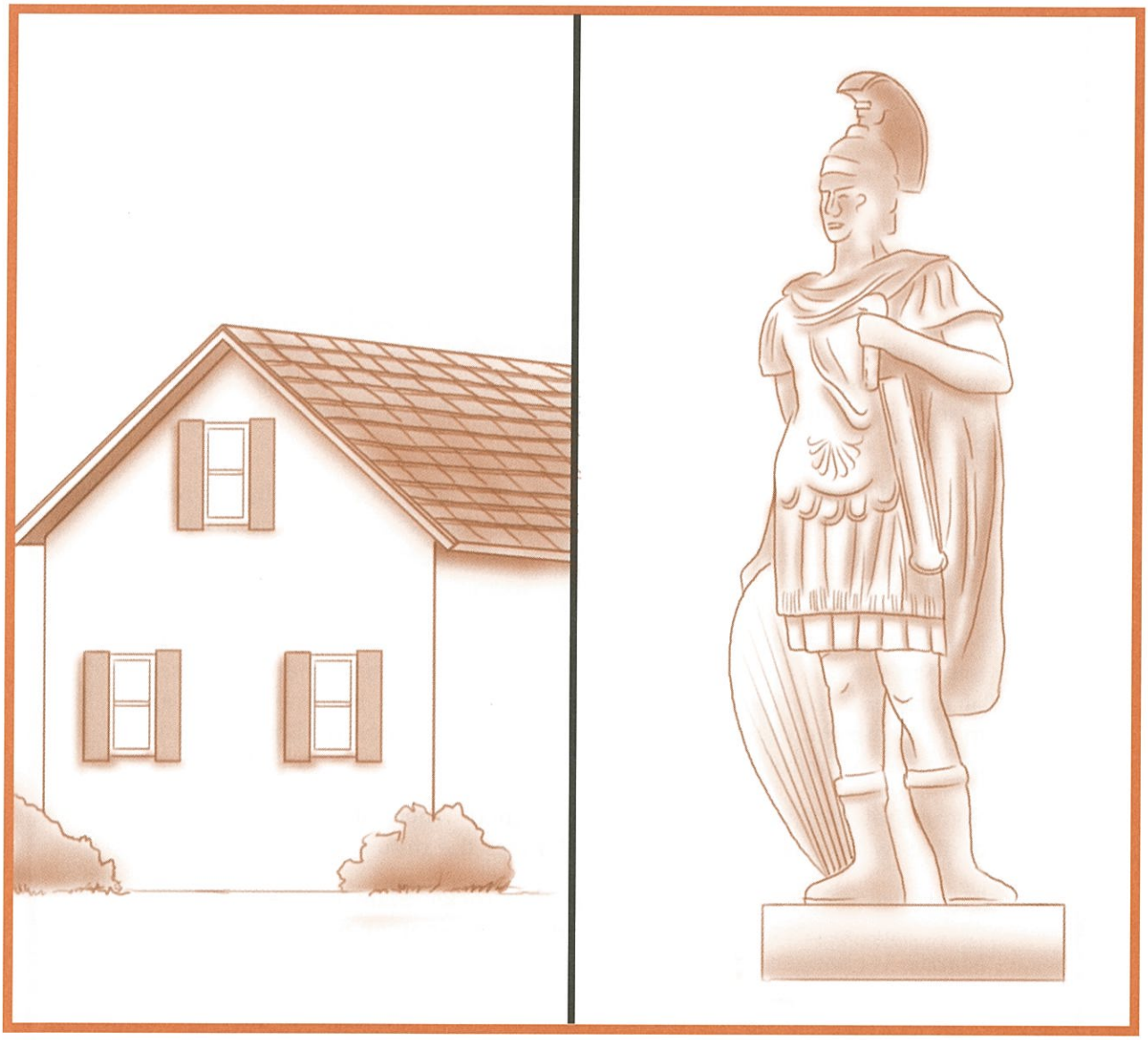
Lesson 11

What are metamorphic rocks?



KEY TERM

metamorphic rock: rock that forms from pieces of other rocks or the remains of once-living things

LESSON 11 | What are metamorphic rocks?

Many things we use are changed over from what they were to begin with. For example, glass, plastic, and synthetic fabrics do not look like the raw materials they came from. Many of the things we use were changed. Several forces can cause change. Two of these are heat and pressure.

Heat and pressure can change many things. They can even change rocks and the minerals in them. The name for changed-over rocks is **metamorphic** [met-uh-MOWR-fik] **rocks.** Metamorphic comes from Greek words meaning "change" and "form."

Metamorphic rocks are formed deep in the earth where there is high temperature and great pressure. The heat and pressure change one kind of rock into another kind of rock. The new rocks become harder and more dense than the old rocks. They also look different. Sometimes the minerals in the rocks change too.

Some metamorphic rocks also are formed when other rocks come in contact with magma. The magma changes the minerals in the rock.

There are many kinds of metamorphic rocks. Slate is a metamorphic rock. Slate is changed-over shale. Marble is another metamorphic rock. Marble is changed-over limestone.

FORMING METAMORPHIC ROCK

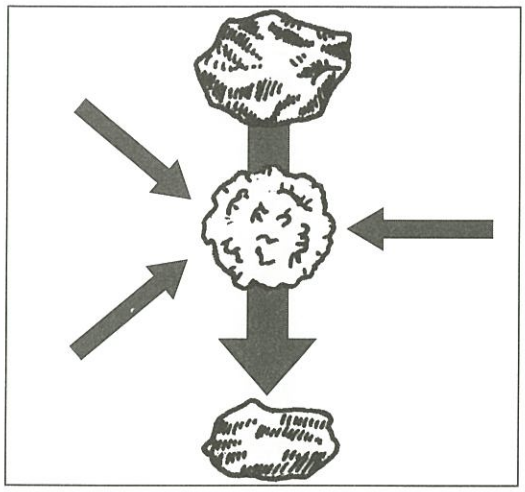


Figure A

Heat and pressure change existing rocks into other rocks. The changed rocks are metamorphic rocks.

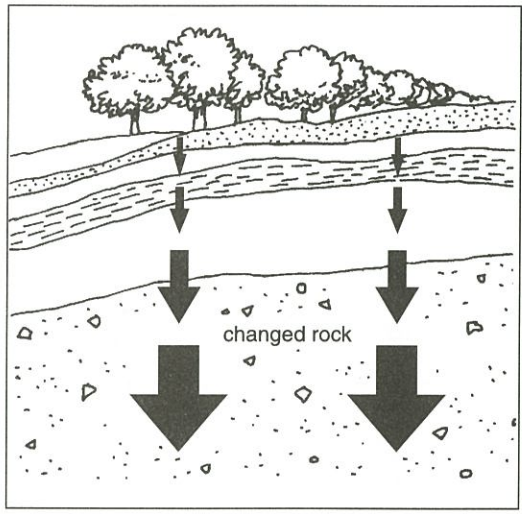


Figure B

Heat and pressure together can change rocks.

The weight of layer upon layer of rocks causes pressure. Pressure builds heat. Heat and pressure change rocks.

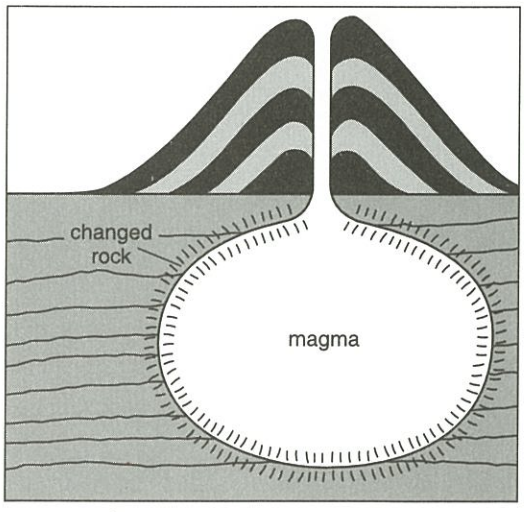


Figure C

Heat, by itself, can change rocks.

Heat from magma may change the rocks next to the magma.

Or, magma may move into cracks or between layers of sedimentary rock. The magma changes the minerals in the rock.

SOME COMMON METAMORPHIC ROCKS

Original Rocks		Metamorphic Rocks	Uses
limestone	changes to	marble	buildings
shale	changes to	slate	roof shingles blackboards slate walks
granite, shale	changes to	gneiss	buildings monuments
granite, shale, mica	changes to	schist	steel-making
sandstone	changes to	quartzite	buildings

Study the chart above and then answer the questions.

1. What is one use for schist? _____
2. What rocks are changed to form gneiss? _____
3. What rock is changed to form quartzite? _____
4. What is slate used for? _____
5. What metamorphic rock does limestone change to? _____

FILL IN THE BLANK

Complete each statement using a term or terms from the list below. Write your answers in the spaces provided.

slate	marble	igneous
great pressure	harder and more dense	steel
look	earth	metamorphic
sedimentary	great heat	

1. Rocks formed from melted minerals are called _____ rocks.
2. Rocks formed from sediment are called _____ rocks.
3. Changed-over rocks are called _____ rocks.
4. Two things that can change rocks to other kinds of rocks are _____ and _____ .
5. Pressure makes rocks become _____ than they were.
6. Heat and pressure can change the way rocks _____ .
7. Metamorphic rocks are formed deep in the _____ .
8. Schist is used to make _____ .
9. Heat and pressure change shale to _____ .
10. Heat and pressure change limestone to _____ .

MATCHING

Match each term in Column A with its description in Column B. Write the correct letter in the space provided.

	Column A	Column B
_____	**1.** metamorphic rocks	**a)** was once shale
_____	**2.** heat and pressure	**b)** where metamorphic rocks form
_____	**3.** slate	**c)** changed-over rocks
_____	**4.** marble	**d)** was once limestone
_____	**5.** deep in the earth	**e)** change rocks

TRUE OR FALSE

In the space provided, write "true" if the sentence is true. Write "false" if the sentence is false.

_____ **1.** Metamorphic rocks are changed rocks.

_____ **2.** Metamorphic rocks are harder than their original rocks.

_____ **3.** Only heat can change rocks.

_____ **4.** Slate is harder than shale.

_____ **5.** Contact with magma can change the minerals of a rock.

_____ **6.** Metamorphic rock cannot change to another rock.

_____ **7.** Minerals in a rock can change.

_____ **8.** Slate changes to shale.

_____ **9.** Gneiss is harder than granite.

_____ **10.** Only pressure can change rocks.

WHICH CAME FIRST?

In each of the pairs below, one of the things came from the other. On the line next to each pair, write the name of the thing that formed the other.

1. sand or sandstone? _____

2. quartzite or sandstone? _____

3. shale or mud? _____

4. slate or shale? _____

5. granite or gneiss? _____

6. marble or limestone? _____

7. plants or soft coal? _____

8. granite or schist? _____

9. rock salt or halite? _____

10. sedimentary rocks or sediment? _____