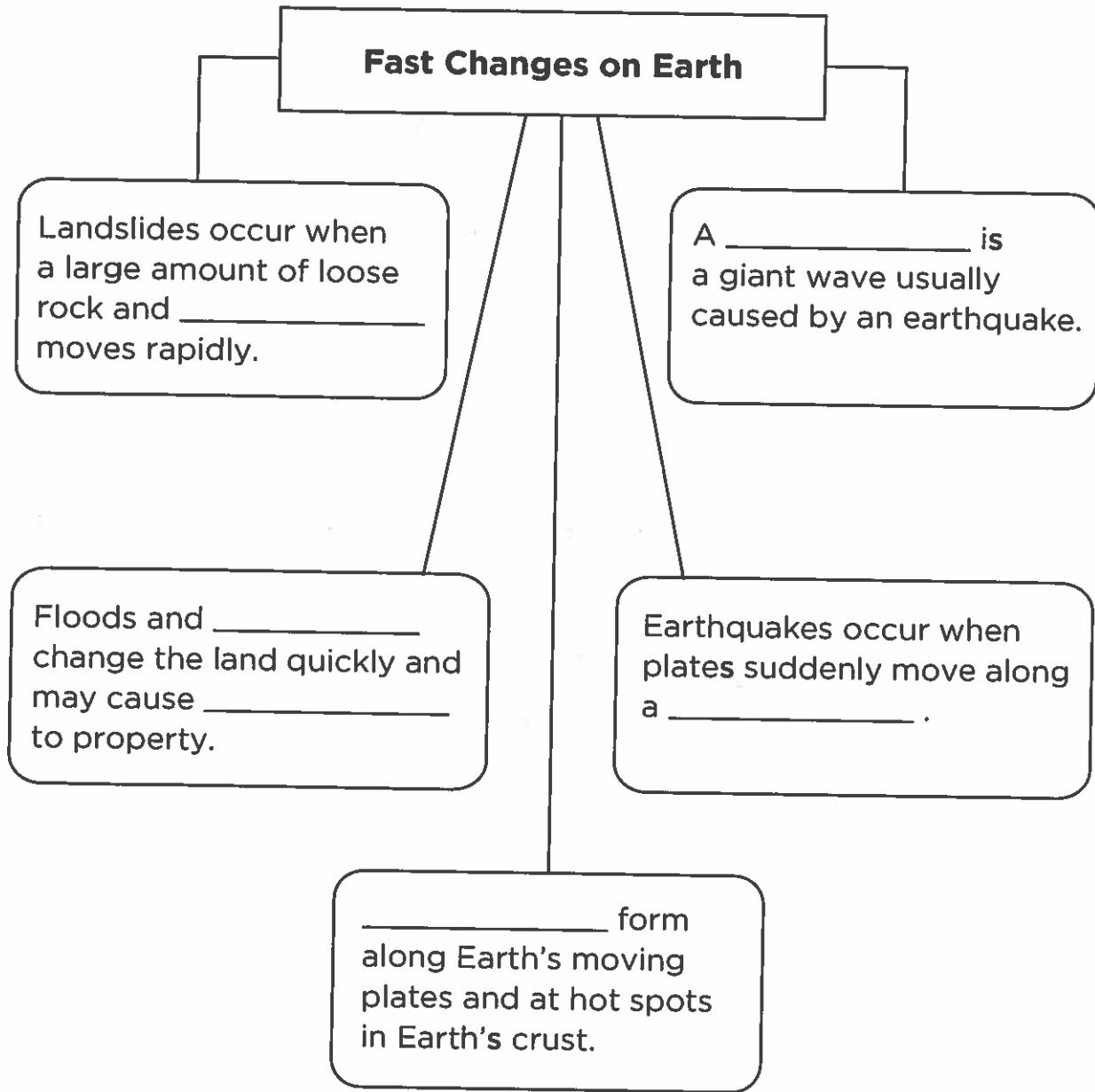


Fast Changes on Earth



Landslides

Use your textbook to help you fill in the blanks.

How do landslides change the land quickly?

1. _____ is a _____ that acts on all objects.
2. _____ pulls materials such as weathered rocks and soil from a _____ to a _____.
3. A _____ occurs when a large amount of loose rock and soil _____.
4. A landslide is sometimes caused by things that quickly shift the land such as an _____ or rocks that _____.
5. A landslide can carry _____ with it and also cause _____.

How do floods change the land quickly?

6. _____ can also cause the land to _____.
7. When the ground is not able to hold any more water, it runs on top of _____ and may flow into streams and rivers.
8. A _____ occurs when the banks of a _____ or _____ overflow.
9. Flood waters _____ quickly.

10. Some floodwaters are so strong that they may _____ soil that supports bridges and roads, causing them to _____.
11. When land becomes full of water, it may change into a river of _____ called a _____.
12. Materials left behind by a mudslide may keep _____ from going down as quickly.

What are some safety tips for landslides and floods?

13. During heavy rains, listen to _____ for warnings.
14. Watch and listen for _____, new cracks in the _____, and tilting _____.
15. If you are near a landslide, _____.
16. A _____ means that flooding is possible.
17. A _____ means that a flood is occurring or will occur soon.
18. If there is a warning for your area, _____.
19. If caught in a flood, do not _____.

Summarize the Main Idea

20. What do landslides and floods have in common?
- _____
- _____

Landslides

- a. flood
- b. flood warning
- c. flood watch
- d. landslide
- e. mudslide

Match the correct letter with the description.

- 1. _____ Flooding is possible.
- 2. _____ A river of mud and rock.
- 3. _____ The banks of a river or stream overflow.
- 4. _____ A large amount of loose rock or soil moves rapidly.
- 5. _____ A flood is occurring or will occur soon.

Answer the questions.

6. What is the difference between a flood watch and a flood warning?

7. If you are caught in a flood, you should avoid

Landslides

earthquake	flood watch	landslide	overflow
erode	freezing	local news	rivers
flood warning	gravity	mudslide	

Fill in the blanks.

Some forces can change the land quickly. When _____ pulls materials rapidly downhill, a _____ occurs. These can occur when land shifts rapidly during an _____ or by the _____ and thawing of rocks. When the ground is not able to hold any more water, it runs on top of the land and may flow into streams and _____. When streams or riverbanks _____, a flood occurs. Flood waters _____ soil quickly and can wash away anything in their path. When the land becomes full of water, it may change into a river of mud and rock called a _____. During heavy rains, you should listen to _____ and watch for signs of a possible landslide. A _____ means that flooding is possible, and a _____ means that a flood is occurring or will occur soon. If caught in a flood, do not walk in moving water.

Earthquakes

Use your textbook to help you fill in the blanks.

What are earthquakes?

1. Fast changes take place on Earth's _____ or the crust.
2. The crust is made up of giant slabs of rock called _____ that fit together like the pieces of a puzzle.
3. A place where the plates come together and rocks move along one or both sides of a crack is called a _____.
4. Most earthquakes in Earth's crust are caused by a sudden shift of Earth's _____.
5. Many earthquakes happen in an area around the _____ where some of Earth's plates meet.

What causes an earthquake?

6. Most earthquakes happen where Earth's _____ meet.
7. Large earthquakes do not usually occur where Earth's slow movement called _____ takes place along faults.
8. Different kinds of faults form because Earth's plates move in _____.
9. Plates pull apart in a _____, and rocks above the fault surface _____.
10. Plates push together in a _____, and rocks above the fault _____.
11. The _____ Fault is an example of a _____ where rocks slide past each other in different directions.

12. The vibrations of an earthquake are strongest where the earthquake _____.
13. Earthquakes' vibrations move through Earth's crust in _____ like the ripples from a pebble dropped in a pond.

What is a tsunami?

14. A giant ocean wave called a _____ is usually caused by an earthquake on the _____.
15. As a tsunami moves closer to shore, it slows and gets _____.
16. A tsunami may be one _____ of water or a series of _____.

What are some safety tips for earthquakes and tsunamis?

17. Your family should hold _____ and arrange a _____ outside your home for when the earthquake is over.
18. If outside during an earthquake, you should move quickly to an _____, and if in a car, you should not stop under a _____.
19. If you live near the coast, you should listen for tsunami advisories, watches, and warnings after an _____.
20. If there is a tsunami warning for your area, you should _____ right away.

Summarize the Main Idea

21. Why do earthquakes occur?
- _____
- _____

Earthquakes

- | | | |
|---------------|------------------|----------------------|
| a. creep | d. normal fault | g. strike-slip fault |
| b. earthquake | e. plates | h. tsunami |
| c. fault | f. reverse fault | i. vibrate |

Match the correct letter with the description.

- _____ Gigantic slabs of rock that make up Earth's crust
- _____ Movement in Earth's crust caused by a sudden shift in Earth's plates
- _____ Crack where plates come together and rocks move along one or both sides
- _____ Rocks slide past one another in different directions.
- _____ Giant ocean wave
- _____ Slow movement along faults
- _____ Plates push together and rocks above the fault move upward.
- _____ To shake
- _____ Plates pull apart, and rocks above the fault surface move down.

Earthquakes

begins	normal fault	reverse fault
earthquakes	Pacific Ocean	strike-slip
fault	plates	tsunamis

Fill in the blanks.

Earth's surface is always changing. Earth's crust is made up of gigantic slabs of rock called _____ that fit together like the pieces of a puzzle. A place where plates come together and move along one or both sides is called a _____ . _____ occur when Earth's plates undergo a sudden shift. Many earthquakes happen in an area around the _____ . A _____ occurs when plates pull apart and rocks above the fault surface move down. When plates push together and rocks above the fault move upward, a _____ occurs. Rocks that slide past one another in different directions form a _____ fault. The vibrations from an earthquake are strongest where the earthquake first _____ . Earthquakes on the ocean floor can cause giant waves called _____ .

Writing in Science



Write About It

Narrative Writing Write a personal narrative about a natural event that you experienced. What happened? What did you do? How did you feel? Why do you still remember the experience? Use the “I” point of view. Include time-order words to show the order of events.

Getting Ideas

Use a separate piece of paper to write down ideas for your narrative. Write the natural event at the top of the page. Then brainstorm. Then make four lists on your page:

- What happened
- What I did
- Why I remember it
- How I felt

Planning and Organizing

Antonio decided to write about an earthquake he experienced. Here are some sentences that he wrote. Put them in time order. Write 1 by the sentence that should come first. Write 2 by the sentence that should come second. Number the last sentence 5.

1. I ran to the doorway and put one arm on each side to hold myself steady. _____
2. A low rumbling sound filled my room. _____
3. Something woke me up, but I wasn't sure what. _____
4. The quake lasted only a minute, but it felt like a year. _____
5. Then my bed began to shake. _____

Now write five sentences about your natural event on a separate piece of paper. Put the sentences in time order.

Drafting

Try to grab your reader's interest in the first sentence of your personal narrative. Here are two sentences that Antonio wrote. Circle the one he should use to begin his narrative.

October 15, 2003 is a date I shall never forget.

I had an interesting experience in October.

Now write the first draft of your personal narrative on a separate piece of paper. Begin with an attention-grabbing sentence. Tell the events in time order. Use details and end by telling what the event meant to you.

Revising and Proofreading

Here are some sentences that Antonio wrote. Rewrite each sentence using the "I" point of view.

1. He screamed when the bed started to shake.

2. He didn't know what was happening, and this made him scared.

3. He looked around for a place where he could take cover.

Now revise and proofread your personal narrative. Ask yourself:

- Have I used the I point of view?
- Have I organized the events in time order?
- Have I corrected all grammar errors?
- Have I corrected all spelling, punctuation, and capitalization errors?

Volcanoes

Use your textbook to help you fill in the blanks.

What is a volcano?

1. A _____ is a mountain that builds up around an opening in _____.
2. An _____ occurs when melted rock, gases, and pieces of rock are _____ of a volcano.
3. Gases that build up pressure in magma can cause an _____.
4. Magma can rise through a _____ called a _____.
5. Magma is called _____ once it reaches the _____ where it cools and hardens to form a _____.

Where do volcanoes form?

6. When one Earth plate is pushed beneath another, the plate moving down melts and is changed to _____.
7. Heated magma _____ up through Earth's crust to form _____.
8. Volcanoes that form in the middle of a plate may occur when magma partially melts through Earth's crust in an area called a _____.

What are some kinds of volcanoes?

- 9. A _____ has steep sides and is formed when gases in thick magma explode and cause lava to burst into the air.
- 10. When lava falls in pieces around the volcano, it forms a cuplike shape around the vent called a _____.
- 11. A _____ has wide, flat sides and is formed by layers of lava that flow _____.
- 12. A _____ is made up of layers of _____ and _____.
- 13. Eruptions seem to _____, with an _____ eruption followed by a quiet period when lava _____.
- 14. The layers of a composite volcano build up to form a _____ shape that is usually _____, with the shape of one side matching the shape on the other side.

How can you be safe around volcanoes?

- 15. If you live near a volcano, you should have a _____ available for each member of your family.
- 16. If told to do so, you should _____.
- 17. If you are indoors near an erupting volcano, close all _____ and make sure your _____ are inside.

Summarize the Main Idea

- 18. How does a volcano cause sudden changes to Earth's surface?

What is a volcano?

- | | | |
|------------------------|-----------------|-------------------|
| a. cinder-cone volcano | e. hot spot | i. shield volcano |
| b. composite volcano | f. lava | j. vent |
| c. crater | g. magma | k. volcano |
| d. eruption | h. rift volcano | |

Match the correct letter with the description.

- _____ Melted rock beneath Earth's surface
- _____ A mountain that builds up around an opening in Earth's crust
- _____ A volcano that forms along the edges of spreading plates
- _____ A volcano with steep sides that forms when pieces of lava fall around the vent
- _____ A cuplike shape that forms around the vent of a volcano
- _____ Happens when melted rock, gases, and pieces of rock are forced out of a volcano
- _____ A wide, flat volcano formed by layers of lava that build up over time
- _____ A cone-shaped volcano that has explosive eruptions and quiet periods when lava flows gently
- _____ Central opening in a volcano
- _____ Place where magma partially melts through Earth's crust
- _____ Melted rock that reaches Earth's surface

What is a volcano?

active volcano

dormant volcano

shield volcanoes

cinder-cone

eruption

vent

compositive volcanoes

lava

crater

rift volcanoes

Fill in the blanks.

A volcano is a mountain that builds up around an opening in Earth's crust called a(n) _____. Gases trapped in melted rock beneath Earth's surface can be forced out of a volcano during a(n) _____. Once magma reaches Earth's surface, it is called _____. Volcanoes that form along the edges of spreading plates are called _____. A volcano that is still erupting is a(n) _____, and a volcano that is no longer erupting is a(n) _____. A(n) _____ volcano has steep sides and forms from explosive eruptions. The cuplike shape that forms around the vent of a volcano is called a(n) _____. _____ have wide, flat sides and are formed by layers of lava that build up over time. Volcanoes that are made up of layers of lava and ash are _____. There are many things people can do to stay safe in areas where volcanoes are active.

Ro Kinzler is fascinated by volcanoes and volcanic rocks, and she'd go just about anywhere to find out more about them. She is a scientist at the American Museum of Natural History.

Ro travels to the Cascades in Northern California to collect lava samples from active volcanoes like Mount Shasta and Medicine Lake. She wants to study how magma moves through Earth. Back in the lab, Ro does experiments to heat and squeeze the lava samples she collected to find out how they were formed in Earth.

You don't just find volcanoes on land. There are lots of them on the ocean floor. Ro and other scientists have gone to the bottom of the ocean to study them in special underwater vehicles called submersibles. The scientists visited the Mid-Atlantic Ridge, part of the longest volcano chain in the world. Ro is one of the few people to have ever seen it. She peered out the portholes of the submersible Alvin with other scientists to make careful observations of the rock formations. They used these to create geologic maps of the ocean floor.

Cause and Effect

- The *cause* answers the question "Why did something happen?"
- The *effect* answers the question "What happened as a result?"

Research

Find out more about the Mid-Atlantic Ridge. Use library books and the Internet to research the Mid-Atlantic Ridge. You will use your research to make a chart and to write a lengthy paragraph covering the causes and effects of activity along the Mid-Atlantic Ridge.

**Write About It****Focus Questions**

- What happens along the Mid-Atlantic Ridge?
- What is the cause?
- What are the long-term effects of this activity?

Make a chart that summarizes the main ideas about the causes and effects of the activity along the Mid-Atlantic Ridge.

Cause	Effect

Next, describe the activity along the Mid-Atlantic Ridge and then discuss what causes this activity and what the effects of it are. Directly answer the prompt in your topic sentence. Use details from your research to clearly explain the causes and effects. Discuss each cause and effect carefully. Wrap up your paragraph with a closing sentence that restates the main idea of your paragraph.

Fast Changes on Earth

Choose the letter of the best answer.

1. A river that overflows its sides may cause a(n)
 - a. earthquake.
 - b. flood.
 - c. landslide.
 - d. tsunami.
2. Earth's crust is made up of gigantic slabs of rock called
 - a. craters.
 - b. faults.
 - c. hot spots.
 - d. plates.
3. A large amount of rock and soil that rapidly moves downhill is a(n)
 - a. earthquake.
 - b. fault.
 - c. landslide.
 - d. tsunami.
4. An earthquake on an ocean floor can cause a
 - a. river of mud.
 - b. tsunami.
 - c. volcano.
 - d. wall of sand and mud.
5. Most earthquakes are caused by
 - a. a mudslide.
 - b. gravity
 - c. a sudden shift in Earth's plates.
 - d. a tsunami.

Choose the letter of the best answer.

6. Where are hot spots located?
 - a. at the top of a volcano
 - b. where magma partially melts through Earth's crust
 - c. where two plates meet
 - d. a ring around the Pacific Ocean where most earthquakes happen

7. A mountain built up around an opening in Earth's crust is a(n)

a. crater.	c. tsunami.
b. eruption.	d. volcano.

8. A cuplike shape formed at the vent of a volcano is a

a. composite.	c. hot spot.
b. crater.	d. shield.

9. Heavy rains can soak the soil on a slope of land and cause a(n)

a. crater.	c. mudslide.
b. earthquake.	d. tsunami.

10. A break in Earth's crust is known as a(n)

a. crater	c. fault
b. earthquake	d. plate