













Properties and Changes of Materials: Irreversible Changes

<p>Aim: To explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda by identifying and observing irreversible chemical changes.</p> <p>I can identify and explain irreversible chemical changes.</p>	<p>Success Criteria: I can identify irreversible chemical changes. I can explain irreversible chemical changes. I can describe the new materials created in irreversible chemical changes.</p>	<p>Resources: Lesson Pack Warm milk (approximately 40°C, and not hotter than 45°C)- store it in a vacuum flask for ease of use White (distilled) vinegar Mixing bowls or beakers Tablespoons Bicarbonate of soda Cardboard Balloons Plastic bottles Access to this BBC clip.</p>
<p>Key/New Words: Reversible, irreversible, physical, chemical, reaction, reactant, product.</p>	<p>Preparation: Differentiated Identifying Changes Activity Sheet per child. Differentiated Irreversible Changes Activity Sheet per child.</p>	

Prior Learning: The children will have learnt about changes of state in Year 4. They will have learnt about reversible changes in lesson 5 of this unit.

Learning Sequence

	<p>Kitchen Creations: Ask the children to watch this clip to find out more about chemical changes. Explain the irreversible changes seen in the clip in more detail using the information on the Lesson Presentation. Ask the children to talk to their partner to identify the reactant and the product of the chemical change seen on the clip.</p>	
	<p>Reversible or Irreversible? Ask the children to sort the pictures of materials changing on their differentiated Identifying Changes Activity Sheet by cutting and sticking them in the correct column. <i>Look for children who can identify reversible and irreversible changes.</i></p> <p> Explain how the reversible changes can be reversed, and identify the reactant(s) and product(s) of the irreversible changes.</p>	
	<p>Seeing Changes: Explain that the children should work in groups to carry out two irreversible chemical changes to make new materials. Following the instructions on the Lesson Presentation, the children should mix warm milk with vinegar, and then bicarbonate of soda with vinegar. As they complete each activity, explain the new materials they have made and their uses using the information on the Lesson Presentation. The children should complete their Differentiated Irreversible Changes Activity Sheet to describe the irreversible changes and explain the new materials created. <i>Look for children who can explain the irreversible changes and identify the useful new materials created.</i></p> <p> Use the key words to complete the explanations.  Use the key words to write their own explanations.  Think of and write their own explanations.</p>	
	<p>True or False? Ask the children to decide if the statements on the Lesson Presentation are true or false. Reveal the answers on the Lesson Presentation.</p>	

Taskit

Spotit: Can you identify any irreversible reactions occurring around school or home? Think of the meals you eat, and the materials you use.

Researchit: Why not find out about scientists who have used chemical changes to create useful new materials? Good examples include Spencer Silver or John McAdam.

Investigateit: Irreversible changes don't always create useful new materials. Investigate the conditions that cause rust to form - an unhelpful irreversible change.