or road, divides into branches
- ***steep:*** almost straight up and down
- ***shoaly:*** full of sandbars or shallow areas

The Journal of Meriwether Lewis

Focus Question: What challenges did Lewis and Clark face on their expedition and what did they learn?

First Reading

Read the title and information in the text box at the top of the page. Note the name of the writer of the journal and the date of the entry, which is midway between 1804 when they left and 1806 when their journey ended. For the first reading, have students read the text and note any questions they have. Then discuss the main points that Lewis shared in his journal.

Guided Close Reading

Key Ideas and Details *According to the map and the text, where is Meriwether Lewis as he writes this journal entry? What do he and his crew think about this locale?* ❶–❸

Text Feature *How do the map and text help you understand the extent of Lewis and Clark's journey?* ❶ ❷

Author's Purpose *What things does Lewis note very carefully? How does this give a clue about his purpose for keeping a journal of their expedition? What words and phrases provide clues to his purpose?* ❷ ❹

Connect Ideas *What has the crew spent "so many toilsome days and restless nights" looking for? What do they do when they find it? What do they find on the opposite side of the mountain? How are the two discoveries related?* ❸ ❹

> **Think Aloud** *The crew has been looking for the source of the Missouri River. When they find it, the crew drinks the fresh water, and McNeal stands with a foot on each side of the small "rivulet." On the other side of the mountain, the crew finds the source of the Columbia River. Both discoveries are the beginnings of large rivers.*

Make Inferences *Lewis writes about having a small piece of pork in reserve and later about not killing anything during the day. What danger do you think the men faced about their food supply?* ❷ ❺

Words and Phrases in Context *Reread the sentence that begins "At the creek on this side." Based on the context, what is a "deep purple currant"? What is the purpose of including this information in the journal?* ❺

> **Think Aloud** *Lewis describes the "deep purple currant" as a species, so I know it is a plant or an animal. He describes the currant's stem and leaf, which suggests it is a kind of plant. Lewis may have included this information because finding new plants is an important part of exploring new lands.*

Compare and Contrast *How did Captain Clark help the men? What can you tell about Captain Clark's personality based on this journal entry? Why might Lewis and Clark make a good team?* ❻

The Journal of Meriwether Lewis
In 1803, President Thomas Jefferson asked Meriwether Lewis and William Clark to explore what is now the western United States. They started in May 1804 and didn't get home until September 1806! This entry was written two months before the group reached the Pacific Ocean.

1 Here I First Tasted the Water of the Great Columbia River

Near this place, we fell in with a large and plain Indian road, which came into the cove from the northeast and led along the foot of the mountains [. . .] This road we now pursued to the southwest. At 5 miles it passed a stout stream which is a principal fork of the main stream and falls into it just above
2 the narrow pass between the two cliffs, which we now saw below us. Here we halted and breakfasted on the last of our venison, having yet a small piece of pork in reserve. After eating, we continued our route through the low bottom of the main stream along the foot of the mountains on our right. The valley for 5 miles farther in a southwest direction was from 2 to 3 miles wide.

At the distance of 4 miles further, the road took us to the most distant fountain of the waters of the mighty Missouri in search
3 of which we have spent so many toilsome days and restless nights. [. . .] Judge, then, of the pleasure I felt in allaying my thirst with this pure and ice-cold water which issues from the base of a low mountain or hill of a gentle ascent for 1/2 a mile.

[. . .] Here I halted a few minutes and rested myself. Two miles below, McNeal had exultingly stood with a foot on each side of this little rivulet and thanked his God that he had lived to bestride the mighty, and heretofore deemed endless, Missouri.

After refreshing ourselves, we proceeded on to the top of the dividing ridge, from which I discovered immense ranges of
4 high mountains still to the west of us, with their tops partially covered with snow. I now descended the mountain about 3/4 of a mile, which I found much steeper than on the opposite side, to a handsome bold running creek of cold, clear water. Here I first tasted the water of the great Columbia River.

After a short halt of a few minutes, we continued our march along the Indian road which led us over steep hills and deep hollows to a spring on the side of a mountain where we found a sufficient quantity of dry willow brush for fuel. Here we
5 encamped for the night. As we had killed nothing during the day, we now boiled and ate the remainder of our pork, having yet a little flour and parched meal. At the creek on this side of the mountain I observed a species of deep purple currant, lower in its growth, the stem more branched, and leaf doubly as large as that of the Missouri. [. . .]

This morning Captain Clark set out early. Found the river shoaly, rapid, shallow, and extremely difficult. The men in the water almost all day. They are getting weak, sore, and much fatigued. They complained of the fatigue to which
6 the navigation subjected them and wished to go by land. Captain Clark encouraged them and pacified them. One of the canoes was very near oversetting in a rapid today. They proceeded but slowly.

Captain Lewis, 12 August 1805

NOTE: [. . .] shows that text has been omitted.

Revisit the Text: Ideas for Discussion

Share and discuss the following questions to sum up your exploration of the text. You may wish to use the questions as prompts for a Turn and Talk activity before your discussion. Encourage students to support their thinking and ideas with evidence from the text.

- *Lewis includes in his journal many details about distances. Why does he do this? What other details does he include that are not typical of a personal diary?*
- *What details about the Missouri River and Columbia River can a reader learn from this journal? What inferences about rivers in general can you make based on this information?*
- *Why would President Jefferson have read this journal? Why is this journal such an important historical document?*

Write About Reading

Have students choose either one of the following options for writing, or do both.

- *What new information does the crew learn on the days described in this diary? For each discovery, explain why it might be important to know.* **(Informative/Explanatory)**
- *Is the information gathered by Lewis, as noted in his diary, important enough to justify a two-year trip? Why or why not? Support your answer with details from the diary entry.* **(Opinion)**

Connect to the Internet

To learn more information about the Lewis and Clark expedition, have students visit www.pbs.org/lewisandclark/. To read more about the Lewis and Clark National Historic Trail, have students explore www.nps.gov/lecl/index.htm.

Letter
Level V

Text Type: Letter

Summary: Rachel Carson, a famous scientist, wrote a letter to a friend after contemplating the morning they spent observing nature together.

Themes/Ideas: describe the setting of the scene described by Carson; explain the connection between ideas in the letter

Informational Text Features: text box, date, salutation, signature, photos

Academic Vocabulary:

- ***environmental:*** having to do with nature, related to the preservation of natural habitats
- ***annual:*** yearly
- ***postscript:*** a written remark coming after a completed event or piece of writing

Domain-Specific Vocabulary:

- ***pesticides:*** poisons used to kill insects harmful to farmed plants
- ***chemicals:*** substances or materials with a known makeup or composition
- ***migration:*** regular, yearly movement of animals from one place to another

A Letter From Rachel Carson

Focus Question: How does Rachel Carson's letter capture her attitude toward nature?

First Reading

To introduce Rachel Carson, read the information in the text box. Briefly discuss the meaning of "the environmental movement" and be sure students understand the role of scientists such as Carson in that movement. Before students read, remind them that this is a letter from one friend to another. Have students read the text independently. Then discuss the ideas that the author shared.

Guided Close Reading

Author's Craft *How does Carson establish the topic of her letter? How does she use sensory details to develop the setting?* ❶

> **Think Aloud** *The letter begins by saying it is a postscript, something written after something else, about something related to her morning with her friend at Newagen. Carson makes the scene at Newagen come alive by describing the color of the sky and the sounds of the water and the wind. She describes the graceful motion of the seagulls.*

Words and Phrases in Context *Carson describes the monarchs as "that unhurried westward drift of one small winged form after another, each drawn by some invisible force." What do you think is the meaning of "invisible force"?* ❶

> **Think Aloud** *I think the invisible force may be the need for monarchs to fly south for warmth because the cold winter weather is coming. Or it may be referring to the force of nature that makes animals behave in ways they always have.*

Key Ideas and Details *What conclusion does Carson draw about why she and her friend didn't feel sad thinking about the journey of the monarchs being "the closing journey of their lives," their last journey. How does she explain her feelings?* ❷

Compare and Contrast *How does Carson connect the idea of the end of life for monarchs with the end of life for humans? What is similar about the two life cycles? What is very different about them? What does Carson's connection of the two show about her understanding of all life?* ❸

Author's Purpose *How does Carson refer to the butterflies in the last paragraph? How does the paragraph connect to Carson's purpose for writing?* ❷ ❹

Photos and Text *How is this particular butterfly photo relevant to the text?* ❷ ❺

A Letter From Rachel Carson

Rachel Carson was an American scientist. She is best known for her 1962 book *Silent Spring*, which made people aware of the harmful effects of pesticides and other chemicals. Her book also helped inspire the environmental movement. In this letter to a friend, Carson shows her love of nature as she recalls watching the annual migration of monarch butterflies.

September 10, 1963

Dear One,

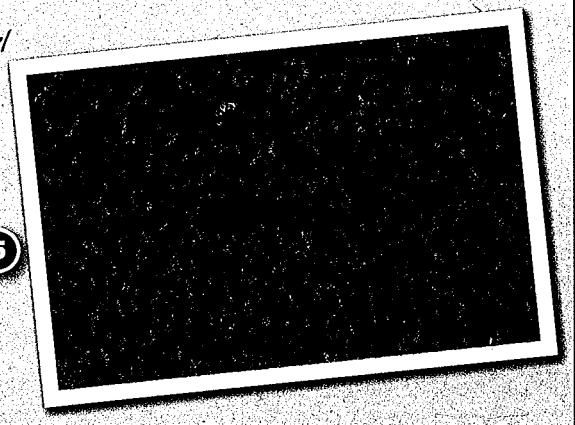
This is a postscript to our morning at Newagen, something I think I can write better than say. For me it was one of the loveliest of the summer's hours, and all the details will remain in my memory: that blue September sky, the sounds of the wind in the spruces and surf on the rocks, the gulls busy with their foraging, alighting with deliberate grace, the distant views of Griffiths Head and Todd Point, today so clearly etched, though once half seen in swirling fog. But most of all I shall remember the monarchs, that unhurried westward drift of one small winged form after another, each drawn by some invisible force. We talked a little about their migration, their life history. Did they return? We thought not; for most, at least, this was the closing journey of their lives.

But it occurred to me this afternoon, remembering, that it had been a happy spectacle, that we had felt no sadness when we spoke of the fact that there would be no return. And rightly—for when any living thing has come to the end of its life cycle we accept that end as natural.

For the Monarch, that cycle is measured in a known span of months. For ourselves, the measure is something else, the span of which we cannot know. But the thought is the same: when that intangible cycle has run its course it is a natural and not unhappy thing that a life comes to an end.

That is what those brightly fluttering bits of life taught me this morning. I found a deep happiness in it—so I hope, may you. Thank you for this morning.

Rachel



Revisit the Text: Ideas for Discussion

Share and discuss the following questions to sum up your exploration of the text. You may wish to use the questions as prompts for a Turn and Talk activity before your discussion. Encourage students to support their thinking and ideas with evidence from the text.

- *Why did observing the monarchs and doing some deep thinking about them help Rachel form her own understandings about life?*
- *What did Rachel Carson and her friend observe at Newagen? How do details in the letter support the topic?*
- *Reread Carson's writing about her time at Newagen. Which details make the scene come to life?*

Write About Reading

Have students choose either one of the following options for writing, or do both.

- What is Rachel Carson's attitude toward nature? Write an informational paragraph supporting your answer. Use evidence from the letter. **(Informative/Explanatory)**
- Most people would say that Rachel Carson is a very good writer. Do you agree or disagree? Write your opinion using examples from the letter. **(Opinion)**

Connect to the Internet

To learn more about the books written by Rachel Carson, go to www.rachelcarson.org/BooksBy.aspx. For more information about the Letters of Note website, go to www.lettersofnote.com/2009/09/dear-all.html.

Magazine Article

Level V

Text Type: Magazine Article

Summary: Australia's unique ecosystems are home to many interesting animals, including the platypus, the thorny devil, and the koala bear.

Themes/Ideas: identify unusual traits of the platypus, thorny devil, and koala; recognize that the health of animals such as these is dependent on the health of their environment

Informational Text Features: photos, captions, map, map legend, headings

Academic Vocabulary:

- ***isolation:*** the state of being alone or separated from others
- ***bizarre:*** very unusual, extraordinary
- ***inflates:*** fills with air
- ***threatened:*** at risk of becoming endangered

Domain-Specific Vocabulary:

- ***evolved:*** developed slowly over time
- ***mammal:*** category of warm-blooded animals
- ***predators:*** animals that hunt and eat other animals
- ***marsupials:*** mammals that usually have one pouch in which to nurse or carry their young

Australia's Amazing Animals

Focus Question: What makes Australia's platypus, thorny devil, and koala such unique animals?

First Reading

Preview the magazine article, noting the title, deck, photos, map, and headings. Point out the map legend that explains the markings on the continent of Australia. You might want to locate Australia on a world map. Have students read through the text independently. Then, together, discuss the main ideas that are presented in this magazine article.

Guided Close Reading

Vocabulary *Look at the deck printed in bold type. What does the phrase "evolved in isolation" mean? What main idea is the author supporting with this phrase? How does knowing what this phrase means help you understand the main idea of the first paragraph?* ❶ ❷

Key Ideas and Details *What idea (or ideas) in the text does the map support? What words and phrases in the text relate most closely to the map?* ❶–❸

Author's Purpose *Under the heading "What Is It?" what tone does the author use to describe what makes the platypus unique? How does this approach help get across the author's message?* ❺

Think Aloud *The author uses a playful tone, giving clues to challenge the reader to guess what the animal is. Also, the author uses a chatty tone to describe the platypus's most unique feature by saying, "And yes, even though it is a mammal, the female platypus actually lays eggs." The author wants to inform and to entertain the reader.*

Compare and Contrast *What methods does the thorny devil use to defend itself from predators? In what way is the thorny devil like the platypus? How are they unlike each other?* ❺ ❻

Words and Phrases in Context *What is a marsupial? How does the author help you determine the meaning of this word? What word used to describe koalas provides a contrast to* marsupial? ❽ ❿

Connect Ideas *What is the relationship between "sav[ing] the forest" and saving the koala?* ⓬

Think Aloud *Koalas are "tree-huggers" who eat mostly tree leaves and are threatened by forest destruction. Saving the forest will save the koalas.*

Photos and Text *What information can you get from the pictures? What main ideas or details in the text do the images support?* ❹ ❼ ❾

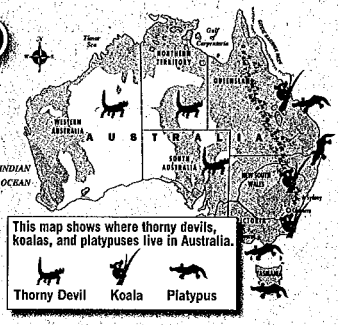
Text Structure *What is the overall structure of the text? Why is this an appropriate structure for a magazine article?* ❶–⓬

AUSTRALIA'S AMAZING ANIMALS

1 Have you ever heard of a lizard with two heads, a mammal that lays eggs, or a bear that isn't a bear? Take a close look at Australia—this island continent is home to the thorny devil, the platypus, and the koala.

2 Australia is surrounded by water. Its animals have evolved in isolation. Most don't exist anywhere else on the planet. Today, pollution and the growth of cities are putting some of them under pressure. Many of Australia's creatures are now endangered.

3



This map shows where thorny devils, koalas, and platypuses live in Australia.

4 Because the platypus is so bizarre, it is an important subject for biologists to study.

What Is It?

5 What has four legs, a furry body, a duck's bill, and webbed feet? It's a platypus—a mammal that looks like it was put together from spare parts. And yes, even though it is a mammal, the female platypus actually lays eggs.

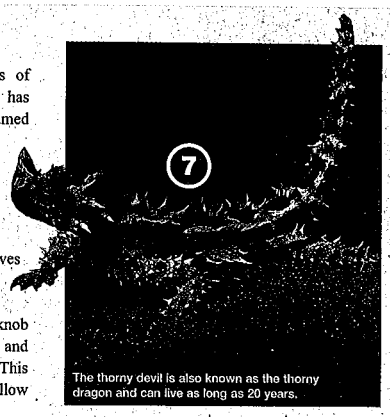
Platypuses live underground in holes that they dig in the banks of rivers. They are nocturnal, spending the night diving for food. Now water pollution is killing off the food that platypuses eat, and much of their habitat has been destroyed.

But there is good news, too. The water has been cleaned up in some areas, and this has drawn platypuses to a surprising place. A few have been found in the city of Melbourne—Australia's second largest city. This is a good sign for the species.

Call Me Ugly

Australia has about 600 different kinds of snakes and lizards. However, one of them has evolved with a look so frightening that it is named the thorny devil.

6 To scare off larger lizards, the thorny devil inflates itself with air. Although it is only four to six inches long, when the thorny devil puffs up, it makes a large display of spiky skin. The fact is, a thorny devil moves slowly, and is actually quite a coward. When it's really terrified, the lizard tucks its head between its front legs. Then, a spiny knob on the back of its neck comes to the rescue and stands up in place of the lizard's real head! This feat certainly makes thorny devils hard to swallow for most predators.



7 The thorny devil is also known as the thorny dragon and can live as long as 20 years.

We're Not Bears

8 With faces like teddy bears, koalas are often mistakenly called bears, but they're not even related. These tree-huggers are actually marsupials, a mammal that usually has a pouch in which to nurse or carry its young.

9 The koala spends up to 20 hours of each day sleeping!

10 Mama koalas have pouch-like folds to protect nursing babies. That's because when marsupial babies are born, they are not fully developed. Baby koalas are born blind and hairless and are very tiny. At birth, a baby koala measures less than an inch (less than 2.5 cm).

11 Adult koalas feed mostly on the leaves of eucalyptus trees. But since European settlers arrived in Australia in the 1780s, 80 percent of the eucalyptus forests have been destroyed. Today, the koala is being threatened.

12 The platypus, thorny devil, and koala are three examples of unusual animal life that have evolved in Australia. If people pay attention to the dangers of pollution and work to save the forests, these amazing animals should continue to survive on the continent.

Revisit the Text: Ideas for Discussion

Share and discuss the following questions to sum up your exploration of the text. You may wish to use the questions as prompts for a Turn and Talk activity before your discussion. Encourage students to support their thinking and ideas with evidence from the text.

- *In what ways is the environment of Australia unique? How does the environment of Australia affect its animals? What impact might the growth of cities and pollution have on these unique animals?*
- *What text structure does the author use? Give examples and explain how this kind of text structure helps the reader understand the information. Discuss which text features were helpful.*
- *What did you learn about Australia that you did not know before? How are the three animals in the text similar to animals you were familiar with? How are they different?*

Write About Reading

Have students choose either one of the following options for writing, or do both.

- Write an explanation of the function that Australia's natural habitats play in the lives of the platypus, the thorny devil, and the koala. **(Informative/Explanatory)**
- Choose one animal. Which adaptations, or evolved traits, mentioned in the text are the most important to the animal's survival? Support your opinion with facts and details from the text. **(Opinion)**

Connect to the Internet

To learn more about platypuses and their habitats, go to http://australianmuseum.net.au/Platypus.

To learn more about Australia's unusual animals, go to http://australian-animals.net.

Newspaper Article
Level V

Text Type: Newspaper Article (Historical)

Summary: This news article describes the aftermath of an earthquake that devastated San Francisco, California, in 1906.

Themes/Ideas: understand the amount of damage caused by the 1906 San Francisco earthquake; explore how different groups responded to the disaster

Informational Text Features: headline, headings, photos, captions, deck

Academic Vocabulary:
- ***destitute:*** lacking necessities
- ***mangled:*** severely injured, often disfigured
- ***scores:*** large numbers
- ***provisions:*** arrangements

Domain-Specific Vocabulary:
- ***cornice:*** decorative strip at the top of a building
- ***martial law:*** temporary military control of an area
- ***cavalry:*** soldiers on horseback
- ***infantry:*** soldiers on foot

San Francisco Earthquake

From *The New York Times*

Focus Question: How did the 1906 earthquake affect San Francisco and its residents?

First Reading

Together look at the masthead, headline, and the deck, noting that this news article about the 1906 San Francisco earthquake was published on the day after the earthquake. Point out the text features. For the first reading, have students read through the article on their own. Then discuss the main ideas of the article.

Guided Close Reading

Key Ideas and Details *What details does the writer include in the deck and first two paragraphs? What do these details let you know about the earthquake?* ❶-❸

Words and Phrases in Context *In the third paragraph, does the word* terrific *have a positive or negative connotation? What does it tell you about how San Franciscans felt that morning?* ❹

> **Think Aloud** Terrific *has a negative connotation. It tells the reader how extreme and intense the earthquake was. In context, it shows that the earthquake terrified the San Franciscans that morning.*

Compare and Contrast *The writer discusses the fires that consumed the city after the earthquake. Why were they able to damage so much of the city? How did responding to the fires add to the damage? How did the damage from fires compare to the damage from the quake itself?* ❺ ❻ ❽

> **Think Aloud** *The fires damaged much of the city because of several problems. The water supply was cut off during the earthquake, so firefighters had no water to put out the fires. Responding to the fires only created more damage because firefighters could only dynamite buildings that were threatened by the fire. Also, buildings that were supposed to be fireproof did not withstand the fire.*

Words and Phrases *The writer says there was an "almost immediate collapse of flimsy structures." What does this word* flimsy *suggest about how the buildings of that time were built?* ❹

Make Inferences *The writer lets readers know that those who remained indoors generally escaped with their lives. Why were the people who went outside more likely to be injured, judging by the strength of the earthquake?* ❼

Author's Craft *How do descriptions in the first two paragraphs of the section "Thousands Watch the Flame" add to your understanding of what happened? What ideas about the earthquake does the section further develop?* ❽ ❾

Key Ideas and Details *Which groups responded to the disaster? Why was their involvement an important part of responding to this major disaster?* ❿-⓭

The New York Times

VOL. LX.....NO. 11,091 NEW YORK, THURSDAY, APRIL 19, 1906 PRICE ONE CENT

OVER 500 DEAD, $200,000,000 LOST IN SAN FRANCISCO EARTHQUAKE

Nearly Half the City Is in Ruins and 50,000 Are Homeless.

San Francisco, April 18—Earthquake and fire today have put nearly half of San Francisco in ruins. About 500 persons have been killed, a thousand injured, and the property loss will exceed $200,000,000.

Fifty thousand people are homeless and destitute, and all day long streams of people have been fleeing from the stricken districts to places of safety.

It was 5:13 this morning when a terrific earthquake shock shook the whole city and surrounding country. One shock apparently lasted two minutes, and there was almost immediate collapse of flimsy structures all over the city.

The water supply was cut off, and when fires started in various sections there was nothing to do but let the buildings burn. Telegraph and telephone communication was cut off for a time.

Electric power was stopped and street cars did not run, railroads and ferry-boats also ceased operations. The various fires raged all day and the fire department has been powerless to do anything except dynamite buildings threatened. All day long explosions have shaken the city and added to the terror of inhabitants.

First Warning at 5:13 A.M.

Most of the people of San Francisco were asleep at 5:13 o'clock this morning when the terrible earthquake came without warning.

The people became panic-stricken, and rushed into the streets, most of them in their night attire. They were met by showers of falling bricks, cornices, and walls of buildings.

Many were crushed to death, while others were badly mangled. Those who remained indoors generally escaped with their lives, though scores were hit by detached plaster, pictures, and articles thrown to the floor by the shock. It is believed that, more or less, loss was sustained by nearly every family in the city.

Thousands Watch the Flame

Banks and commercial houses, supposed to be fireproof, though not of modern build, burned

Fires burned out of control, with no water available to extinguish them.

THE NEW YORK TIMES: NEW YORK, N.Y., THURSDAY, APRIL 19, 1906

quickly, and the roar of the flames could be heard even on the hills, which were out of the danger zone. Here many thousands of people congregated and viewed the awful scene.

The dense smoke that arose from the entire business district spread out like an immense funnel and could have been seen miles out at sea. Occasionally, as some drug house or place store with chemicals was reached, most fantastic effects were produced by the centered flames and smoke which rolled out against the darker background.

Mayor Schmitz sent out word to the bakeries and milk stations throughout the city that the food supplies must be harbored for the homeless. Provisions were made to place tents in every park in the city, and those who have lost all will be given food and shelter.

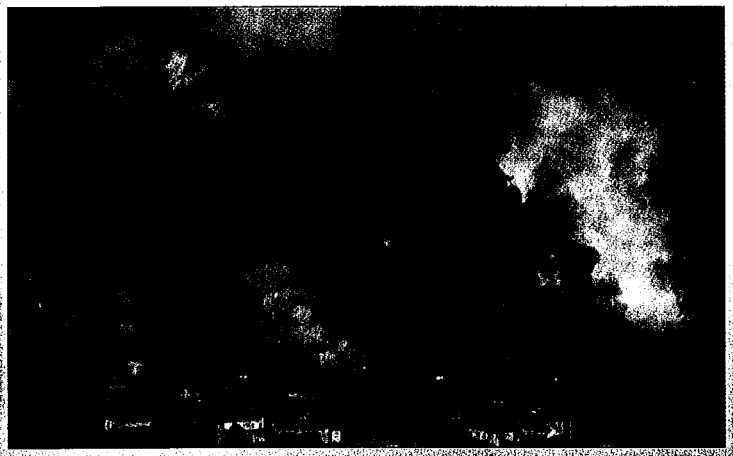
The rescuers jumped in to the wrecks and pulled out the dead, the dying, and the injured. Practically every physician in the city immediately volunteered his assistance, and soon there was a well-equipped medical corps organized which began ministering to the injured.

The firemen arrived at the City Hall, but were helpless. They hitched their hose to the fire plugs, but there was no water supply.

A thousand men from the Presidio, sent by Gen. Funston, arrived downtown at 9 o'clock to patrol the streets. The Thirteenth Infantry, 1,000 strong, arrived from Angel Island a little later and went on patrol duty at once.

The soldiers were ordered to shoot down vandals caught robbing the dead and to guard with their lives the millions of dollars' worth of property placed in the streets to escape the flames.

The city is under martial law, and all the downtown streets are patrolled by cavalry and infantry.



Clouds of dense, black smoke filled the air.

Revisit the Text: Ideas for Discussion

Share and discuss the following questions to sum up your exploration of the text. You may wish to use the questions as prompts for a Turn and Talk activity before your discussion. Encourage students to support their thinking and ideas with evidence from the text.

- *How does the writer's word choice help the reader understand the impact of the earthquake? Give examples from the text.*
- *The author describes how city officials and residents organized to help San Franciscans. What does this contribute to other ideas in the article about how people responded to the disaster?*
- *Think about the aftermath of the 1906 San Francisco earthquake. How did this event affect the city's preparations for future earthquakes?*

Write About Reading

Have students choose either one of the following options for writing, or do both.

- Based on the information in the article, how did the 1906 earthquake affect San Francisco and its residents? Write an informative paragraph including key details from the article. **(Informative/Explanatory)**
- After the earthquake, soldiers were "ordered to shoot down vandals caught robbing the dead" and to "guard with their lives" the property put in the streets. Yet thousands of people were injured, homeless, and in need of help. Do you think it was right for the soldiers to focus so much on stopping theft after the earthquake? Support your opinion with details from the article. **(Opinion)**

Connect to the Internet

To learn more information about the 1906 San Francisco earthquake, go to www.exploratorium.edu/faultline/great/1906/ and http://earthquake.usgs.gov/regional/nca/1906/18april/index.php.

Question and Answer Book

Level V

Text Type: Question and Answer Book

Summary: What's clear, sticky, and works like a time machine? Read this Q&A to find out how fossilized amber tells scientists about the ancient past.

Themes/Ideas: define *amber* and understand its role in preserving plants and animals; explain the importance of amber in scientific understanding of history

Informational Text Features: questions, answers, photos, caption, text box

Academic Vocabulary:

- ***mission:*** a specific task or job
- ***glimpse:*** a quick look, a glance
- ***transparent:*** has the property of clarity, something you can see through
- ***abundant:*** numerous, plentiful

Domain-Specific Vocabulary:

- ***resin:*** sticky brownish substance that oozes from trees
- ***fossil:*** preserved artifact from a past geologic era
- ***blossoms:*** flowers of seed plants
- ***primeval:*** ancient

Trapped in Time

Focus Question: How does amber help give scientists a glimpse of the past?

First Reading

Read the title and preview the text, noting the question and answer format. Discuss the large picture that shows an insect trapped in amber. Explain that students will learn more about amber when they read the questions and answers. Have students read through the text on their own independently. Then discuss the main ideas the author shares about the usefulness of amber to scientists.

Guided Close Reading

Words and Phrases in Context *What is the meaning of the phrase "time capsule" in the text? Why is this an accurate description of fossilized amber?* ❸❹❾

Key Ideas and Details *Where did the scientists from the American Museum of Natural History go, and what did they find?* ❷

Connect Ideas *What did scientists learn about life long ago from the fossils in amber that they found?* ❺–❼

> **Think Aloud** *They found the oldest bee, ant, and mushrooms in the amber. The amber helped scientists learn about insects and plants that lived as many as 94 million years ago.*

Vocabulary/Photos and Text *Amber is transparent. How does being transparent help make amber such a valuable tool for scientists?* ❽

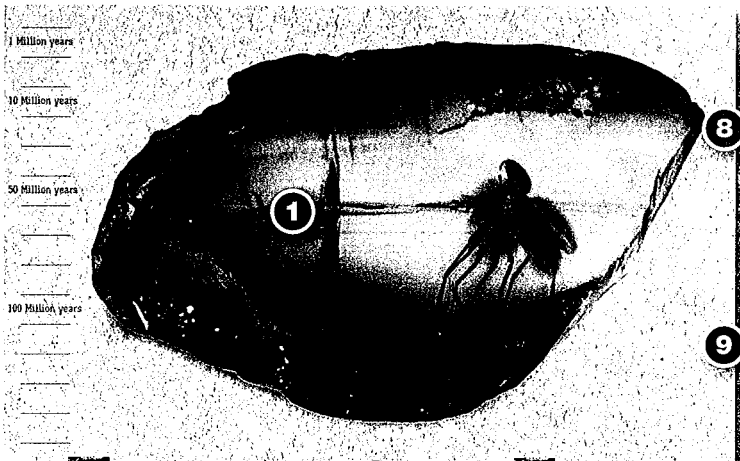
Text Feature *What text feature is used to organize the steps in the process of preserving insects in amber? How can this text feature help you quickly find a specific detail you are looking for? What does the flowchart show?* ❾

> **Think Aloud** *Bullet points show the steps in the process of preserving creatures in fossilized amber. The bullet points help me scan the text very quickly for a particular detail. The flowchart shows the steps more concisely.*

Summarize *How would you summarize the main points in this text? What information would you include in your summary? What information would you exclude?* ❶❸❺❻❾

Photos and Text *How do the photos contribute information that adds to your understanding of the importance of amber when studying the history of living things?* ❶⓬

Make Inferences *What is significant about the discovery of the oak blossom? What do scientists hope to learn from examining it? What kinds of information do you think scientists might expect to gather from further discoveries of fossils in amber?* ❿⓫



TRAPPED IN TIME

Q: **In 1996, a group of scientists from the Museum of Natural History in New York City went on a mission. Where did they go and what did they find?**

A: The scientists went to a site in the state of New Jersey and found rich deposits of amber.

Q: **What is amber?**

A: Amber is a fossilized resin that is yellow in color.

Q: **Scientists have often described amber as a "time capsule." Why do they use that term?**

A: Amber offers scientists a glimpse of creatures that lived long ago.

Q: **What's the oldest fossil found preserved in amber?**

A: In central New Jersey, the oldest bee, the oldest ants, and even the oldest mushroom were found.

Q: **How old was the collection of bugs and plants that the scientists found in the New Jersey amber?**

A: This large collection includes bugs and plants that lived 65 to 94 million years ago, when dinosaurs still roamed Earth.

Q: **Did these scientists make other discoveries?**

A: Yes. About 100 of the insects and plants preserved in amber were unknown to scientists before. Other remains were the oldest of their kind that have ever been found.

Q: **What is the advantage of seeing something preserved in amber?**

A: Since amber is transparent, scientists study details of plants and animals more closely. At this New Jersey site, scientists found a moth trapped inside one piece of clear amber and were able to see all the details of its body. This discovery helped them compare that moth with its modern-day relatives.

Q: **How do insects and other small animals get preserved in amber?**

A: The process takes millions of years. Here's how it happens:

- When a tree's bark is wounded, a sticky sap seeps out. An insect flies into the sticky sap and becomes trapped.
- More sap drips over the insect, covering it completely.
- As the sap is exposed to the oxygen in the air, it hardens.
- Eventually, the tree dies and is covered by layers of earth.
- The tree rots away, leaving the hard bits of sap behind.
- Over millions of years, time and pressure transform the solidified sap into amber, and the insect is perfectly preserved inside.

TREE SAP + INSECT + PRESSURE + TIME → AMBER

Q: **What's so exciting about the oak blossoms they found?**

A: Scientists say these tiny blossoms, about one-half an inch long, are primeval flowers from an oak tree that lived about 90 million years ago. They are some of the first flowers that ever existed. Since that time, flowering plants have become the most abundant plants in the world.

Q: **What do scientists hope to learn from this rare oak blossom discovery?**

A: Scientists hope to find out how flowers have evolved from the age of dinosaurs to today. Scientists are planning another expedition to the New Jersey site to resume searching the area for more amazing discoveries.

A close-up of the 90 million-year-old oak blossom encased in amber.

Revisit the Text: Ideas for Discussion

Share and discuss the following questions to sum up your exploration of the text. You may wish to use the questions as prompts for a Turn and Talk activity before your discussion. Encourage students to support their thinking and ideas with evidence from the text.

- *What is the author's purpose for writing this text? Does the author primarily want to inform, persuade, or entertain readers? What details in the text help you determine the author's purpose?*
- *What characteristics of amber make it ideal for preserving tiny plants and insects? What have scientists been able to learn from fossils preserved in amber?*
- *This text is presented in a question-and-answer format. What other questions would you like to ask about amber?*

Write About Reading

Have students choose either one of the following options for writing, or do both.

- Make a word web with *amber* at the center. Use the web to show the most important facts and details from the text. **(Informative/Explanatory)**
- What is the most important thing amber can teach us about life on Earth in the distant past? Write a paragraph supporting your opinion with evidence from the text. **(Opinion)**

Connect to the Internet

To learn more information about amber, go to www.pbs.org/wgbh/nova/nature/stories-in-the-amber.html and www.pbs.org/wgbh/nova/nature/amber-time-machine.html.

Speech

Level V

Text Type: Speech

Summary: These pages contain an excerpt from a speech by U.S. President Theodore Roosevelt that encouraged the conservation of the nation's natural resources.

Themes/Ideas: understand why conservation is important; recognize the measures Roosevelt suggests to encourage conservation

Informational Text Features: presidential seal, photo

Academic Vocabulary:

- ***duty:*** responsibility or task
- ***utilization:*** the use of something for a specific reason
- ***foresight:*** the ability to predict what will happen in the future
- ***exhaustion:*** the act or process of using up all of something

Domain-Specific Vocabulary:

- ***conservation:*** the act or process of using resources carefully to avoid wasting them
- ***alloys:*** substances made by mixing two metals
- ***lumber:*** wooden logs that have been cut and prepared for use in construction
- ***mines:*** underground areas where people gather natural minerals

Conservation as a National Duty

Focus Question: How does President Theodore Roosevelt explain why it is important to conserve natural resources?

First Reading

Read the title and information in the text box at the top of the page. Review the meanings of *conservation* and *duty.* Note that Theodore Roosevelt served as the 26th President of the United States from 1901 to 1909. Have students read though the text. Then discuss the main ideas about conservation that Roosevelt shared.

Guided Close Reading

Text Feature *Note that the presidential seal appears above the title on this printed version of Roosevelt's speech. What does it mean, and why do you think it is included?* ❶

Author's Purpose *What is the purpose of President Roosevelt's speech? What words or phrases communicate that purpose to his audience?* ❷

> **Think Aloud** *The purpose of President Roosevelt's speech is to explain the importance of conservation. He states this purpose in the first paragraph when he says "so that we may join together to consider the question of the conservation and use of the great fundamental resources of wealth of this Nation."*

Compare and Contrast *What kinds of natural resources are found in the United States? What were they used for in Roosevelt's time? How does he present the two key factors of the nation's industrial success and its use of natural resources? How might the nation suffer if its resources are used up?* ❸–❻

Vocabulary *Roosevelt repeats the word* foresight *several times in this speech. What does this word mean? Why do you think he repeats it so much? What is the effect of this technique?* ❹ ❺

> **Think Aloud** Foresight *means an ability to look into the future to guess what will happen. Roosevelt repeats the word so many times to emphasize that people need to be prepared for what might happen. This repetition is effective in emphasizing the idea that it is important to save resources for future generations.*

Key Ideas and Details *Which two classes of natural resources does Roosevelt identify? How does this classification help you understand the main idea of Roosevelt's speech?* ❻

Words and Phrases in Context *Roosevelt says "exhaustion is sure to come" in time. What does the word* exhaustion *mean in this context? Why is this an important point to make?* ❻

Connect Ideas *Reread the conclusion to Roosevelt's speech. Is it an effective conclusion? How does it relate to the rest of the information given in the speech?* ❼

Theodore Roosevelt, the 26th president of the United States, believed in conservation. Here is an excerpt of Theodore Roosevelt's conservation speech, urging the United States to save our natural resources.

CONSERVATION AS A NATIONAL DUTY

I welcome you to this Conference at the White House. You have come hither at my request, so that we may join together to consider the question of the conservation and use of the great fundamental sources of wealth of this Nation.

[. . .]

Since the days when the Constitution was adopted, steam and electricity have revolutionized the industrial world. Nowhere has the revolution been so great as in our own country. The discovery and utilization of mineral fuels and alloys have given us the lead over all other nations in the production of steel. The discovery and utilization of coal and iron have given us our railways, and have led to such industrial development as has never before been seen. The vast wealth of lumber in our forests, the riches of our soils and mines, the discovery of gold and mineral oils, combined with the efficiency of our transportation, have made the conditions of our life unparalleled in comfort and convenience.

[. . .]

We have become great in a material sense because of the lavish use of our resources, and we have just reason to be proud of our growth. But the time has come to inquire seriously what will happen when our forests are gone, when the coal, the iron, the oil, and the gas are exhausted, when the soils shall have been still further impoverished and washed into the streams, polluting the rivers, denuding the fields, and obstructing navigation. These questions do not relate only to the next century or to the next generation. One distinguishing characteristic of really civilized men is foresight; we have to, as a nation, exercise foresight for this nation in the future; and if we do not exercise that foresight, dark will be the future! We should exercise foresight now, as the ordinarily prudent man exercises foresight in conserving and wisely using the property which contains the assurance of well-being for himself and his children. We want to see a man own his farm rather than rent it, because we want to see it an object to him to transfer it in better order to his children. We want to see him exercise forethought for the next generation. We need to exercise it in some fashion ourselves as a nation for the next generation.

The natural resources I have enumerated can be divided into two sharply distinguished classes accordingly as they are or are not capable of renewal. Mines if used must necessarily be exhausted. The minerals do not and can not renew themselves. Therefore in dealing with the coal, the oil, the gas, the iron, the metals generally, all that we can do is to try to see that they are wisely used. The exhaustion is certain to come in time. We can trust that it will be deferred long enough to enable the extraordinarily inventive genius of our people to devise means and methods for more or less adequately replacing what is lost; but the exhaustion is sure to come.

[. . .]

Finally, let us remember that the conservation of our natural resources, though the gravest problem of today, is yet but part of another and greater problem to which this Nation is not yet awake, but to which it will awake in time, and with which it must hereafter grapple if it is to live—the problem of national efficiency, the patriotic duty of insuring the safety and continuance of the Nation. [Applause.] When the People of the United States consciously undertake to raise themselves as citizens, and the Nation and the States in their several spheres, to the highest pitch of excellence in private, State, and national life, and to do this because it is the first of all the duties of true patriotism, then and not till then the future of this Nation, in quality and in time, will be assured.

NOTE: [. . .] indicates that parts of the speech have been omitted.

Revisit the Text: Ideas for Discussion

Share and discuss the following questions to sum up your exploration of the text. You may wish to use the questions as prompts for a Turn and Talk activity before your discussion. Encourage students to support their thinking and ideas with evidence from the text.

- *What tone, or attitude, does President Roosevelt use in his speech? Which words and phrases help you identify his tone?*
- *What evidence does Roosevelt give to support his claim that natural resources have benefited the nation?*
- *What did you learn about conservation that you didn't know before? How does Roosevelt's speech compare with other campaigns for conservation that you may have seen or read?*

Write About Reading

Have students choose either one of the following options for writing, or do both.

- Do you agree with President Roosevelt that conservation is a patriotic duty? Why or why not? Use details from the speech to write a letter to the editor of a newspaper in support of your position. **(Opinion)**
- Use details from the speech to create a list of problems that may occur if citizens do not follow Roosevelt's advice about conservation. **(Informative/Explanatory)**

Connect to the Internet

To read more about President Roosevelt's efforts to promote conservation, have students visit these websites: www.nps.gov/thro/historyculture/theodore-roosevelt-and-conservation.htm and www.nps.gov/history/logcabin/html/tr5.html.

Level V Lessons at-a-Glance

LEVEL V					
Text Type	**Title**	**Content Area**	**Text Complexity**	**Themes/Ideas**	**Technology Links**
Almanac Excerpt	*Inventors and Inventions*	Science & Technology History	Basic	learn who invented several objects people use every day; understand how an idea can become an invention and how one inventor may build on others' discoveries	• www.nps.gov/edis/forkids/a-brief-biography-of-thomas-edison.htm • http://memory.loc.gov/ammem/edhtml/edbio.html
Essay	*Viking Voyages*	History/ Exploration Geography	Basic	recognize why the Vikings voyaged to North America; understand why the Vikings were unable to keep a settlement in North America	• www.mnh.si.edu/vikings/index.html • www.pc.gc.ca/eng/lhn-nhs/nl/meadows/natcul.aspx
Guidebook Excerpt	*Deepest Lake and Highest Waterfall*	Earth Science Geography	Moderate	learn the history of and basic facts about Crater Lake and Yosemite Falls; understand information for visiting Crater Lake and Yosemite Falls	• www.nps.gov/findapark/index.htm
How-to	*The Acid Effect*	Physical Science	Complex	understand how acid acts on eggshells; explain the relationship between scientific concepts	• http://faraday.physics.uiowa.edu/Movies/MPEG/4d50.70a.mpg • http://van.physics.illinois.edu/qa/listing.php?id=461
Journal Excerpt	*The Journal of Meriwether Lewis*	History/ Exploration Geography	Complex	learn to read a historical journal entry; understand the importance of Lewis and Clark's expedition	• www.pbs.org/lewisandclark/ • www.nps.gov/lecl/index.htm
Letter	*A Letter From Rachel Carson*	History Life Science	Moderate	describe the setting of the scene described by Carson; explain the connection between ideas in the letter	• www.rachelcarson.org/BooksBy.aspx • www.lettersofnote.com/2009/09/dear-all.html
Magazine Article	*Australia's Amazing Animals*	Life Science	Moderate	identify unusual traits of the platypus, thorny devil, and koala; recognize that the health of animals such as these is dependent on the health of their environment	• http://australianmuseum.net.au/Platypus • http://australian-animals.net
Newspaper Article (Historical)	*San Francisco Earthquake*	History Earth Science	Complex	understand the amount of damage caused by the 1906 San Francisco earthquake; explore how different groups responded to the disaster	• www.exploratorium.edu/faultline/great/1906/ • http://earthquake.usgs.gov/regional/nca/1906/18april/index.php
Question and Answer Book Excerpt	*Trapped in Time*	Earth Science	Basic	define *amber* and understand its role in preserving plants and animals; explain the importance of amber in scientific understanding of history	• www.pbs.org/wgbh/nova/nature/stories-in-the-amber.html • www.pbs.org/wgbh/nova/nature/amber-time-machine.html
Speech	*Conservation as a National Duty*	History Earth Science	Complex	understand why conservation is important; recognize the measures Roosevelt suggests to encourage conservation	• www.nps.gov/thro/historyculture/theodore-roosevelt-and-conservation.htm • www.nps.gov/history/logcabin/html/tr5.html