

Water Absorption

Explore how different substrates and soil absorbs water. Predict how quickly each location absorbs water, perform the experiment, and then explain what factors influenced the speed of absorption.

Location Suggestions: Garden, sand, pavement, mulch, grass

Materials:

- An aluminum can without top and bottom
- A small cup
- A bottle of water
- A time keeping device
- A copy of the worksheet
- Pencils

Duration: 20 minutes

Age Range: Grades 2 and 3 and up

Activity:

- 1) Soil is made up of organic and inorganic materials including water and air. What are the purposes of these components in soil? Write your answers on your worksheet.
- 2) Choose three different locations for your experiment. Describe the ground at your sites: garden soil, sandy, mulched, grassy, rocky, etc.
- 3) Predict how much time it will take for water to absorb at each site.
- 4) Place the can firmly into the ground.
- 5) Fill your cup with water and pour it into the can.
- 6) Time how long it takes for all the water to fully absorb. Record the data on your worksheet.
- 7) Repeat steps 4 to 6 for your other two sites using the same amount of water each time.
- 8) Explain the results and why certain sites absorbed water faster or slower. Discuss the results and explanations.

Discussion:

Soil is made up of lots of parts including organic material such as decomposed organic material called humus and insects and inorganic material such as nutrients, sand, silt, clay, loam, and air. There is also water! The amount of water in soil is affected by:

- How often and how much it has rained
- Humidity and temperature
- Amount of plant cover
- Type of soil and compaction (is there lots of clay or sand in the soil, how much air)
- How close the site is to ground water and surface water

What conditions do you think were impacting the water at your sites?
 Consider whether your site is actually soil.
 Is it made up of both organic and inorganic materials?
 If not, how does that impact absorption?
 Does water absorb into a site with only organic material such as mulch?
 Does water absorb into inorganic material like pavement or rocks or does it simply drain away?

For Teachers: See below for links to the Ontario curriculum

Grade and Subject	Topics
Grade 2 Science Air and Water	2.3 Investigate through experimentation the characteristics of water 2.5 Investigate water in the natural environment
Grade 3 Science Soils in the Environment	2.2 Investigate the components of soil, the condition of soil, and additives found in soil, using a variety of soil samples from different local environments, and explain how the different amounts of these components in a soil sample determine how the soil can be used 2.3 Use scientific inquiry/experimentation skills, and knowledge and skills acquired from previous investigations to determine which type(s) of soil will sustain life. 3.1 Identify and describe the different types of soils.

Share with us!

We want to hear how your experiment turned out! Share with us by using the hashtag #RBGathome or tagging us at @RBGCanada.



Water Absorption Experiment

What are the purposes of the following components in soil?

Organic Materials	
Inorganic Materials	

Absorption Site (describe each site in the space below)	Predicted Time for Absorption	Time for Water Absorption	Explanation of Results
Site 1			
Site 2			
Site 3			