

**Chapter 22 Earth’s Interior**

**Section 22.1 Earth’s Structure**

**(pages 660–663)**

*This section explains what geologists study. It describes the main layers of Earth.*

**Reading Strategy (page 660)**

**Building Vocabulary** Copy the table on a separate sheet of paper and add more rows as needed. As you read the section, define each vocabulary term in your own words. For more information on this Reading Strategy, see the **Reading and Study Skills** in the **Skills and Reference Handbook** at the end of your textbook.

Earth’s Structure	
Vocabulary Term	Definition
Geologist	
Uniformitarianism	
Crust	

**The Science of Geology (pages 660–661)**

1. The study of planet Earth, including its composition and structure is called \_\_\_\_\_.
2. Is the following sentence true or false? People who study Earth and the processes that have shaped Earth over time are called geologists.  
\_\_\_\_\_
3. What is uniformitarianism? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**A Cross Section of Earth (pages 661–663)**

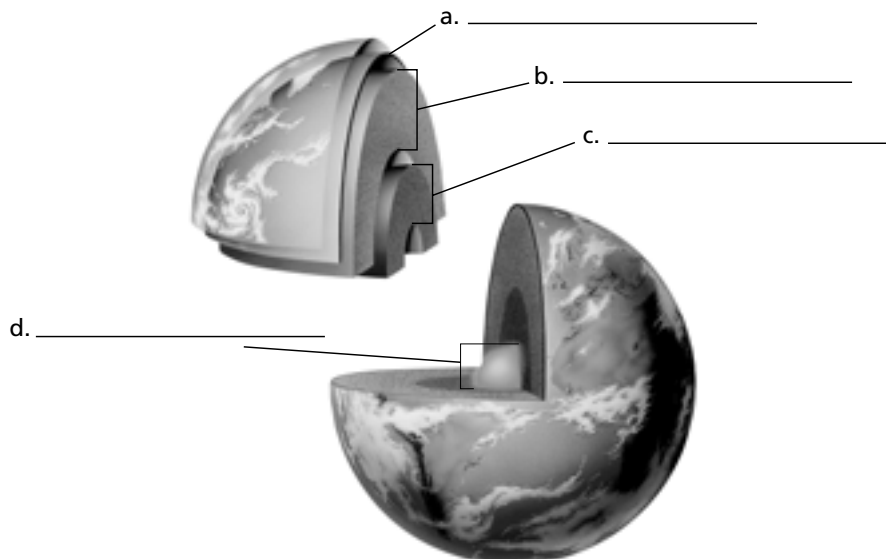
4. Circle the letters of the major layers of Earth’s interior.
  - a. crust
  - b. atmosphere
  - c. mantle
  - d. core
5. Scientists divide Earth’s interior into the crust, mantle, and core based on the \_\_\_\_\_.
6. Much of the Earth’s crust is made up of \_\_\_\_\_.

## Chapter 22 Earth's Interior

Match each type of crust to its characteristics. Each type of crust will have more than one characteristic.

Crust	Characteristic
_____ 7. oceanic crust	a. Averages about 7 kilometers thick
_____ 8. continental crust	b. Consists mainly of less-dense rocks
	c. Averages 40 kilometers in thickness
	d. Composed mostly of dense rocks
	e. Makes up the ocean floor
	f. Makes up the continents

9. The layer of Earth called the \_\_\_\_\_ is found directly below the crust.
10. Circle the letters of each sentence that is true about Earth's mantle.
  - a. It is the thickest layer of Earth.
  - b. It is divided into layers based on the physical properties of rock.
  - c. It is less dense than the crust.
  - d. It is made mainly of silicates.
11. The lithosphere includes the uppermost part of Earth's mantle and Earth's \_\_\_\_\_.
12. Is the following sentence true or false? Rock flows slowly in the asthenosphere. \_\_\_\_\_
13. The stronger, lower part of the mantle is called the \_\_\_\_\_.
14. The sphere of metal inside Earth is called the \_\_\_\_\_.
15. Is the following sentence true or false? The outer core of Earth is liquid. \_\_\_\_\_
16. Label the main layers of Earth's interior in the diagram below.



Chapter 22 Earth's Interior

## Section 22.4 Plate Tectonics

(pages 676–683)

*This section describes the theory of plate tectonics. It also examines sea-floor spreading, plate boundaries, and mountain building.*

### Reading Strategy (page 676)

**Previewing** Before you read this section, rewrite the headings as how, why, and what questions about plate tectonics. As you read, write answers to the questions. For more information on this Reading Strategy, see the **Reading and Study Skills** in the **Skills and Reference Handbook** at the end of your textbook.

Plate Tectonics
<b>Questions on Plate Tectonics</b>
What is the hypothesis of continental drift?

1. Is the following sentence true or false? According to the theory of plate tectonics, Earth's plates move about quickly on top of the crust. \_\_\_\_\_
2. What does the theory of plate tectonics explain about Earth's plates?  
\_\_\_\_\_

### Continental Drift (page 677)

3. Explain Alfred Wegener's hypothesis about the continents. \_\_\_\_\_  
\_\_\_\_\_
4. The process by which the continents move slowly across Earth's surface is called \_\_\_\_\_.

### Sea-floor Spreading (pages 678–679)

5. The world's longest mountain chain is the underwater chain called the \_\_\_\_\_.
6. Is the following sentence true or false? The theory of sea-floor spreading explains why rocks of the ocean floor are youngest near the mid-ocean ridge. \_\_\_\_\_
7. Is the following sentence true or false? Old oceanic plates sink into the mantle at mid-ocean ridges in a process called subduction.  
\_\_\_\_\_
8. A depression in the ocean floor where subduction takes place is called a(n) \_\_\_\_\_.

**Chapter 22 Earth's Interior**

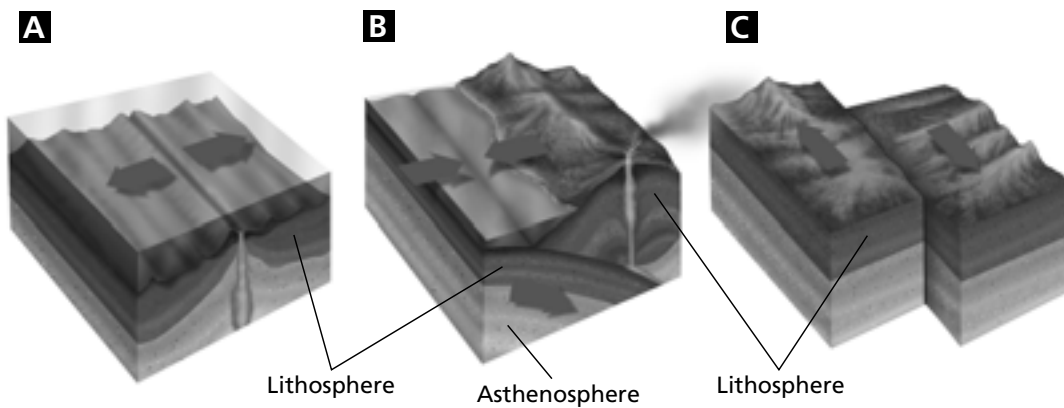
9. Circle the letter that completes the sentence. Sea-floor spreading \_\_\_\_\_ new oceanic crust at mid-ocean ridges.
  - a. creates
  - b. destroys
10. The process called \_\_\_\_\_ destroys old oceanic crust at subduction zones.

**The Theory of Plate Tectonics (pages 679–680)**

11. Is the following sentence true or false? The concept of sea-floor spreading supports the theory of plate tectonics by providing a way for the pieces of Earth's crust to move. \_\_\_\_\_
12. Heat from Earth's interior causes convection currents in Earth's \_\_\_\_\_.
13. Circle the sentences that are true about the theory of plate tectonics.
  - a. The ocean floor sinks back into the mantle at subduction zones.
  - b. The heat that drives convection currents comes from solar energy.
  - c. Hot rock rises at mid-ocean ridges, cools and spreads out as ocean sea floor.
  - d. Plate motions are the surface portion of mantle convection.
14. Describe the two sources of the heat in Earth's mantle.
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_

**Plate Boundaries (pages 681–682)**

15. Identify each type of plate boundary.



- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_

**Mountain Building (page 683)**

16. Is the following sentence true or false? Most mountains form along plate boundaries. \_\_\_\_\_
17. Describe how the Himalayan Mountains were formed. \_\_\_\_\_  
\_\_\_\_\_

Chapter 23 Earth's Surface

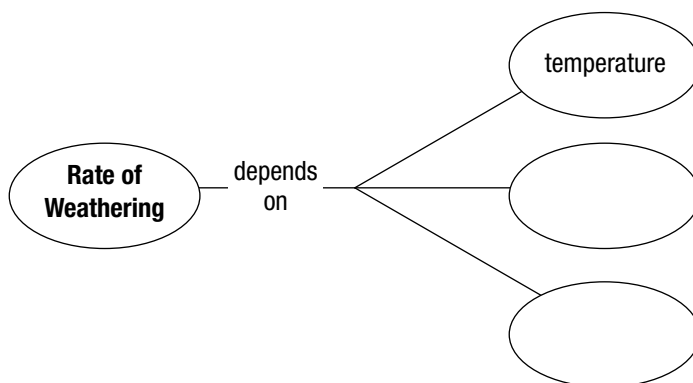
# Section 23.2 Weathering and Mass Movement

(pages 709–712)

*This section describes how land is changed by weathering and erosion. It also discusses mass movement.*

## Reading Strategy (page 709)

**Concept Map** As you read, complete the concept map showing the key factors which affect the rate of weathering. For more information on this Reading Strategy, see the **Reading and Study Skills** in the **Skills and Reference Handbook** at the end of your textbook.



## Erosion (page 709)

1. The process that wears down and carries away rock and soil is called \_\_\_\_\_.
2. Circle the letters of the sentences that are true about erosion.
  - a. It acts through hoodoos.
  - b. It acts through weathering.
  - c. It acts through the force of gravity.
  - d. It acts through the movement of glaciers, wind, or waves.
3. Is the following sentence true or false? The end product of erosion is sediment. \_\_\_\_\_

## Weathering (pages 710–711)

4. The process by which rocks are chemically changed or physically broken into fragments is called \_\_\_\_\_.
5. Circle the letters of the sentences that are true about weathering.
  - a. It can be mechanical.
  - b. It can be chemical.
  - c. It only breaks down soft rocks.
  - d. It can break down rocks into fragments.

**Chapter 23 Earth's Surface**

6. Circle the letters of the sentences that are true about mechanical weathering.
  - a. It occurs through frost wedging.
  - b. It occurs from acidic rain.
  - c. It occurs through rusting.
  - d. It occurs through abrasion.
7. Is the following sentence true or false? Abrasion happens when rocks scrape against each other. \_\_\_\_\_
8. In the process of chemical weathering, rock is broken down by \_\_\_\_\_.
9. Circle the letters of the sentences that are true about chemical weathering.
  - a. Chemical weathering occurs because rain is slightly acidic.
  - b. Rocks are broken down by chemical reactions.
  - c. Water is the main agent of chemical weathering.
  - d. Chemical weathering involves abrasion and frost wedging.
10. What happens to the minerals found in rocks during the process of chemical weathering? \_\_\_\_\_

**Rates of Weathering (page 711)**

11. What factors determine the rate at which mechanical and chemical weathering take place?
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
12. The kind of weathering that most likely occurs in places where temperature conditions alternate between freezing and thawing is \_\_\_\_\_ weathering.

**Mass Movement (page 712)**

13. In mass movement, rocks and soil move downhill because of \_\_\_\_\_.

*Match each type of mass movement with its correct description.*

Description	Mass Movement
_____ 14. Rapid mass movement of soil and other sediment mixed with water	a. creep
_____ 15. The rapid movement of large amounts of rock and soil	b. slumping
_____ 16. Weak layers of soil or rock suddenly moving down a slope as a single unit	c. mudflow
_____ 17. Soil gradually moving down a slope	d. landslide

Chapter 23 Earth's Surface

## Section 23.5 The Restless Oceans

(pages 725–729)

*This section describes the oceans and ocean currents. It also describes water erosion and deposition in the oceans.*

### Reading Strategy (page 725)

**Relating Cause and Effect** Copy the table on a separate sheet of paper. After you read, complete the table to compare ways that ocean water can move. For more information on this Reading Strategy, see the **Reading and Study Skills** in the **Skills and Reference Handbook** at the end of your textbook.

Ways Ocean Water Moves		
Movement Type	Causes	Effects
Surface current		
Density current		
Upwelling		
Longshore drift		

### Exploring the Ocean (pages 725–726)

- The proportion of dissolved salts in water is called \_\_\_\_\_.
- Is the following sentence true or false? Salt is removed from the ocean by animals and plants and through deposition as sediment.  
\_\_\_\_\_
- Circle the letters of the conditions that decrease with the ocean's depth.
 

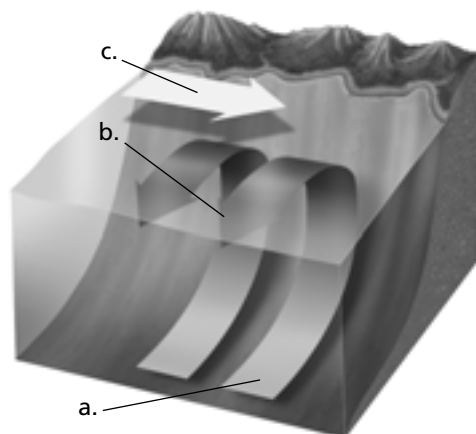
a. pressure	b. light
c. temperature	d. salinity
- What is the continental shelf? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Chapter 23 Earth's Surface**

**Ocean Currents (pages 726–728)**

Match each type of ocean current with its correct description.

- | Description  | Ocean Current      |
|--|--------------------|
| _____ 5. A current responsible for a slow mixing of water between the surface and deeper ocean         | a. surface current |
| _____ 6. Movement of water from the deep ocean to the surface  | b. density current |
| _____ 7. A large stream of ocean water that moves continuously in about the same path near the surface | c. upwelling       |
8. What causes the continuous flow of surface currents? \_\_\_\_\_
- 
9. Winds blow warm surface water aside, allowing cold water to rise, in the process of \_\_\_\_\_.
10. What does each letter in the diagram below represent?



- a. \_\_\_\_\_ b. \_\_\_\_\_ c. \_\_\_\_\_

**Wave Erosion and Deposition (pages 728–729)**

11. What are two hydraulic processes that can be responsible for wave erosion?
- a. \_\_\_\_\_ b. \_\_\_\_\_
12. Circle the letters of the sentences that are true about hydraulic action.
- a. A wave fills a crack with water.
  - b. Hydraulic action causes no changes to earth's coastlines.
  - c. Waves compress air as they slam into cracked rocks.
  - d. Pressure from waves causes cracks in rocks to get bigger.
13. Is the following sentence true or false? The process that moves sand along a shore is called hydraulic action. \_\_\_\_\_