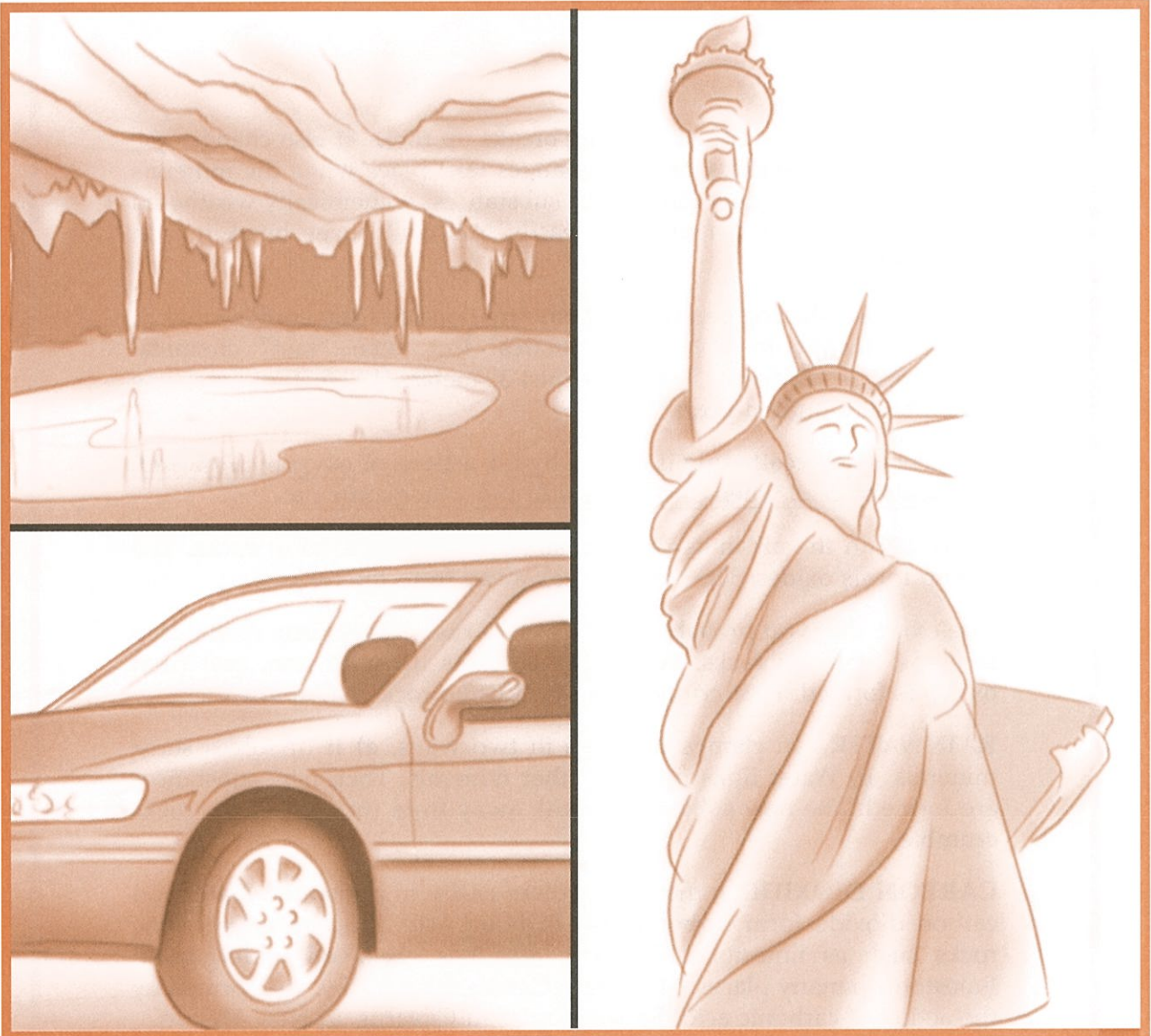


What causes chemical weathering?



KEY TERM

chemical weathering: weathering in which the chemical makeup of rocks changes

LESSON 14 | What causes chemical weathering?

Chemical [KEM-ih-kul] **weathering** breaks up rocks. It also changes the chemicals of the rocks. Chemical changes take place when the minerals in rocks are broken down into other substances. A chemically weathered rock may be brittle. It may break easily. You could even break it with your hands.

Chemical weathering has worn down huge parts of the earth's crust. It happens fastest in hot, wet climates. But even "fast" chemical weathering is very slow. To dissolve just 30 meters (100 feet) of limestone takes about 6 million years.

Most chemical weathering is caused by the actions of oxygen, rainwater, and acids formed when carbon dioxide and water combine.

OXYGEN in the air links up with some of the elements in rocks. The linkup forms oxides. The oxides break away from the rocks.

One oxide that you probably know well is rust. Rust is iron oxide. Iron is found in many rocks. When oxygen links up with iron, rust (iron oxide) is formed. Rust crumbles easily. Rusted rocks fall apart.

RAINWATER can change minerals in two ways. **a)** It dissolves some minerals. **b)** Water links up with other minerals. Then new substances are formed. The new substances break away from rocks. And the rocks crumble.

CARBON DIOXIDE in the air dissolves easily in rainwater. Water and carbon dioxide form carbonic [kar-BON-ik] acid. Acids dissolve some rocks such as limestone. Carbonic acid has dissolved underground limestone in many places. Mammoth Caves, in Kentucky, was formed by the action of carbonic acid. So was Carlsbad Caverns, in New Mexico.

MECHANICAL OR CHEMICAL WEATHERING

Study each diagram below which shows causes of weathering. Then answer the questions about each diagram.



Figure C

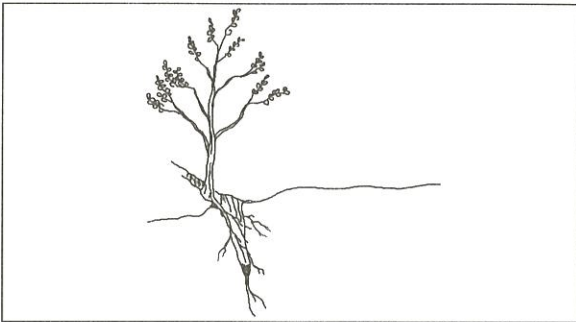


Figure D

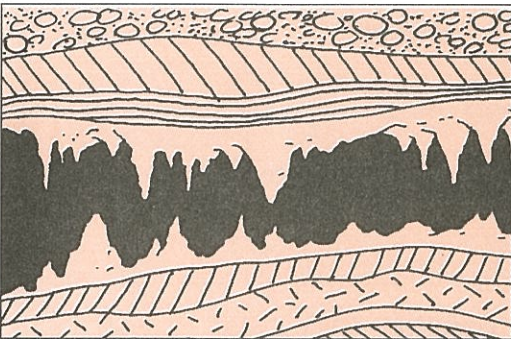


Figure E

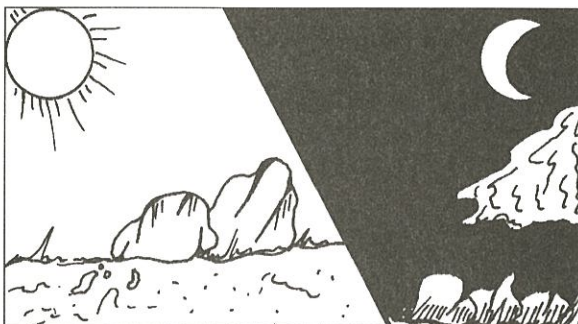


Figure F

1. Figure C shows an example of _____ weathering.
mechanical, chemical
2. The chemical makeup of the crust _____ changing.
is, is not
3. Figure D shows an example of _____ weathering.
mechanical, chemical
4. The chemical makeup of the crust _____ changing.
is, is not
5. Figure E shows an example of _____ weathering.
mechanical, chemical
6. The chemical makeup of the crust _____ changing.
is, is not
7. Figure F shows an example of _____ weathering.
mechanical, chemical
8. The chemical makeup of the crust _____ changing.
is, is not

FILL IN THE BLANK

Complete each statement using a term or terms from the list below. Write your answers in the spaces provided. Some words may be used more than once.

the air
oxygen
underground caves
carbon dioxide

oxide
speeds
rainwater
carbonic acid

new products
crumbles
rust

1. Most chemical weathering is caused by the actions of _____, _____, and _____.
2. Chemical weathering always forms _____.
3. Oxygen links up with iron to form the compound called iron _____.
4. Another name for iron oxide is _____.
5. Rust _____ easily.
6. The oxygen that rusts iron comes from _____.
7. Carbonic acid is formed when _____ dissolves in water.
8. Carbon dioxide comes from _____.
9. Dissolved limestone may form _____.
10. Hot, moist weather _____ chemical weathering.

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. rust	a) form carbonic acid
_____ 2. water and carbon dioxide	b) dissolves limestone
_____ 3. cold, dry climate	c) speeds chemical weathering
_____ 4. carbonic acid	d) iron oxide
_____ 5. warm, moist climate	e) slows chemical weathering

TRUE OR FALSE

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

- _____ 1. Mechanical weathering changes the chemicals of rocks.
- _____ 2. Chemical weathering changes the chemicals of rocks.
- _____ 3. Chemical weathering happens very fast.
- _____ 4. All rocks contain iron.
- _____ 5. Rust crumbles easily.
- _____ 6. Water alone can weather some rocks.
- _____ 7. Carbonic acid dissolves every mineral.
- _____ 8. Carbonic acid forms from carbon dioxide and iron.
- _____ 9. Carbonic acid dissolves limestone.
- _____ 10. The scientific name for rust is iron oxide.

WORD SCRAMBLE

Below are several scrambled words you have used in this Lesson. Unscramble the words and write your answers in the spaces provided.

- 1. ETWAR _____
- 2. TURS _____
- 3. NORI _____
- 4. NAIR _____
- 5. TONESMILE _____

REACHING OUT

Look back at Figure B on page 83. What may happen if too much limestone dissolves?
