

# Environmental Studies

**Topic:** Earth's materials

**Class:** Primary 6

**Dates:**

Please give an overview of the topic including ES outcomes and key features to be covered.

<p><b>Environmental studies outcomes</b></p> <p><b>Science</b></p> <ul style="list-style-type: none"> <li>• Living things</li> <li>• Energy and forces</li> <li>• Earth and space</li> </ul> <p><b>Social subjects</b></p> <ul style="list-style-type: none"> <li>• People and place</li> <li>• People in the past</li> <li>• People in society</li> </ul> <p><b>Technology</b></p> <ul style="list-style-type: none"> <li>• Technological capability</li> </ul> <p><b>Skills strands</b></p> <ul style="list-style-type: none"> <li>• Knowledge and understanding</li> <li>• Preparing for tasks</li> <li>• Carrying out tasks</li> <li>• Reviewing and reporting on tasks</li> <li>• Developing informed attitudes</li> </ul> <p><b>Significant outcomes and strands from other curricular areas</b></p> <p><b>ES:</b></p> <p><b>EL:</b></p> <p><b>M:</b></p> <p><b>EA:</b></p> <p><b>RME:</b></p> <p><b>HE:</b></p> <p><b>ICT:</b></p>	<p><b>Science</b></p> <p><b>AO: Earth and space</b></p> <p><b>Materials from earth – Level C</b></p> <ul style="list-style-type: none"> <li>• describe the differences between solids, liquids and gases</li> <li>• give some everyday uses of solids, liquids and gases</li> </ul> <p><b>Materials from earth – Level D</b></p> <ul style="list-style-type: none"> <li>• describe the internal structure of the earth</li> <li>• describe the processes that led to the formation of the three main types of rock</li> <li>• give examples of useful materials that we obtain from the earth's crust</li> <li>• describe how soils are formed</li> <li>• name the gases of the atmosphere and describe some of their uses</li> </ul> <p><b>Skills in science: investigating – Level C</b></p> <p><b>Preparing for the task</b></p> <ul style="list-style-type: none"> <li>• suggest a question for exploration and decide how they might find out an answer</li> <li>• make reasoned predictions about a possible outcome</li> <li>• suggest ways of making a fair test</li> </ul> <p><b>Carrying out the task</b></p> <ul style="list-style-type: none"> <li>• select and use appropriate measurement devices or make appropriate observations</li> <li>• record findings in a greater range of ways</li> </ul> <p><b>Reviewing and reporting on the task</b></p> <ul style="list-style-type: none"> <li>• make a short report of an investigation, communicating key points clearly</li> <li>• explain what happened, drawing on their scientific knowledge</li> <li>• make links to original predictions</li> </ul> <p><b>Skills in science: investigating – Level D</b></p> <p><b>Preparing for the task</b></p> <ul style="list-style-type: none"> <li>• identify two or three questions to investigate</li> <li>• provide reasons for planning decisions</li> <li>• include fair testing in planning by changing one factor</li> <li>• show awareness of the significance of variables</li> </ul> <p><b>Carrying out the task</b></p> <ul style="list-style-type: none"> <li>• make an appropriate series of accurate measurements</li> <li>• select an appropriate way of recording findings</li> </ul> <p><b>Reviewing and reporting on the task</b></p> <ul style="list-style-type: none"> <li>• make an organised report of an investigation using appropriate illustrations</li> <li>• provide explanations related to scientific knowledge</li> <li>• draw conclusions consistent with findings</li> <li>• identify limitations of approach used</li> <li>• vocabulary</li> </ul>
---	--

## Environmental studies

### Development of topic

### Earth's materials

Please develop topic by listing key questions and learning activities to be carried out and resources to be used.

Key questions/learning activities	Teacher's notes	Resources	Assessment	Evaluation
<p>1. What are the differences between solids, liquids and gases?</p> <ul style="list-style-type: none"> <li>• pre-topic assessment, what do pupils know about materials of the Earth?</li> <li>• examine a variety of solid objects/materials to see what they have in common</li> <li>• investigation – pour a given volume of water into a series of different shaped containers and describe what happens</li> <li>• investigation – push an upturned jam jar into water to show that air takes up space</li> <li>• investigation – balance two uninflated balloons on a coathanger, blow one up to demonstrate that a highly inflated balloon weighs more</li> </ul>	<p>Wood, plastic, metal, rock, sponge, etc., will demonstrate that solids are not always hard, but they do have a definite shape – even if this can be changed.</p> <p>Liquid takes the shape of its container but does not fill it, i.e. the volume doesn't change but shape does.</p> <p>Establish that air is real. Introduce the word gas and ask children to name other gases they know of. Explain that air is a mixture of gases. Gas takes up space but has no definite shape. It fills any container.</p>	<p>Renfrewshire Pack/SOLSN CD-ROM P4 Unit 3, P5 Unit 2, P6 Unit 3</p>	<p>Pre-topic assessment:</p> <ul style="list-style-type: none"> <li>• discussion</li> </ul> <p>Participation in investigations</p> <p>Reviewing and reporting on tasks</p>	
<p>2. What are some of the everyday uses of solids, liquids and gases?</p> <ul style="list-style-type: none"> <li>• collect pictures and artefacts</li> <li>• use a variety of sources to find out about a range of gases and their uses</li> <li>• make an information leaflet or poster to present findings</li> </ul>	<p>Solids – building, furnishing, clothing, car manufacture, etc.</p> <p>Gases – fizzy drinks, spray cans, tyres, etc.</p> <p>Liquids – drinks, paints, ketchup, etc.</p> <p>Flowing powders, e.g. talc, crystals, e.g. sugar, appear to be liquid but on examination are made up of small particles of solid material.</p>		<p>Research skills</p> <p>Completed list</p> <p>Completed poster/leaflet</p>	
<p>3. Describe the internal structure of the Earth</p> <ul style="list-style-type: none"> <li>• discussion to elicit existing knowledge</li> <li>• use a variety of sources to gather information on the Earth's structure</li> </ul>			<p>Discussion</p> <p>Research/ recording skills</p>	

<p>4. What processes led to the formation of the three main rock types?</p> <ul style="list-style-type: none"> <li>• use internet to find information on the physical features of the Earth's crust</li> <li>• examine samples of sedimentary, igneous and metamorphic rocks and describe the differences between them</li> <li>• group rocks in terms of texture and appearance</li> </ul>			<p>Discussion/ observation of children as they work</p> <p>Report writing – completed report</p> <p>Research/ recording skills</p>	
<p>5. What are some of the useful materials that we obtain from the Earth's crust?</p> <ul style="list-style-type: none"> <li>• discussion to elicit what pupils already know</li> <li>• use a variety of sources to find out the uses of some of the materials of the Earth, e.g. fossil fuels, marble/granite as building materials</li> </ul>		<p>Renfrewshire Pack/SOLSN CD-ROM – P7 Unit 1 Lesson 1</p>	<p>Discussion</p> <p>Research skills</p>	
<p>6. How are soils formed?</p> <ul style="list-style-type: none"> <li>• investigation – demonstrate the effect of water/vinegar (weak acid) on permeable rocks, e.g. limestone, chalk</li> <li>• investigation – rub two rocks together to demonstrate erosion</li> <li>• investigation – plan a way of obtaining pure salt from rock salt</li> <li>• examine different soil samples and record differences in texture and colour, etc.</li> </ul>	<p>Encourage pupils to look at the particles as well as colour. Same material can be pebbles, stone and rock. To investigate wearing away, two rocks can be rubbed together (be careful particles do not get into eyes).</p> <p>Children need not complete all investigations. Different groups can work on one investigation and report their findings to the other pupils.</p>	<p>Variety of sock samples</p>	<p>Participation in investigations</p> <p>Report writing – completed report</p>	
<p>7. Which gases constitute Earth's atmosphere?</p> <ul style="list-style-type: none"> <li>• use a variety of sources to find out the constituent gases of the atmosphere and the % composition of each</li> <li>• research one or two uses for each of these gases</li> </ul>	<p>Nitrogen (78%) – freezing food, in combination with other substances as fertilisers</p> <p>Oxygen (21%) – breathing, welding</p> <p>Argon (1%) – filling light bulbs</p> <p>Carbon dioxide (0.03%) – fizzy drinks and fire extinguishers</p>	<p>Library</p> <p>Internet</p> <p>BP Link personnel/ materials</p>	<p>Discussion</p> <p>Research/ recording skills</p> <p>Observation of children as they work</p>	