

UNIT 05 OPENER

▶ Preteach: Instructional Terms

Informational texts provide readers with information about factual topics. Such texts can tell readers how things work. They can also teach readers how to do something. **Online informational texts** are located on the World Wide Web. The Internet allows people to access a great deal of information quickly. Online texts may be presented in narrative form, describing someone's life or experiences, or they may provide links to a number of different topics. Because anyone who has the ability to do so can post informational text to the Web, users must pay attention to the reliability of the information found there. For reliable data, users should go to reputable sites with domain names that end with *.gov*, *.net*, or *.org*. **Ask: Why might a Web site sponsored by the government or an organization be more reliable than one sponsored by an individual?**

One helpful device in informational texts is the explanation of **causes** and **effects**. Causes explain why things happen. Effects explain what actually happens. Clue words such as *reason*, *result*, *because*, and *therefore* often signal a cause-and-effect relationship. **Say: Identify the cause and the effect in the following scenario: A child hits a lamp as he runs by a table. The lamp falls to the floor.**

Explain to students that one strategy for improving comprehension when reading informational texts is **paraphrasing**. When readers encounter difficult text, they can restate the text in their own words, using synonyms, to do so. Students are apt to be familiar with summaries of nonfiction, which include the main ideas. Paraphrases are restatements of an author's ideas. Therefore, although a summary is generally shorter than the original text, paraphrases are often the same length or longer than the original. **Ask: How would you paraphrase the following statement: Some artists use mathematics to create symmetry in large-scale projects?**

As students read, they may encounter unfamiliar vocabulary. Readers use **context clues** to figure out the meanings of words they do not know. Context clues are placed before or after the unknown word. Synonyms and antonyms are sometimes used as context clues. **Synonyms** are two or more words that have similar meanings. **Antonyms** are two or more words that have opposite meanings. Such signal words as *or* or *in other words* alert readers to the fact that the author is providing a synonym or antonym to clarify an unfamiliar term. Offer this example: **The story you will read talks about tessellations, or block patterns. The clue word "or" signals that "block patterns" is a synonym for the word tessellations.**

▶ Scope and Sequence at a Glance

Genre: Informational Text (Internet Printout)

Title: It Figures!

Cross-Curricular Connection: Math

Comprehension Strategy: Paraphrase

Comprehension Skill: Identify Cause and Effect

Vocabulary Strategy: Context Clues (Synonyms and Antonyms)

Decoding Support: V/CV Pattern for Syllabication, Open; VC/V Pattern, Closed

▶ Summary of Reading Passage

It Figures!

A student posts a description of a school art project to the Web. The student explains how he or she uses math to design a Chinese tangram for a school mural in honor of a retiring teacher, Mr. Lu.

Lexile: 730

Word Count: 513



UNIT 05 OPENER (CONT.)

 **Learner Vocabulary**

Introduce the lesson's vocabulary words by reading the following sentences aloud. After you read each sentence, repeat the vocabulary word and read its definition.

- amount** Noun. (1) Quantity or how much of something there is. Verb. (2) Add up to. (3) Be more or less the same as.
- (1) Sara was surprised by the **amount** of snow that had fallen overnight.
 - (2) By the end of the day, the total from the bake sale may **amount** to more than \$150.
 - (3) Taking care of a puppy **amounts** to a full-time job.
- design** Noun. (1) Pattern or style. Verb. (2) Plan or draw something that will be built or created.
- (1) We painted an interesting black and white **design** on the wall.
 - (2) My mother **designed** my sister's wedding dress.
- hobby** Noun. Activity enjoyed during spare time. Some people collect coins or stamps as a **hobby**.
- knowledge** Noun. (1) Information someone knows. (2) Clear idea about something; awareness.
- (1) Kyra's **knowledge** of music helped her in the contest.
 - (2) The **knowledge** that he could make the team made Brett practice even harder.
- measure** Verb. (1) Find out the size, weight, or amount of something. Noun. (2) Unit of size, weight, or amount.
- (1) **Measure** the length of your arm with a ruler.
 - (2) Grams, liters, and meters are **measures** used in the metric system.
- pattern** Noun. (1) Design or arrangement that repeats itself. (2) Model that can be copied. Verb. (3) Follow as a model.
- (1) Mike's shirt has a **pattern** of blue and white stripes.
 - (2) Use this **pattern** to cut out stars for the decorations.
 - (3) I try to **pattern** myself after my kind great-grandmother.
- square** Noun. (1) Shape with four equal sides. Verb. (2) Multiply a number by itself.
- (1) Each piece of material on the quilt was a perfect **square**.
 - (2) If you **square** the number two, you will get four.
- tile** Noun. (1) Stone or plastic square used to cover floors and walls, or in artwork. Verb. (2) Lay tiles.
- (1) We are using gold and silver **tiles** for our mosaic.
 - (2) Jack **tiles** kitchens and bathrooms to make extra money.

 **Book Lists**
Books of the Same Genre

Students who enjoy this genre might choose from these selections for further reading.

***The Computer from A to Z* by Bobbie Kalman. 1999. Crabtree Publishing.** (Below-level students.) This book presents computer terms in alphabetical order. *Lexile: 670*

***Staying Safe at Home and On-line* by Cynthia MacGregor. 1999. Rosen Publishing.** (On-level students.) This book offers practical safety advice for the home environment. *Lexile: 680*

***A Career as a Computer Technician* by Bill Lund. 1998. Capstone Press.** (Above-level students.) This book offers job descriptions and explores career opportunities. *Lexile: 690*

Books with Related Themes

Students who are fascinated by mathematics may find these books intriguing.

***Discovering Patterns* by Andrew King. 1998. Copper Beach Books.** (Below-level students.) This book provides step-by-step instructions for math-based projects. *Lexile: 620*

***Exploring Shapes* by Andrew King. 1998. Copper Beach Books.** (On-level students.) This book provides step-by-step instructions for geometry-based projects. *Lexile: 650*

***Alice in Pastaland: A Math Adventure* by Alexandra Wright. 1997. Charlesbridge Publishing.** (Above-level students.) Alice uses math to help the white rabbit solve a problem in Pastaland. *Lexile: 690*



LESSON 1 PLANNER

Genre Study

Assess students' prior knowledge of **online informational texts** by asking them to describe when and how they use computers. Students may have consulted online informational texts to glean information for school reports or to plan trips. **Ask: How does the information you read online differ from the information you might find in a book?** Students may note that online texts contain multiple graphics and links to corresponding information.

Introduce the following characteristics of online informational texts:

- They provide information on factual topics.
- They sometimes present information in narrative form, describing someone's life or experiences.
- They provide facts on a number of different topics.
- They explain how things work.
- They tell how to do things.

Remind students that readers must be careful to verify the reliability of online texts by checking the source of the information. Web sites sponsored by the government or by an educational facility tend to be more reliable than *.com* sites.

Build Background

The subject of the courseware is art projects that are based on mathematical concepts. Assess students' prior knowledge of this subject. **Say: Describe a project that you have done that required you to measure something.** Students may have helped bake a cake or may have built a model from paper or wooden sticks. Point out that when students measured ingredients or materials, they were using math to help them complete these projects. **Say: Name some other ways in which you use math in everyday life.** Students may suggest dividing treats among friends or measuring laundry soap to wash clothes.

In a slide show in the courseware, students will view Web sites about the history of mosaics that include animated text and images. Students will gain information about online informational texts.

Tell students that when they perform any given task, they are likely to call on information from a number of different fields, including science and math. **Say: Today, keep a log of every time you use math.**

Learning Objectives

- Recognize distinguishing features of online informational texts.
- Recognize the author's purpose in writing online informational texts.
- Learn the meanings of grade-level and content vocabulary words in context.
- Use knowledge of context clues to determine the meaning of synonyms and antonyms.
- Write sentences demonstrating knowledge of synonyms and antonyms as context clues or grade-level vocabulary.

QuickFact: Geometry

Geometry deals with the mathematics of shapes and sizes. The purpose of geometry is to describe and explain space. Geometry helps people determine how much stain they will need to cover a wooden bench or how much water they will need to fill a swimming pool. Ancient Greeks and Egyptians used geometry to determine the size of land plots and to build straight structures.



LESSON 1 PLANNER (CONT.)

Lesson 1: Genre and Vocabulary Study

▶ Vocabulary Strategy: Context Clues: Synonyms and Antonyms

Review with students how to use **context clues** to determine the meaning of unfamiliar words. Remind students that authors use clue words such as *or* or *in other words* to signal that they are providing a **synonym** or an **antonym** to clarify the meaning of a challenging vocabulary word. Use the following sentences to model this strategy for students:

I made a tessellation, or block pattern, to honor Mr. Lu at his retirement from teaching. Mr. Lu felt gratitude. In other words, he understood and was glad that students had appreciated his efforts.

▶ Differentiated Instruction

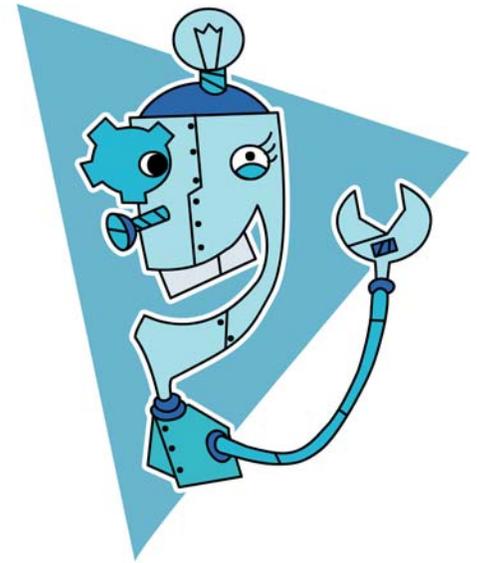
ELL: Review synonyms and antonyms with students. Encourage students to make three-column charts for the following words: *regular, handy, shapes, sketch, different, breaking*. Students should write the words in the first column, synonyms in the second column, and their antonyms in the third column.

Special Needs: Have students make synonym and antonym word webs for the following words: *irregular, useful, figures, draw, similar, smashing*. Have students place each word in the center of a web. In the radiating circles on the left, have students write synonyms. In the radiating circles on the right, have students write antonyms.

Above-level Students: Have students write synonyms and antonyms for the words *regular, handy, shapes, sketch, different, breaking, irregular, useful, figures, draw, similar, and smashing* on note cards, placing one word on each note card. Write the original word list on the board. Then, have student teams play a word game in which they choose a card and read the word aloud, identify the word on the board to which the word on the card is related, and state whether the word is a synonym or an antonym.

▶ Quick Connect Activities

- Have students use synonyms and antonyms as context clues for difficult words as they write about something they have done that required the application of math concepts.
- Have students write the answer to this question: Is decoding unfamiliar words a mystery to you, or have you learned to decode unfamiliar words by using context clues such as synonyms and antonyms? Have them explain. (*Metacognition*)



▶ Lesson Resources: Assessment Toolkit

Check the **Practice** and **Apply** activities in this lesson for results you can assess.

Before students take the lesson tests provided in the courseware, check their confidence in the skills:

- Have students use a Venn diagram to compare and contrast print informational texts with online informational texts.
- Have small student groups write five to ten practical uses for math.
- Have each student write five sentences about a real or imagined art project. Tell students to include synonym and antonym context clues for difficult words in each sentence.

LESSON 2 PLANNER

Comprehension Skill: Cause and Effect

Remind students that most actions and events can be traced to a particular reason or reasons. The reason behind an action or an event is a **cause**. What actually happens is called the **effect**. Writers often use signal words to indicate cause-and-effect relationships.

- reasons for/reasons that
- if . . . then
- as a result
- because of
- therefore

Tell students to mark these clue words as they read.

Comprehension Strategy: Paraphrasing

Explain to students that **paraphrasing** can be helpful when a reader does not quite understand an author's message. Using synonyms to restate text in the reader's own words can clarify material and aid comprehension. When reading a difficult text, readers should stop periodically to paraphrase what they have read. Unlike summaries, paraphrases include all the author's ideas and are usually the same length or longer than the original passage.

Differentiated Instruction

ELL: When paraphrasing English text, students may wish to consult bilingual dictionaries and thesauruses to find synonyms. They may also wish to paraphrase in their primary languages before doing so in English.

Special Needs: Have students complete cause-and-effect graphic organizers to record causes and effects as they read "It Figures!."

Above-level Students: Tell students that any given event may have multiple causes and multiple effects. Also suggest that an effect in one scenario may serve as the cause of another. Have students design graphic organizers to show how these more complex cause-and-effect situations may be illustrated.

Learning Objectives

- Recognize causes and effects in informational texts.
- Identify causes and effects in informational texts.
- Recognize paraphrasing as a strategy to improve reading comprehension.
- Identify the best paraphrase for a paragraph of an informational text.

Assessment: Toolkit

Check the **Practice** activities in this lesson for results you can assess.

Before students take the lesson tests provided in the courseware, check their confidence in the skills:

- Provide each student with a cause-and-effect graphic organizer with multiple boxes. Have students record the events of the day in terms of causes and effects.
- Have small student groups write five cause-and-effect scenarios.
- Provide students with a challenging passage. Have each student paraphrase the passage.

LESSON 3 PLANNER

Story Summary

The author welcomes readers to his or her Web site and expresses excitement over this posting. The author shares the information that his or her hobby is making interesting and colorful mosaics. A teacher introduced the author to this hobby.

The principal invites the author to make a large mosaic for a school wall to honor a retiring math teacher, Mr. Lu.

Mr. Lu's favorite design is a Chinese tangram, so the author decides on this design for the mural. The tangram is a puzzle in which seven pieces are used to form a square.

The author describes how he or she sketches the mural on the wall, working within an eight-foot square. The author sketches five triangles of differing sizes inside the square and finishes the tangram with a square and a parallelogram.

The author decides to use red, green, blue, and purple tiles to fill in the tangram and calculates the number of boxes of each color he or she will need to fill the shapes.

The author breaks the tiles and then uses special glue to fit the broken pieces into the mosaic. When the glue dries, the author fills the spaces between the tiles with grout.

Destination Journal

Ask students to write journal entries on this topic: **Using a pencil and a ruler, sketch a Chinese tangram in your journal. Remember that you must use seven shapes to make a square. When you have finished sketching, write about the process. What was difficult or challenging about solving this puzzle? How did you solve these problems? How did math help you solve the puzzle? State whether you enjoyed the process and explain your reasoning.**

Learning Objectives

- Read an online informational text to build vocabulary, fluency, and comprehension.
- Paraphrase while reading to improve comprehension.
- Identify causes and effects while reading.
- Use context clues to determine the meaning of antonyms and synonyms while reading.
- Demonstrate comprehension of an online informational text.

Assessment: Toolkit

Use the **Comprehension Quiz** to assess students' understanding of the passage.

Before students take the lesson tests provided in the courseware, check their confidence in the skills:

- After students read the primary passage, have them chart the causes and effects.
- After students read the primary passage, have them paraphrase one paragraph.
- After students read the primary passage, have them write brief summaries. Remind them to include causes and effects.



LESSON 4 PLANNER

 **Comprehension Skill: Cause and Effect**

Review with students the elements of **online informational texts** and **causes and effects**. Explain that causes and effects may be clearly stated in a text, or the relationship between causes and effects may be indirect. When the relationships are indirect, readers must work to identify them. Provide the following examples to illustrate this point:

Mr. Lu announces his retirement. Therefore, the principal asks a student to design a mosaic in honor of Mr. Lu.

My teacher helped me make my first mosaic. My teacher showed me a picture of a mosaic in class. My hobby is making interesting and colorful artwork with mosaic tile.

 **Comprehension Strategy: Paraphrasing**

Review **paraphrasing** with students. Remind students that they can clarify difficult passages by restating the author's ideas in their own words. Write the following passage on the board, and invite volunteers to paraphrase each sentence:

The principal asked me to design a large mosaic for the school. I planned a Chinese tangram. I created an irregular pattern for the tangram.

 **Differentiated Instruction**

ELL: Provide students with graphic organizers to chart causes and effects in the primary passage. Help students identify words that signal cause-and-effect relationships.

Special Needs: Distribute geometric puzzles to help students understand the Chinese tangram that the author of the primary passage describes. Then, have students paraphrase the way to design a tangram.

Above-level Students: Challenge students to consult online encyclopedias to learn more about Chinese tangrams and other geometric puzzles. Have students paraphrase the results of their research. Have them share their findings with the class.

 **Learning Objectives**

- Analyze causes and effects in a text.
- Select the best paraphrase for a paragraph from an informational text.
- Write a paraphrase of an informational text.

 **Assessment: Toolkit**

Check the **Practice** and **Apply** activities in this lesson for results you can assess.

Before students take the lesson tests provided in the courseware, check their confidence in the skills:

- Have student pairs use signal words to write scenarios with cause-and-effect relationships. Then, have students rewrite the scenario with indirect cause-and-effect relationships.
- Provide students with a challenging passage. As a class, have students paraphrase the passage.
- Have students write the purpose, uses, and characteristics of paraphrases.

UNIT 05: It Figures!

Name: _____ Date: _____

 **Comprehension Strategy: Using a Cause-and-Effect Chart**

Directions: You have learned how to use a **Cause-and-Effect Chart** to help you understand informational text. As you read, use the **Cause-and-Effect Chart** below to record causes and effects in the text. Write a cause in the first box and an effect or effects in the remaining box or boxes.

Passage Title:

