


did you know?

The Schellenberg ice cave in Germany is a limestone cave with ice formations. Cold air is trapped in the lower areas of the cave so the temperature stays near freezing. This keeps the ice formations from melting.




Groundwater Erosion When rain falls and snow melts, not all of the water evaporates or becomes runoff. Some water soaks into the ground. There it fills the openings in the soil and trickles into cracks and spaces in layers of rock. **Groundwater** is the term geologists use for this underground water. Like running water on the surface, groundwater affects the shape of the land.

 **Groundwater can cause erosion through a process of chemical weathering.** Rainwater is naturally acidic. In the atmosphere, water combines with carbon dioxide to form a weak acid called carbonic acid. Carbonic acid can break down limestone. Groundwater containing carbonic acid flows into any cracks in the limestone. Then some of the limestone dissolves and is carried away in a solution of water. This process gradually hollows out pockets in the rock. Over time, these pockets develop into large holes underground, called caves or caverns.

Cave Formations The action of carbonic acid on limestone can also result in deposition. Inside limestone caves, deposits called stalactites and stalagmites often form. Water containing carbonic acid and calcium from limestone drips from a cave's roof. Carbon dioxide escapes from the solution, leaving behind a deposit of calcite. A deposit that hangs like an icicle from the roof of a cave is known as a **stalactite** (stuh LAK tyt). Slow dripping builds up a cone-shaped **stalagmite** (stuh LAG myt) from the cave floor.

FIGURE 8

Groundwater Erosion and Deposition

 **Explain** How do erosion and deposition shape caves? Take notes as you read. Then discuss with a classmate. **7.NS.11**

Process of Erosion

Process of Deposition

Karst Topography In rainy regions where there is a layer of limestone near the surface, groundwater erosion can significantly change the shape of the land. Streams are rare, because water easily sinks down into the weathered limestone. Deep valleys and caverns are common. If the roof of a cave collapses because of the erosion of the underlying limestone, the result is a depression called a sinkhole. This type of landscape is called **karst topography** after a region in Eastern Europe.



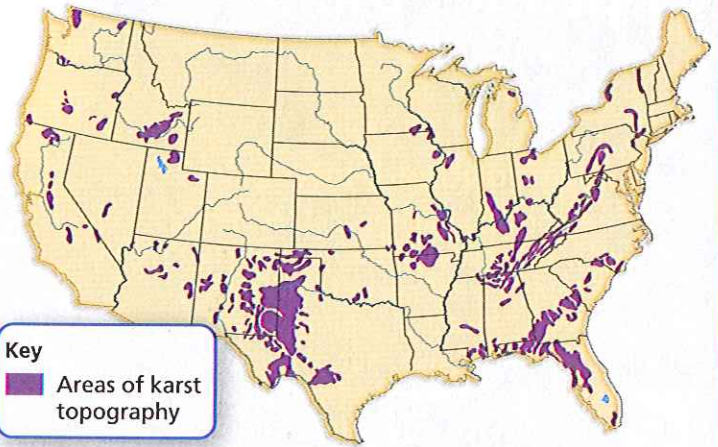
This sinkhole is in Russia's Perm region.

apply it!

Study the map and answer the questions below.

1 Name three states in which you can find karst topography.

2 **Develop Hypotheses** Why do you think karst topography occurs in these areas?



7.NS.1



Do the Quick Lab Erosion Cube.

Assess Your Understanding

2a. **List** Name two features of water erosion.

7.2.7

b. **CHALLENGE** What is carbonic acid and how does it affect rock?

c. **ANSWER THE BIG QUESTION** What processes shape the surface of the land?



7.2.7

got it? 7.2.7

I get it! Now I know that features of erosion and deposition include _____

I need extra help with _____

Go to **my science COACH** online for help with this subject.

7.2.7