

## Science Learning Design

<b>Topic &amp; Subtopics :</b>	<b>Variety of materials (non-living things) and their properties</b>	<b>Class:</b>	Year 6	<b>Duration:</b>	3 periods
<b>Content Learning Objectives:</b>	<ul style="list-style-type: none"> <li>Identify properties of materials (non-living things) – Flexibility</li> <li>Explain that materials that can be bend without breaking is flexible</li> </ul>				

Teaching & Learning Activities					Resources	Summary																																					
<b>Tuning in (Engage, Elicit)</b> <i>Determine prior knowledge and prepare pupils</i>	<div><div>1. Review previous lesson by conducting a classification race. Students are given pictures of objects and they classified them into types of materials on the mini manila card</div><div>2. Show students the objects you have brought.</div><div>3. Pass them around, tell students to touch/feel them.</div><div>4. Ask questions, e.g. what can you tell me about rock? (Expected responses – hard, rough)</div></div>				<div>Pictures: plastic bag, a shirt, a wooden chair, a metal spoon, a vase, a tyre, a glass.</div> <div>Mini manila card</div> <div>Iron nail, shirt wooden pencil, plastic ruler, yarn, metal fork, handkerchief</div>																																						
	<b>Finding out &amp; Sorting out (Explore)</b> <i>Time to locate, gather information, organise and process ideas.</i>	<div><div>1. With the same materials, students (in pairs) are asked whether these objects can be bent.</div><div>2. Write the word ‘bend’ on the board and ask students if they know this word. Show how to bend in front of the students.</div><div>3. Let students know that that they will bend the objects given to test for flexibility.</div><div>4. Emphasise the term ‘flexible’<ul style="list-style-type: none"><li>Things that can be bend without breaking</li></ul></div><div>5. Provide a chart for students to fill in.</div></div> <table><thead><tr><th>Objects</th><th>Materials</th><th>Can you bend it? (Yes/No)</th><th>Does it break? (Yes/ No)</th></tr></thead><tbody><tr><td>Iron nail</td><td></td><td></td><td></td></tr><tr><td>Shirt</td><td></td><td></td><td></td></tr><tr><td>Wooden pencil</td><td></td><td></td><td></td></tr><tr><td>Yarn</td><td></td><td></td><td></td></tr><tr><td>Plastic ruler</td><td></td><td></td><td></td></tr><tr><td>Metal fork</td><td></td><td></td><td></td></tr><tr><td>Handkerchief</td><td></td><td></td><td></td></tr><tr><td>Ice cream stick</td><td></td><td></td><td></td></tr><tr><td>Rubber band</td><td></td><td></td><td></td></tr></tbody></table>	Objects	Materials	Can you bend it? (Yes/No)	Does it break? (Yes/ No)	Iron nail				Shirt				Wooden pencil				Yarn				Plastic ruler				Metal fork				Handkerchief				Ice cream stick				Rubber band				<div>A4 Chart</div> <div>Whiteboard</div> <div>Iron nail, shirt, wooden pencil, plastic ruler, yarn, metal fork, handkerchief Ice cream stick, Rubber band</div>
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<p><b>Making Conclusions (Explain)</b> <i>Draw conclusion and consolidate understanding</i></p>	<ol style="list-style-type: none"> <li>Teacher should have her own chart (the same chart) on the board.</li> <li>Go through the results of the activity with the students.</li> <li>Then ask students questions such as: <ul style="list-style-type: none"> <li>“the objects that you can bend are made of what?”</li> <li>Did the plastic ruler (an e.g.) break when you bend it?</li> <li>Is plastic ruler flexible?</li> </ul> </li> <li>Emphasise the term ‘flexible’ again.</li> <li>Based on their findings of the activity, students are asked to draw conclusion that materials that can be bend and do not break is flexible.</li> </ol>	<p>Manila card (Teacher’s own chart)</p> <p>Whiteboard</p> <p>Iron nail, shirt, wooden pencil, plastic ruler, yarn, metal fork, handkerchief, Ice cream stick, Rubber band</p>	<ul style="list-style-type: none"> <li>Explain that flexible are materials that can be bend without breaking</li> </ul>
<p><b>Go further (Elaborate, Extend, Evaluate)</b> <i>Apply knowledge to develop further understanding</i></p>	<ol style="list-style-type: none"> <li>Take the students outside to your car.</li> <li>Ask students which part of your car (the exterior) is flexible. (Expected response – tyre)</li> <li>Ask students questions: <ul style="list-style-type: none"> <li>“what material is used to make a tyre?” (Expected response – rubber)</li> <li>“why do we make it from that material?”</li> <li>“why is the material good to make a tyre?” (Expected responses – hard, strong, can be bend, do not break, flexible)</li> <li>“can we make tyre from glass? Ceramic? Iron? Why?”</li> </ul> </li> <li>Take students around in the school. In pairs, they are to find two / three things that are flexible. Questions asked can be: <ul style="list-style-type: none"> <li>“why they have to be flexible?”</li> <li>“what other materials could they also be made from?”</li> </ul> </li> <li>Students write their answers on the mini whiteboard that they bring along.</li> <li>In the classroom, they will share their findings.</li> </ol> <p>☺ Homework: Find two/three things in their house that are flexible.</p>	<p>Car</p> <p>Room</p> <p>Mini whiteboard</p>	<ul style="list-style-type: none"> <li>Recognize things that are flexible (from their daily life experiences – school, home)</li> </ul>

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

Activity Worksheet

Objects	Materials	Can you bend it? (Yes/No)	Does it break? (Yes/ No)
Iron nail			
Shirt			
Wooden pencil			
Yarn			
Plastic ruler			
Metal fork			
Handkerchief			
Ice cream stick			
Rubber band			