

Session	Objective	Content and Activities	Resources	Assessment
1	To understand the differences between solids, liquids and gases. To sort and group objects according to their physical state.	Look at pictures of different objects. Decide whether they are solids, liquids or gases and draw that picture in the appropriate column on the given chart. Extn: Add own ideas to each column. Decide on rules for classification e.g. liquids run off the table! SEN: Cut and Paste original worksheet	Worksheet 1 Grid to be drawn in books – ruler, pencil etc.	Are the children able to correctly classify the objects?
2	To carry out a practical exploration safely. To make predictions using prior knowledge of solids, liquids and gases. To observe the changes of state from solid to liquid to gas and vice versa.	ADULT SUPERVISION REQUIRED Set up different experiments around the room. Allow the children to move to each activity and if safe to do so carry out the practical activity otherwise aid an adult. <ul style="list-style-type: none"> • What happens to the liquid, water, when we heat/boil it? • What happens to the liquid, water, when we freeze it? • What happens to the solid, butter, when we heat/melt it? • What happens to the solid, sugar, when we dissolve it? • What happens to the gas, steam, when it cools/condenses? • What happens when we mix the chemical liquid, vinegar with the chemical solid, baking powder? Children fill in prediction column and then compare with actual results.	Kettle + water Ice cube container + water and use of freezer Butter, pan and hot plate Sugar and water in beaker Kettle + water + cold piece of glass or mirror Beaker with baking powder and vinegar EXTRA ADULTS	Can the children make predictions using previous knowledge? Are the children able to make clear observations about changes of state? Can they use scientific language to describe the changes?
Small Groups	To clarify and apply knowledge of changes of	Mix solids and liquids and inject some gas to make a chocolate cake. This involves mixing and heating	Chocolate cake packet mix with	Can the children identify the

Year 5 Rocks. Soils and Water – Scheme of Work

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<p>to work with CSA in kitchen area.</p>	<p>state to a practical, everyday situation.</p>	<p>different substances to witness drastic changes in state.</p>	<p>hundreds and thousands. Bowl Wooden Spoon Microwave</p>	<p>individual solids, liquids and gases?</p>
<p>3 + 4 1 lesson to carry out experiment and rough write up 1 lesson for scientific write up.</p>	<p>To understand that many solids e.g. salt and sugar dissolve in water to give solutions, but others do not. To practically explore which solids will dissolve and whether this process can be helped by other elements. To select equipment and carry out an investigation.</p>	<p>Put in mixed ability pairs. Tell the children the aim of the experiment. Get them to decide which solids they would like to test. Ask them to choose the appropriate equipment. Use laminated experiment boards to plan their write up. List equipment and method as they go along. Hot water experiment to be carried out by an adult. Use a table of results to record their findings. Discuss conclusions as a class.</p>	<p>Many beakers Coffee, tea, salt, sugar, washing powder, pepper, sand, baking powder, flour, curry powder etc. Laminated experiment boards.</p>	<p>Can the children carry out a scientific experiment? What conclusions do they draw from their observations?</p>
<p>Extra</p>		<p>Jelly Investigation to put dissolving conclusions to the test.</p>		
<p>5 2 x short lessons</p>	<p>To understand the process of evaporation. To extract a solid from a liquid solution. To understand that there is a limit to the mass of a solid that can be dissolved in a given amount of water and this limit is different for different solids.</p>	<p>Mix salt into water until no more can be dissolved. This will produce a saturated solution. Pour the liquid onto 2 different clean saucers. Place one saucer on a sunny window-sill and another in a cold, dark place. Leave the saucers until all the water has evaporated. Look at what has been left. Discuss why there was a difference in the rate at which the water has evaporated and talk about</p>	<p>2 x saucers Beaker Warm water Salt Spoon</p>	<p>Do the children understand the process of evaporation?</p>

		where the water has gone.		
6	<p>To understand to water cycle.</p> <p>To observe how condensation and evaporation are major processes within the water cycle.</p> <p>To link science with Geography.</p>	<p>Look at OHP diagram of the water cycle. Recap on the processes of evaporation and condensation and apply them to the physical water cycle.</p> <p>Children to complete their diagram by labelling the missing parts.</p> <p>Extn: Drama using people to represent parts of the water cycle.</p>	<p>OHP</p> <p>Individual water cycle sheets</p>	<p>Can the children describe the water cycle using vocabulary linked to evaporation and condensation?</p>
7	<p>To understand that particles of different sizes can be filtered to separate them.</p> <p>To observe that insoluble solids in liquids can be separated by filtering them.</p> <p>To understand the importance of fair testing when comparing materials.</p>	<p>Children to carry out an investigation to see what type of material makes the best filter.</p> <p>Use soil in water to pass through different materials and compare the cleanliness of the finished product.</p>	<p>Bottles</p> <p>Various materials: tights, paper, fabric</p>	<p>Can the children conduct an experiment on their own?</p> <p>Are they able to control variables for a fair test?</p>
8	<p>To look at what soil is made of.</p> <p>To look at the basic characteristics of soils, including texture and appearance.</p>	<p>Put water in a large drinks bottle. Add mud from the playground.</p> <p>Shake the bottle vigorously to separate all the particles.</p> <p>Allow the water to settle and draw what can be seen. Discuss the drawings.</p>	<p>8 large drinks bottles</p> <p>Mud</p> <p>Water</p>	<p>Can the children describe the different constituents in soil?</p>
Hwk	<p>To look at the formation of soil.</p>	<p>Copy pictures of different methods of soil formation and match the statements.</p>	<p>Work sheets x 2</p>	<p>Are the children able to correctly identify the</p>

				methods in which soil is formed?
9	To explore drainage in soil. To decide which soil is the best for farmers and give reasons for their ideas.	Fill 3 funnels with soil; loam, clay and sandy soil. Put the funnel onto a cylinder. Discuss with the children which soil they think will allow the most, least amounts of water through. Talk about their reasons. Discuss that soil is used to grow plants in and that the best soil for plants is one that gradually lets the water through not one that will drown or drought the roots. Pour the same amount of water into each funnel and time to see how long it takes for the water to soak through the soil.	3 funnels 3 beakers water 3 soil types 3 cylinders	Do the children understand the process of drainage?
10	To compare different types of rocks. To sort and classify rocks according to their properties.	Give the children a selection of rocks and ask them to sort and discuss the physical characteristics.	Nails, coins etc to scratch the rocks Various rocks	Can the children describe the different rocks using their physical characteristics?
Hwk	To explore how rocks are formed. To understand the differences between sedimentary, igneous and metamorphic rocks.	Match the pictures to the statements. In class, look at various examples of rocks and ask the children to say how they think the rock was formed. Extn: Rock Cycle worksheet	Worksheets Rocks.	Do the children understand the difference between sedimentary, igneous and metamorphic rocks?
11	To look at the physical affects of weathering on rocks.	Put some chalk in a bottle with some water and shake vigorously. Observe what happens to the chalk. Discuss how the bashing of the chalk has caused weathering and	Chalk Bottle Water	Do the children understand weathering?

		<p>the physical features of the chalk have changed. Complete one of the differentiated worksheets about weathering. Discuss places such as the beach where weathering takes place.</p>		
12	<p>To look at the affect of freezing on rocks. To compare this to glaciation and the weathering of rocks due movement of ice.</p>	<p>Weigh a rock, soak it in water over night and then weigh again. Discuss the change in weight and reasons for its occurrence. Put the water soaked rock in cling film in the freezer for several days. Take it out and examine it closely. Discuss how it has changed. Let the rock dry out and then put it back in the freezer. Keep a diary of what happens when you repeat this process several times.</p>	<p>Rocks Water Cling film Freezer</p>	<p>Can the children make observations?</p>
13	<p>To look at the story of how a volcano is formed.</p>	<p>Follow the worksheet – Watch the video. Colour the pictures and put them in order. Match up the correct statement that explains what is happening in each picture. This will give an overall picture of how a volcano is formed.</p>	<p>Video Worksheets</p>	<p>Can the children give a brief description of how a volcano is formed?</p>
14	<p>To test what the children have learned about Rocks, Soils and Water.</p>	<p>A short test asking the children about the various processes they have studied over this scheme of work.</p>		<p>Are their any common misconceptions which need addressing?</p>