Lesson 3

ANSWER KEYS

Reading Checks

READING CHECK **Determine Meaning** *Ignis* means "fire" in Latin. What is "fiery" about igneous rocks?

Igneous rocks form from "red hot," or fiery, melted material.

READING CHECK **Summarize Text** Explain the basic difference between igneous and metamorphic rock.

Igneous rock is made from cooling magma or lava.

Metamorphic rock is old rock changed by pressure and heat.

READING CHECK **Summarize Text** What are the sources of energy that drive volcanic processes?

Energy from the sun drives the rain and winds that weather and erode the rock. Heat from Earth's interior drives the eruptions that add rock to the surface of the volcano.

Figure 2 & 3

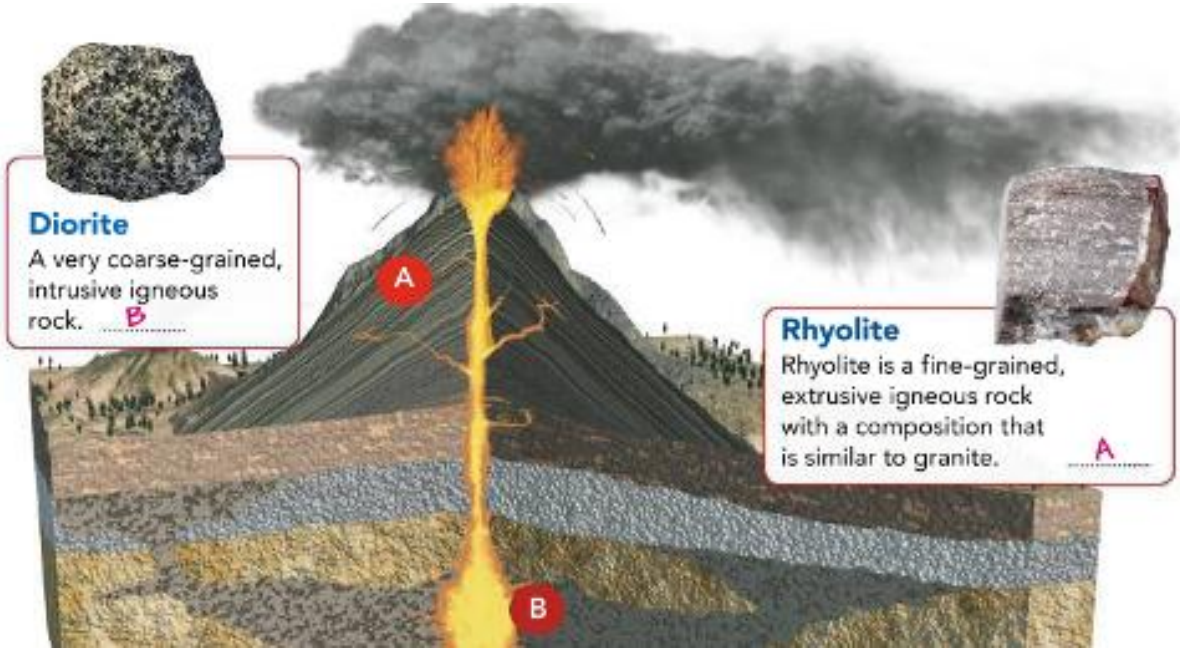

Figure 2 Granite is generally made up of only a few common minerals. This coarse granite formed when magma cooled slowly.

1. **Claim** Circle the best word to complete each sentence.

Granite is generally (dark/light) in color.

Granite has a (high/low) silica content.

The grains in granite are (fine/coarse).

2. **Evidence** What evidence did you use to make your claim?

Sample: The image of granite and the text.

3. **Reasoning** Explain how your evidence supported your claim.

Sample: The image of granite looks light. The text indicated that granite is high in silica. I can see the large, coarse grains in the image.

Figure 4 & 5

Sequencing Sedimentary Rock Formation

Figure 4 Sedimentary rock forms in layers that are then buried below the surface. Formation occurs through a series of processes over millions of years.

1. **CCC Patterns** Summarize how sedimentary rock forms by using the flow chart to sequence the following processes correctly: *transportation, compaction, cementation, weathering and erosion,* and *deposition.*

Weathering and erosion → Transportation → Deposition → Compaction → Cementation

2. **Synthesize Information** Which two processes turn layers of loose sediment into hard sedimentary rock?

Compaction and cementation

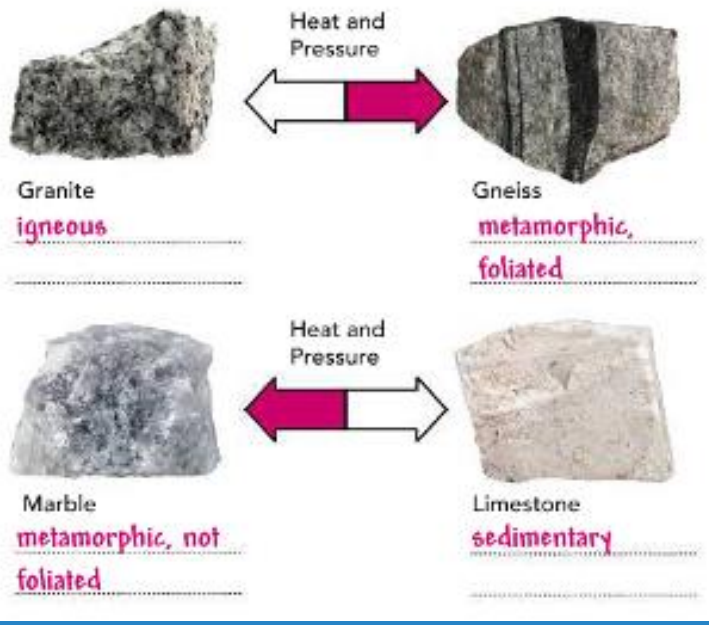

Figure 6 & Math Toolbox

Eruption!

Figure 6 A volcanic eruption brings up magma that will be subject to weathering and erosion when it cools.

Evaluate Change Would you describe the processes that change the rocks making up this volcano as fast or slow? Explain.

Sample: Some processes, like the eruption, are fast. Other processes, like weathering, are much slower.

Math Toolbox

Pressure and Depth

Pressure increases inside Earth as depth increases.

1. **SEP Interpret Data** About how far must one travel to experience the greatest pressure inside Earth?

   6,000 km down inside Earth

2. **Analyze Relationships** How is pressure related to depth?

   Sample: Until about 3,000 km, pressure increases with depth a constant rate. After 3,000 km, rate of change is not constant.

Pressure vs. Depth Inside Earth