

# Properties and Changes of Materials : Science : Year 5

	Learning Objective	Overview	Assessment Questions	Resources
<b>Lesson 1</b>	To know that some materials will dissolve in liquid to form a solution	Children will explore what happens to substances when they are mixed with water. In their independent activities, they will conduct a fair test to find out which substances are soluble, and which are insoluble. In the FSD? activity, children will explore what factors other than temperature can help jelly cubes to dissolve more quickly.	<ul style="list-style-type: none"> <li>Do children understand the terms 'dissolve', 'soluble', 'insoluble' and 'solution'?</li> <li>Can children make and explain their predictions about soluble and insoluble materials?</li> <li>Can children conduct a fair test involving soluble and insoluble materials?</li> </ul>	<ul style="list-style-type: none"> <li>Slides</li> <li>Beakers, teaspoons, stopwatch, water</li> <li>Sugar, pepper, cooking oil, flour, wax flakes, food colouring</li> <li>Worksheet 1A/1B/1C</li> <li>Challenge Card A/B/C/D (FSD? activity only)</li> <li>Beakers, thermometers, stopwatch, water (warm), jelly cubes, knives, spoons (FSD? activity only)</li> <li>Worksheet 1D (FSD? activity only)</li> </ul>
<b>Lesson 2</b>	To use knowledge of solids, liquids and gases to decide how mixtures and solutions might be separated	Children will explore ways in which the original materials in some mixtures and solutions may be recovered, by the process of evaporation, or by sieving or filtering. In their independent activities they will use their knowledge and understanding of soluble and insoluble substances to explain how mixtures could be separated.	<ul style="list-style-type: none"> <li>Do children know what the terms soluble and insoluble mean?</li> <li>Do children know that evaporation can be used to separate soluble materials from water?</li> <li>Do children know that filtering can be used to separate insoluble materials from water?</li> </ul>	<ul style="list-style-type: none"> <li>Slides</li> <li>Worksheets 2A/2B/2C</li> <li>Investigation Cards (FSD? activity only)</li> <li>Worksheet 2D (FSD? activity only)</li> <li>Beakers, water, filter paper, different sizes of sieve, teaspoons, pepper, rice, glitter, marbles, sand, salt, sugar, paperclips (FSD? activity only)</li> </ul>
<b>Lesson 3</b>	Explain that some changes form new materials, and that these changes are not usually reversible	Children will identify solutions which are the product of irreversible reactions between the substances that were dissolved. They will then carry out practical investigations involving irreversible reactions.	<ul style="list-style-type: none"> <li>Do children know that when some materials are mixed together they cannot be separated again?</li> <li>Do children know that when an irreversible change takes place a new substance is produced?</li> <li>Do children know how to tell if the new substance produced is a gas?</li> </ul>	<ul style="list-style-type: none"> <li>Slides</li> <li>Worksheets 3A/3B/3C</li> <li>Water, lemon juice, sugar, baking soda, plaster of Paris</li> <li>Worksheet 3D</li> <li>Diet Coke, Mentos (FSD? activity only)</li> <li>Film canister, water, effervescent tablets</li> </ul>
<b>Lesson 4</b>	To identify when a change caused by heating or cooling is reversible or irreversible	Children will learn about reversible and irreversible changes caused by heating or cooling materials. They will then either predict and sort materials according to what may happen when they are heated or cooled, or explore irreversible reactions by cooking.	<ul style="list-style-type: none"> <li>Do children know that heating and cooling materials can cause them to change?</li> <li>Can children recognise reversible and irreversible changes caused by heating and cooling?</li> <li>Can children explain how to reverse a change caused by heating or cooling?</li> </ul>	<ul style="list-style-type: none"> <li>Slides</li> <li>Worksheets 4A/4B/4C</li> <li>Recipe Sheet (FSD? activity only)</li> <li>Cooking Safely Poster (FSD? activity only)</li> <li>Ingredients and equipments as listed on Recipe Sheet (FSD? activity only)</li> </ul>
<b>Lesson 5</b>	To investigate the materials needed for something to burn and the new materials formed by burning	Children will consider what happens when materials are burned, including what new materials are produced. They will carry out investigations involving burning a candle and explain what is happening.	<ul style="list-style-type: none"> <li>Do children know that new materials are formed when materials are burned?</li> <li>Can children describe what happens when a candle burns?</li> <li>Can children identify and assess hazards associated with burning materials?</li> </ul>	<ul style="list-style-type: none"> <li>Slides</li> <li>Worksheets 5A/5B/5C</li> <li>Candle Video</li> <li>Candle, glasses, safety matches, stopwatch, heat safety mats</li> <li>Teacher Notes (FSD? activity only)</li> <li>Observation Sheet 5A (FSD? activity only)</li> <li>Water, shallow bowl or dish, glasses x3, candle, tea light, tile, safety matches (FSD? activity only)</li> </ul>
<b>Lesson 6</b>	To compare and group together everyday materials on the basis of their properties	Children will identify and discuss several different properties of a range of materials (conductive, magnetic, soluble, flexible, transparent etc), then either sort and group given sets of materials, or use their scientific enquiry skills to explore the properties of some materials.	<ul style="list-style-type: none"> <li>Can children describe everyday materials according to their properties?</li> <li>Can children compare and group everyday materials according to their properties?</li> <li>Can children explain why some everyday materials are useful due to their properties?</li> </ul>	<ul style="list-style-type: none"> <li>Slides</li> <li>Worksheets 6A/6B/6C</li> <li>Materials Cards</li> <li>Activity Cards (FSD? activity only)</li> <li>Batteries, bulbs and wires; magnets; torches; weights; water and a variety of materials to be tested according to their properties (FSD? activity only)</li> </ul>
<b>Lesson 7</b>	To give reasons for the particular uses of everyday materials in relation to their properties	Children will first recap on the vocabulary used to describe the properties of different materials, before taking a closer look at some of them, and why materials with these properties are used for certain purposes. In their independent activities, children will use their knowledge and reasoning skills to explain how the properties of a material make it useful for a specific purpose.	<ul style="list-style-type: none"> <li>Can children list and explain some of the different properties that materials can have?</li> <li>Do children understand that the properties materials have can affect how they are used/what they are used for?</li> <li>Can children explain why a certain material has been chosen for a specific purpose, based on its properties?</li> </ul>	<ul style="list-style-type: none"> <li>Slides</li> <li>Worksheet 7A/7B/7C</li> <li>Challenge Cards (FSD? activity only)</li> <li>This vs That Cards (FSD? activity only)</li> <li>Picnic Items Cards (FSD? activity only)</li> <li>Picnic Priorities Sheet (FSD? activity only)</li> </ul>