

**Shift 3: Text Complexity
(Staircase of Complexity)**

Students are placed at just the right level of instruction to ensure that they are motivated to grow and advance on the staircase of complexity as defined by the college and career readiness standards.

Informational

Interpret Information

Hurricanes**Nature Unleashed:
The Power of
Natural Disasters****Research****Shift 2: Knowledge in
the Disciplines**

College and career readiness standards require that students acquire knowledge in the disciplines by reading domain-specific texts. SFA offers a wide range of texts to fit this criterion, including texts grounded in history, social studies and scientific topics.

Anchor Standards for Reading
*Range of Reading and Level of
Text Complexity*

Read and comprehend complex literary and informational texts independently and proficiently.

**Literacy in Science and
Technical Subjects**
*Range of Reading and Level of
Text Complexity*
Grades 6–8

By the end of grade 8, read and comprehend science/ technical texts in the grades 6–8 text complexity band independently and proficiently.



Informational

Interpret Information

Hurricanes

Nature Unleashed: The Power of Natural Disasters

Research

This project was developed at the Success for All Foundation under the direction of Robert E. Slavin and Nancy A. Madden to utilize the power of cooperative learning, frequent assessment and feedback, and schoolwide collaboration proven in decades of research to increase student learning.

The Reading Edge 3rd Edition Teacher Edition

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Interpret Information

Hurricanes

Nature Unleashed: The Power of Natural Disasters

The rubrics used in the Reading Edge 3rd Edition support a variety of anchor standards for reading, writing, speaking and listening, and language. Regular, effective rubric use encourages growth of the literacy behaviors called for by the college and career readiness standards.

The Lightning Round

- Random Reporters share team responses; team reps from other teams may agree, disagree, or add on to these responses.
- Use the following rubrics to evaluate responses and give specific feedback.
- Award points to the teams with 100-pt. responses; add the points to the Team Celebration Points poster.
- Celebrate team successes.

Strategy Use

The Random Reporter:

100	gives a 90-pt. response and explains how using the strategy helped in better understanding the text.
90	gives an 80-pt. response and describes a problem and a strategy that was used to solve the problem.
80	identifies a problem that a team member had understanding the text.

Word Power

The Random Reporter:

100	gives a 90-pt. response and expands on the meaning, for example, identifies • related words • a second meaning • a word connotation • an antonym
90	gives an 80-pt. response and explains the meaning in a definition and a meaningful sentence.
80	tells a word or phrase added to the word power journal and why it was added (what makes it important or interesting).

Summary

The Random Reporter:

100	gives a 90-pt. response and uses key vocabulary correctly.
90	gives an 80-pt. response and clearly connects relevant ideas in a logical order.
80	presents main ideas and important details in his or her own words and without personal opinion.

Team Talk (oral and written)

The Random Reporter:

100	gives a 90-pt. response and connects the answer to the supporting evidence and uses academic language.
90	gives an 80-pt. response and includes supporting evidence and examples (from the text or from experience).
80	uses full sentences to clearly and correctly answer the question.

Fluency

The Random Reporter:

100	gives a 90-pt. response and reads smoothly and with expression (shows emotion and changes with punctuation and dialogue).
90	gives an 80-pt. response and reads at just the right pace to understand the text—not too slow and not too fast.
80	reads a short passage and pronounces most of the words correctly.

Graphic Organizer/Notes

The Random Reporter:

100	gives a 90-pt. response and explains how the graphic organizer helped in understanding the text.
90	gives an 80-pt. response and includes main points or events and important details.
80	selects a graphic organizer that is appropriate for the text.


**Anchor Standards for Reading
Integration of Knowledge
and Ideas**

Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.

**Anchor Standards for Reading
Integration of Knowledge
and Ideas**

Analyze how two or more texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.

Unit Objectives

Reading: Use both text and visual information to draw conclusions.

Writing: Provide supporting facts, examples, or events.

Unit Overview

In this unit, students will focus on using textual and visual information to draw conclusions. As students read the informational texts, *Hurricanes* in cycle 1 and *Nature Unleashed: The Power of Natural Disasters* in cycle 2, they will encounter a number of diagrams, charts, graphs, maps, and other formats used for presenting detailed information. Students will be required to integrate information obtained from the text and these visual formats to draw conclusions and answer questions related to the various natural disasters that they will read about in the text.

The ability to draw conclusions is a critical reading skill because students are increasingly faced with the need to understand the relationship between textual and visual information in today's print and media environments. The writing projects for this unit ask students to provide supporting facts, examples, or events from the text or other sources. Opportunities to prepare students for this writing goal will occur throughout the unit during direct instruction and cooperative work, such as during Team Talk activities.

Unit Topic/Content

This book provides a detailed description of hurricanes and the impact that they have on communities. The text also follows the efforts of hurricane hunters, meteorologists, rescue workers, and others as they work to track, study, and help people prepare for and recover from these massive storms. The reading for the second cycle discusses natural disasters caused by geological factors, such as earthquakes and volcanoes, and weather-related natural disasters, such as tornados, drought, and floods.

Text and Media Selections

Internet/Media Options

To expand your students' background knowledge, consider using Internet/media options with lessons. Always preview sites for availability and suitability. Please make sure you have the correct plug-ins.

At a Glance

Hurricanes

For a complete list of fun and informative background videos and other media, go to SFA Online Resources.

Nature Unleashed: The Power of Natural Disasters

Cycle 1		
Lesson	Text	Media
Lesson 1	pages 4–9	(Embedded) background video: “Hurricane Researcher: Jason Dunion” Dragonfly TV (2:29) (Embedded) “Fluency”
Lesson 2	pages 9–14	(Embedded) background video: “Science Nation: Dropsondes”
Lesson 3	pages 15–21	(Embedded) background video: “Hurricane Huntress: Robbie Hood” Dragonfly TV
Lesson 4	pages 22–27	
Lesson 5	writing in response to reading	
Lesson 6	pages 28–30	
Lesson 7	self-selected reading	
Lesson 8	Getting Along Together	

Cycle 2		
Lesson	Text	Media
Lesson 1	pages 1–7	
Lesson 2	pages 8–15	(Optional) background video: “Earthquake Prediction” PBS Learning Media (2:56) https://mpt.pbslearningmedia.org/resource/ess05.sci.ess.earthsys.japan/earthquake-prediction/
Lesson 3	pages 16–22	(Embedded) background video: “Tracking Tsunamis” (Embedded) “Team Talk Response” (Optional) background video: “Alaska Tsunami” PBS Learning Media (3:17) https://mpt.pbslearningmedia.org/resource/ean08.sci.ess.watcyc.oceanfury/alaska-tsunami/
Lesson 4	pages 23–29	(Embedded) background video: “Meteorologist: Howie Bluestein” Dragonfly TV
Lesson 5	writing in response to reading	Anchor Standards for Writing Range of Writing Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.
Lesson 6	pages 30–36	
Lesson 7	self-selected reading	
Lesson 8	Getting Along Together	

Cycle 2:

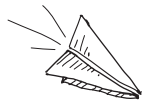
Interpret
Information

Lesson 1

Reading Objective: Use both text and visual information to draw conclusions.

Teacher Background

Today you and your students will begin reading *Nature Unleashed: The Power of Natural Disasters*. This informational text makes use of a variety of graphs and tables as it describes geological and weather-related natural disasters, such as volcanoes, earthquakes, and tropical cyclones. The Big Question this cycle asks students which type of natural disaster poses the biggest threat to the area in which they live and what steps should be taken before, during, and after this type of disaster. Answering this question will foster a personal link between students and the topic of the text that they are reading. It will also require students to tap into their background knowledge about natural disasters and the way communities deal with them.

**Active Instruction**

(22 minutes)

Big Question

Post and present this cycle's Big Question. Have students write a response to the question as they arrive for class.

Students write responses to the Big Question.

The Big Question: What kind of natural disaster do you think poses the biggest threat to the area where you live? If this natural disaster was expected to hit your area, what would be the most important steps that people would need to take to stay safe before, during, and after the disaster?

Discuss the Big Question.

**Set the Stage**

1. Refer students to today's Big Question. Use **Think-Pair-Share** to ask:

What kind of natural disaster do you think poses the biggest threat to the area where you live? If this natural disaster was expected to hit your area, what would be the most important steps that people would need to take to stay safe before, during, and after the disaster?

I live near a national forest, and wildfires are the biggest threat that we face. We can't start any open fires during dry periods. We have cleared out any trees growing close to our house to lessen the chances of a fire reaching our house. If there is a wildfire nearby, we have to pay close attention to the local news so we know when to leave if the fire moves in our direction. It's important not to return to the area until we're sure the firefighters have the fire under control.

Interpret Information

Teams review their cycle goal.

Post and present the reading objective.

Begin the TIGRRS process; review the steps as needed.

Students use text features to help predict topic and intent of the author.

Students identify a graphic organizer that they will use to make notes.

Anchor Standards for Reading Craft and Structure

Analyze the structure of texts, including how specific sentences, paragraphs, and larger portions of the text (e.g., a section, chapter, scene, or stanza) relate to each other and the whole.

Literacy in Science and Technical Subjects Craft and Structure Grades 6–8

Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.

2. Ask students to review their cycle goal. Remind students how to earn team celebration points. Remind them that team celebration points help them to become super teams. Tell them that they can earn team celebration points during the Lightning Round.
3. Introduce the text, author, and reading objective.
4. Distribute copies of *Nature Unleashed: The Power of Natural Disasters*. Have students preview the text. Use **Think-Pair-Share** to ask:

Is this literature or informational text? How do you know?

This text is informational. The table of contents, chapter titles, and headings are evidence that the text is informational.

5. Use **Think-Pair-Share** to have students predict the topic and identify clues. Randomly select a few students to share.
6. Prompt students to identify the next step of TIGRRS. Use **Think-Pair-Share** to have them predict the author's intent. Randomly select a few students to share.
7. Point out that the next step in the TIGRRS process is to choose a graphic organizer for making notes. Choices include, but are not limited to:
 - Venn diagram
 - timeline/sequence chain
 - T-chart
 - web
 - outline

Use **Think-Pair-Share** to ask:

Which graphic organizer(s) will work best with this text? Why?

Accept reasonable responses. For example, I think the best graphic organizer would be an outline because the chapter titles and headings indicate that we will read about different types of disasters and learn facts about each type. I think an outline would work best to record main ideas and details for each type of disaster.

T: Natural disasters

I: To provide detailed information about natural disasters

G: Outline

What else can you tell me that you already know about volcanoes and other natural disasters?

Answers will vary.

Teacher: Read aloud.

Students: Practice the skill or strategy.



Partner pairs: Read aloud/think aloud with the next passage to practice the skill/strategy.



Partner pairs: Review, reread to clarify, and add to the graphic organizer.

Literacy in Science and Technical Subjects
Key Ideas and Details
Grades 6–8

Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.

Interactive Read Aloud

1. Refer to the reading objective, and review the skill if necessary.
2. Read page 1 aloud. Use **Think-Pair-Share** to prompt use of the skill or strategy.

Based on the text, what conclusions can you draw about even the most beautiful or scenic places on Earth?

(Answers will vary.) Even when a place is beautiful, it can hide many dangers. For example, beaches on the ocean can experience tsunami waves, or rivers can flood, covering the landscape with water.

3. Partner Practice: Student partner pairs use the read-aloud/think-aloud process to practice the skill or strategy with the next passage in the text.

Have students read page 2. Use Think-Pair-Share to ask:

Based on the text, what conclusions can you draw about your own chances of experiencing a natural disaster?

(Answers will vary.) Experiencing a natural disaster depends on where you live. This affects what kinds of disaster may happen in your area. We do not live near the ocean, so we probably will not experience a hurricane, but we do live near a river. It is possible the river floods and affects our city.

Use **Random Reporter** to debrief.

4. Ask partners to review this section of text, check their understanding with each other, reread what they need to clarify, and add notes to their graphic organizers.

Use **Random Reporter** to debrief. Add student responses to the graphic organizer.

What main ideas and details did you add to your outline?

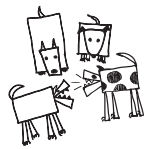
One main idea is that there are different types of natural disasters that the text will cover: volcanoes, earthquakes, tsunamis, tropical cyclones, floods, and tornadoes. Another main idea is that the types of natural disasters we experience are based on where we live.

A sample graphic organizer follows.

Sample Graphic Organizer

Natural Disasters

- I. Types of natural disasters
 - A. volcanoes
 - B. earthquakes
 - C. tsunami
 - D. tropical cyclones
 - E. floods
 - F. tornadoes
- II. Natural disasters based on location

**Teamwork** tp

(20 minutes)

Cue students to use their student routines for partner reading, word power, fluency, and the TIGRRS process.

Partner Prep

1. Explain, or review if necessary, the student routines for partner reading, word power, fluency, and the TIGRRS process before having students read and restate: sr
pages 3–7 aloud with partners.
2. Circulate and check for comprehension, evidence of strategy use, and use of the TIGRRS process, for example, restating ideas on the graphic organizer. Give students feedback. Prompt and reinforce their discussions.
3. If some partners finish ahead of their teammates, have them begin looking over the Team Talk questions.

Team Discussion

1. Explain, or review if necessary, how to use role cards and the student routines for strategy use and Team Talk discussion. sr
2. Remind students to use the rubrics on their team folders to prepare each team member to discuss the team's strategy use, oral and written Team Talk responses, word power, and fluency. Each team member must be able to summarize the text and discuss the team's graphic organizer/notes during Class Discussion as indicated.
3. Preview the Team Talk questions. If necessary, ask questions to guide students' reflection as they determine the meaning of the "(Write)" question.

Cue students to use their student routines for strategy use and Team Talk discussion.

Team Talk Questions

1. How does the photograph on page 3 support the text above it on that page? **[DC, SA]** (Team Talk rubric)

100 = *The photograph on page 3 supports the text by showing some of the destruction left by a natural disaster. In the photograph, there is possibly a destroyed home, an overturned car, debris on the ground, damaged trees, and power lines and poles. The text states that a major cost of natural disasters is the repair and cleanup of damage. The neighborhood in the photograph looks like it will need a lot of repair. The power lines are a part of the **infrastructure** and could need repair, making it difficult to live in the neighborhood for a period of time. The family that lives in the destroyed house will have to **relocate**. Natural disasters change how your neighborhood or town looks or works.*

90 = *The photograph on page 3 supports the text by showing some of the destruction left by a natural disaster. There is possibly a destroyed home, an overturned car, debris on the ground, damaged trees, and power lines and poles. A major cost of natural disasters is the repair and cleanup of damage. The family that lives in the destroyed house will have to move.*

80 = *The photograph on page 3 supports the text by showing some of the destruction left by a natural disaster.*

2. Where are volcanoes most likely to affect people? Support your answer with evidence from the text. **[DC, SA]** (Team Talk rubric)

100 = *Volcanoes are most likely to affect people who live near plate boundaries. Volcanoes can only form in certain places around the world. According to the text on page 4, they form at **convergent** and **divergent** plate boundaries. A Volcano Fact on page 5 also explains that volcanoes can form at hot spots in the crust. The **diagram** on page 4 shows how these boundaries and hot spots form volcanoes. They look like they mainly form on islands or the edges of continents. You need to live near a volcano to be affected directly by eruptions.*

90 = *Volcanoes are most likely to affect people who live near plate boundaries. Volcanoes can only form in certain places around the world, which includes plate boundaries and hot spots in the crust. They mainly form on islands or the edges of continents.*

80 = *Volcanoes are most likely to affect people who live near plate boundaries.*

continued

The use of color-coding and boldface text helps identify crucial components of student responses: the correct answer, the presence of supporting evidence and examples, a concluding statement that connects the answer to the evidence, and academic language.

Literacy in Science and Technical Subjects
Key Ideas and Details
Grades 6–8

Cite specific textual evidence to support analysis of science and technical texts.

Literacy in Science and Technical Subjects**Integration of Knowledge and Ideas****Grades 6–8**

Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).

Anchor Standards for Reading
Key Ideas and Details

Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.

Anchor Standards for Speaking and Listening
Comprehension and Collaboration

Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.

Team Talk Questions *continued*

3. What does the chart on page 6 tell you about the eruptions that Mount St. Helens has experienced? **(Write) [DC]** (Team Talk rubric)

100 = *The chart on page 6 tells me that Mount St. Helens has experienced different sized eruptions. According to the chart, there are three examples of Mount St. Helens erupting. In 2004 it had a small or VEI 1 eruption; in 1980 it had a VEI 3 eruption; and in 1980 it also had the large VEI 5 eruption. I can see that the volcano erupted twice in 1980. It had a big eruption in May, and then a smaller one in June. Volcanoes will not always have big eruptions, and that may be connected to how recently it erupted.*

90 = *The chart on page 6 tells me that Mount St. Helens has had different sized eruptions. There are three examples of Mount St. Helens erupting. In 2004 it had a VEI 1 eruption. In 1980 it had a VEI 3 eruption and a VEI 5 eruption. It had a big eruption in May, and then a smaller one in June that year.*

80 = *The chart on page 6 tells me that Mount St. Helens has had different sized eruptions.*

4. Scientists observe volcanoes to try and predict when they could erupt. What is something they may not be able to predict about a volcanic eruption, even if they figure out when it will happen? **[DC, SA]** (Team Talk rubric)

100 = *Scientists may not be able to predict how large the eruption will be even if they figure out when it will erupt. The text states that scientists can observe earthquakes and ground temperatures around volcanoes. However, I know from the chart on page 6 that the same volcano can have different sized eruptions. Mount St. Helens has had eruptions of VEI 1, 3, and 5 within 25 years of each other. Scientists cannot observe exactly what is happening inside the volcano to predict how large the eruption might be.*

90 = *Scientists may not be able to guess how large the eruption will be even if they figure out when it will erupt. Scientists can check for earthquakes and rising ground temperatures around volcanoes. The same volcano can have different sized eruptions. Mount St. Helens has had eruptions of VEI 1, 3, and 5 within 25 years of each other.*

80 = *Scientists may not be able to guess how large the eruption will be even if they figure out when it will erupt.*

4. Have students thoroughly discuss Team Talk questions before they write individual answers to the skill question marked "(Write)." Allow students to revise their written answers after further discussion if necessary.
5. Prompt teams to discuss comprehension problems and strategy use (their sticky notes), important ideas that they added to their graphic organizers, and words that a team member added to the word power journal.
6. Circulate and give feedback to teams and students. Use rubrics to give specific feedback. Ask questions to encourage further discussion. Record individual scores on the teacher cycle record form.

Randomly select team representatives who will share:

- strategy use
- oral and written Team Talk responses
- word power discussions
- fluency selection



Celebrate team successes!

The top team chooses a cheer.

Remind students of the Read and Respond homework assignment.



Class Discussion

(18 minutes)

Lightning Round

1. Use **Random Reporter** to have teams share strategy use, oral and written Team Talk responses, word power discussions, and fluency. Ask other teams to agree, disagree, or add on to responses.
2. Use rubrics to evaluate responses and give specific feedback. Award team celebration points for 100-point responses. Record individual scores on the teacher cycle record form.

Celebrate

1. Tally the team scores on the poster, and celebrate teams that are accumulating points. Have teams reflect on the following questions:

How many points did your team earn today?

How can your team earn more points?

Remind students that top-scoring teams will earn bonus points that will be added to their cycle scores.

- Something to cheer about: Choose a behavior or learning outcome that you would like to reinforce, and reward that behavior by asking students to lead a cheer of their choice.

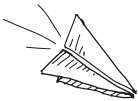
2. As a reminder, refer students to the Read and Respond homework assignment described in their student editions.

Lesson 2

Reading Objective: Use both text and visual information to draw conclusions.

Teacher Background

Today’s reading discusses volcanoes and earthquakes, and the damage caused by these natural disasters. Text features, such as graphs and tables, provide detailed information about how scientists measure and classify different types of disasters. Show the video about earthquake prediction to build background about this destructive geological natural disaster.



Active Instruction

(25 minutes)

Partner Vocabulary Study

- 1. Display the vocabulary words. Have students use the vocabulary study routine as they copy the words in their word power journals and rate their knowledge of each as they arrive for class.
- 2. Spot check the Read and Respond homework.

Vocabulary

- 1. Have teams discuss their ratings of the words. Ask teams to make a tent with their hands when they are ready to tell a word the entire team rated with a “+” and a word the entire team rated with a “?”.
- 2. Use **Random Reporter** to have the teams share one word that they know and one word that they need to study further. Award team celebration points.
- 3. Introduce the vocabulary for this cycle. Read each word aloud, and model chunking as needed. Then read the meaning of each word.

Word	Pronunciation	Definition	Sample Sentence
geological (adjective) page 2	ge-o-log-i-cal (jee-uh-LOJ-ik-uhl)	related to physical structure of an area	The Grand Canyon is one of the most impressive <i>geological</i> formations in the world.
uninhabitable (adjective) page 3	un-in-hab-it-a-ble (un-in-HAB-it-uh-buhl)	not fit for living in	Our cabin was <i>uninhabitable</i> after the roof caved in during a snowstorm.

continued

Students use the vocabulary study routine to rate their knowledge of each vocabulary word:

- + I know this word and can use it.
- ✓ This word looks familiar; it has something to do with...
- ? I don't know this word; it's totally new to me.

Teams discuss their vocabulary ratings.



Introduce vocabulary.

Shift 6: Academic vocabulary
Daily robust vocabulary instruction and the reading of a wide variety of content-rich texts ensure that students learn the power of words and begin to own academic vocabulary, which is emphasized in the college and career readiness standards.

**Anchor Standards
for Language****Vocabulary Acquisition and Use**

Acquire and use accurately a range of general academic and domain-specific words and phrases sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when encountering an unknown term important to comprehension or expression.

Word	Pronunciation	Definition	Sample Sentence
debris (noun) page 8	de-bris (duh-bree)	pieces of something that has been destroyed	<i>Debris</i> from the building that collapsed littered the ground.
magnitude (noun) page 11	mag-ni-tude (mag-ni-tood)	power of an earthquake	Scientists are working on ways to predict the <i>magnitude</i> of earthquakes.
epicenter (noun) page 11	ep-i-cen-ter (EP-uh-sen-ter)	point above where an earthquake starts	Many houses near the earthquake's <i>epicenter</i> were severely damaged.
levee (noun) page 28	lev-ee (lev-ee)	raised earth beside a river built to prevent flooding	During the storm, water almost came over the top of the <i>levee</i> and into the town.
unpredictable (adjective) page 36	un-pre-dict-a-ble (uhn-pri-DIK-tuh-buhl)	not easily foreseen or predicted	The path of the balloon's flight was <i>unpredictable</i> in the high winds.
data (noun) page 36	da-ta (DAY-tuh)	factual information	Scientists rely on accurate <i>data</i> to develop theories about disease.

4. Use **Random Reporter** to have teams share a new sentence that uses one of their vocabulary words. Award team celebration points.
5. Remind teams that if they find a word from the vocabulary list used in another place, such as in a magazine, textbook, TV ad, etc., they can bring in or copy the sentence in which the word was used and put it in the Vocabulary Vault to earn team points.

Set the Stage

1. Ask students to review their team's goal for this cycle and assess their progress.
2. Review the Team Celebration Points poster, and challenge teams to build on their successes.
3. Remind students of the text, author, and reading objective.
4. Have teams discuss and report on their preview of the text and explain their thinking. Use **Random Reporter** to share team responses.

T: Geological disasters

I: To provide detailed information about geological-related natural disasters

G: Outline

Review Vocabulary Vault.

Teams review their cycle goal.

Post and present the reading objective.



Interpret Information

Optional:
Show the video.



Literacy in Science and Technical Subjects Integration of Knowledge and Ideas Grades 6–8

Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.

Teacher: Read aloud.

Students: Practice the skill or strategy.



Partner pairs: Read aloud/think aloud with the next passage to practice the skill or strategy.



5. Optional: Show the video “Earthquake Prediction” (<https://mpt.pbslearningmedia.org/resource/ess05.sci.ess.earthsys.japan/earthquake-prediction/>)

What new information did you learn from the video?

We learned that earthquakes are impossible to accurately predict, but scientists can track earthquakes and make guesses about where they are likely to happen and their impacts. In the early 1900s, a seismologist named Imamura in Japan predicted that Kanto, Japan was likely to experience a large earthquake. He described the effects a large earthquake would have on the city if preparations were not made. A leading seismologist Omori disagreed, but Imamura’s prediction came true in 1923. Neither seismologist had enough information to make an accurate prediction, but Imamura had wanted Japan to prepare for the possibility.

Interactive Read Aloud

1. Read page 8 (paragraph 1) aloud. Use **Think-Pair-Share** to prompt use of the skill or strategy.

Based on the text I just read and the picture on page 8, what conclusions can you draw about volcanic eruptions?

Like the earthquake predictions in the video, we can watch for signs of eruptions, but can’t say when they will happen or what they will look like. Signs of an eruption started in March, but the event didn’t happen until May. There was nothing different about the mountain on the morning of the eruption, but the earthquake and landslide triggered the eruption. There was probably no way to guess the eruption would happen that way. Fortunately, most people had evacuated the area.

2. Partner Practice: Student partner pairs use the read-aloud/think-aloud process to practice the skill or strategy with the next passage in the text. Have students read pages 8 (paragraph 2) and 9. Use **Think-Pair-Share** to ask:

Using information from the text, what conclusions can you draw about the effects of volcanic eruptions?

Volcanic eruptions have different effects on their immediate area and the world depending on their size. According to the table on page 9, the Kilauea eruption in 1955 was less damaging than the Mount St. Helens eruption in 1960. I know from the chart on page 6 that Kilauea has a history of small, VEI 2 eruptions in contrast to Mount St. Helens’s VEI 5 eruption. Tambora’s 1815 eruption was a VEI 7, and the effects were felt around the world. The bigger the eruption, the more widespread the effects.

Use **Random Reporter** to debrief.

3. Ask partners to review this section of text, check their understanding with each other, reread what they need to clarify, and add notes to their graphic organizers.

Anchor Standards for Reading
Key Ideas and Details

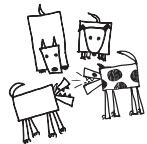
3. Analyze how and why individuals, events, and ideas develop and interact over the course of a text.

Use **Random Reporter** to debrief. Add student responses to the graphic organizer.

4. Point out that there is more than one way to organize an outline. Remind students that for this outline it works to use capital letters to list the main sections or ideas of the text, which are usually types of natural disasters. Numbers can be used to list supporting details.

A sample graphic organizer follows.

Sample Graphic Organizer
Natural disasters III. Geological disasters A. Volcanoes 1. shoot ash, dust, smoke, and lava 2. destroy forests, agriculture, infrastructure 3. bury areas in ash and debris 4. large eruptions can affect whole planet B. Earthquakes C. Tsunami



Teamwork tp

(20 minutes)

Cue students to use their student routines for partner reading, word power, fluency, and the TIGRRS process.

Partner Prep

1. Explain, or review if necessary, the student routines for partner reading, word power, fluency, and the TIGRRS process before having students read and restate: **Sr**
pages 10–15 aloud with partners.
2. Circulate and check for comprehension, evidence of strategy use, and use of the TIGRRS process, for example, restating ideas on the graphic organizer. Give students feedback. Prompt and reinforce their discussions.
3. If some partners finish ahead of their teammates, have them begin looking over the Team Talk questions.

Team Discussion

1. Explain, or review if necessary, how to use role cards and the student routines for strategy use and Team Talk discussion. **Sr**

Cue students to use their student routines for strategy use and Team Talk discussion.

2. Remind students to use the rubrics on their team folders to prepare each team member to discuss the team's strategy use, oral and written Team Talk responses, word power, and fluency. Each team member must be able to summarize the text and discuss the team's graphic organizer/notes during Class Discussion as indicated.
3. Preview the Team Talk questions. If necessary, ask questions to guide students' reflection as they determine the meaning of the "(Write)" question.

Team Talk Questions

1. What could you describe as a flaw of seismographs? What evidence from the text supports your answer? **[DC, SA]** (Team Talk rubric)

100 = *A **flaw** of seismographs is that they just record an earthquake event, but cannot warn us that it is coming. Seismographs measure the shaking of the Earth and help scientists collect **data** about volcanoes and plate movements. However, they can only record them as they happen. The sample seismograph on page 11 shows how the normal activity line is smooth up until the earthquake activity begins. This shows how earthquakes happen suddenly and without warning. A tool that could give warnings about earthquakes before they happen would give people time to get to safety.*

90 = *A problem of seismographs is that they just record an earthquake event, but cannot warn us that it is coming. Seismographs measure the shaking of the Earth and help scientists collect information about volcanoes and plate movements. They can only record them as they happen. The sample seismograph shows how earthquakes happen suddenly and without warning.*

80 = *A problem of seismographs is that they just record an earthquake event, but cannot warn us that it is coming.*

2. Suppose an earthquake had a magnitude of 3. What damage would you expect from this earthquake? Cite two pieces of evidence from pages 11 and 12 to support your answer. **[DC, SA]** (Team Talk rubric)

100 = *I think an earthquake with a magnitude of 3 would not cause any damage. According to the text on page 11, an earthquake with a magnitude less than 3 is not usually felt. Also, the table on page 12 shows that there are approximately 100,000 magnitude 3 earthquakes every year. If each of these caused damage, we would hear more about them in the news.*

90 = *I think an earthquake with a size of 3 would not cause any damage. An earthquake with a size less than 3 is not usually felt. The table shows that there are about 100,000 size 3 earthquakes every year.*

80 = *I think an earthquake with a size of 3 would not cause any damage.*

continued

Team Talk Questions *continued*

3. What best explains the additional damage that happened to San Francisco after the 1906 earthquake? Support your thinking. **[DC, RE, SA]** (Team Talk rubric)

100 = *Damage to San Francisco's infrastructure explains the additional damage to the city after the earthquake. According to the text on page 13, gas lines ruptured and caught fire, causing the collapsed buildings and ruins to catch fire. Water mains throughout the city were also damaged so there was no way to put out the fires in most of the city. The text states that firefighters could only pump water onto buildings close to the bay. In addition to these, streetcar tracks and telegraph wires were damaged, making it difficult to move around or communicate. Damage to infrastructure extends the disaster and makes it harder to recover quickly.*

90 = *Damage to San Francisco's infrastructure explains the additional damage to the city after the earthquake. Gas lines broke and caught fire, causing the fallen buildings and ruins to catch fire. Water mains throughout the city were also damaged so there was no way to put out the fires in most of the city. Streetcar tracks and telegraph wires were damaged, making it difficult to move around or share information.*

80 = *Damage to San Francisco's infrastructure explains the additional damage to the city after the earthquake.*

4. How does the bar graph on page 14 help you understand the impacts of natural disasters over the past 50 years? What does the graph tell you about 2011? Explain. **(Write) [DC, SA]** (Team Talk rubric)

100 = *The bar graph on page 14 helps me understand the impacts of natural disasters by color coding the disasters. By assigning each disaster a color, I can see which ones had the biggest impacts based on the size of their color bar. Additionally, I can see how the cost of natural disasters has increased because the bars get taller over the years. Based on the graph, earthquakes and extreme weather have the biggest impacts. The graph shows that earthquakes had the largest impact in 2011. According to the text, Japan experienced a magnitude 9 earthquake in 2011. A tsunami followed the earthquake and added to the destruction. This one event explains why the red earthquake bar is the longest in 2011.*

90 = *The bar graph on page 14 helps me understand the effects of natural disasters by coloring the disasters. Each disaster has a color, I can see which ones had the biggest effects based on the size of their color bar. I can see how the cost of natural disasters has gone up because the bars get taller over the years. The graph shows that earthquakes had the largest effect in 2011. Japan experienced a size 9 earthquake in 2011.*

80 = *The bar graph on page 14 helps me understand the effects of natural disasters by coloring the disasters. The graph shows that earthquakes had the largest effect in 2011.*

5. Which one of your vocabulary words is an antonym for the word *livable*? Explain how you figured this out. **[CV]**

The word uninhabitable is an antonym of livable. I figured this out because a place that is uninhabitable is so messed up that you can't live in it. A place that is livable would be good enough for some to live in it.

**Anchor Standards
for Language**
Vocabulary Acquisition and Use

Demonstrate understanding of word relationships and nuances in word meanings.

Interpret Information

Cue students to discuss strategy use, graphic organizers, and word power journals.

Anchor Standards for Speaking and Listening *Comprehension and Collaboration*

Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric.

4. Have students thoroughly discuss Team Talk questions before they write individual answers to the skill question marked "(Write)." Allow students to revise their written answers after further discussion if necessary.
5. Prompt teams to discuss comprehension problems and strategy use (their sticky notes), important ideas that they added to their graphic organizers, and words that a team member added to the word power journal.
6. Circulate and give feedback to teams and students. Use rubrics to give specific feedback. Ask questions to encourage further discussion. Record individual scores on the teacher cycle record form.
7. If some teams finish ahead of others, have them practice their fluency.
8. Award team celebration points for good team discussions that demonstrate 100-point responses.

Interpret Information

Randomly select team representatives who will share:

- strategy use
- oral and written Team Talk responses
- word power discussions
- fluency selection



Show video “Team Talk Response.”



Celebrate team successes!

The top team chooses a cheer.

Remind students of the Read and Respond homework assignment.



Class Discussion tp

(15 minutes)

Anchor Standards for Speaking and Listening *Presentation of Knowledge and Ideas*

Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate to task, purpose, and audience.

Lightning Round

1. Use **Random Reporter** to have teams share strategy use, oral and written Team Talk responses, word power discussions, and fluency. Ask other teams to agree, disagree, or add on to responses.
2. Use rubrics to evaluate responses and give specific feedback. Award team celebration points for 100-point responses. Record individual scores on the teacher cycle record form.
3. Show the video “Team Talk Response.”

Celebrate

1. Tally the team scores on the poster, and celebrate teams who are accumulating points. Have teams reflect on the following questions:

How many points did your team earn today?

How can your team earn more points?

Remind students that top-scoring teams will earn bonus points that will be added to their cycle scores.

- Something to cheer about: Choose a behavior or learning outcome that you would like to reinforce, and reward that behavior by asking students to lead a cheer of their choice.
2. As a reminder, refer students to the Read and Respond homework assignment described in their student editions.

From Student Edition

Word	Pronunciation	Definition	Sample Sentence
geological (adjective) page 2	ge-o-log-i-cal (jee-uh-LOJ-ik-uhl)	related to physical structure of an area	The Grand Canyon is one of the most impressive <i>geological</i> formations in the world.
uninhabitable (adjective) page 3	un-in-hab-it-a-ble (un-in-HAB-it-uh-buhl)	not fit for living in	Our cabin was <i>uninhabitable</i> after the roof caved in during a snowstorm.
debris (noun) page 8	de-bris (duh-bree)	pieces of something that has been destroyed	<i>Debris</i> from the building that collapsed littered the ground.
magnitude (noun) page 11	mag-ni-tude (mag-ni-tood)	power of an earthquake	Scientists are working on ways to predict the <i>magnitude</i> of earthquakes.
epicenter (noun) page 11	ep-i-cen-ter (EP-uh-sen-ter)	point above where an earthquake starts	Many houses near the earthquake's <i>epicenter</i> were severely damaged.
levee (noun) page 28	lev-ee (lev-ee)	raised earth beside a river built to prevent flooding	During the storm, water almost came over the top of the <i>levee</i> and into the town.
unpredictable (adjective) page 36	un-pre-dict-a-ble (uhn-pri-DIK-tuh-buhl)	not easily foreseen or predicted	The path of the balloon's flight was <i>unpredictable</i> in the high winds.
data (noun) page 36	da-ta (DAY-tuh)	factual information	Scientists rely on accurate <i>data</i> to develop theories about disease.

Lesson 3

Reading Objective: Use both text and visual information to draw conclusions.

Teacher Background

In today's reading students will learn about tsunamis and begin reading about hurricanes. Charts, info-graphics, and tables provide information about the structure, causes, and details about these natural disasters.

Show the video "Tracking Tsunamis" to build background about these destructive geological natural disasters. There is also an optional video ("Alaska Tsunami," 3:17) about a mega-tsunami that struck Alaska.

Teacher's Note:

Use the Interactive Read Aloud if your students need additional support. Otherwise, go directly to teamwork after working on vocabulary. Adjust partner reading page numbers accordingly.

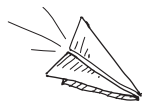
Students use the vocabulary study routine to rate their knowledge of each vocabulary word:

- + I know this word and can use it.
- ✓ This word looks familiar; it has something to do with...
- ? I don't know this word; it's totally new to me.

Teams discuss their vocabulary ratings.



Model exploring a word in the word power journal.



Active Instruction

(15–25 minutes)

Partner Vocabulary Study

1. Display the vocabulary words. Have students use the vocabulary study routine as they rerate their knowledge of each vocabulary word as they arrive for class.
2. Spot check the Read and Respond homework.

Vocabulary

1. Have teams discuss their ratings of the words. Ask teams to make a tent with their hands when they are ready to tell a word the entire team rated with a "+" and a word the entire team rated with a "?."
2. Use **Random Reporter** to have the teams share one word that they know and one word that they need to study further. Use **Random Reporter** to have teams report on a new sentence using a vocabulary word. Award team celebration points.
3. Choose an important word from the text or class discussion, and model how to explore it in a word power journal entry. A sample Think Aloud and word map follow.

Interpret Information

Anchor Standards for Reading Craft and Structure

Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings, and analyze how specific word choices shape meaning or tone.

Anchor Standards for Language Knowledge of Language

Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening.

Review Vocabulary Vault.

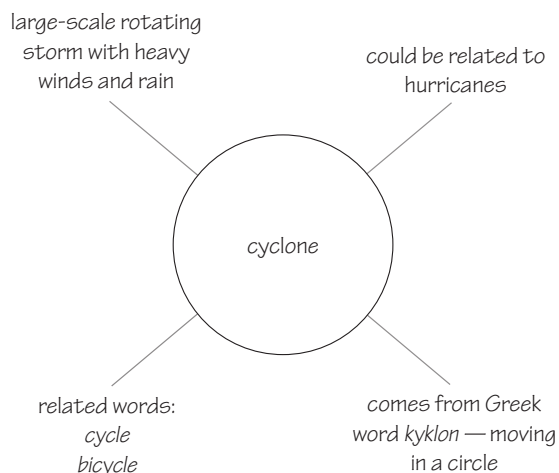
Teams review their cycle goal.

Post and present the reading objective.

Sample Think Aloud

I want to study this word *cyclone* some more. A cyclone is one of the natural disasters listed on page 4 of the text. I can see from the way the word is used that a cyclone is a type of storm that involves a lot of wind or rain or both. I'm going to look up its exact definition in the dictionary. (Consult the dictionary.) The dictionary says that a cyclone is "a large-scale storm system with heavy rain and winds that rotates counterclockwise in the northern hemisphere and counterclockwise in the southern hemisphere." That sounds a lot like a hurricane. I think cyclones are related to hurricanes in some way. I also see that *cyclone* comes from the Greek word *kyklon*, which means moving in a circle. I wonder if the word *cyclone* is also related to the word *cycle*?

Sample Word Map



4. Remind teams that if they find a word from the vocabulary list used in another place, such as in a magazine, textbook, TV ad, etc., they can bring in or copy the sentence in which the word was used and put it in the Vocabulary Vault to earn team points.

Set the Stage

1. Ask students to review their team's goal for this cycle and assess their progress.
2. Review the Team Celebration Points poster, and challenge teams to build on their successes.
3. Remind students of the text, author, and reading objective.

Build background about tsunami.



Show the video.



4. Show the video “Tracking Tsunamis.” Use **Think-Pair-Share** to debrief the video.

What new information did you learn from the video?

We learned that tsunamis are giant waves that can do a lot of damage when they hit land. They are caused by earthquakes in the ocean. Scientists are putting instruments on the ocean floor to send signals when there are earthquakes. They are also putting floating instruments around the oceans to gather information about where and when a tsunami might hit land.

5. Optional: show the video “Alaska Tsunami” PBS Learning Media (3:17), <https://mpt.pbslearningmedia.org/resource/ean08.sci.ess.watcyc.oceanfury/alaska-tsunami/>. Use **Think-Pair-Share** to debrief the video.

What new information did you learn from the video?

A large Alaskan earthquake in 1964 generated several tsunamis afterward. Scientists study inundation maps that show how far into the land tsunamis traveled so that they can make evacuation plans for coastal communities.

Interactive Read Aloud

1. Read page 16 (paragraph 1) aloud. Use **Think-Pair-Share** to prompt use of the skill or strategy.

Based on the text I just read and the graphic on page 16, what conclusions can you draw about tsunamis?

Tsunami waves are not an everyday occurrence. They need a geological event to trigger a large displacement of water. Tsunamis also don't travel in one direction. They split away from the source of the disturbance.

2. Partner Practice: Student partner pairs use the read-aloud/think-aloud process to practice the skill or strategy with the next passage in the text. Have students read the rest of page 16. Use **Think-Pair-Share** to ask:

Using information from the text, what conclusions can you draw about people who live in the coastal areas that are near plate boundaries?

People who live in the coastal areas near plate boundaries should be aware of tsunamis. Plate boundaries are where earthquakes occur, and large enough earthquakes under the water could send tsunamis toward the coast.

Use **Random Reporter** to debrief.

3. Ask partners to review this section of text, check their understanding with each other, reread what they need to clarify, and add notes to their graphic organizers.

Use **Random Reporter** to debrief. Add student responses to the graphic organizer.

Refer students to page 16 (paragraph 1) in the text.



Teacher: Read aloud.

Students: Practice the skill or strategy.

Partner pairs: Read aloud/think aloud with the next passage to practice the skill or strategy.



Partner pairs: Review, reread to clarify, and add to the graphic organizer.

Sample Graphic Organizer

Natural disasters

III. Geological disasters

A. Volcanoes

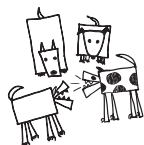
1. shoot ash, dust, smoke, and lava
2. destroy forests, agriculture, infrastructure
3. bury areas in ash and debris
4. large eruptions can affect whole planet
5. Mount St. Helens, March 18, 1980: earthquake triggered eruption and landslide, followed by pyroclastic flows and mudslides; 57 dead

B. Earthquakes

1. shaking earth caused by fault movements
2. measured with seismographs
3. Richter Scale: assigns magnitude to earthquake size based on shaking and damage; most people don't feel 3 or below
4. San Francisco Earthquake, 1906: estimated to be magnitude 7.9, city destroyed by shaking and fires afterward
5. Building codes can make structures withstand intense shaking

C. Tsunami

1. large waves caused by earthquakes or other disturbances on the sea floor
2. travel in all directions away from the earthquake
3. coastal areas near plate boundaries most at risk from tsunami

**Teamwork**

(25–30 minutes)

Cue students to use their student routines for partner reading, word power, fluency, and the TIGRRS process.

Partner Prep

1. Explain, or review if necessary, the student routines for partner reading, word power, fluency, and the TIGRRS process before having students read and restate: 
pages 17–22 aloud with partners.
(if skipping Interactive Read Aloud, pages 16–22)
2. Circulate and check for comprehension, evidence of strategy use, and use of the TIGRRS process, for example, restating ideas on the graphic organizer. Give students feedback. Prompt and reinforce their discussions.
3. If some partners finish ahead of their teammates, have them begin looking over the Team Talk questions.

Cue students to use their student routines for strategy use and Team Talk discussion.

Team Discussion

1. Explain, or review if necessary, how to use role cards and the student routines for strategy use and Team Talk discussion. **sr**
2. Remind students to use the rubrics on their team folders to prepare each team member to discuss the team's strategy use, oral and written Team Talk responses, word power, and fluency. Each team member must be able to summarize the text and discuss the team's graphic organizer/notes during Class Discussion as indicated.
3. Preview the Team Talk questions. If necessary, ask questions to guide students' reflection as they determine the meaning of the "(Write)" question.

Shift 4: Text-Based Answers

Through team and class discussions and with the aid of rubrics that require evidential support to obtain top scores, students learn to form cogent, evidence-based arguments while speaking and writing.

Team Talk Questions

1. Using information from the text, what conclusions can you draw about the people who were living or vacationing in the areas pictured in the photographs on page 18? Support your thinking. **[DC, SA]** (Team Talk rubric)

100 = *I can conclude that people who were in the areas of the photographs were probably killed or injured by the tsunami. Based on the photographs, the tsunami caused a lot of damage and there are only a couple taller buildings still standing. According to the text, the tsunami wave was 100 feet high in some places. That is very high, and people would have to have been in much taller buildings than some of the ones in the photographs to survive. It does not look like many places could provide a safe shelter from the tsunami.*

90 = *I can conclude that people who were in the areas of the photographs were probably killed or injured by the tsunami. It looks like the tsunami caused a lot of damage and there are only a couple taller buildings still standing. The tsunami wave was 100 feet high in some places. People would have to have been in much taller buildings than some of the ones in the photographs to survive.*

80 = *I can conclude that people who were in the areas of the photographs were probably killed or injured by the tsunami.*

continued

Team Talk Questions *continued*

2. Do you think a system similar to the Pacific Tsunami Warning Center was in place in the Indian Ocean for the 2004 earthquake and tsunami? Support your thinking with evidence from the text. **[DC, SA]** (Team Talk rubric)

100 = *No, I don't think a similar warning system was in place in the Indian Ocean at the time. According to the text, the United States created the PTWC because tsunami **generating events** from **elsewhere** around the Pacific Ocean can effect Hawaii and the United States. A similar system in the Indian Ocean would probably warn all the countries bordering it. However, the text states that **approximately** 230,000 people in eleven countries were killed by the tsunami. With a better warning system, many of those deaths could have been avoided.*

90 = *No, I don't think a similar warning system was in place in the Indian Ocean at the time. The United States created the PTWC because tsunami from around the Pacific Ocean can effect Hawaii and the United States. A similar system in the Indian Ocean would probably warn all the countries bordering it. But about 230,000 people in eleven countries were killed by the tsunami.*

80 = *No, I don't think a similar warning system was in place in the Indian Ocean at the time.*

3. If the maximum winds of a hurricane are 120 miles per hour, what category is it on the Saffir-Simpson scale? How does the chart on page 21 provide this information? **[DC, SA]** (Team Talk rubric)

100 = *A hurricane with **maximum** winds of 120 miles per hour is a category 3 storm. The chart on page 21 describes the wind speeds and damage caused by different category hurricanes. The first column gives the category number, the next gives the **range** of wind speeds for the category, and the third column **indicates** the damage caused by the storm. The chart shows that category 3 hurricanes have maximum winds of about 129 miles per hour.*

90 = *A hurricane with winds of 120 miles per hour is a category 3 storm. The chart on page 21 describes the wind speeds and damage caused by different category hurricanes. It gives the category number, the lowest and highest wind speeds for the category, and explains the damage caused by the storm.*

80 = *A hurricane with winds of 120 miles per hour is a category 3 storm.*

continued

Team Talk Questions *continued*

4. What do the colored dots on the satellite picture on page 22 help you understand about Hurricane Katrina? What information from the text supports your thinking? **(Write) [DC, SA]** (Team Talk rubric)

100 = *The colored dots on the satellite picture show me the path of Katrina and how its **intensity** changed throughout the life of the storm. I think that the redder the dots show Katrina at its most **intense** while the yellow and blue dots show when it was weaker. According to the text on page 21, a hurricane can grow stronger and weaker during its life cycle. Katrina grew stronger after crossing the Bahamas and Florida, and weakened after crossing the United States again. How a storm **intensifies** before hitting land has an impact on the damage it will cause.*

90 = *The colored dots on the satellite picture show me the path of Katrina and how its strength changed throughout the life of the storm. I think that the redder the dots show Katrina at its strongest while the yellow and blue dots show when it was weaker. A hurricane can grow stronger and weaker during its life cycle.*

80 = *The colored dots on the satellite picture show me the path of Katrina and how its strength changed throughout the life of the storm.*

5. The vocabulary word *geological* comes from the Greek root *geo*, meaning earth. The suffix *-ology* means a scientific study of. What do you think the word *geology* means? **[CV]**

I think the word geology means the scientific study of the earth.

**Anchor Standards
for Language**
Vocabulary Acquisition and Use

Determine or clarify the meaning of unknown and multiple-meaning words and phrases by using context clues, analyzing meaningful word parts, and consulting general and specialized reference materials, as appropriate.

**Anchor Standards
for Language**
Conventions of Standard English

Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.

4. Have students thoroughly discuss Team Talk questions before they write individual answers to the skill question marked "(Write)." Allow students to revise their written answers after further discussion if necessary.
5. Prompt teams to discuss comprehension problems and strategy use (their sticky notes), important ideas that they added to their graphic organizers, and words that a team member added to the word power journal.
6. Circulate and give feedback to teams and students. Use rubrics to give specific feedback. Ask questions to encourage further discussion. Record individual scores on the teacher cycle record form.
7. If some teams finish ahead of others, have them practice their fluency.
8. Award team celebration points for good team discussions that demonstrate 100-point responses.

Interpret Information

Randomly select team representatives who will share:

- strategy use
- oral and written Team Talk responses
- word power discussions
- fluency selection



Celebrate team successes!

The top team chooses a cheer.

Remind students of the Read and Respond homework assignment.



Class Discussion

(20 minutes)

Lightning Round

1. Use **Random Reporter** to have teams share strategy use, oral and written Team Talk responses, word power discussions, and fluency. Ask other teams to agree, disagree, or add on to responses.
2. Use rubrics to evaluate responses and give specific feedback. Award team celebration points for 100-point responses. Record individual scores on the teacher cycle record form.

Celebrate

1. Tally the team scores on the poster, and celebrate teams that are accumulating points. Have teams reflect on the following questions:

How many points did your team earn today?

How can your team earn more points?

Remind students that top-scoring teams will earn bonus points that will be added to their cycle scores.

- Something to cheer about: Choose a behavior or learning outcome that you would like to reinforce, and reward that behavior by asking students to lead a cheer of their choice.
2. As a reminder, refer students to the Read and Respond homework assignment described in their student editions.

Lesson 4

Reading Objective: Use both text and visual information to draw conclusions.

Teacher Background

Today's reading presents more information about hurricanes and introduces floods. Floods are a consequence of tsunamis and hurricanes, but they are most commonly caused by severe storms and heavy rain making events that can happen any time of year.

Show the video "Meteorologist: Howie Bluestein" (2 min. 7 sec.) to build background about tornadoes and the scientists who study them. Students will read about tornadoes for the cycle test.

Teacher's Note:

Use the Interactive Read Aloud if your students need additional support. Otherwise, build background, and then go directly to teamwork. Adjust partner reading page numbers accordingly.

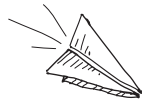
Students use the vocabulary study routine to rate their knowledge of each vocabulary word:

- + I know this word and can use it.
- ✓ This word looks familiar; it has something to do with...
- ? I don't know this word; it's totally new to me.

Teams discuss their vocabulary ratings.



Review Vocabulary Vault.



Active Instruction

(15–20 minutes)

Partner Vocabulary Study

1. Display the vocabulary words. Have students use the vocabulary study routine as they rate their knowledge of each vocabulary word as they arrive for class.
2. Spot check the Read and Respond homework.

Vocabulary

1. Have teams discuss their ratings of the words. Ask teams to make a tent with their hands when they are ready to tell a word the entire team rated with a "+" and a word the entire team rated with a "?."
2. Use **Random Reporter** to have the teams share one word that they know and one word that they need to study further. Use **Random Reporter** to have teams report on a new sentence using a vocabulary word. Award team celebration points.
3. Remind teams that if they find a word from the vocabulary list used in another place, such as in a magazine, textbook, TV ad, etc., they can bring in or copy the sentence in which the word was used and put it in the Vocabulary Vault to earn team points.

Interpret Information

Teams review their cycle goal.

Post and present the reading objective.

Build background about severe weather.

Show the video.



Teacher: Read aloud.

Students: Practice the skill or strategy.



Partner pairs: Read aloud/think aloud with the next passage to practice the skill or strategy.



Partner pairs: Review, reread to clarify, and add to the graphic organizer.

Set the Stage

1. Ask students to review their team's goal for this cycle and assess their progress.
2. Review the Team Celebration Points poster, and challenge teams to build on their successes.
3. Remind students of the text, author, and reading objective.
4. Explain to students that they will watch a video about another weather related natural disaster. Show the video "Meteorologist: Howie Bluestein."

Use **Think-Pair-Share** to debrief the video.

How does Professor Bluestein's team measure the wind speed of a tornado?

The team uses Doppler radar to measure a tornado's wind speed.

How might the work of a meteorologist like Professor Bluestein be valuable?

(Answers will vary.) By studying tornadoes, a meteorologist might be able to better predict when and where a tornado might strike.

Interactive Read Aloud

1. Read page 23 aloud. Use **Think-Pair-Share** to prompt use of the skill or strategy.

What do you think caused the damage in the picture on page 23?

Explain.

I think the storm surge and flooding cause the damage in the photograph. It looks like some of the houses have moved and bumped into other houses. The text says that the storm surge from Katrina was 20 feet in some parts of Louisiana. A storm surge is high water pushed onshore by the hurricane.

2. Partner Practice: Student partner pairs use the read-aloud/think-aloud process to practice the skill or strategy with the next passage in the text. Have students read page 24. Use **Think-Pair-Share** to ask:

What conclusions can you draw about the effect of hurricanes on how habitable, or livable, an area is after the storm? Explain your thinking.

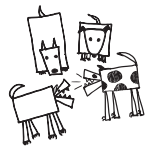
I can conclude that hurricanes, especially large ones, can make the areas they hit uninhabitable. The graph on page 24 shows that hurricanes force people to move a lot. There are large spikes in the number of people who are forced to leave their homes from large storms such as Hurricane Ike, Sandy, and Maria. I know from a chart in the earlier reading that a category 4 and 5 hurricanes especially can lead to power outages that may last weeks to months. People will move to where they can live more comfortably if they are affected by a large hurricane.

Use **Random Reporter** to debrief.

3. Ask partners to review this section of text, check their understanding with each other, reread what they need to clarify, and add notes to their graphic organizers.

Use **Random Reporter** to debrief. Add student responses to the graphic organizer. A sample graphic organizer follows.

Sample Graphic Organizer
Natural disasters IV. Weather Related Disasters A. Tropical Cyclones - hurricanes (North America/Atlantic Ocean) and cyclones (Asia/Pacific Ocean) - develop in warm ocean waters - winds of 74 mph or greater - spins around an eye - Hurricane Katrina, 2005: massive flooding, damage to New Orleans, LA - Large hurricanes displace people living in affected communities B. Floods C. Tornadoes



Teamwork tp

(20–30 minutes)

Partner Prep

1. Explain, or review if necessary, the student routines for partner reading, word power, fluency, and the TIGRRS process before having students read and restate: **sr**
pages 25–29 aloud with partners.
(if skipping Interactive Read Aloud, pages 23–29)
2. Circulate and check for comprehension, evidence of strategy use, and use of the TIGRRS process, for example, restating ideas on the graphic organizer. Give students feedback. Prompt and reinforce their discussions.
3. If some partners finish ahead of their teammates, have them begin looking over the Team Talk questions

Team Discussion

1. Explain, or review if necessary, how to use role cards and the student routines for strategy use and Team Talk discussion. **sr**
2. Remind students to use the rubrics on their team folders to prepare each team member to discuss the team's strategy use, oral and written Team Talk responses, word power, and fluency. Each team member must be able to summarize the text and discuss the team's graphic organizer/notes during Class Discussion as indicated.

Cue students to use their student routines for partner reading, word power, fluency, and the TIGRRS process.

Cue students to use their student routines for strategy use and Team Talk discussion.

3. Preview the Team Talk questions. If necessary, ask questions to guide students' reflection as they determine the meaning of the "(Write)" question.

Team Talk Questions

1. What section of text did you choose to reread and why? What new connection did you make by rereading and reviewing your notes? (strategy-use rubric)
(Answers will vary.)

100 = I reread the bar graph and text on page 29 because I could see it had a lot of information about when and where some of the world's deadliest floods have happened. By rereading, I was able to conclude that China experiences a lot of deadly flooding incidents. Out of the ten deadliest floods in the past 100 years, China has experienced seven of them. The text states that some places are more prone to floods due to their geography and weather. China must have a lot of factors that make floods a serious problem. Other deadly floods happened in Bangladesh and in Guatemala and Venezuela in South America. This helped me understand that while natural disasters happen everywhere, some places are affected differently by them.

90 = I reread the bar graph and text on page 29 because I could see it had a lot of information about when and where some of the world's deadliest floods have happened. China experiences a lot of deadly flooding incidents. Out of the ten deadliest floods in the past 100 years, China has experienced seven of them. Some places are more prone to floods due to their geography and weather. China must have a lot of factors that make floods a serious problem.

80 = I reread the bar graph and text on page 29 because I could see it had a lot of information about when and where some of the world's deadliest floods have happened. China experiences a lot of deadly flooding incidents. Out of the ten deadliest floods in the past 100 years, China has experienced seven of them.

2. Write a summary of the section of text you reread. **(Write)** [MI] (summary rubric)
(Answers will vary.)

100 = Some parts of the world are more prone to flooding. The combination of geography, weather, and population makes some of these floods deadly. China has experienced seven out of the ten deadliest floods in the past 100 years. Meteorologists have gotten better at predicting flood risk with satellites and radar. They can more accurately predict how much rain will fall in specific areas. This can help make floods less deadly in the future.

90 = Some parts of the world have more floods. Geography, weather, and population make some of these floods deadly. China has experienced seven out of the ten deadliest floods in the past 100 years. Meteorologists have gotten better at predicting flood risk with technology. They can better guess how much rain will fall in certain areas.

80 = Some parts of the world have more floods. China has experienced seven out of the ten deadliest floods in the past 100 years. Meteorologists have gotten better at predicting flood risk though technology.

continued

Anchor Standards for Reading Key Ideas and Details

Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.

Team Talk Questions *continued*

3. How do humans cause or contribute to floods and the damage caused by them? Support your thinking. **[RE, SA]** (Team Talk rubric)

100 = Humans cause or **contribute** to flooding by building structures that make it more difficult for water to flow **naturally**. For example, the flood fact on page 25 states that poorly constructed dams can fail and allow large amounts of water to flood the river downstream of the dam. I know that dams are built to hold water back and large lakes can fill behind them. And on page 26 the text **explains** that **urban** floods happen because concrete is an **impervious surface** that water cannot soak into. When water cannot be **absorbed** into the ground, it flows across the surface. **Additionally**, humans rely on levees to protect them from floods, **however** levees can collapse, allowing flood waters to flood an area. *Flooding is a natural disaster, but humans can increase the chances that floods will happen.*

90 = Humans cause flooding by building structures that make it more difficult for water to flow. The flood fact states that badly made dams can fail and allow large amounts of water to flood the river downstream of the dam. The text says that city floods happen because concrete does not take in water well. Humans also rely on levees to protect them from floods, but levees can collapse.

80 = Humans cause flooding by building structures that make it more difficult for water to flow.

4. What can you conclude about the flood that happened in July 1931 in China? Use information from the text to support your thinking. **(Write) [DC, SA]** (Team Talk rubric)

100 = I can conclude that the river or area that flooded was heavily populated, and that people did not have enough warning to escape from the flood. **According to the bar graph on page 29, approximately 3,700,000 people died from the flood.** There must have been a lot of cities or towns **located** in the flooded area. In 1931 it was probably harder for meteorologists to **predict** flooding with **accuracy**. They did not have **satellites** or **radar** to help them measure and predict rainfall. *With modern technology, this flood might have killed fewer people living in the flooded area.*

90 = I can conclude that the river or area that flooded was heavily populated, and that people did not have enough warning to escape from the flood. About 3,700,000 people died from the flood. In 1931 it was probably harder for meteorologists to guess flooding well. They did not have the tools to help them measure and guess rainfall.

80 = I can conclude that the river or area that flooded was heavily populated, and that people did not have enough warning to escape from the flood.

5. levee uninhabitable

How could the breaking of a levee make a town uninhabitable? **[CV]**

A levee is kind of like a dam that prevents flooding from a river. If a levee protecting a town broke, the town might be flooded with water. The flooding could make the town not fit for living in or, in other words, uninhabitable.

Literacy in Science and Technical Subjects
Craft and Structure
Grades 6–8

Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6–8 texts and topics.

Interpret Information

Cue students to discuss strategy use, graphic organizers, and word power journals.

Randomly select team representatives who will share:

- strategy use
- oral and written Team Talk responses
- word power discussions
- fluency selection



Celebrate team successes!

The top team chooses a cheer.

Remind students of the Read and Respond homework assignment.

4. Have students thoroughly discuss Team Talk questions before they write individual answers to the skill question marked “(Write).” Allow students to revise their written answers after further discussion if necessary.
5. Prompt teams to discuss comprehension problems and strategy use (their sticky notes), important ideas that they added to their graphic organizers, and words that a team member added to the word power journal.
6. Circulate and give feedback to teams and students. Use rubrics to give specific feedback. Ask questions to encourage further discussion. Record individual scores on the teacher cycle record form.
7. If some teams finish ahead of others, have them practice their fluency.
8. Award team celebration points for good team discussions that demonstrate 100-point responses.



Class Discussion

(20 minutes)

Lightning Round

1. Use **Random Reporter** to have teams share strategy use, oral and written Team Talk responses, word power discussions, and fluency. Ask other teams to agree, disagree, or add on to responses.
2. Use rubrics to evaluate responses and give specific feedback. Award team celebration points for 100-point responses. Record individual scores on the teacher cycle record form.

Celebrate

1. Tally the team scores on the poster, and celebrate teams that are accumulating points. Have teams reflect on the following questions:

How many points did your team earn today?

How can your team earn more points?

Remind students that top-scoring teams will earn bonus points that will be added to their cycle scores.

- Something to cheer about: Choose a behavior or learning outcome that you would like to reinforce, and reward that behavior by asking students to lead a cheer of their choice.
2. As a reminder, refer students to the Read and Respond homework assignment described in their student editions.

Lesson 5

Writing Objective: Provide supporting facts, examples, or events.

Anchor Standards for Writing Research to Build and Present Knowledge

Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism.

Students use the vocabulary study routine to rate their knowledge of each vocabulary word:

- + I know this word and can use it.
- ✓ This word looks familiar; it has something to do with...
- ? I don't know this word; it's totally new to me.

Teams discuss their vocabulary ratings.



Review Vocabulary Vault.

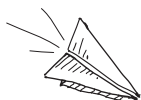
Teams review their cycle goal.

Post and present the writing objective.

Introduce the writing project.

Teacher Background

When you model the skill, show students how using the book's index can help them find the information that they need to support their answers and how to cite that evidence in their writing.



Active Instruction

(10 minutes)

Partner Vocabulary Study

1. Display the vocabulary words. Have students use the vocabulary study routine as they reread their knowledge of each vocabulary word as they arrive for class.
2. Spot check the Read and Respond homework.

Vocabulary

1. Have teams discuss their ratings of the words. Ask teams to make a tent with their hands when they are ready to tell a word the entire team rated with a "+" and a word the entire team rated with a "?."
2. Use **Random Reporter** to have the teams share one word that they know and one word that they need to study further. Use **Random Reporter** to have teams report on a new sentence using a vocabulary word. Award team celebration points.
3. Remind teams that if they find a word from the vocabulary list used in another place, such as in a magazine, textbook, TV ad, etc., they can bring in or copy the sentence in which the word was used and put it in the Vocabulary Vault to earn team points.

Set the Stage

1. Ask students to review their team's goal for this cycle and assess their progress.
2. Review the Team Celebration Points poster, and challenge teams to build on their successes.
3. Remind students of the text, author, and writing objective.
4. Refer to the writing objective. Point out that throughout the cycle, the students have been drawing conclusions and supporting their conclusions with evidence from the text such as facts, examples, and events.
5. Refer students to the following writing prompt in their student editions. Read the writing prompt aloud.

Shift 5: Writing from Sources

College and career readiness standards call for students to regularly use evidence from the text in their writing to inform or make arguments.

Anchor Standards for Writing Text Types and Purposes

Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.

Research to Build and Present Knowledge

Conduct short as well as more sustained research projects based on focused questions, demonstrating understanding of the subject under investigation.

Anchor Standards for Writing Production and Distribution of Writing

Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

Highlight the writing objective.

Writing Prompt

What impact have advances in technology had on keeping people safe from and during natural disasters? Use evidence from the text to answer the question.

Use **Think-Pair-Share** to ask:

Read the prompt. What is it asking you to do: support a claim with reasons, explain ideas or information on a topic, or write a literary response? How do you know?

This prompt is asking me to explain ideas and information. I know because the prompt asks what impacts advances in technology had on keeping people safe from natural disasters.

6. Refer students to the following writer's guide in their student editions. Point out that this Writing to Inform or Explain guide is the criteria for writing. Point out that using the writer's guide will help them write a quality response.

Writing to Inform or Explain

Ideas	- Clearly introduce the topic. - Develop the topic with relevant details.
Organization	- Begin by introducing the topic. - In the middle, provide facts, examples, or events that help a reader understand the information. - End with a closing statement that supports the information.
Style	- Use words and phrases that help a reader understand how the facts or events are related. - Include details or examples that help a reader make a mind movie.
Mechanics	Use correct punctuation, capitalization, spelling, and grammar.

Briefly review the guide, noting the four aspects of writing: ideas, organization, style, and mechanics.

Use **Think-Pair-Share** to ask:

Which guidelines relate to our writing objective: provide supporting facts, examples, or events?

The Ideas guideline "Develop the topic with relevant details" relates to our writing objective. Also, the Organization guideline "In the middle, provide facts, example, or events that help a reader understand the information" relates to the writing objective.

7. Tell students that this 10-minute writing project is practice to prepare them to write a quality answer for part II of the cycle test. Remind them that this section of the test is worth one third of their test score.

Model planning.



**Anchor Standards for Writing
Research to Build and
Present Knowledge**

Draw evidence from literary or informational texts to support analysis, reflection, and research.

**Anchor Standards for Writing
Production and Distribution
of Writing**

Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.

Students write for
10 minutes.

Monitor discussions
as partners and teams
give feedback.

Students revise and edit
their writing projects.

Model a Skill

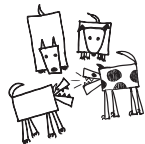
1. Remind students that they have read about various technologies and tools used to measure and record natural disasters on a couple of occasions in this cycle's text. Explain that many informational texts include an index at the end that lists key concepts and vocabulary and the corresponding page numbers where these items appear in the text.

Have students locate the index for *Nature Unleashed: The Power of Natural Disasters*. Point out that the words are listed in alphabetical order. Ask students on which pages are associated with technology, such as seismographs. *Pages 5, 10–12, 17, and 36.*

2. Use **Think-Pair-Share** to ask:

How can this index help us write the answer to today's writing prompt?

This index helps us locate some information about technology in the text. When I look at the sections of the text about technology, I should find information on the impact it is having on safety before and during natural disaster events. I can use this information to answer the prompt and provide evidence from the text to support my answer.



Teamwork

(20 minutes)

Independent Work

Tell students that they have 10 minutes to plan and write drafts of their responses to the writing prompt. Remind them to write on every other line to leave room for revisions. Suggest that they refer to the writing prompt to be sure that they include all the required elements and to the writer's guide to check the quality of their response.

Team Discussion

1. Refer students to the peer feedback checklist in their student routines, and review how to get/give feedback.
2. Have students share their drafts in teams. Allow 5 minutes for students to revise their writing projects based on feedback and to edit them using the editing checklist in their student editions.
3. Have teams put their writing projects in a pile in the middle of their tables so a writing project can be randomly selected.

Display and evaluate randomly selected writing projects using the writer's guide.



Class Discussion tp

(30 minutes)

Lightning Round

Randomly select a writing project from one or two teams' piles without revealing their authors. Display a writing project, and read it aloud.

Refer students to the writer's guide Writing to Inform or Explain and the writing objective—provide supporting facts, examples, or events.

Using the writer's guide, discuss and evaluate the selected writing project(s) with the class.

For example, ask:

- **Does the writer clearly introduce the topic?**
- **Does the writer include facts and examples to help a reader understand the information?**
- **Does the writer end with a closing statement that supports the information?**
- **Does the writer use appropriate academic language and full sentences?**

Award points to teams whose writing projects meet the criteria. Record these points on the team poster. Celebrate team successes.

Reflection on Writing

Have students reflect on their use of the writing process. Ask:

How did creating and using a graphic organizer work for you? How did it help you write your draft?

Answers will vary.

What was the most useful feedback that you received? How did it affect your revisions?

Answers will vary.

What supporting facts and examples in the index helped you answer the question?

Answers will vary.

Celebrate

1. Tally the team scores on the poster, and celebrate teams that are accumulating points. Have teams reflect on the following questions:

How many points did your team earn today?

How can your team earn more points?

Celebrate team successes!

The top team chooses a cheer.

Remind students that top-scoring teams will earn bonus points that will be added to their cycle scores.

- Something to cheer about: Choose a behavior or learning outcome that you would like to reinforce, and reward that behavior by asking students to lead a cheer of their choice.

Remind students of the Read and Respond homework assignment.

2. As a reminder, refer students to the Read and Respond homework assignment described in their student editions.

From Student Edition

Writing Prompt

What impact have advances in technology had on keeping people safe from and during natural disasters? Use evidence from the text to answer the question.

Writing to Inform or Explain	
Ideas	• Clearly introduce the topic. • Develop the topic with relevant details.
Organization	• Begin by introducing the topic. • In the middle, provide facts, examples, or events that help a reader understand the information. • End with a closing statement that supports the information.
Style	• Use words and phrases that help a reader understand how the facts or events are related. • Include details or examples that help a reader make a mind movie.
Mechanics	• Use correct punctuation, capitalization, spelling, and grammar.

Peer Feedback	
1.	Read your writing project to your teammates. Remember to read with expression.
2.	Ask each of the questions below. Note your teammates' suggestions in the margin of your writing project. – Is it easy to identify the topic? – Are there facts, examples, or events that help a reader understand the information? – Is there anything that does not fit? – Does the writing end with a closing statement that supports the information? – Is the writing organized so you can see how the pieces are connected? Did I explain my thinking?
3.	Make a revision plan. On the back of your paper, list one or two of the most important changes that you could make based on your teammates' feedback.

**Anchor Standards
for Language**
Conventions of Standard English

Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.

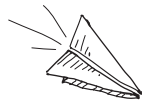
Lesson 6

Reading Objective: Use both text and visual information to draw conclusions.

Writing Objective: Provide supporting facts, examples, or events.

Teacher Background

In today's cycle test, students will again be asked to use textual and visual information to draw conclusions. The text that students will read for the test describes tornadoes and provides additional information about how research into natural disasters is helping us learn more about them and make better predictions.



Active Instruction

(5 minutes)

Students use the vocabulary study routine to rate their knowledge of each vocabulary word:

- + I know this word and can use it.
- ✓ This word looks familiar; it has something to do with...
- ? I don't know this word; it's totally new to me.

Teams review their cycle goal.

Post and present the reading and writing objectives.

Review Vocabulary Vault.

Partner Vocabulary Study

1. Display the vocabulary words. Have students use the vocabulary study routine as they rate their knowledge of each vocabulary word as they arrive for class.
2. Spot check the Read and Respond homework.

Set the Stage

1. Ask students to review their team's goal for this cycle and assess their progress.
2. Review the Team Celebration Points poster, and challenge teams to build on their successes.
3. Remind students of the texts, authors, and reading and writing objectives.
4. Remind teams that if they find a word from the vocabulary list used in another place, such as in a magazine, textbook, TV ad, etc., they can bring in or copy the sentence in which the word was used and put it in the Vocabulary Vault to earn team points.



Prepare Students for the Test

(5 minutes)

Partner Review

1. Remind students that they have been practicing using both text and visual information to draw conclusions and providing supporting facts, examples, or events. Use **Think-Pair-Share** to ask:

What have we done this cycle to practice using text and visual information to draw conclusions?



We discussed and answered questions that asked us to draw conclusions. We used information in photos, captions, diagrams, and graphs to support our conclusions.

Tell students that they will use this skill as they take the cycle test.

2. Have partners review their notes and word power journals for this cycle. Allow 2 or 3 minutes for this activity.

Test Directions

1. Remind students that the test is independent work. Students should not ask their partners for help as they read, but they may use sticky notes if they would like.
2. Distribute the test so students can preview the questions. Point out that some of the test questions are multiple choice for which they will choose the best answer. Other questions require them to write a short answer or create a graphic organizer. Part II of the cycle test requires them to write a long answer. Remind them that their writing project was practice for writing the long answer for part II of the test.
3. Point out that questions #2, #3, #4, and #5 ask about interpreting information.
4. Ask students to identify key words or phrases in question #3.

3. A storm chaser is someone who follows severe storms looking for tornadoes. If you were a storm chaser, where and when would you have the greatest chance of tracking one? Give evidence to support your answer. **(Write) [DC, SA]**

5. Introduce the text that students will read. Tell what it is about, but do not give additional information or details.

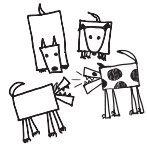
Today you will read about tornadoes and how scientists try to predict natural disasters.



Test tp

(30 minutes)

Tell students that they have 30 minutes for the test and that they may begin. Give students a 5-minute warning before the end of the test.



Teamwork tp

(10 minutes)

Teams discuss the answers to the test questions.

Team Discussion

1. Pass out a colored pen to each student.
2. Explain or review, if necessary, the student routine for team discussions after the test.
3. Have teams discuss their answers to the test questions. As you monitor team discussions, ask additional questions to prompt their thinking about the important ideas in the reading and about the skills and strategies that they have been using.



Class Discussion tp

(10 minutes)

Random Reporters share team discussion of a test question.



Lightning Round

1. Use **Random Reporter** to have teams share team discussions of the test questions and explain their thinking.

How do scientists use technology to help keep people safe during natural disasters?

Government agencies can send warning messages directly to people's mobile devices to warn them of severe storms.

2. Award team celebration points.
3. Collect test answers. Score original answers, and add extra points for improved answers.

Celebrate

Celebrate team successes!

1. Tally the team scores on the poster, and celebrate teams that are accumulating points. Have teams reflect on the following questions:

How many points did your team earn today?

How can your team earn more points?

Remind students that top-scoring teams will earn bonus points that will be added to their cycle scores.

- Something to cheer about: Choose a behavior or learning outcome that you would like to reinforce, and reward that behavior by asking students to lead a cheer of their choice.

The top team chooses a cheer.

Remind students of the Read and Respond homework assignment.

2. As a reminder, refer students to the Read and Respond homework assignment described in their student editions.

Cycle 2 Test

Interpret Information

Directions: Read *Nature Unleashed: The Power of Natural Disasters*, pages 30–36. Use the TIGRRS process, and answer the following questions on a separate piece of paper. Some of the questions are based on today's reading, and other questions are about the text that you read in previous lessons. You may refer to your notes from this cycle.

Part I. Comprehension (100 points)

1. What is the topic?

5 points = The topic of this text is natural disasters.

What is the author's intent?

5 points = The intent of the author is to use text and graphics to present detailed information about natural disasters.

Write a short summary of the text that you read today. Include the graphic organizer or notes that you used to organize the information and your thoughts. **[MI, AP]**

10 points = Tornadoes are violent cyclones that form in severe storms. Satellites collect data that help scientists study and track storms. Seismographs record information during earthquakes, volcanic eruptions, and tsunamis. This technology helps save lives.

2. What would you put in a care package to send to victims of a tsunami? Use the information and photographs found on pages 16–19 and your own thinking to provide a reason for each item that you select for the care package. **[DC, SA]**

20 points = If I were putting together a care package for the victims of a tsunami, I would include bottled water, canned food, and tents. I would also put flashlights, radios, and lots of batteries into the care package. According to the text, after a tsunami, the salt water from the ocean affects the fresh water and the crops in the area, so people would need bottled water and canned food in the care package. Tsunami destroy or damage homes, so people would need tents to sleep in. Also, from studying the photographs, it looks like the damage is so great that power lines would be knocked out. It would be very useful to have flashlights, radios to get information, and batteries to power the flashlights and radios.

15 points = I would put bottled water, canned food, and tents in the care package. A tsunami destroys homes, so people would need tents. The text says that after a tsunami, salt water gets into the water supply and ruins crops, so people would need bottled water and canned foods.

10 points = I would put bottled water, canned food, and tents in the care package because the tsunami brings salt water and destroys homes.

3. A storm chaser is someone who follows severe storms looking for tornadoes. If you were a storm chaser, where and when would you have the greatest chance of tracking one? Give evidence to support your answer. **(Write)**
[DC, SA]

20 points = *A storm chaser would have the greatest chance of tracking tornadoes in an area where they happen frequently. One area is Tornado Alley in the central U.S. as shown in the map on page 30. More tornadoes occur in this area in the months of May and June according to the bar graph on page 34, so that would be the best time for storm chasers to track a tornado.* (Students may identify the highest frequency in this area as being the red area on the map spanning parts of Texas, Oklahoma, Colorado, Kansas, Nebraska, Iowa, South Dakota, and Minnesota.)

15 points = *A storm chaser would have the greatest chance of tracking tornadoes in an area where they happen often. One area is Tornado Alley in the central U.S. More tornadoes happen in this area in the months of May and June.*

10 points = *A storm chaser would have the best chance of tracking tornadoes in Tornado Alley in May and June.*

4. From 1989 to 2013, in which two months did the most tornadoes occur in the United States? Why do you think that is? Use evidence from the text and graphs on pages 30–34 to support your answer. **[DC, SA]**

20 points = *From 1989 to 2013, in the United States, the most tornadoes occurred in the months of May and June. I think the weather conditions are right to create tornadoes then. According to the text, tornadoes are formed when warm wet air hits cool dry air to create thunderstorms. The map on page 30 shows why these conditions form in Tornado Alley. I think these weather conditions must occur a lot in May and June as spring turns into summer and temperatures are changing.*

15 points = *From 1989 to 2013, in the United States, the most tornadoes happened in May and June. I think the weather is right to create tornadoes then. Tornadoes are made when warm wet air hits cool dry air to create thunderstorms. The map on page 30 shows why this happens in Tornado Alley.*

10 points = *From 1989 to 2013, in the United States, the most tornadoes happened in May and June. I think the weather is right to create tornadoes then.*

5. What types of natural disasters made up the greatest percentage of all the natural disasters worldwide between 1970 and 2019? Explain your answer.
[DC, SA]

20 points = *Between 1970 and 2019, floods made up the greatest percentage of all the natural disasters that occurred worldwide, followed by extreme weather. I can look at the bar graph on page 35 and see that the light red sections of each bar are often the biggest, followed by the yellow sections. According to the key on the graph, the light red stands for floods, and the yellow stands for extreme weather. Since these make up the largest parts of the bars each year, they make up the greatest percentage during this time period.*

15 points = *Between 1970 and 2019, floods made up the greatest percentage of all the natural disasters that happened worldwide with extreme weather next largest. I can look at the graph and see that the light red sections of each bar are often the biggest, followed by the yellow sections. The light red stands for floods, and the yellow stands for extreme weather.*

10 points = *Between 1970 and 2019, floods made up the greatest percentage of all the natural disasters that happened worldwide with extreme weather next largest.*

Part II. Writing (100 points)

Write at least one paragraph to answer the following questions:

Do you think the number of deaths caused by natural disasters is increasing or decreasing? Use evidence from the text and your own thinking to answer the question.

The number of deaths from natural disasters is not going up. In fact, deaths from natural disasters are decreasing. The text says that early warning systems are saving lives. For example, weather forecasters are able to alert people days in advance where a hurricane might strike land. Officials can then order people to leave the areas that are in danger. The same is true for warning people about flooding and tornadoes. Scientists can use satellites and radar to track severe storms and rain to more accurately predict heavy rainfall in vulnerable areas or issue warnings about tornadoes. People get these warnings on mobile devices, helping them get to safety quickly. Geological disasters are still difficult to predict, but advances in construction and buildings can make them safer during earthquakes. The tsunami detection buoys can alert vulnerable coastal areas about possible tsunami from underwater earthquakes. And scientists were able to evacuate the area around Mount St. Helens while monitoring it before it's eruption. This action saved hundreds of lives.

The following guide is used to score part II of the cycle test.

Writing to Inform or Explain		
Ideas	- Clearly introduces the topic - Develops the topic with relevant details	0–25 pts.
Organization	- Begins by introducing the topic - In the middle, provides facts, examples, or events that help a reader understand the information - Ends with a closing statement that supports the information	0–25 pts.
Style	- Uses words and phrases that help a reader understand how the facts or events are related - Includes details or examples that help a reader make a mind movie	0–25 pts.
Mechanics	Uses correct punctuation, capitalization, spelling, and grammar	0–10 pts.
Writing Objective	Provide supporting facts, examples, or events.	0–15 pts.

Part III. Vocabulary (100 points)

1. Write a meaningful sentence using the word *debris*. **[CV]**

Accept responses that show that the student knows the meaning of the word and can use it correctly. For example, Debris from the car crash was scattered all over the road.

2. Scientists collect _____ on how tornadoes form so they can better predict where the tornadoes will strike.

Choose the word that belongs in the blank. **[CV]**

- A. epicenter
- B. levee
- C. data
- D. magnitude

3. debris epicenter

Would you expect to find *debris* at the *epicenter* of an earthquake? **[CV]**

Debris is the pieces of something that has been destroyed, so I would expect to find a lot of debris at the epicenter of an earthquake.

4. What is an antonym for the word *unpredictable*? **[CV]**

An antonym for unpredictable is predictable.

5. The word *geological* comes from the Greek root *geo*, meaning earth. How does the meaning of *geo* relate to the meaning of *geological*? **[CV]**

The word geological has to do with the physical structure of an area. Another way to say the “physical structure” of an area is the “shape of the earth” in an area.

6. The building was _____ after the tornado knocked down one of its walls.

Choose the word that belongs in the blank. **[CV]**

- A. uninhabitable
- B. magnitude
- C. data
- D. debris

7. Write a meaningful sentence using the word *magnitude*. **[CV]**

Accept responses that show that the student knows the meaning of the word and can use it correctly. For example: The magnitude of the earthquake was not great, so the building only shook slightly.

8. During the storm, the _____ kept the river's water from flooding our house.

Choose the word that belongs in the blank. **[CV]**

- A. uninhabitable
- B. levee
- C. data
- D. debris

9. What is one word that you or your teammates explored in your word power journal this cycle? Give the meaning of this word, and then use it in a meaningful sentence. **[CV]**

A word that we explored was cyclone. A cyclone is similar to a hurricane in that it is a rotating storm with strong winds and heavy rain. A sentence is: We went to the basement when we heard a cyclone was coming to remain safe from the strong winds of the storm.

10. As used in the sentence "Some places around the world are more prone to widespread and deadly flooding through a combination of geography, weather, and population density along waterways," *prone* most nearly means— **[CV]**

- A. lying flat.
- B. not inclined.
- C. likely to happen.
- D. face downward.

Explain how you figured out the meaning of *prone*.

I used the context. If places are more prone to deadly flooding events because of their geography, weather, and population density, then they must be more likely to experience flooding.

**Anchor Standards for Reading
Integration of Knowledge
and Ideas**

Delineate and evaluate the argument and specific claims in a text, including the validity of the reasoning as well as the relevance and sufficiency of the evidence.

Anchor Standards for Speaking and Listening
Presentation of Knowledge and Ideas

Adapt speech to a variety of contexts and communicative tasks, demonstrating command of formal English when indicated or appropriate.

Two-Minute Edit



Vocabulary Vault

Teams review their cycle goal.

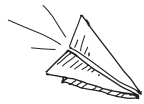
Connect the cycle objective to students' homework reading selections.

Lesson 7

Reading Objective: Use both text and visual information to draw conclusions.

Teacher Background

During Class Discussion, students orally present evaluations of their homework reading selections. During Teamwork, students use their Read and Respond notes and answers to the homework questions to make final preparations for these presentations. Team members share their responses and give one another feedback. During the oral presentations, students use their revised responses to the questions to describe the kind of texts they read, the strategies that helped them understand the text, and whether they will recommend their reading selections to others.



Active Instruction

(20 minutes)

Two-Minute Edit

1. Display and have students complete the Two-Minute Edit as they arrive for class.
2. Use **Random Reporter** to check corrections. Award team celebration points.

Vocabulary

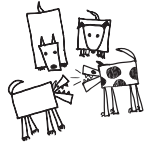
Ask teams if they have a Vocabulary Vault word that they would like to share. Award team celebration points.

Set the Stage

1. Ask students to review their team's goal for this cycle and assess their progress.
2. Review the Team Celebration Points poster, and challenge teams to build on their successes.
3. Have students get out their reading selections and Read and Respond forms. Remind them that today, with the help of their teams, they will each prepare a presentation about their individual reading selections.

Challenge students to think about the strategies and skills that they used to read their self-selected texts, share their answers to the Read and Respond questions, discuss their thinking, and prepare evaluations of their selections.

4. Remind students to add to the notes on their Read and Respond forms as they discuss their selections and prepare oral presentations about their selections. Students will use their answers to the questions on the Read and Respond form as the basis for their presentations.



Teamwork tp

(25 minutes)

Students prepare, share, and revise presentations of their reading selections.

Give students feedback on classwork.

Team Discussion

1. Tell students that they will use the Read and Respond questions as a guide as they discuss their homework reading and prepare evaluations of their reading selections to share with their teams.
2. As students prepare their answers, check in with those students for whom you do not have individual scores for graphic organizer/notes, written Team Talk responses, word power journal, and/or a fluency score. Have them show you examples from the cycle. Point out areas of success, and give feedback to improve student performance.
3. As you visit teams, take this opportunity to check students' homework for completion (Read and Respond forms). Enter the information on your teacher cycle record.

Teacher's Note:

Have students who are ready for a new selection take turns choosing reading material from the classroom library. Make sure every student has a Read and Respond form for next cycle.

Read and Respond Questions

1.	Is your selection informational or literature? Summarize your reading. (summary rubric)
2.	Why did you choose this reading? What is your purpose for reading? (Team Talk rubric)
3.	Choose a word, phrase, or passage that you did not understand at first. How did you figure it out? (strategy-use rubric)
4.	Write down a question that you had or a prediction that you made as you read. Were you able to answer or confirm it? Explain. (strategy-use rubric)
5.	Would you recommend this selection to others to read? State your opinion, and support it with reasons. (Team Talk rubric)
6.	Choose a short section of the text that you think is important or especially interesting. Tell your teammates why you chose it. Read it aloud smoothly and with expression. (fluency rubric)



Class Discussion

(15 minutes)

Team responses and feedback



Teams report on their review of the text and their Read and Respond discussion.

Celebrate team successes!

Final tally for this cycle

Record team celebration points on the teacher cycle record form.

Collect Read and Respond forms for this cycle.

Lightning Round

Use **Random Reporter** to have students present their evaluations of their homework reading selections (responses to the Read and Respond questions). Use rubrics to evaluate responses, give specific feedback, and award points.

Celebrate

1. Tally up this cycle's points on the poster.
2. Tell students that their scored tests will be returned at the beginning of the next lesson. Poster points and the teams' test scores will determine which teams earn the status of super team, great team, or good team for the cycle.
3. Be sure to record each team's total celebration points from the poster into the teacher cycle record form. Remind students that team celebration points and team test averages are used to determine team scores.
4. Collect students' Read and Respond forms, and pass out new forms.
5. Tally up the number of Read and Respond signatures on students' forms, and record the number on the teacher cycle record form after class.

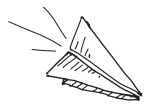
Lesson 8

Objectives: Celebrate successes, and set new goals. Hold a Class Council meeting.

Teacher Background

In the first part of this lesson, students review their test results and their final scores for the cycle and compare them with their goals. They celebrate success and set new objectives for further improvement.

In the second part of the lesson, students participate in Class Council.

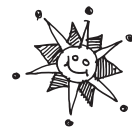


Active Instruction tp

(2 minutes)

Two-Minute Edit

1. Display and have students complete the Two-Minute Edit as they arrive for class.
2. Use **Random Reporter** to check corrections. Award team celebration points.



Celebrate/Set Goals

(20 minutes)

1. Distribute students' scored cycle tests. Allow a few moments for students to review them.
2. Distribute team score sheets to teams and celebration certificates to students. Remind students that the cycle's top-scoring teams are determined by their points on the poster and their test scores.
3. Recognize and celebrate the super, great, and good teams. Remind the teams of the impact of bonus points that are added to team members' cycle scores.
4. Have each team discuss and set a goal for the next cycle and record it on their team score sheet. Use the questions below to analyze and discuss the students' scores.

What was your team's highest score?

What score do you want to improve?

What can the team do to improve that score?

Two-Minute Edit

Distribute scored cycle tests.

Distribute team score sheets and celebration certificates.

Class celebration!
Celebrate team successes with a class cheer.

Each team sets a team goal for the next cycle.



Use **Random Reporter** to ask:

What is your team's goal for the next cycle? Why did you choose that goal?

Accept supported answers.

5. Use the poster to award team celebration points for responses that include the team's reasons for choosing the goal, thus beginning the accumulation of points for the next cycle.
6. Have students record their cycle test scores and their areas of greatest strength and improvement on their progress charts.



Class Council

(30 minutes)



1. Share class compliments.
2. Review the class goal that was set at the last Class Council. Using the agreed-upon measure of progress, was the goal met? Why or why not?
3. Discuss a class concern, or use the scenario and discussion hints provided.
4. Have teams discuss and then use **Random Reporter** to share responses.
5. After debriefing how they resolved the problem, help students set a goal and a measure of progress that they can use at the next Class Council.



Brain Game

(5 minutes)

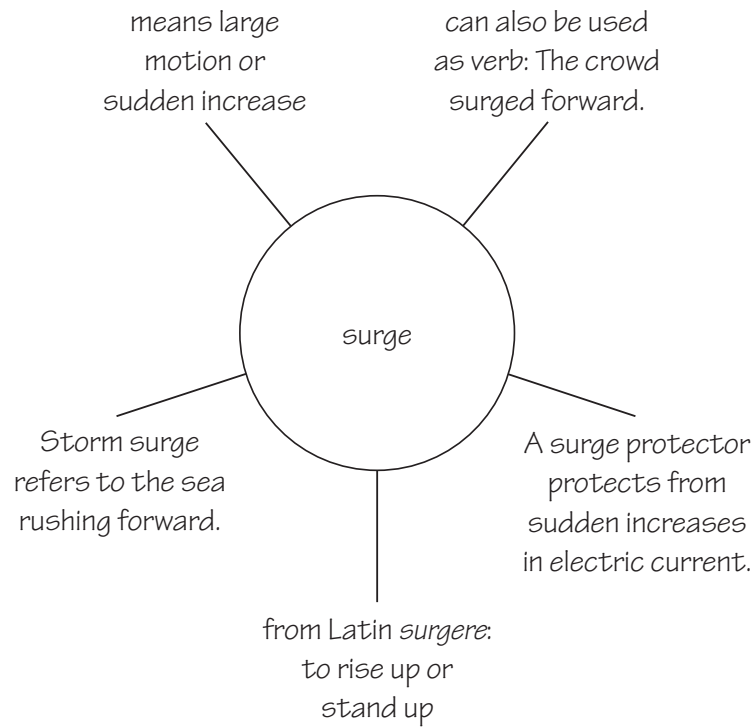
1. Choose a brain game from the card set, and then play the game.
2. Use the following questions to debrief and remind students of self-regulatory strategies:

What did this game require your brain to do?

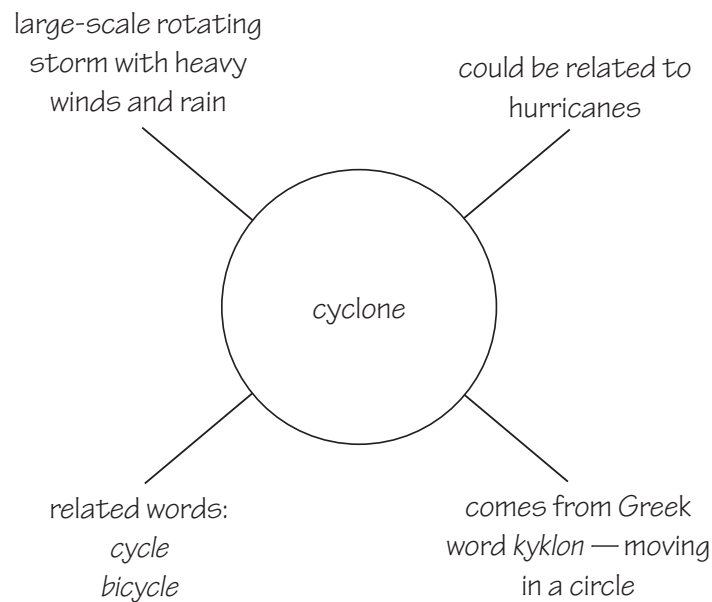
How will use of this skill improve your success in other classes?

Word Power Journal Sample Entries

Sample Word Map Cycle 1



Sample Word Map Cycle 2



College and Career Readiness Standards

The following College and Career Readiness Standards are addressed in this unit. Full program alignments can be found on the Reading Edge online resources. Contact your SFA coach for more information.

Level 6 Interpret Information

Science and Technical Subjects

Integration of Knowledge and Ideas

Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).

Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.

Craft and Structure

Describe how a text presents information (e.g., sequentially, comparatively, causally).

Writing in History/Social Studies/Science

Text Types and Purposes

Support claim(s) with logical reasoning and relevant, accurate data and evidence that demonstrate an understanding of the topic or text, using credible sources.

Research to Build and Present Knowledge

Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.

Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.

Draw evidence from informational texts to support analysis reflection, and research.

Speaking and Listening

Presentation of Knowledge and Ideas

Present claims and findings, sequencing ideas logically and using pertinent descriptions, facts, and details to accentuate main ideas or themes; use appropriate eye contact, adequate volume, and clear pronunciation.

Include multimedia components (e.g., graphics, images, music, sound) and visual displays in presentations to clarify information.

Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.

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