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Soil Investigation

For Part A

1. Describe where your soil is from.
   - Draw a picture that shows where you got it.
   - What was growing there?
   - What else did you notice?

2. Describe the soil.
   - What color is it?
   - How does it smell?
   - How does it feel?
   - What do the largest soil particles look like? The smallest?

3. Describe your soil shake.
   - Before the shake, what do you think will happen?
   - After the shake, draw what you see.

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Soil Percolation Test

For Part B

Getting Ready

1. Within your team, choose a person for each role:
   - **Equipment Monitor**–collects equipment, keeps track of it, and returns it in good condition.
   - **Time Keeper**–uses a watch that tells time to the second.
   - **Recorder**–makes a data chart and records data for each experiment.
   - **Facilitator**–reads directions and helps everything get done.

2. Have the Equipment Monitor collect the necessary equipment from the instructor. Have the Facilitator read the instructions out loud to the team and make sure everyone understands.

Team Instructions

1. Choose five outdoor locations where there is a small patch of ground. Predict which location's soil will drain water the most quickly and which will be the slowest. Have the Recorder keep track of these predictions.

2. At each location, have the Recorder write a description of the location. Have one person push one end of the can 1" (2.5cm) into the ground. (It may be easier to rest a board on top of the can and firmly tap on the board with a hammer to push in the can.) Pour 1 cup (240 ml) of water into the can. Have the Time Keeper measure to the second how long it takes for the water to completely disappear. The Recorder records this time.

3. At each site, have one person in your team use a thumb to push a nail into the soil as far as it will go using moderate force. Then the student should measure the nail's height. Record this number.

   Note: Try to use the same amount of force to push in the nail at each site. Do not use excessive force.

4. Discuss the following and record your group's answers:
   - **a.** Rank your sites by how long it took for the water to disappear (percolate).
   - **b.** How does this ranking compare with your prediction from step 1?
   - **c.** Is there a relationship between nail heights and the time it took for the water to disappear?
   - **d.** What does the data tell you about the soil's ability to filter water?
   - **e.** What assumptions can you make about the differences in soil you tested?
   - **f.** Why would a percolation test be important before someone builds a house?
   - **g.** Why can't Sam and Leticia build their dream house?