

# CH 5: SOIL & WEATHERING STUDY GUIDE

## Vocabulary

mechanical weathering; frost wedging; talus; exfoliation; chemical weathering, regolith; soil; soil horizon, soil profile, mass movement, rockfall, rockslide; slump; mudflow, earthflow, creep.

## Understanding Concepts

- What happens to the total surface area of the cubes in the process shown below? *Surface of the rock increases*
  - What type of weathering does this process represent? *Mechanical*
- What is exfoliation? *Slabs of outer rock break off from unloading.*
- Which factor has the greatest effect on soil formation? Explain. *Climate, it influences rate, depth, and type of weathering*
- How does slope affect the formation of soil? *Steep slope has less soil, and flat ground has more soil*
- Describe the major characteristics of A, B, and C horizons. *A = organic material, B = Clay, C = weathered material.*
- List a negative effect of soil erosion. *Loss of cropland*
- What is the force behind mass movements? *Gravity*
- What other factors can trigger mass movements? *Saturation, over steeping slope, removal of vegetation, and earthquakes.*
- Distinguish between rockfalls and rockslides. *Rockfall = free fall straight down, Rockslides = rocks moving at an angle on the ground.*
- Distinguish between mudflows and earthflows. *Mudflows = fast, Earthflows = slow*



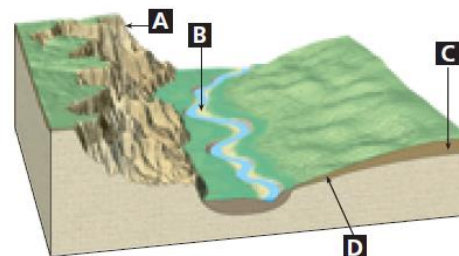
## Critical Thinking

- Roads in northern states such as Maine and Michigan need to be repaired more often than roads in southern states such as Florida and Louisiana. What form of mechanical weathering could account for this? *Frost Wedging*
- How do the effects of mechanical weathering on rock differ from the effects of chemical weathering? *Mechanical weathering = smaller of the same kinds of rocks, and Chemical weathering creates new compounds.*
- Heat speeds up most chemical reactions. Why then does chemical weathering happen slowly in a hot desert? *Water is the most important agent of chemical weathering, no water in a desert.*
- How would you determine the texture of the soil in your area? *Look at the particle size.*

## Analyzing Data

Use the diagram to answer questions 15-17.

- Compare the thickness of the soil in the areas labeled A and B. *A = thin, B = thick*
- What name is given to the soil that develops in the area labeled B? *B = transported soil*
  - In the area labeled C? *C = residual soil*
- Why is the soil in the area labeled D thinner than the soil in the area labeled C? *Greater slope in D*



Use the diagram to answer questions 18-19

- What are the percentages of clay, silt, and sand in the soil at the point labeled X?
  - 60 percent clay, 80 percent silt, and 60 percent sand
  - 0 percent clay, 40 percent silt, and 60 percent sand
  - 20 percent clay, 40 percent silt, and 40 percent sand**
  - 50 percent clay, 40 percent silt, and 10 percent sand
- The name given to soil that contains 60 percent clay, 20 percent silt, and 20 percent sand is
  - clay.**
  - loam.
  - silty clay loam.
  - sandy loam.

