

Science Passwords

Earth
Science

Vocabulary for Science

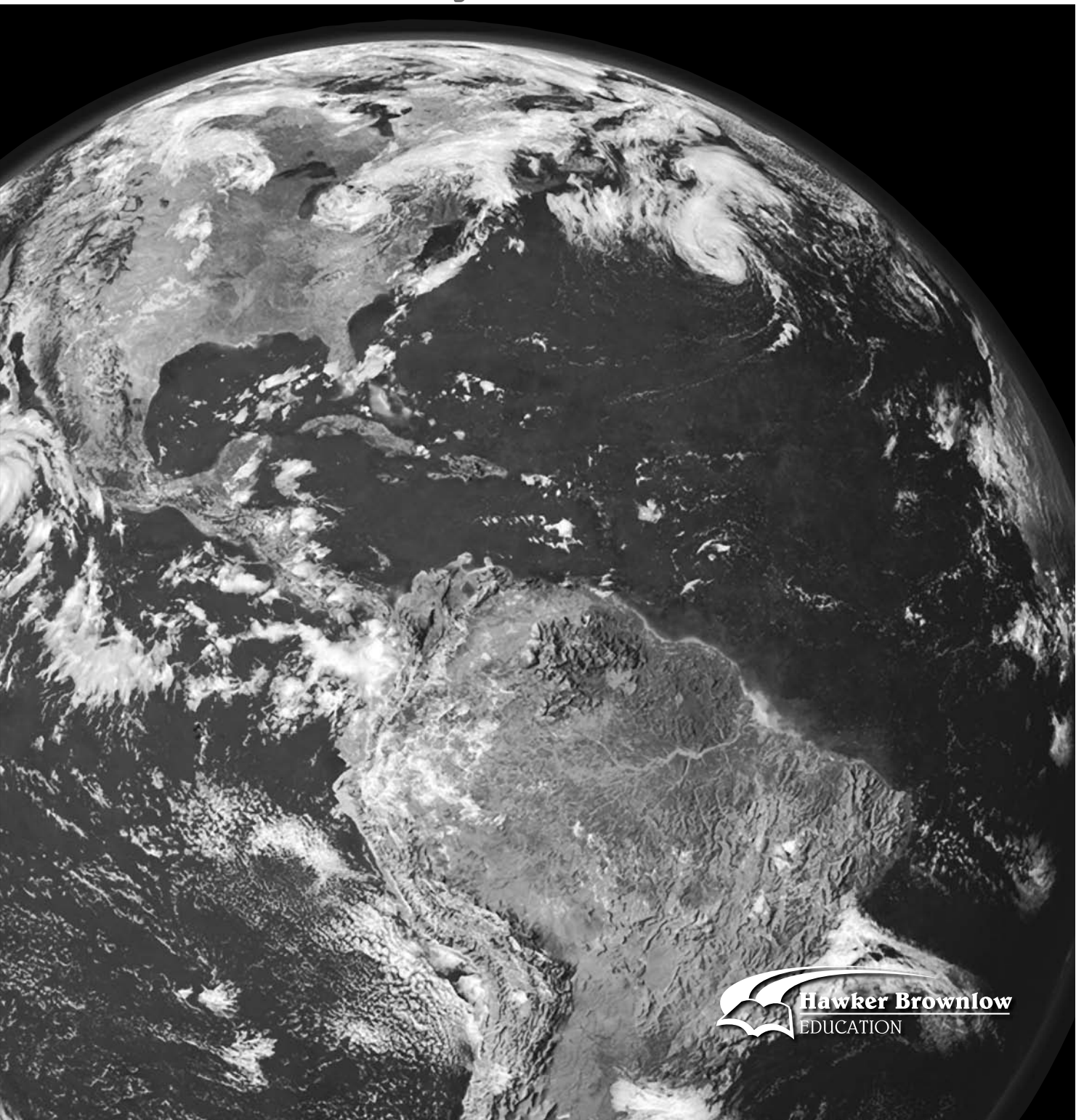




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LESSON 4

magma
vent

lava
volcanic eruption

fissure
cone

crater
active volcano

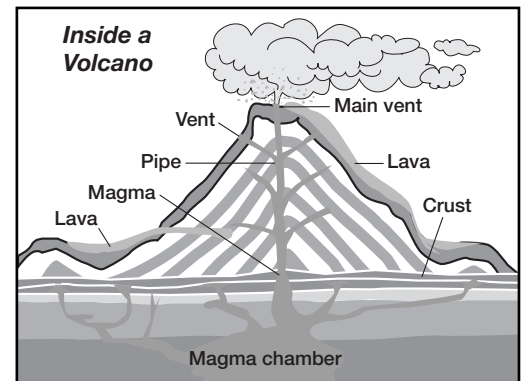
dormant volcano
extinct volcano

You may have read about volcanoes erupting or have seen pictures of volcanoes smoking or glowing red-hot. What do you think causes volcanoes? Read this selection to see if you are right.

Volcanoes

The Making of a Volcano

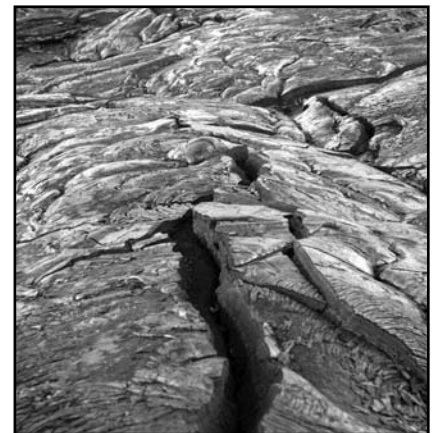
A volcano is an opening in Earth's crust where hot liquid rock and gases rise to the surface. The molten rock is called **magma**. The magma comes from a deep pool, or chamber, inside Earth. The magma then moves through a pipe inside the volcano to a **vent**, or opening at Earth's surface.



When the magma reaches the surface, it is called **lava**. Lava can flow like a river over the ground. As it cools, lava hardens into volcanic rock.

Volcanic Eruptions

A **volcanic eruption** occurs when molten rock, gas or ash comes out of a volcano. Most people think of an eruption as a great explosion. But some eruptions are less violent. In some places, magma flows out gently through a fissure. A **fissure** is a long crack in Earth's crust. In other eruptions, thin magma moves gently up through the vent of a volcano.



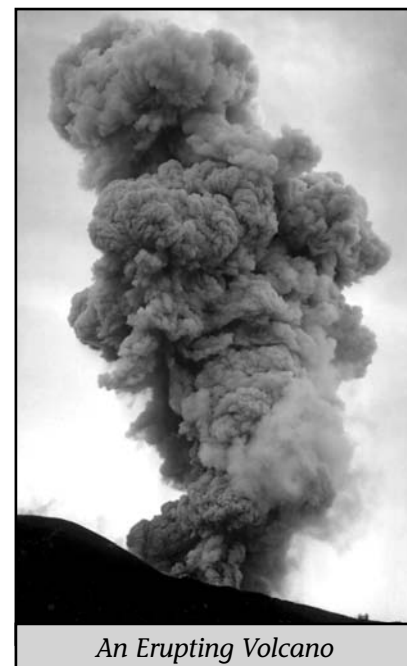
Fissure at Volcano National Park, Hawaii



Explosive Eruptions

If magma is thick, the vent of a volcano can become blocked. When magma pushing upward through the pipe finally breaks the block, a huge explosion occurs. The volcano throws out lumps of thick lava that become solid as they move through the air. Along with the lava, gases rush out of the vents. Solid rocks that made up the volcano's sides may be hurled into the air too. The volcano also blasts out powdery rock, known as ash.

A volcano that erupts many times may form a cone. A **cone** is a volcanic mountain that has a steep top, sloping sides, and a round base. At the top of the cone, a bowl-shaped hole, or **crater**, may form.



An Erupting Volcano

Stages of a Volcano's Life

Scientists group volcanoes by when they erupted. An **active volcano** is erupting now or has erupted within the past 10,000 years. A **dormant volcano** has not erupted recently. But scientists believe a dormant volcano may still erupt. An **extinct volcano** is unlikely to erupt again. But a volcano can shock people by erupting suddenly.



The crater of a dormant or extinct volcano can fill with water.

My Science Vocabulary

Go to page 95 to list other words you have learned about volcanoes.



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A. Match each word with its meaning. Write the letter of the correct meaning on the line in front of each word.

1. ____ active volcano
 2. ____ lava
 3. ____ vent
 4. ____ extinct volcano
 5. ____ crater
 6. ____ magma
 7. ____ dormant volcano
 8. ____ volcanic eruption
 9. ____ cone
 10. ____ fissure
- a. the opening of a volcano at Earth's surface
 - b. a long crack in Earth's crust through which magma flows out gently
 - c. a volcanic mountain that has a steep top, sloping sides, and a round base
 - d. a volcano that is erupting now or has erupted within the past 10,000 years
 - e. molten rock below Earth's surface
 - f. a bowl-shaped hole at the top of a cone, or volcanic mountain
 - g. the flowing of magma or blasting of volcanic rock out of a volcano
 - h. a volcano that is unlikely to erupt again
 - i. magma that has reached the surface
 - j. a volcano that has not erupted recently but may still erupt



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B. Circle the word that makes sense in each sentence. Then write the word.

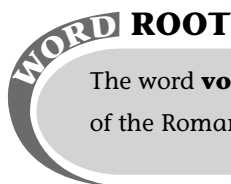
1. A volcano that is unlikely to erupt again is an (extinct volcano, active volcano). _____
2. A volcano that erupts many times can form a high (fissure, cone).

3. When magma reaches Earth's surface, it is called (lava, crater).

4. A volcano that erupted in 2006 is an (extinct volcano, active volcano).

5. A cone often has a (fissure, crater) at the top. _____
6. A deep pool of (magma, lava) lies inside Earth. _____
7. In a (volcanic eruption, crater), molten rock, ash or gas flow from a volcano. _____
8. During a volcanic eruption, magma may flow out of a (lava, vent) .

9. Scientists think a (dormant volcano, crater) may erupt again even if they have no record of a recent eruption. _____
10. Sometimes, magma flows out gently through a (lava, fissure) in Earth's crust. _____



The word **volcano** comes from the name of the Roman god of fire, **Volcanus**.



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C. Choose the correct vocabulary word to complete each sentence.

1. When it reaches the surface, magma is called _____ .
2. A long crack through which magma flows out gently is a _____ .
3. Magma moves through a pipe inside a volcano to a _____ .
4. Mount St Helens erupted in 1980, so it is called an _____ .
5. Volcanic rock may build up and form a _____ with a steep top, sloping sides and a round base.
6. If a volcano is unlikely to erupt again, it is called an _____ .
7. When molten rock begins to flow out of a volcano, a _____ has begun.
8. The molten rock that moves up a volcano toward the surface is called _____ .
9. If a volcano has not erupted recently but still seems as if it could erupt, it is called a _____ .
10. A volcanic cone often has a bowl-shaped hole, or _____ , at the top.



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D. Use each word in a sentence that shows you understand the meaning of the word.

1. volcanic eruption _____

2. fissure _____

3. lava _____

4. vent _____

5. cone _____

6. active volcano _____

7. magma _____

8. extinct volcano _____

9. crater _____

10. dormant volcano _____



Write!

**Write your response to the prompt on a separate sheet of paper.
Use as many vocabulary words as you can in your writing.**

Imagine you are studying a volcano before and after its eruption.
Over time, what events and changes can you report?





Root Words

The study of science in the Western world has always made use of the classical languages of Latin and Greek. These languages were linked with knowledge and learning. Scientists used them to name many things. Many words used in science today are based on those Latin and Greek “roots”.

This chart shows some Latin and Greek roots, their meanings, and examples of science words that use the roots. Use the space provided to write other words with the same roots and to add new roots, meanings, and examples.

Latin or Greek Root	Meaning	Examples
<i>magnus</i>	great	magnitude, _____ , _____ , _____
<i>portare</i>	carry	transportation, _____ , _____ , _____
<i>positum</i>	place	deposition, _____ , _____ , _____
_____	_____	_____ , _____
_____	_____	_____ , _____
_____	_____	_____ , _____
_____	_____	_____ , _____
_____	_____	_____ , _____





Prefixes and Suffixes

Prefixes

A prefix is one or more letters or syllables added to the beginning of a word to change the meaning. For example, *pre-* is a prefix that means “before”. Think of the word *cook*, which means “to prepare food”. If you add the prefix *pre-* to *cook*, the new word *precook* means “to cook before”.

Prefix	Meaning	Examples
con-	together, with	convection, _____ , _____
sub-	under	subsoil, _____ , _____
trans-	across	transportation, _____ , _____
_____	_____	_____ , _____ , _____
_____	_____	_____ , _____ , _____

Suffixes

A suffix is one or more letters added to the end of a word. Some suffixes make a noun plural (–s added to *rock* becomes *rocks*) or change the tense of a verb (–ed added to *jump* becomes *jumped*). Other suffixes change the meaning of the word. For example, *-hood* is a suffix that means “the state of”. If you add it to the word *child*, the new word *childhood* means “the state of being a child”.

Suffix	Meaning	Examples
-al	pertaining to	continental, physical, _____ , _____
-ic	dealing with	oceanic, _____ , _____
-ation	state or result	fossilisation, _____ , _____
_____	_____	_____ , _____ , _____
_____	_____	_____ , _____ , _____



Glossary

Aa

abyssal plain (uh-BIHS-uhl playn)

the fairly level ocean floor stretching from the continental rise to mid-ocean

(Lesson 11, page 65)

acid rain (AS-ihd rayn)

a pollutant made up of rainwater and acid from factory smoke

(Lesson 8, page 47)

active volcano

(AK-tihv vol-KAY-noh)

a volcano that is erupting now or has erupted within the past 10,000 years

(Lesson 4, page 23)



aftershock (ARF-tuhr-shok)

a smaller earthquake that follows a large earthquake

(Lesson 3, page 17)

air mass (AYR mas)

a large body of air with the same features throughout

(Lesson 12, page 70)

air pressure (ayr PREHSH-uhr)

the force of air pushing down on Earth

(Lesson 12, page 71)

aquifer (AK-wih-fuhr)

a layer of rock that fills with groundwater

(Lesson 10, page 59)

asteroid (AS-tuh-royd)

a small solid object of rock and metal that orbits the sun

(Lesson 13, page 77)

atmosphere (AT-muh-sfih)

all the air, or mixture of gases, that surrounds Earth

(Lesson 9, page 52)

axis (AK-sih)

an imaginary line around which

an object rotates

(Lesson 15, page 88)

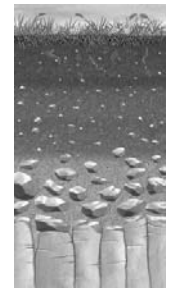


Bb

bedrock (BEHD-rok)

the solid layer of crust that seems firmly attached to Earth

(Lesson 1, page 5)



black hole (blak hohl)

a region with extremely dense matter. Its gravity is so strong that nothing, not even light, can escape from it.

(Lesson 14, page 83)

blue giant (bloo-JY-uhnt)

a huge blue star that is very hot and bright

(Lesson 14, page 83)

