

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)

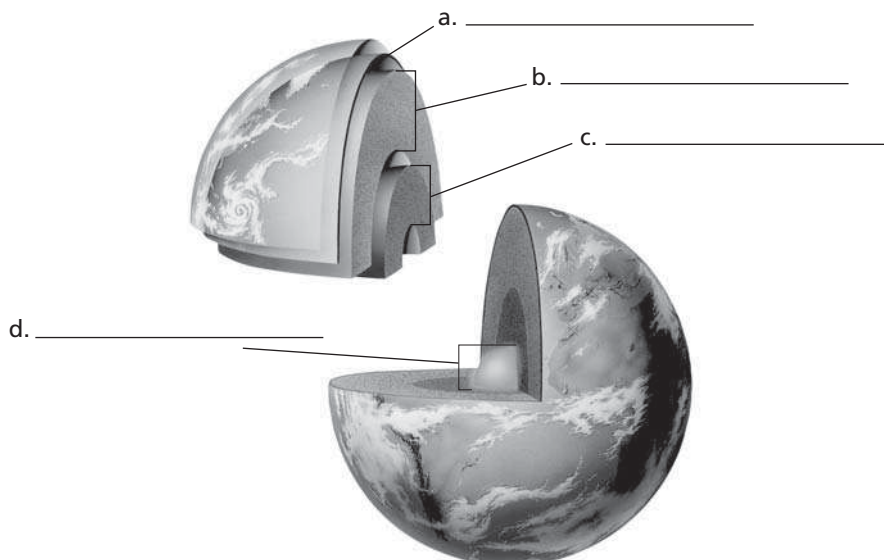
4. Circle the letters of the major layers of Earth’s interior.
 - a. crust
 - b. atmosphere
 - c. mantle
 - d. core
5. Scientists divide Earth’s interior into the crust, mantle, and core based on the _____.
6. Much of the Earth’s crust is made up of _____.

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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.



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Section 22.2 Minerals

(pages 664–669)

This section describes minerals and rocks found on Earth and their different properties.

Reading Strategy (page 664)

Outlining Copy the outline on a separate sheet of paper and add more lines as needed. Before you read, make an outline of this section. Use the green headings as main topics and the blue headings as subtopics. As you read, add supporting details. 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.

| Minerals | |
|--------------------------------|--|
| I. Minerals and Rocks | |
| II. The Properties of Minerals | |
| A. Crystal Structure | |
| B. _____ | |
| C. _____ | |
| D. _____ | |

Minerals and Rocks (page 665)

1. A solid combination of minerals or mineral materials is a(n) _____.
2. Is the following sentence true or false? A mineral is a naturally occurring, inorganic solid with a crystal structure and a characteristic chemical composition. _____
3. A material is called _____ if it is not produced from a living thing.
4. Circle the letters of sentences that are true about minerals.
 - a. Within each mineral, chemical composition is nearly constant.
 - b. Minerals are organic.
 - c. There are about 4000 known minerals.
 - d. Minerals are the building blocks of rocks.

The Properties of Minerals (pages 666–669)

5. Is the following sentence true or false? Minerals such as sulfur can sometimes be identified by color. _____
6. What could cause two samples of the same mineral to have different colors?

7. Is the following sentence true or false? The color of a mineral's streak is not always the same color as the mineral. _____

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8. How is a mineral's streak found? _____

9. The density of a mineral depends on its _____
10. Is the following sentence true or false? The hardness of a mineral is the way in which its surface reflects light. _____
11. To determine the hardness of a mineral, geologists use _____ tests.
12. Is the following sentence true or false? The fracture of a mineral is how it breaks. _____
13. A type of fracture in which a mineral splits evenly is called _____.
14. Complete the table about the properties by which minerals can be identified.

| Minerals and Properties | |
|--------------------------------|--|
| Property | Description |
| Crystal Structure | |
| | The color of a mineral's powder |
| Luster | |
| | A mineral's mass divided by its volume |
| Hardness | |
| | How a mineral breaks |
| Cleavage | |

Match each mineral to its property.

- | Mineral | Property |
|------------------------|---|
| _____ 15. calcite | a. Gives off visible light under an ultraviolet light |
| _____ 16. Iceland spar | b. Becomes electrically charged when heated |
| _____ 17. magnetite | c. Refracts light into two separate rays |
| _____ 18. tourmaline | d. Is attracted by a magnet |
| _____ 19. fluorite | e. Easily dissolved by acids |

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Section 22.3 Rocks and the Rock Cycle
(pages 670–675)

This section describes how rocks are classified. It also explains how rocks change form in the rock cycle.

Reading Strategy (page 670)

Comparing and Contrasting After you read, compare groups of rocks by completing the table. 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.

| Groups of Rocks | | |
|-----------------|-------------------|-----------|
| Rock Group | Formed by | Example |
| Igneous | | |
| | | Sandstone |
| | Heat and pressure | |

Classifying Rocks (page 670)

- Circle the letters of the major groups into which rocks are classified.
 - sedimentary
 - igneous
 - calcite
 - metamorphic
- Scientists divide rocks into groups based on _____.

Igneous Rock (page 671)

- A rock that forms from magma is called a(n) _____.
- A mixture of molten rock and gases that forms underground is called _____.
- What is lava? _____
- Is the following sentence true or false? Igneous rock is formed when molten material cools and solidifies either inside Earth or at the surface. _____

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

| Igneous Rock | Characteristic |
|-------------------------|---------------------------------|
| _____ 7. intrusive rock | a. Forms underground |
| _____ 8. extrusive rock | b. Forms at Earth's surface |
| | c. Has a fine-grained texture |
| | d. Has a coarse-grained texture |
| | e. Cools quickly |
| | f. Cools slowly |

Chapter 22 Earth's Interior**Sedimentary Rock (pages 672–673)**

9. The process of _____ breaks down rock at Earth's surface.
10. When sediment is squeezed and cemented together, _____ rocks are formed.
11. Circle the groups into which geologists classify sedimentary rocks.
 - a. clastic rocks
 - b. foliated rocks
 - c. organic rocks
 - d. chemical rocks
12. Sedimentary rocks formed from broken fragments of other rocks are called _____ rocks.
13. Is the following sentence true or false? Clastic rocks are classified mainly based on the number of fragments they have.

14. Minerals that precipitate out of solution form _____.

Metamorphic Rock (page 674)

15. Circle the ways a rock can be transformed into a metamorphic rock.
 - a. by heat
 - b. by precipitation
 - c. by pressure
 - d. by chemical reaction
16. Where do most metamorphic rocks form? _____

17. Is the following sentence true or false? Metamorphism can change the mineral content and texture of a rock. _____
18. Metamorphic rocks with crystals arranged in parallel bands or layers are called _____ rocks.

The Rock Cycle (pages 674–675)

19. Circle the letters of the sentences that are true about the rock cycle.
 - a. A metamorphic rock that melts and cools to form a new rock becomes an igneous rock.
 - b. Forces within Earth and at the surface cause rocks to change form in the rock cycle.
 - c. In the rock cycle, rocks may wear away, undergo metamorphism, or melt and form new igneous rock.
 - d. The rock cycle is a series of processes in which rocks change from one type to another continuously.