3 The Ring of Fire



Pre-Reading

Think about the following questions.

1. What causes earthquakes?
2. How are volcanoes formed?
3. Does the ground move even when there are no earthquakes?

Vocabulary Preview

Write the letter of the word or phrase with the same meaning as the underlined word or phrase.

a. often	d. goes up
b. is made of	e. idea; assumed law in science
c. top; covering	f. steps toward achieving some result

1. ___ Earthquakes <u>frequently</u> occur in Japan.
2. ___ Scientists did not prove the <u>theory</u> yet, so many people don't believe it.
3. ___ One idea says the <u>surface</u> of the Earth is covered by huge plates of land.
4. ___ Lava <u>rises</u> from under the Earth and comes out of volcanoes.
5. ___ The <u>process</u> of creating new land involves lava becoming solid rock.
6. ___ Lava <u>consists of</u> various kinds of rock melted together.

LIVEWORKSHEETS

The Ring of Fire



The **Ring** of Fire is an enormous **chain** of volcanoes all around the Pacific Ocean. The ring goes from New Zealand up to Asia and across the ocean to Alaska. From Alaska, the ring continues **southward** along the coast of both North and South America. More than seventy-five percent of the world's volcanoes are located in this ring.

Scientists are interested in studying the Ring of Fire because they can observe plate tectonics at work there. In 1912, a German scientist, Alfred Wegener, came up with the first theory of land movement. Wegener said **continents** are made up of lighter rocks resting on heavier **material**. Similar to the way large things move while floating on water, Wegener suggested that the positions of the continents were not fixed, but that they moved **slightly**. Later, scientists discovered most of Wegener's ideas were right on the mark. They then developed the theory called plate tectonics.

According to plate tectonics, the surface of the Earth consists of a number of enormous plates or **sections** of rock, each about eighty kilometers thick. The plates **float** and slowly move at speeds between one to ten centimeters every year. That is about the **rate** your fingernails grow! Within the Ring of Fire, new material for the Earth's plates is constantly being created as hot liquid rock called magma **flows** from the center of the Earth up to the ocean floor. All the existing plates on the Earth's surface have to move slightly to make room for the new material.

As plates move both away from and toward each other, they run into each other. When they hit each other, one plate might move under another. This process is called subduction. Subduction frequently causes earthquakes. It may also result in the bottom plate **melting** due to the extreme temperatures under the top plate. The magma created in this process can rise to the Earth's surface and come out through volcanoes, as can be seen along the Ring of Fire.



Reading Time _____ minutes _____ seconds 333 words

1 *ring*: a circle
1 *chain*: a connected series of things
3 *southward*: in the direction of south
8 *continent*: a large area of land including many countries, like Asia, Europe, Africa, etc.
9 *material*: what something is made of
11 *slightly*: a little; to a small degree or extent
14 *section*: a part that is cut off or separated
15 *float*: to stay on the surface of a liquid
16 *rate*: the speed
17 *flow*: to move like liquid
25 *melt*: to become liquid

LIVEWORKSHEETS

Reading Comprehension

Choose the best answer.

1. What is the main focus of this reading?

a. The most active volcanoes found in the Ring of Fire
b. The location of the Ring of Fire
c. How the plates on the Earth's surface move in different ways
d. How plate tectonics, volcanoes, and earthquakes are related

2. According to the reading, which is true about the Ring of Fire?

a. All of the volcanoes along the ring are active.
b. Most of the volcanoes on Earth are part of the ring.
c. The ring gets bigger each year.
d. The ring was discovered in the 20th century.

3. What does "subduction" mean in this reading?

a. Rocks moving under volcanoes
b. Erupting liquid rock
c. The theory of moving plates
d. Movement of a plate under another

4. What is NOT a result of shifting tectonic plates?

a. Earthquakes
b. Extreme temperatures inside the Earth
c. Volcanoes
d. Subduction

5. Which question is NOT answered in the reading?

a. How fast do tectonic plates move?
b. How thick are the plates in tectonic theory?
c. What is the most active volcano today?
d. Where is the Ring of Fire?

Idiomatic Expressions

Find these idioms in the reading.

- **come up with** [to think of first; to have an original idea]
  I hope the politicians can come up with a way to avoid war.
- **right on the mark** [exactly correct]
  The advice you gave me for fixing my essay was right on the mark.
- **run into** [to hit or bump; to meet by chance]
  I ran into an old friend yesterday on my way to work.

Fill in the blank with one of the above idioms. Change its form if necessary.

1. I finally _____ a good topic for my essay.

2. She frequently tries to guess people's age, and most of the time she's _____.

3. It's important to drive carefully so you don't _____ anything.

LIVEWORKSHEETS

Summary

Read the sentences from the reading passage. Paraphrase the sentences to create a summary of the passage.

a. The Ring of Fire is an enormous chain of volcanoes all around the Pacific Ocean.

b. More than seventy-five percent of the world's volcanoes are located in this ring.

1. a + b: Around the Pacific Ocean is a chain of volcanoes called the Ring of Fire, in which _____.

c. According to plate tectonics, the surface of the Earth consists of a number of enormous plates or sections of rock, each about eighty kilometers thick.

d. The plates float and slowly move at speeds between one to ten centimeters every year.

2. c + d: Movement of sections of the Earth's surface is explained by the theory of plate tectonics, according to which _____.

e. When they hit each other, one plate might move under another.

f. This process is called subduction.

3. e + f: During the process of subduction, _____.



Listening

More Interesting Facts

Track 6

Listen to the dialog. Check True or False for each sentence.

	True	False
1. Mt. Fuji is the tallest volcano in the world.	☐	☐
2. Mauna Loa erupted over thirty times last year.	☐	☐
3. Kilauea has been continuously erupting since the 1980s.	☐	☐

LIVEWORKSHEETS

Discussion

Discuss the following questions.

1. Have you ever seen a volcano erupt? Would you like to?
2. Have you ever experienced an earthquake? If yes, describe your experience.
3. Which of these events was most recently in the new: a volcanic eruption or an earthquake? Where was it and what happened?

Grammar

Adverbial Phrases and Adverbial Clauses

An adverbial phrase does not include a subject and a verb, while an adverbial clause includes a subject and a verb. Both should be followed by a comma at the start of a sentence.

(According to / According as) plate tectonics, the surface of the Earth consists of a number of enormous plates or sections of rock, each about eighty kilometers thick.
(Because of / As) plates move both away from and toward each other, they run into each other.

Writing

Write your own short paragraph by answering the questions below.

A Recent Event

(1) What recent natural disaster happened? **(2)** How did you hear about it? **(3)** Where and when did it happen? **(4)** What damage was done? **(5)** What happened after the disaster?

Example

A recent natural disaster was a hurricane. I heard about the hurricane on television. The hurricane hit Florida last spring. Lots of houses fell down, but nobody died. After the hurricane, people fixed their houses and life went back to normal.

LIVEWORKSHEETS

Vocabulary and Idiom Review

A. Choose the best word or phrase to fill in the blank.

1. Because of the heavy rain, the water level of the river is _____.
a. absorbing b. floating c. moving d. rising

2. The _____ of the lake was very calm.
a. drop b. plate c. ring d. surface

3. This problem is difficult, but I need to ____ the answer.
a. exchange b. figure out c. flow d. slide

4. Please help me with this math problem. I can't _____ the answer.
a. end up b. face up to c. come up with d. run into

5. The book describes the _____ of events that started World War II.
a. chain b. culture c. process d. rate

6. Walking to work instead of driving every day has _____ my health.
a. improved b. located c. released d. touched

7. The class _____ students from many different countries.
a. consists of b. hangs around c. is right on d. slightly moves

B. Choose the correct form of the word to fill in the blank.

8. According to scientific _____, the universe began several billion years ago.
a. theory b. theorize c. theoretical

9. He decided not to buy the vase because it had a _____ crack.
a. slight b. slightly c. slightest

10. The manager _____ asks members of our team to work overtime.
a. frequency b. frequent c. frequently

LIVEWORKSHEETS