

The Earth's Interior



1. Which layer of the earth's interior is the thickest?

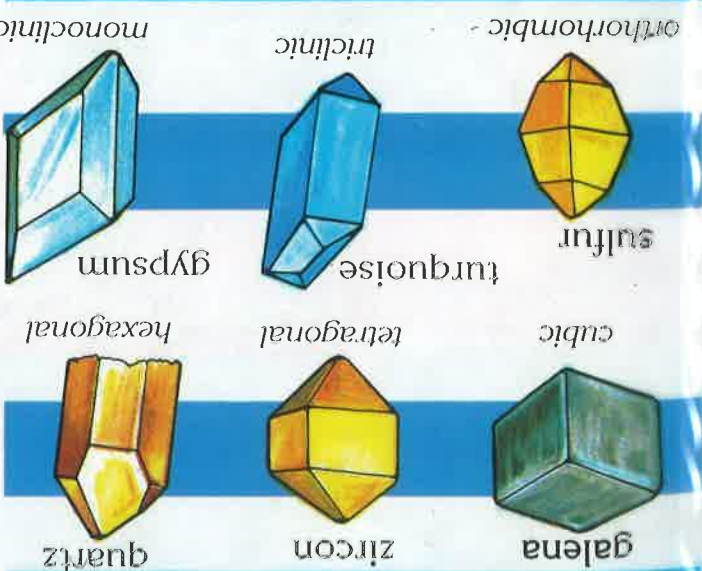
2. Which layer is a molten liquid?

STUDY QUESTION: How is information about the earth's interior obtained?

Minerals and Their Identification

Minerals are natural substances that have definite crystal structure and chemical composition.

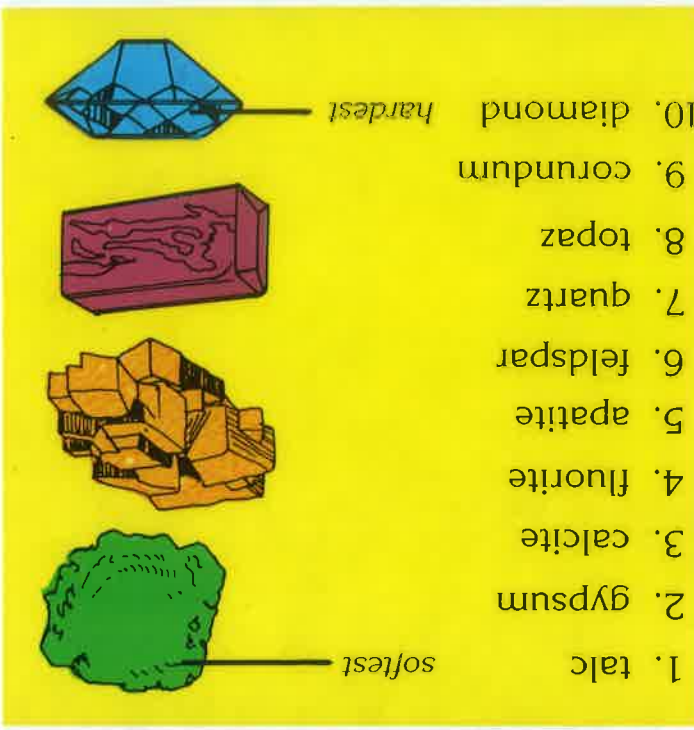
Crystal Shape



Streak Test



Acid Test



Hardness Test

1. What two means could be used to identify the mineral quartz?

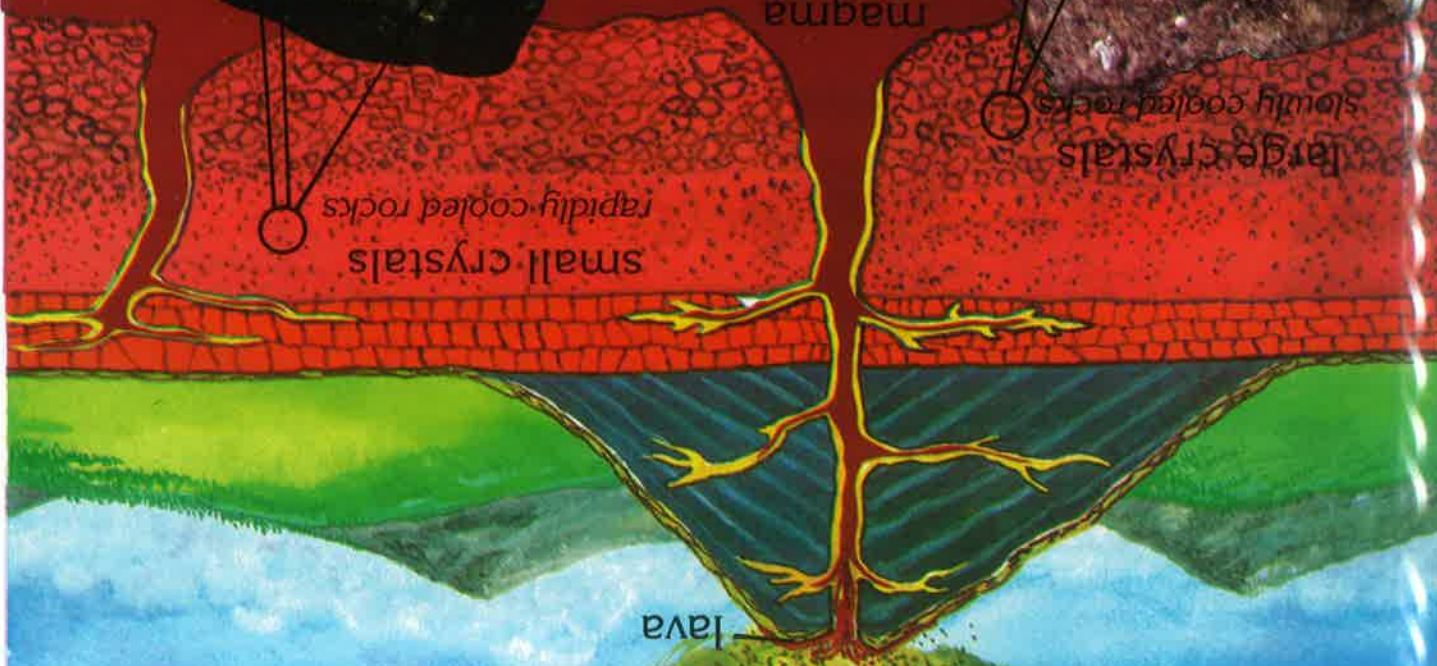
2. Iron pyrite is known as "fool's gold." What test can be used to identify it?

STUDY QUESTION: What other tests are used to identify minerals?

Formation of Igneous Rocks

Igneous rocks are formed when molten rock material called magma cools and solidifies.

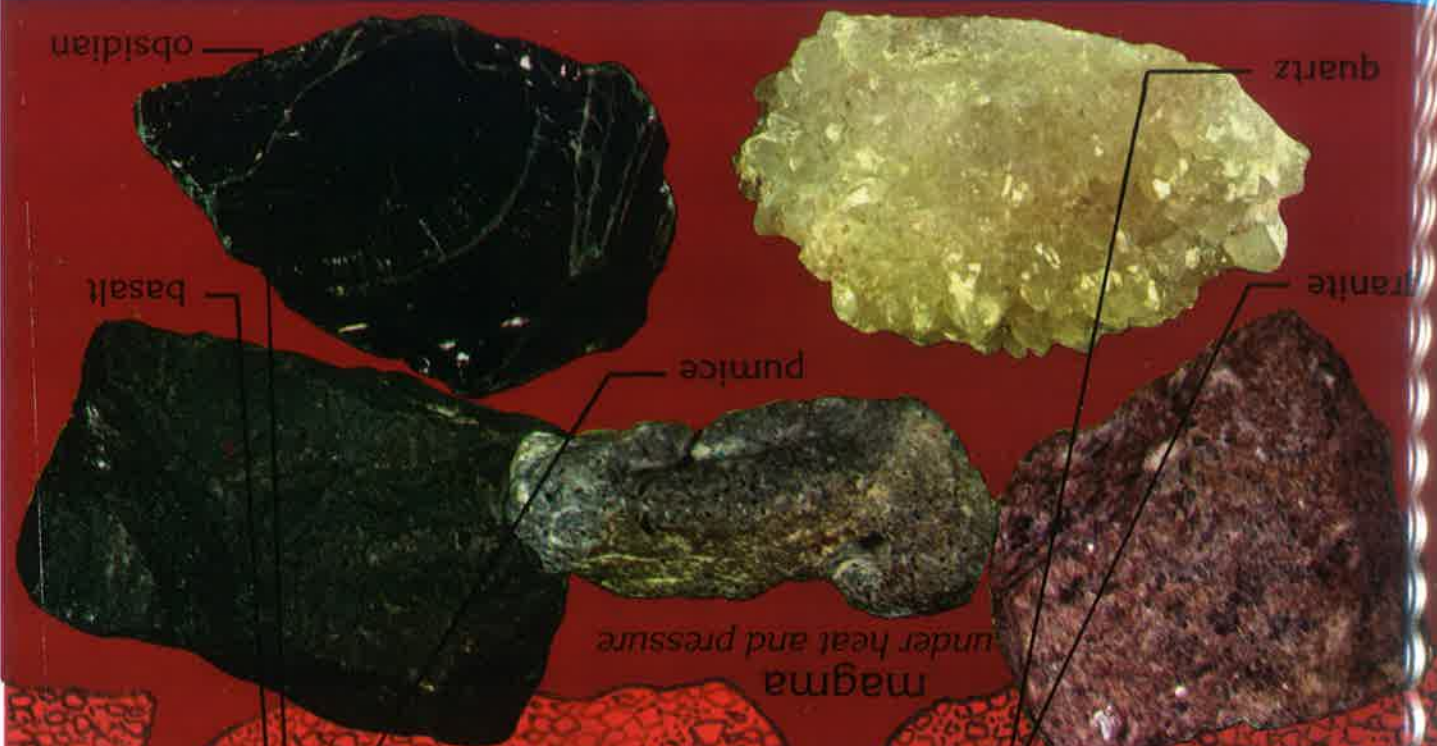
lava



small crystals
rapidly-cooled rocks

large crystals
slowly cooled rocks

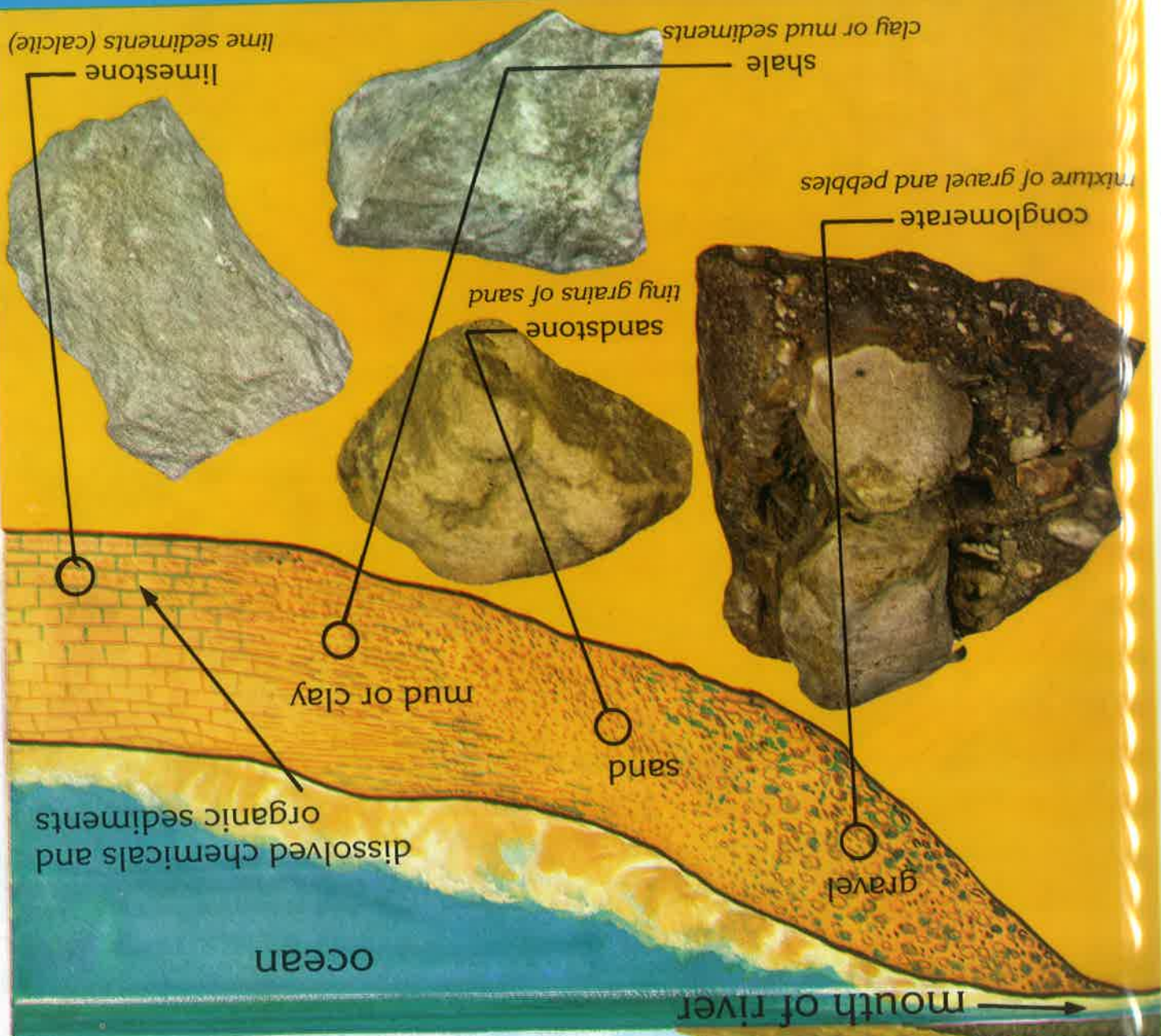
magma
under heat and pressure



1. Describe the importance of magma and lava in forming igneous rocks.
 2. Identify the rocks formed with large crystals and those formed with small crystals.
- STUDY QUESTION:** Find out about intrusive and extrusive igneous rocks.

Formation of Sedimentary Rocks

Most sedimentary rocks are formed from layers of sediments that have been compressed under water for long periods of time.



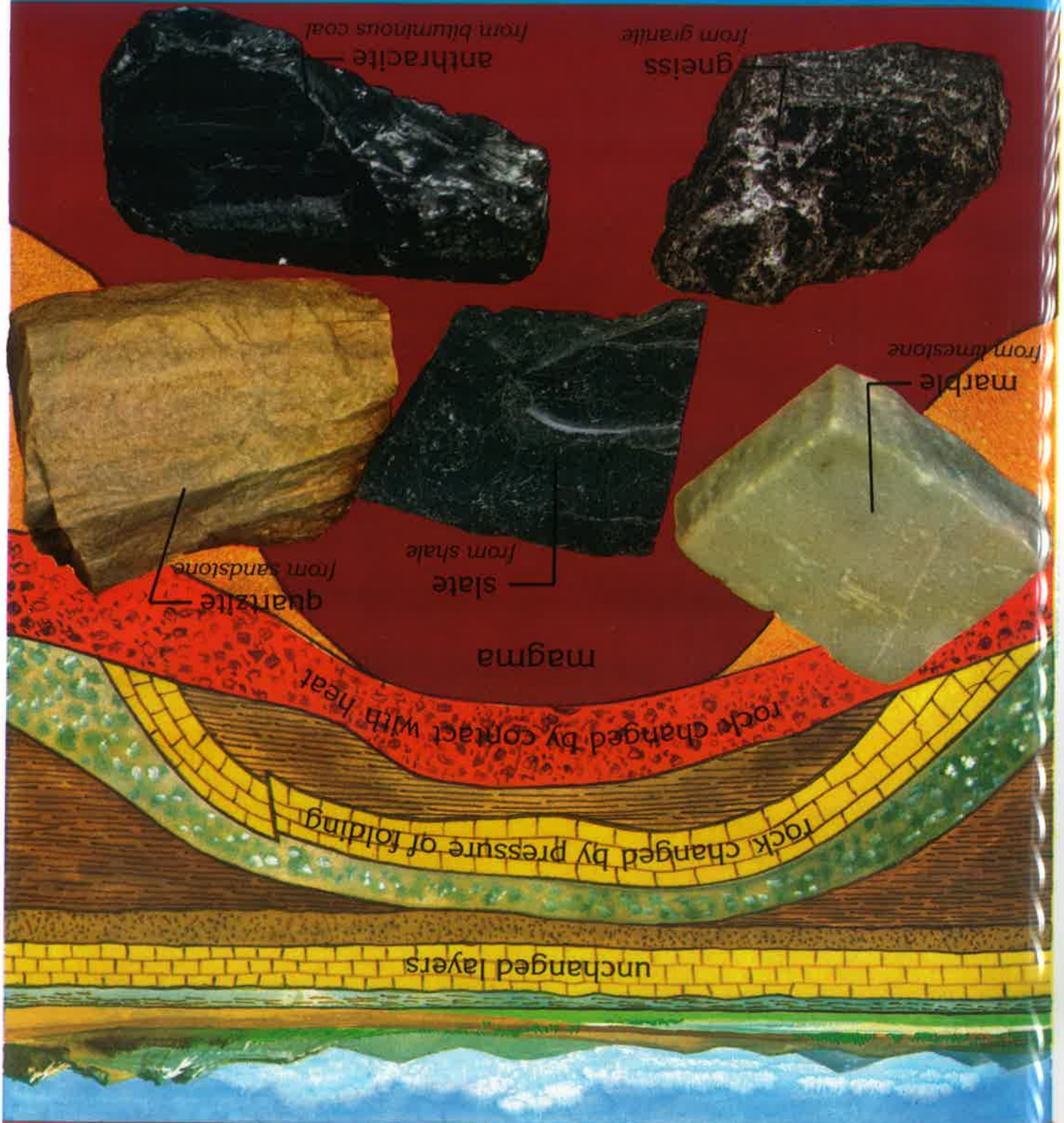
1. Tell why large-sized sediments are located closer to the mouth of a river than small-sized sediments.

2. Identify the various kinds of sediments that make the sedimentary rocks shown above.

STUDY QUESTION: Find out how petroleum and natural gas deposits are formed within layers of sedimentary rock.

Formation of Metamorphic Rocks

Metamorphic rocks are formed at depths under the earth's surface in regions of great heat and pressure.



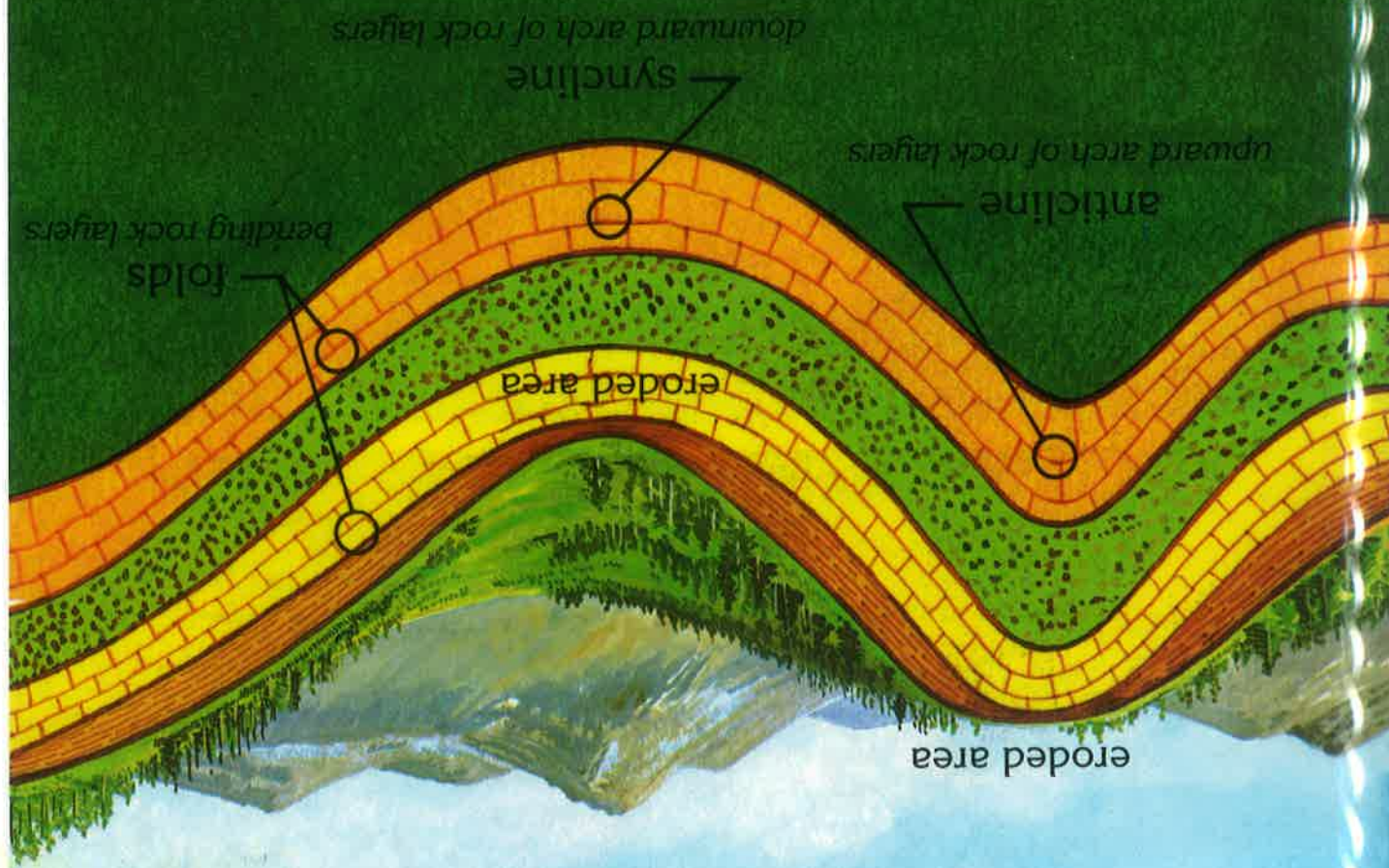
1. What two factors cause change in rocks?

2. What is one cause for pressure under the earth's surface?

STUDY QUESTION: Describe the rock cycle.

Folded Mountains

Folded mountains are formed by horizontal compression on rock layers under great pressure.



eroded area

eroded area

anticline

upward arch of rock layers

syncline

downward arch of rock layers

folds

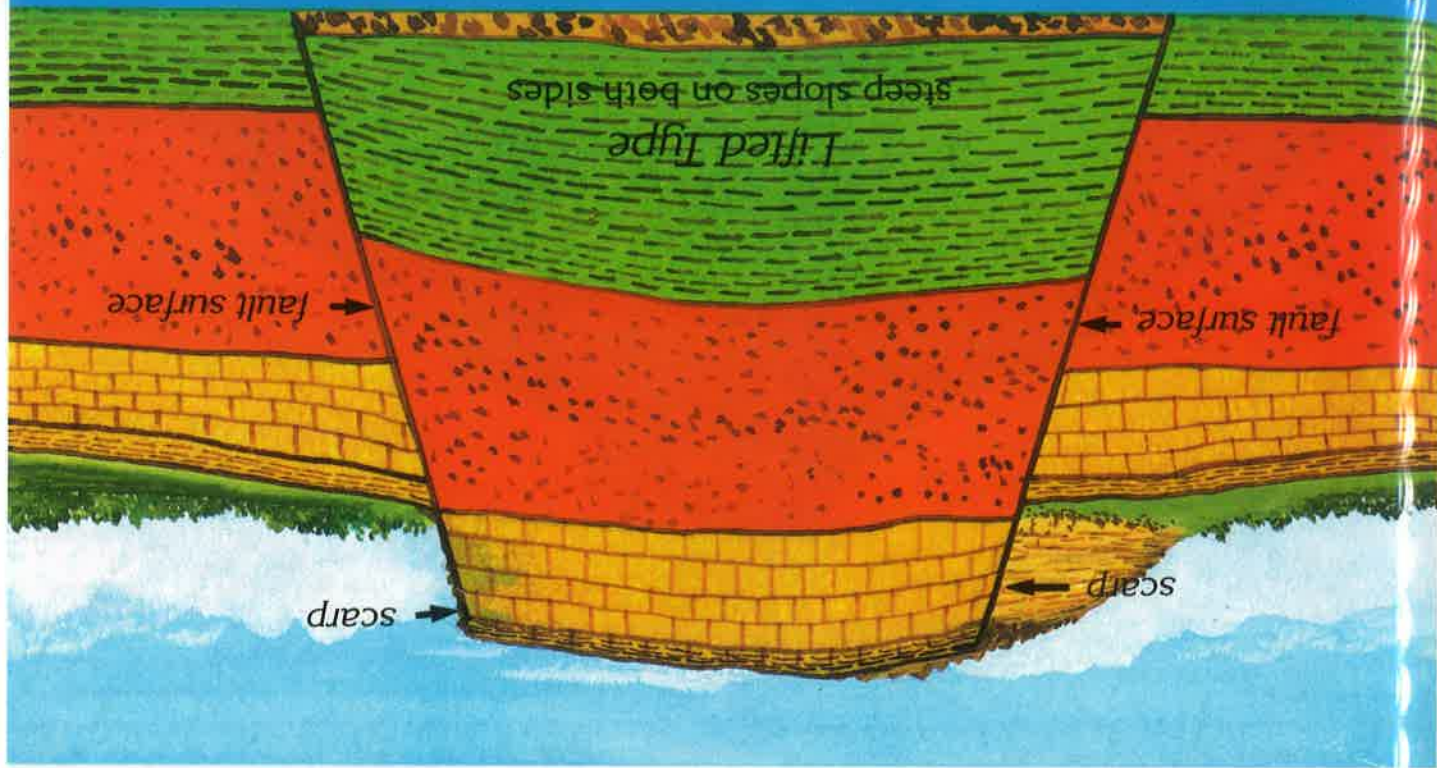
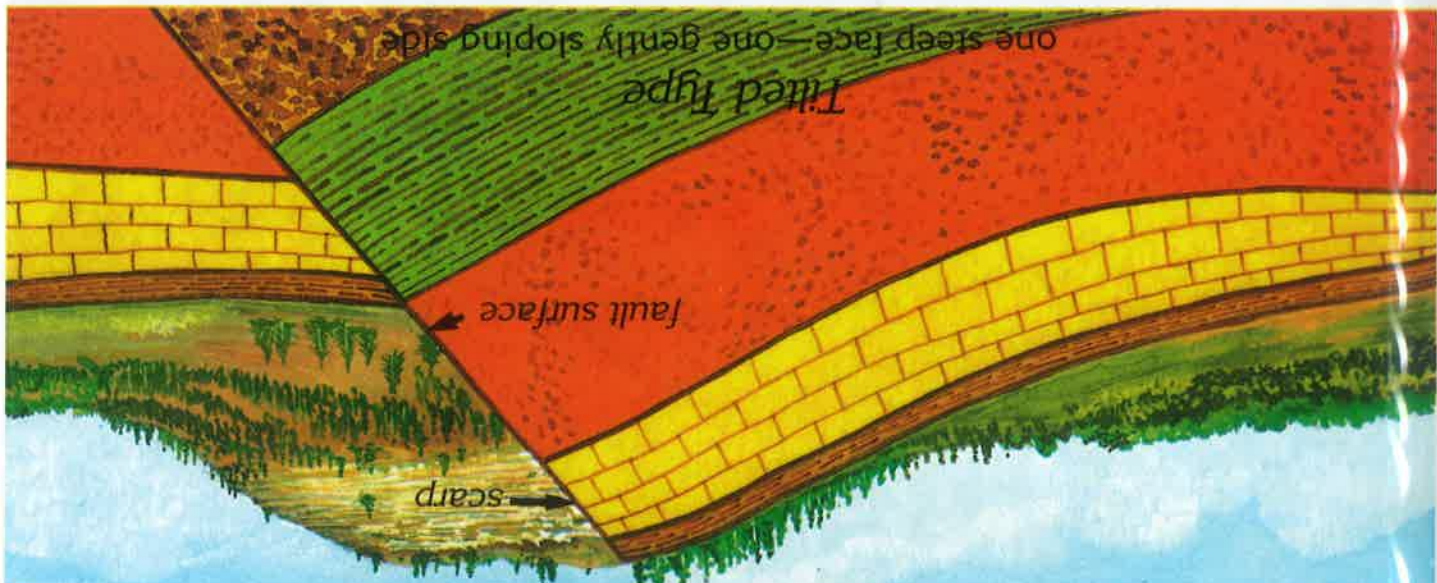
bending rock layers

1. Using geologic terms, describe how folded mountains are formed.
2. Tell how erosion affects the size and appearance of mountains.

STUDY QUESTION: Find out about geosynclines and how they help form mountain ranges.

Block Mountains

Block mountains are formed by the raising and tilting of large blocks of the earth's crust along fault lines, which are cracks or breaks in rock layers.

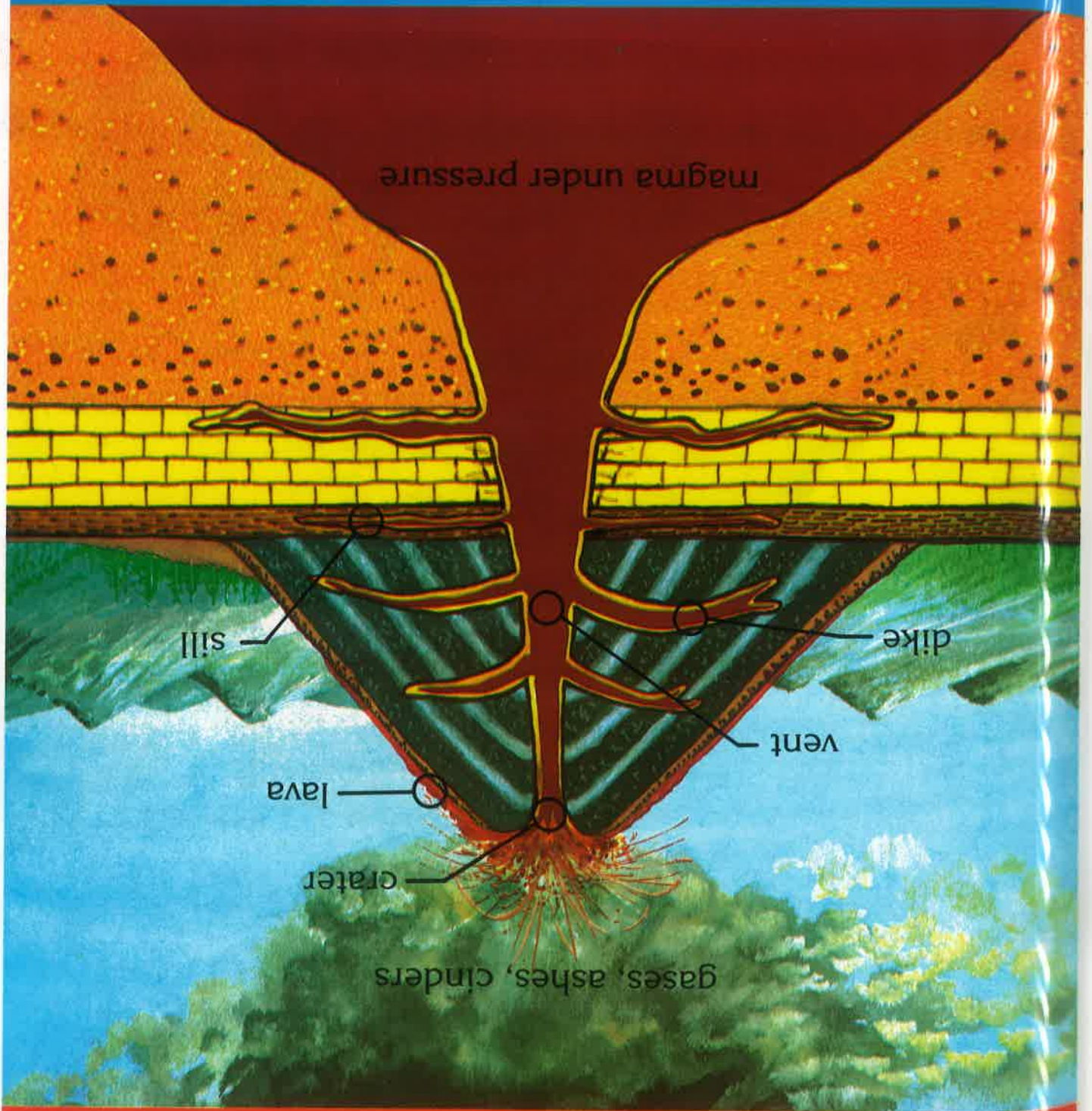


1. Using geologic terms, describe how block mountains are formed.

2. Compare the differences between the tilted and lifted types of block mountains.

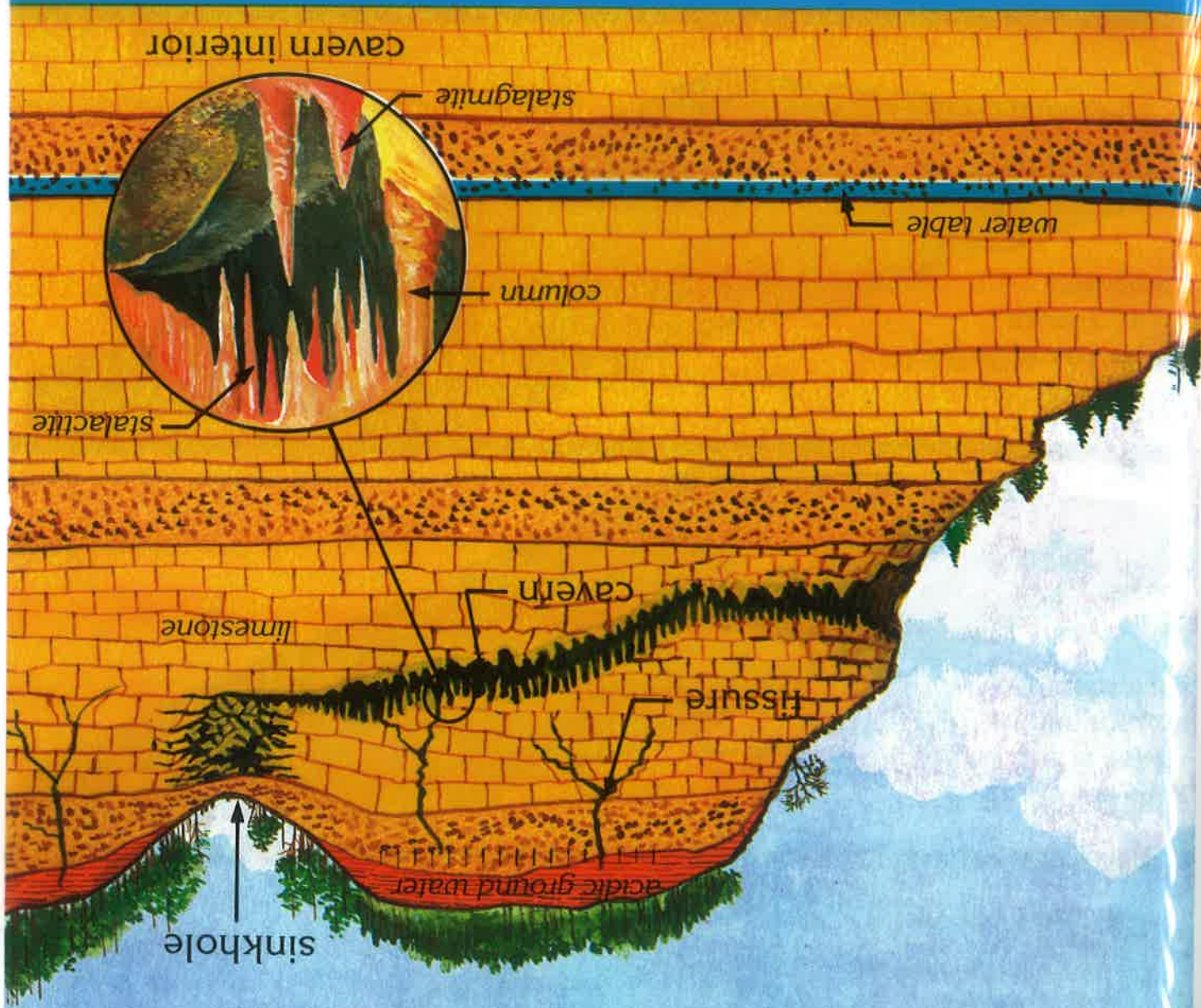
STUDY QUESTION: Find out if there is any relationship between faulting and volcanic activity.

Volcanoes



1. Describe the below surface and above surface sections of a volcano.
 2. Tell what nearby areas can expect from volcanic eruptions.
- STUDY QUESTION:** Find out how the eruption of Krakatoa in August, 1883, affected the world.

Cave Formation



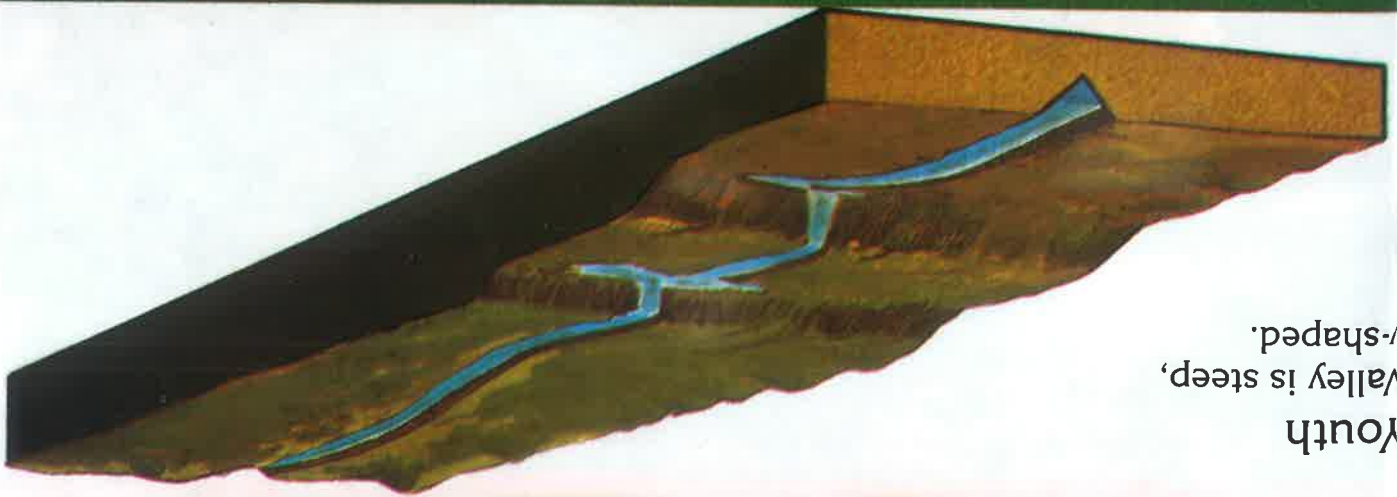
1. What geological feature is formed when the roof of a cave collapses?

2. In what kind of rock are caves most often formed?

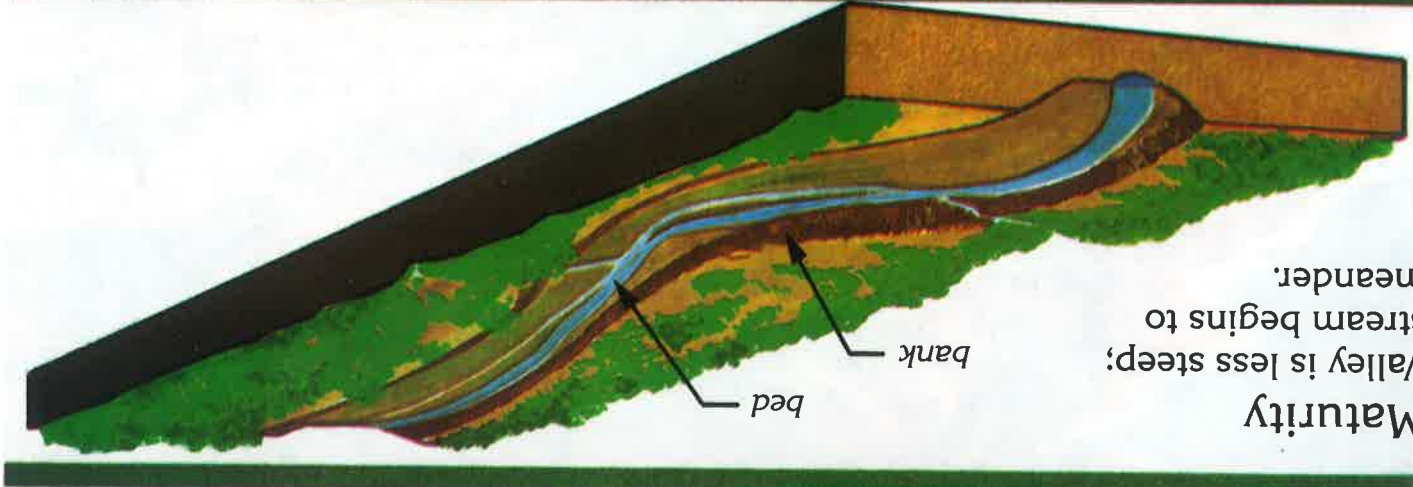
STUDY QUESTION: Find out how caves are formed by wind and wave action.

Formation of a Stream Valley

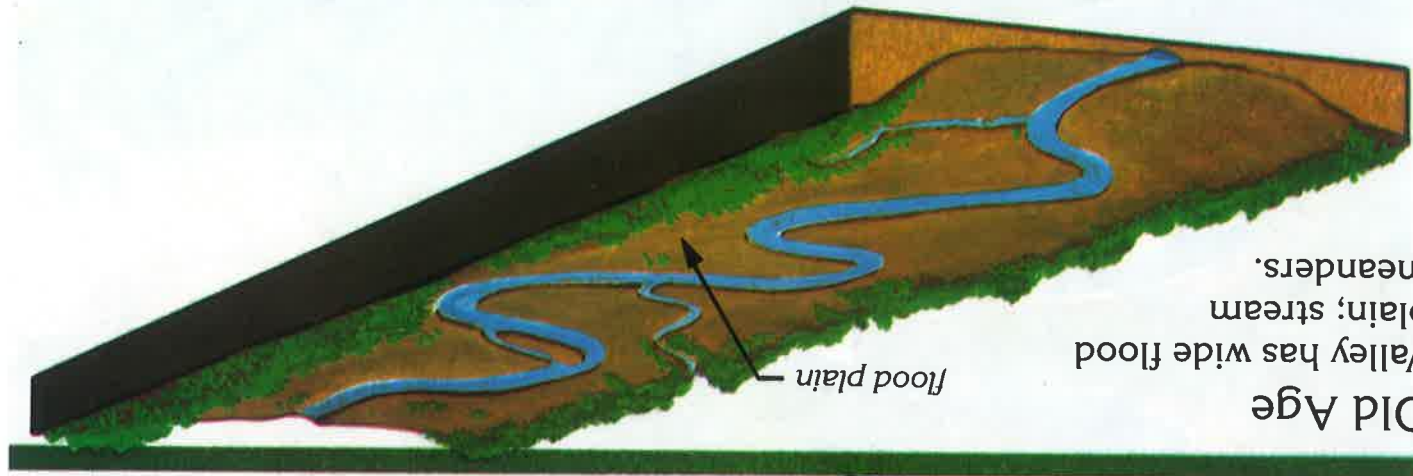
Youth
Valley is steep,
v-shaped.



Maturity
Valley is less steep;
stream begins to
meander.



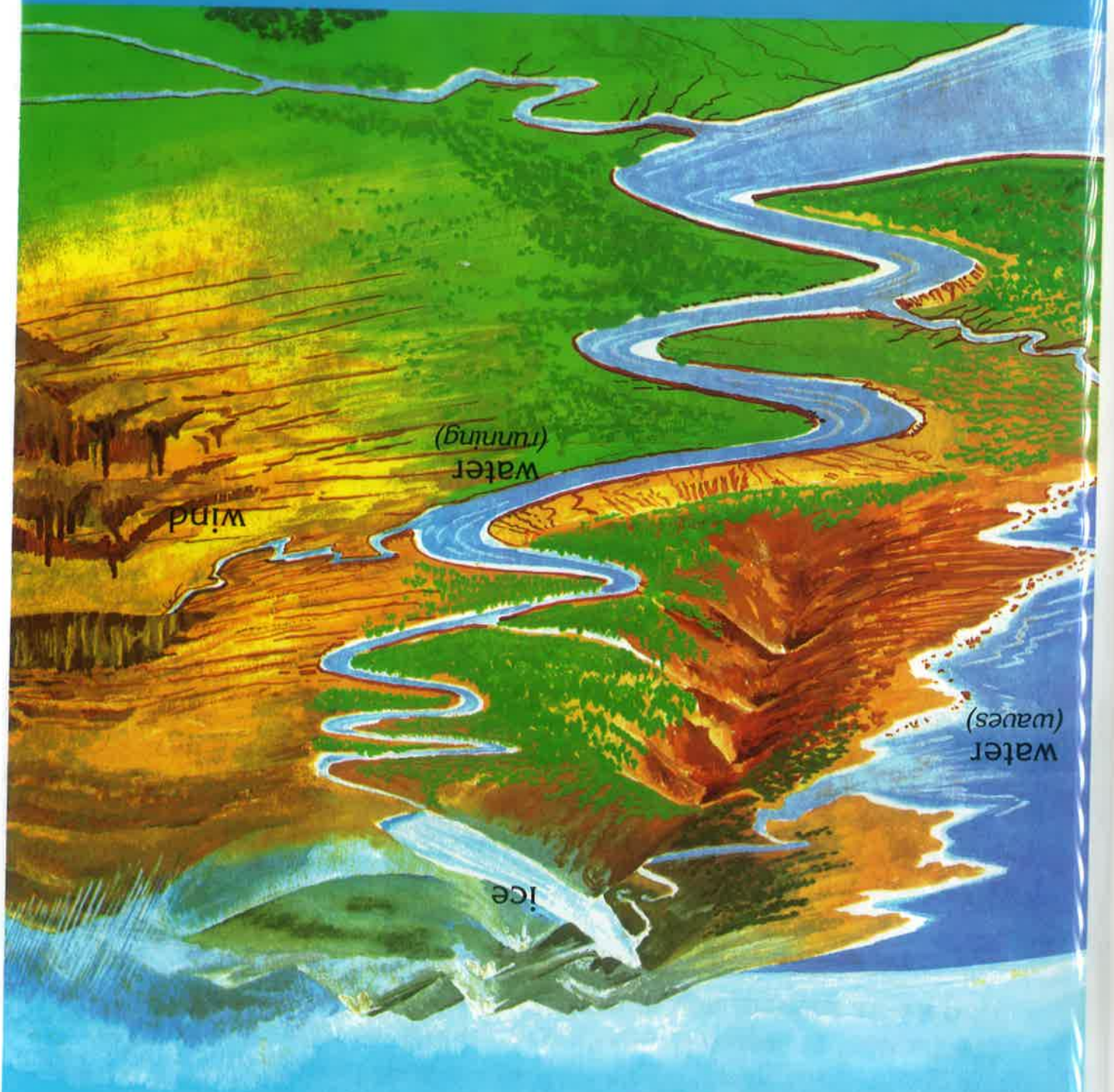
Old Age
Valley has wide flood
plain; stream
meanders.



1. Does a stream valley become wider or narrower as it becomes older?
2. Which stage has the most rapidly flowing water?
STUDY QUESTION: Find out why the Grand Canyon of the Colorado River has such a steep valley.

Erosion

Erosion is the continuous wearing away of land by wind, water, and ice.



1. What are the major agents of erosion?

2. Where are glaciers mostly likely to be found?

STUDY QUESTION: Find out why gravity can be considered an agent of erosion.

Weathering

Weathering is the process of breaking rocks into smaller pieces by the action of ice, water, temperature changes, and chemical means.

Mechanical or Physical Weathering

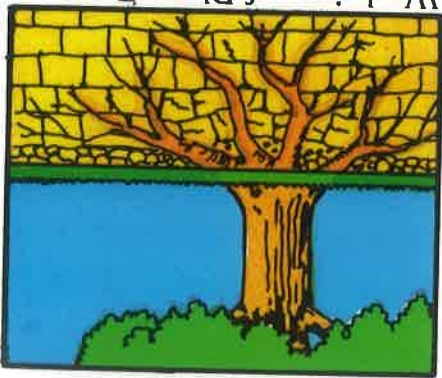
Mechanical or physical weathering breaks up rock into smaller fragments without any chemical changes in the rock itself.



Frost Action
repeated freezing and melting of water in pores of rock

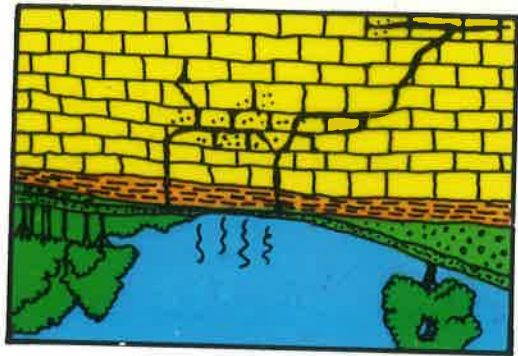


Burrowing Animals
expose areas for weathering



Wedging of Plant Roots
Pressure from rootlets causes rock breakdown.

Chemical weathering acts on the small fragments and rearranges the elements into new minerals which are more easily carried away.

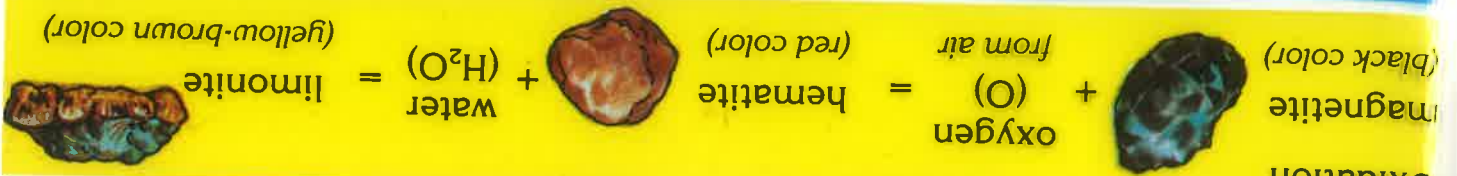


Carbon dioxide (CO₂) in air dissolves in water and forms carbonic acid.



Lichens grow on rocks and then give off an acid.

Oxidation



1. Describe the process of mechanical or physical weathering.
2. Compare the process of chemical weathering to mechanical weathering. Find out why chemical weathering takes place more rapidly in warm regions than in cold regions.