

Checking the Ground

WHAT YOU NEED



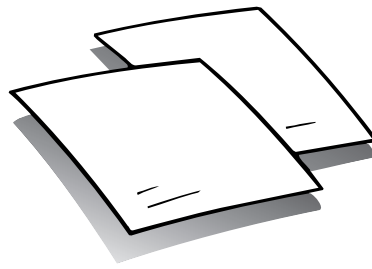
soil samples



vinegar



clear jars with covers



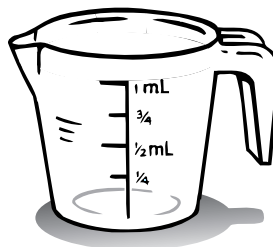
paper



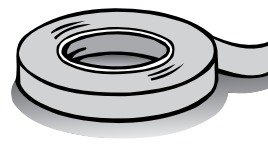
water



pencils



measuring cup



tape

Find Out

Do this activity to see the similarities and differences of soils found in different areas.

Process Skills

Predicting
Measuring
Observing
Communicating

Time

- 45 minutes the first day
- 15 minutes every day for two weeks to add samples, observe, and record information



WHAT TO DO

1. **Predict** ways in which soils from different areas are similar and different.
2. Bring in a soil sample from your backyard or a local park.
3. Check the soil for rocks or pebbles. Set these aside.
4. Put the rocks or pebbles on a piece of paper. Label where they came from.

5. **Measure** 60 mL of the soil and put it in a jar.
6. Label the jar with a piece of tape. **Write** where the soil came from on the tape.
7. Add 120 mL of water to the jar.
8. Seal the jar and shake well.
9. **Predict** what the contents of the jar will look like tomorrow.
10. Each day, bring in a new sample and repeat Steps 2–9. You can get samples from a park, a yard, or a playground (with permission).
11. Each day, **observe** the sample from the day before, and fill in the chart.
12. Each day, drop a couple of the rocks from that day's sample into a glass of vinegar. If the vinegar bubbles, you will know there is limestone in the rock.
13. **Record** the results of the vinegar test.



Prediction: _____

| Soil Samples | | | | |
|---------------------|--------------------------------|---------------------------------------|--|---|
| | Location of soil sample | Does it have rocks or pebbles? | Is there limestone in the pebbles or rocks? | How does it look after settling? |
| Day 1 | | | | |
| Day 2 | | | | |
| Day 3 | | | | |
| Day 4 | | | | |
| Day 5 | | | | |
| Day 6 | | | | |
| Day 7 | | | | |
| Day 8 | | | | |
| Day 9 | | | | |
| Day 10 | | | | |

Conclusions

1. Describe what you see in each jar the day after the soil is mixed with the water.
You see different layers of soil.

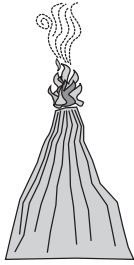
2. Is limestone found in most rocks where you live?
Answers will vary. If the vinegar bubbles, limestone is present.

New Questions

1. In what types of jobs would it be important to know about soil?
Answers will vary but may include farming, building homes, bridges, skyscrapers, making roads, and so on. Accept any reasonable answer.
2. Write a new question you have about the makeup of soil.
Students may research the answer to their question if time allows.



Name _____



ACTIVITY

Making a Rock Model

Draw what the inside of your rock looks like.

Students should discover that the small balls of colored clay have been flattened and folded together.

Name _____

Conclusions

- ① How did the shape of the small, colored balls change?

The small balls of clay were flattened out. The colors did not mix, but there was no definite dividing line between them either.

- ② What effect did pressure from your hands have on the shape of the small clay balls?

The hand pressure caused the balls to flatten out and join together.

- ③ What kind of rock does your model represent?
metamorphic

Asking New Questions

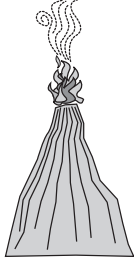
- ① Look at your rock. Would it be easier to separate the colored balls now or before you pressed the rock model together?

It would be easier to separate the colored balls before pressure was applied. It would be almost impossible to completely separate the colors now.

- ② How might heat change your rock?

Heat might melt the clay and cause the colors to run together and mix.

Name _____



ACTIVITY

Observing Soil Types

What do you **predict** you will see in the soil samples?

Students may predict that they will find different soil types; that one will have tiny grains and feel smooth, another will have large grains and feel gritty, and that another may feel soft and damp.

Observe each sample. **Record** what you **observe** in the chart.

| | Color | Size | Shape | How It Feels |
|-----------------|--------------|-------------|--------------|---------------------|
| Sample 1 | | | | |
| Sample 2 | | | | |
| Sample 3 | | | | |

Name _____

Conclusions

- 1** What different kinds of materials did you find?
Answers will vary depending on the soil samples but may include any of the items mentioned on page B70.

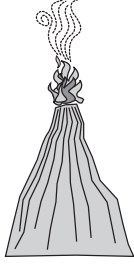
- 2** Are any of your samples sticky like clay or gritty like sand?
Answers will vary depending on the soil samples. Clay-rich soil feels smooth and compacts easily. Sandy soil feels gritty. Loam feels soft.

Asking New Questions

- 1** Which of your soil samples do you think would be best for growing plants?
the sample most like loam

- 2** Which of your soil samples do you think would hold the most water? How can you find out?
Answers will vary depending on the soil samples. Clay soil holds the most water, loam holds the next most, and sandy soil holds the least amount of water. Students could test their predictions by pouring a measured amount of water into cups containing equal amounts of each type of soil, and then tipping the cups over separate measuring cups to observe how much runoff each type allows. The more runoff, the less the holding capacity of the soil.

Name _____



ACTIVITY

Classifying Resources

What do you **predict** most items in each bag will be made of?

Bag 1

Bag 2

Answers will vary. Students may think that most items in one bag will be plastic and that most items in the other bag will be paper.

Observe what you collected. List the contents of each bag under the headings below. **Group** the items according to what they are made of.

Bag 1

| Item | Resource | Renewable or Nonrenewable |
|------|----------|---------------------------|
|------|----------|---------------------------|

Bag 2

| Item | Resource | Renewable or Nonrenewable |
|------|----------|---------------------------|
|------|----------|---------------------------|

Name _____

Conclusions

1 Which things on your list can be recycled?

Answers will vary. In general, most of the glass, metal, or plastic items can be recycled.

2 What might be made from the recycled items?

Answers may include paper, cardboard, new plastic items, and new soda cans.

Asking New Questions

1 What changes in your habits could you make to help protect natural resources?

Most people throw away more trash than necessary. One change is to use fewer disposable products. Another is to buy items that can be used more than once.

2 What suggestions could you make to others to promote more recycling?

Answers may include checking to make sure items cannot be recycled before throwing them away; using more recyclable goods.