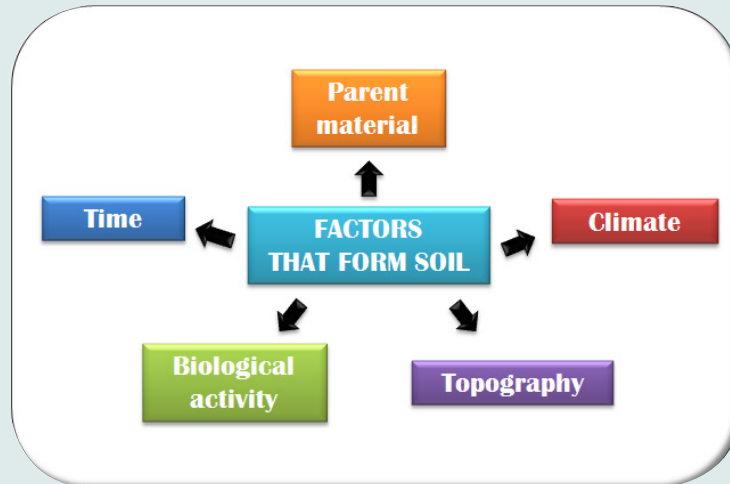
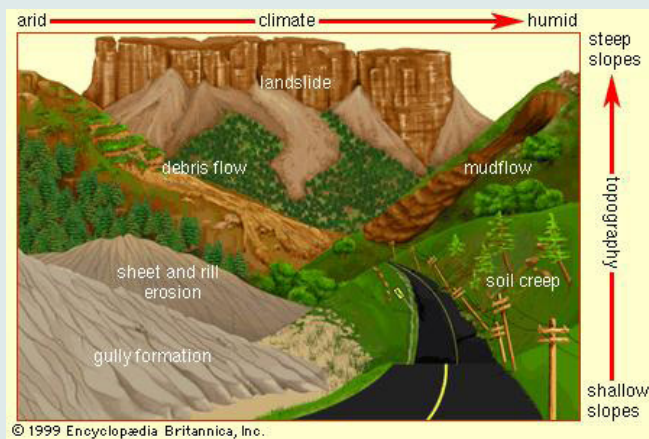


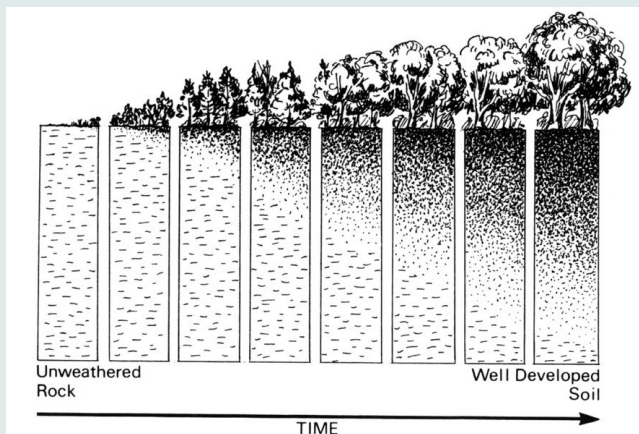
There are Five Factors that Participate in the Formation of the Soil



These factors do not act individually, they interact to form soil. For example:



Climate interacts with **topography** to form soils. Arid to humid conditions influenced by flat to steep slopes determine the establishment of vegetation, the generation of landslides, and the impact of erosion ultimately contributing to soil formation.



Weathering processes (e.g. rain) break the bedrock into smaller rocks over **time** contributing to soil formation. Also, with time plants and other soil organisms establish and due to their **biological activity** organic matter accumulates and the weathering process continues generating soil layers.

Make Your Own Soil

Materials

- Blue gel frosting (3.5 oz strip) (rain)
- Card: Soil Formation
- Chocolate frosting (6 oz. can) soil and topography)
- Chocolate sprinkles (4 oz bag) (organic matter)
- Coloring materials: paper, pencils, colors
- Graham crackers (2-5 large pieces, one piece per student (parent material)
- Green sugar crystals (1 tsp, 3.25 oz jar) (living plant roots)
- Red sugar crystals (1 tsp, 3.25 oz) (soil living animals)
- Small trays (one per participant)
- Worksheet
- Yellow sugar crystals (1 tsp, 3.25 oz) (soil living microorganisms)



Follow the steps to make your own soil:

- Place in a tray a large piece of a graham cracker to represent parent material.
- Mix the chocolate frosting with the red, green, and yellow sugar crystals. The chocolate frosting represents pieces of the parent material that result from weathering (the breaking of bedrock into rocks). The red, green and yellow sugar crystals represent soil living animals, plant roots, and microorganisms, respectively. These ingredients are mixed together since there are organisms living in the soil.
- Spread the mix on the cracker irregularly. Try to create high and low points to represent hills and valleys that give shape to the land (topography).
- Add chocolate sprinkles. They represent organic matter that result from the decomposition of the dead bodies and waste of soil organisms. These sprinkles are on top of the chocolate mix since a great amount of organic matter results from leaf litter falling on top of the soil. With time this organic matter decomposes becoming part of the soil.
- Squeeze the blue gel frosting on top of the hills of the chocolate frosting. The gel moves down the hills into the valleys representing water running along rivers. Water and temperature are the main drivers of climate. As the gel moves, the hills or valleys of chocolate frosting may change in shapes. This represents the impact of water erosion on soil as soil particles are washed away.
- This activity may take approximately 30 minutes. In real time soil formation takes from hundreds to hundreds of thousands of years to form. Each minute may represent 100 to 100,000 years.