

# Let's Explore Soil and Rocks



## Learning Goals

- Explain that the earth contains rocks
- Describe soil as pieces of rock, water, and things that are living or once were living
- Discuss how people use soil and rocks

## Video Summary

### Exploration Segment

Several children in the video try to explain what soil is made of. Viewers see children playing with sand, rocks, and soil, and then see adult activities using these materials.

### Concept Development

Other children and their teacher use magnifying lenses and their senses to examine soil, sand, and rocks. They find that sand is rock that has been worn down. Soil contains wet sand and materials that are living (such as worms or insects) or once were living (such as leaves or sticks). Sand and soil come from rocks. Wind, water, and plant roots rub against rocks in the earth and grind them into tiny pieces of stone that make up sand and soil. A girl who lives on a farm explains that the soil contains organic material important to growing crops. She shows sandy and rocky areas of the farm where plants do not grow well.

### Application Segment

Children see examples of how rocks and soil are used, including art works such as sculpture, pottery, and jewelry. "You Try It" challenges children to collect different rocks from their neighborhoods and compare them with rocks other students have found.

## Key Words

crop	a plant or animal that is grown for food or other products
dirt	soil
nutrient	a nourishing substance used by plants to make their food
organic	made from living things, such as plants, animals, or insects
rock	a solid mass of minerals
sand	loose, grainy material produced by the natural breaking up of rocks
soil	the loose, finely divided surface material of the earth in which plants have their roots

## Let's Do It

- Ask students, *In our neighborhood, where can you see rocks, soil, and sand?* Make a list of children's answers.
- Tell students: *Watch this video to see what you can learn about soil and rocks.*
- Begin the tape. Stop/pause it after the hostess reviews how soil and sand are made from rocks. Now help your children explore rocks, sand, and soil. Put students in collaborative learning groups and give each group magnifying lenses and an assortment of rocks, sand, and dirt. Encourage children to use their senses to observe and describe the materials. Then ask them to explain what sand and soil are made of. When finished with the activity, continue viewing the video.
- Stop/pause it again after the segment that shows how rocks change. Discuss with students how wind, water, plants, and people can change rocks. When finished discussing, watch the rest of the video.

## You Try It

**How many different kinds of rocks can you find in your neighborhood?** Encourage children to collect rocks at home and around the school, then bring them to class for comparison with other children's stones. Ask, *Which rocks are pretty? Smooth? Rough? Unusual?* Help children use a rock identification guide to learn the names of each rock type.

## More Exploring

**Who has the hardest rock?** Have children test the hardness of the rocks they found in their neighborhood (see "You Try It," above) by scratching them against each other. The ones that make the lightest and thinnest scratches or none at all are the hardest. Have children arrange the rocks from softest (those that make the darkest and fattest scratches) to the hardest.

**Go on a rock walk** to find places where rocks are being worn down. Depending on the features of the community, point out cracks in large rocks, weathered statues, piles of sand and dirt on streets, riverbeds, beaches, deserts, dunes, etc. In each place, help children identify the cause of the rock weathering (moving water, rain, wind, heat, frost, or rubbing against other hard surfaces).

**Do a survey of ways people use soil and rocks.** Help children devise questions they will ask friends and family members to learn the ways they use soil, sand, and rocks. Have students ask the questions of three people, then bring their answers to class for comparison. What are the most common uses? What are the most unusual?

**Discover the weird and wonderful world of rocks.** Invite a "rock hound" (rock collector) or mineral dealer to class to show unique rock samples, or use the resources of a local rock and mineral club or museum of natural history. If possible, ask the visitor or museum guide to focus on rocks with unique properties, such as pumice (floating rock), talc (talcum powder), lodestone (magnetic rock), pyrite (fool's gold), amber (fossilized sap), other fossils, petrified wood, geodes, and lava bombs. Ask children to compare these rocks to those they found in their community.

**Art—Make clay sculptures or sand paintings.** If using clay, encourage children to examine it closely and imagine what colors of rocks were worn down to produce the clay. For sand paintings, show children



examples from Native American, Tibetan, or other cultures. Then help them dye small amounts of sand with food coloring. While the sand is drying, have children make pencil drawings on heavy paper, then trace over the lines with thin lines of glue. Children can then “paint” by sprinkling different colors of sand onto the glue.

**Geography—Compare soils around the world.** Replay the video segment about the girl who lives on a farm. Ask children what makes the farm’s soil good for growing crops (it is organic, gets plenty of rain and sunlight, and isn’t too rocky). Show pictures of places around the world where the soil would be very different (deserts, mountains, rain forests, tundra, caves) and ask children to describe what they see. Locate these regions on a globe or world map.

**Language arts—Have children use the key words from this lesson to write sentences about soil and rocks.**