

Science Learning Design

Topic & Subtopics :	Variety and classification	Class:	Year 6	Duration:	2 periods
Content Learning Objectives:	Recognise similarities and differences between materials based on their properties (plastics and rubber)				

Teaching & Learning Activities		Resources	Summary				
<p>Tuning in (Engage, Elicit)</p> <p><i>Determine prior knowledge and prepare pupils</i></p> <p>5 minutes</p>	<ul style="list-style-type: none">Pupils are given some loom bands.They are asked what the bands are used for.They are asked to make just any simple bracelet out of the loom bands the next 5 minutes.	Colourful loom bands					
<p>Finding out & Sorting out (Explore)</p> <p><i>Time to locate, gather information, organise and process ideas.</i></p> <p>10 minutes</p>	<ul style="list-style-type: none">After 5 minutes, pupils show their finished products to their friends.They are asked what the loom bands are made from.<ul style="list-style-type: none">From which material is the loom band made from?They are asked why the loom band is made from rubber, not from plastic?<ul style="list-style-type: none">Why do you think the loom bands are made from rubber?Why not plastic?5 items made of rubber and 5 items made of plastics are placed in each group.Pupils are given time to manipulate the objects to find out the similarities and differences.Pupils sort out the objects into rubber and plastic based on their common properties. <table><tr><td>rubber</td><td>plastic</td></tr><tr><td></td><td></td></tr></table>	rubber	plastic			<p>Colourful loom bands</p> <p>Any 5 items made of rubber</p> <p>Hose Ball Gloves Shoes Tyre of a toy car</p> <p>Any 5 items made from plastics</p> <p>Water bottles A toy car A ruler A lego set spoon</p>	<p>Expected outcomes:</p> <p>The loom bands are made from rubber.</p> <p>They are made from rubber because rubber can be stretched or rubber is elastic.</p> <p>Plastic cannot stretch so plastic cannot be used to make bracelets.</p> <p>Pupils should be able to identify and put the objects under either rubber or plastic.</p>
rubber	plastic						

<p>Making Conclusions (Explain) <i>Draw conclusion and consolidate understanding</i> 40 minutes</p>	<ul style="list-style-type: none"> Pupils share their findings with the rest of the class. Each group should present their two categories (rubber and plastics) with justifications. Pupils then look at the similarities and differences between each group. Pupils are told that they have been classifying the objects based upon similarities. As a whole class, pupils complete a chart of similarities and differences for plastics and rubber. <table border="1" data-bbox="379 548 893 945"> <tr> <th></th><th>Rubber</th><th>Plastics</th></tr> <tr> <td><i>similarities</i></td><td><i>Flexible waterproof</i></td><td><i>Flexible waterproof</i></td></tr> <tr> <td><i>differences</i></td><td><i>opaque</i></td><td><i>Can be transparent, translucent or opaque</i></td></tr> </table> <ul style="list-style-type: none"> Ask the class to brainstorm a list of additional items to add to each column. 		Rubber	Plastics	<i>similarities</i>	<i>Flexible waterproof</i>	<i>Flexible waterproof</i>	<i>differences</i>	<i>opaque</i>	<i>Can be transparent, translucent or opaque</i>	<p>Rubber is elastic. Rubber can be bent. Rubber can be stretched. Rubber is waterproof Rubber is opaque</p> <p>Plastic is not elastic. Plastics can be flexible. Plastics is waterproof Plastics can be transparent, opaque or translucent.</p> <p>Pupils are able to add additional objects for rubber and plastics,</p>
	Rubber	Plastics									
<i>similarities</i>	<i>Flexible waterproof</i>	<i>Flexible waterproof</i>									
<i>differences</i>	<i>opaque</i>	<i>Can be transparent, translucent or opaque</i>									
<p>Go further (Elaborate, Extend, Evaluate) <i>Apply knowledge to develop further understanding</i> 30 minutes</p>	<ul style="list-style-type: none"> Teacher arise the issue if suddenly all plastics and rubber were removed from our daily life. Discussion of how life would be different and what kinds of challenges we might face or what kinds of improvements might be made to our life. To further test pupils' understanding, worksheet are given. <p><i>Pupils are needed to write the words that describe properties of rubber and plastic in the correct space provided. Teacher needs to explain that the middle space is where both properties are shared by plastics and rubber.</i></p>	<p>If there is no more rubber, cars would not have tyres.</p> <p>Car designers might invent flying cars.</p> <p>If there is no plastics, there would not be pollution.</p>									

Evaluation (with respect to the Content Learning Objectives)	
What worked well?	What would make it even better next time?

Name	
Date	

Below are words used to describe properties of rubber and plastics. The space on the left-hand side is for the properties of rubber and on the right-hand side is for plastics. The space in the middle is where the properties are shared by both rubber and plastics.

Transparent	opaque	not elastic	colourful	flexible	elastic
waterproof					

