Rocks: Investigating Soil Permeability

Aim:	**Success Criteria:**	**Resources:**
Making systematic and careful observations in the context of investigating the permeability of different soils. I can observe carefully and systematically. Recording findings using simple scientific language. Reporting on findings from enquiries, including presentations of results and conclusions. Children will present their finding using the key science vocabulary for this lesson. I can present my findings using scientific vocabulary.	I can identify how to make careful observations. I can observe how much water has filtered through different types of soil. I can use the same equipment and length of time for each observation. I can record my observations accurately in a table. I can contribute to creating a group presentation. I can use simple scientific language accurately in my presentation.	**Lesson Pack** Samples of the different types of soil (pre-measured to ensure the children use the same amount of soil) Beakers Funnels Coffee filter paper Measuring cylinders Water Visualiser equipment or a webcam (if available)
	Key/New Words: Soil, formation, rock, rock type, igneous, sedimentary, metamorphic, properties, permeability, permeable, impermeable, semi-permeable, rapid, moderate, slow.	**Preparation:** **Soil Permeability Activity Sheet** - 1 per child **Rocks and Soils Matching Cards** - 1 per pair

Prior Learning: Children will have learnt about different rock types in lessons 1 and 2 and how soil is formed in lesson 5.

Health and Safety: Ensure that children either avoid handling the soil directly or wash hands immediately after handling the soil or soil packages.

Learning Sequence

Whole Class	**Rocks Quiz:** Children recap their knowledge and understanding of different types of rocks and their properties. **Types of Soils:** What part do rocks play in forming soil? How many types of soil do you think there are?	
	Matching Rocks and Soils: In pairs, children to match soils with the rock(s) that they are formed from using the **Rocks and Soils Matching Cards.** Reveal answers on the **Lesson Presentation.**	
Whole Class	**Comparing Soils:** Watch the following **video** as an introduction to comparing different types of soil.	
	Soil Permeability: Read the information on the importance of soil permeability. **Making Careful Observations:** Go through a checklist of how to make careful observations.	
	Testing Permeability: Show children the different types of soil they will be testing before children make predictions regarding the permeability of different types of soil. Using a visualliser or webcam (if available), model how to test permeability and how to make careful observations for one soil sample. Each mixed ability group collects the necessary equipment and soil samples for their practical investigation. Children to record their observations on the **Activity Sheet Soil Permeability.** Are children observing and carefully? Can they record their findings in a table?	
	Oral Presentation: Children discuss the success criteria for their oral presentation in their groups before feeding back to the whole class. Groups should be given around ten minutes to create and rehearse their group presentation.	
Whole Class	**Presentation:** Each group presents its findings. Can the children use simple scientific language? Ask children: Were the findings similar or different? Why do you think that might be? How can we know which results are accurate? What conclusions can you draw about the permeability of different types of soil?	

Task*it*

***Research*it:** Research the uses of different types of soil using the **Soil Research Activity Sheet.**

***Investigate*it** Conduct a simple investigation by planting a seed in different types of soil to see if and how the seeds grow. Record the information on the **Investigating Soils Activity Sheet.**