# Science for families

Earth & space sciences

## Exploring soil samples

Yrs 3 - 4

**2 x at least 15 minute sessions, sperated by a few days**

**Rock sample, 2 x glass/plastic jars with lids, 2 x clear plastic bags, paper, pencils, tape**

**Low to medium level of supervison**

**Indoors *and* outdoors**

**Internet and camera access are *optional***

## Preparation

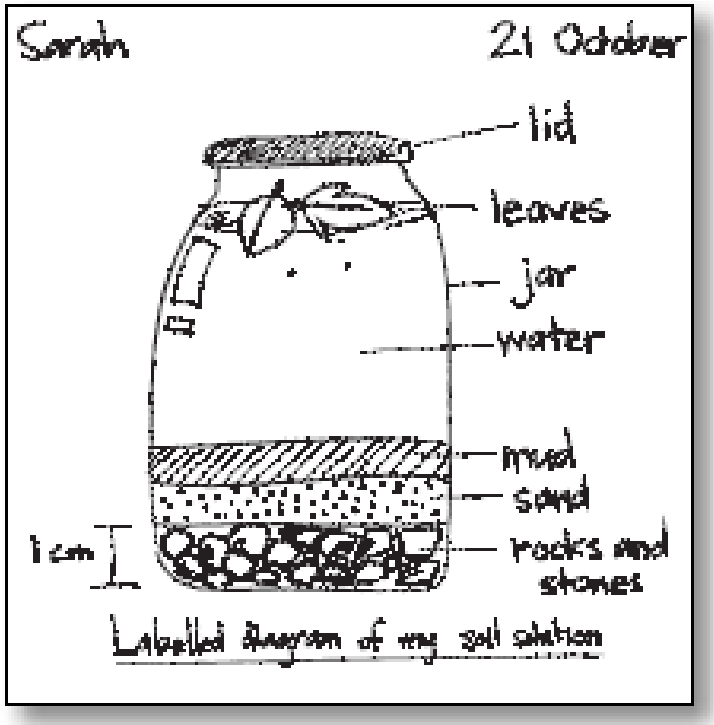
- Find a rock sample
- Print or copy the task sheet OR create a copy on A4 or in a scrapbook

## Purpose

- Explore and describe the features of soil and rock samples
- Discuss different components of soils and draw an annotated diagram of a soil solution

## Description

1. Fill about half of the first jar with soil collected from an outdoor location such as a lawn or nature strip(not a garden bed). When collecting the sample, note the date, time and location on a small piece of paper and attach this label to the jar. Take care not to include any living things in the sample such as earth worms or insects.
2. Repeat with soil from another location so that you have two samples to compare.
3. Observe how the two soil samples look, feel and sound when you shake the jar. Record observations using the '*Soil sample observations*' task sheet. Record the similarities and differences between the soil samples.
4. Remove a small sample of the soil from each jar and place it in a separate small plastic bag for each sample. Label the bag so you know which jar the sample came from. (You may need this sample for after the task).
5. Create a soil solution by fill the remaining space in each jar with water, leaving some room at the top to allow the solutions to be shaken. Screw the lid on tightly and shake the solutions thoroughly. Place the solutions in a safe place and allow them to settle for a few days.
   ***OPTIONAL:*** *take photos of the jar before shaking, and just after shaking.*
6. After a few days, carefully move the soil solutions to a place where they can be observed, being careful not to disturb the solution or any layers that have formed.
7. Observe the solutions carefully, recording the layers that may have formed and how the soil has changed from the original sample.
8. Draw a labelled diagram of the solutions, showing any layers that may have formed, including making notes on the measurement of those layers.




**EXAMPLE**: A sample of a labelled diagram of a soil solution.

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## Before the task

- Allow students to investigate the rock sample you collected. Prompt their thinking by asking questions such as:
  - Have you seen something like this before?
  - Where do you think this came from?
  - How would you describe this?
  - What features does it have?
  - How deep beneath your feet do you think it is from?
  - If you left it outside, do you think it would look the same in (1, 2, 5, 10) years?
- Discuss what students know about soils, rocks and landscapes and how they change over time. Ask questions such as:
  - What do you know about (soils, rocks, landscapes)?
  - Where do they come from?
  - How do they change?
  - Why do or don't they change?
  - How long does it take for them to change?
- Invite students to ask their own questions about soils, rocks and landscapes. Support them to record their questions in some way (e.g. write, type)

## After the task

- Discuss students' findings about their soil solutions by asking questions such as:
  - Do the soil samples look similar? Why or why not?
  - Do the soil solutions look similar? Why or why not?
  - What is the same about the two samples and solutions?
  - Wha are the differences between the two samples and solutions?
  - Why do you think that is?
  - What kinds of things are soils made of?
  - Why are there different sized pieces in the soil?
  - Do you think soils might change over time? How?
  - What might happen in the vegetation (the plants) in an area changes? What impact might this have on the soil?
- You may wish to share your observations of soil samples, solutions and labelled diagrams with others (classmates, teacher, family members).

## Explore some more

- Watch this video to hear about why water is so important to soil, how it's measured and why it's so important to keep track of. https://education.abc.net.au/home#!/media/2268954/too-dry-too-wet-soil-has-to-be-just-right-
- Watch this video to learn more about soil composition and how plants rely on health soil to grow. https://education.abc.net.au/home#!/media/104056/soil-healthy-dirt-makes-healthy-plants

SAFETY

Take care when collecting soil samples. Wear protective eqiupment such as glaves and googles. Take care not to disturb animals that may bite or sting.