

# STEM Years 1- 10

## Overview Year 2

### Physical Sciences, Science Inquiry Skills, Science as a Human endeavour

Outcome	Concept	Activity	Worksheets	Resources Required
<p><b>SU Year 2</b> A push or a pull affects how an object moves or changes shape</p> <p><b>SHE</b> Science involves asking questions about, and describing changes in, objects and events</p> <p>People use science in their daily lives</p> <p><b>SIS</b></p> <ul style="list-style-type: none"> <li>Respond to and pose questions, and make predictions about familiar objects and events</li> <li>Participate in different types of guided investigations to explore and answer questions</li> <li>Use informal measurements in the collection and recording of observations, with the assistance of digital technologies as appropriate</li> <li>Through discussion, compare observations with predictions</li> <li>Compare observations with those of others</li> <li>Represent and communicate observations and ideas in a variety of ways.</li> </ul>	<p><b>Year 2</b> <b>A force is a push or pull and can:</b></p> <ol style="list-style-type: none"> <li>cause motion</li> <li>stop things</li> <li>change shape (break, stretch, compress)</li> </ol> <p>Friction stops things and is caused by surfaces in contact rubbing together. Rough surfaces have more friction</p> <p>Things break if they have a weakness. Walls are weakest where the joins are. Towers can be made strong with less material by constructing triangular frames.</p>	<p>Discus various forces and examples of pushes and pulls. Investigate rolling balls and moving trolleys.</p> <p>Investigate different surfaces affects on friction. Investigate the strength of LEGO walls.</p> <p><b>Project</b> Use understanding of forces and strength of materials to build a water tower.</p>	<p>2.1 Forces Lesson Notes</p> <p>2.2 Investigation pushing and pulling</p> <p>2.3 Investigating Friction</p> <p>2.4 Investigation LEGO Construction</p> <p>2.5P Water Tower Project</p> <p>2.6C Notes Making Strong LEGO models</p>	<p>Various size double LEGO bricks</p> <p>LEGO technic kits for beams and pins or other construction materials e.g. paddlepop sticks and glue or cardboard tubes.</p> <p>Ice Cream Container with sand or water</p>

Outcome	Concept	Activity	Worksheets	Resources Required
<p><b>Digital Technology</b></p> <p>2.1 Identify and use digital systems (hardware and software components) for a purpose</p> <p>2.2 Recognise and explore patterns in data and represent data as pictures, symbols and diagrams</p> <p>2.3 Collect, explore and sort data, and use digital systems to present the data creatively</p> <p><b>Design Technology</b></p> <p>2.1 Identify how people design and produce familiar products, services and environments and consider sustainability to meet personal and local community needs</p> <p>2.2 Explore how technologies use forces to create movement in products</p> <p>2.4 Explore the characteristics and properties of materials and components that are used to produce designed solutions</p> <p>2.6 Visualise, generate, develop and communicate design ideas through describing, drawing and modelling</p> <p>2.7 Use materials, components, tools, equipment and techniques to safely make designed solutions</p> <p>2.8 Use personal preferences to evaluate the success of design ideas, processes and solutions including their care for environment</p> <p>2.9 Sequence steps for making designed solutions and working collaboratively</p>	<p>Measuring force with digital scales</p> <p>A table can show more than one pattern</p> <p>Strong towers need strong materials and strong shapes.</p> <p>Things break if they have a weakness. Walls are weakest where the joins are. Towers can be made strong with less material by constructing triangular frames.</p> <p>Lego materials are useful for construction.</p>	<p>Pushing and Pulling</p> <p>Investigating Friction</p> <p><b>Project</b> Use understanding of forces and strength of materials to build a water tower</p>		<p>Digital Scales</p>

Outcome	Concept	Activity	Work sheets	Resources Required
<p><b>Maths</b></p> <p>Compare and order several shapes and objects based on length, area, volume and capacity using appropriate uniform informal units</p> <p>Compare masses of objects using balance scales</p> <p>Describe and draw two-dimensional shapes, with and without digital technologies</p> <p>Describe the features of three-dimensional objects</p> <p>Create displays of data using lists, table and picture graphs and interpret them</p>	<p>Towers can be made strong with less material by constructing triangular frames.</p> <p>Measuring weight with digital scales</p> <p>Drawing triangles and squares</p> <p>Strong towers must have height depth and length</p> <p>A table can show more than one pattern</p>	<p><b>Project</b> Use understanding of forces and strength of materials to build a water tower</p> <p>Pushing and Pulling</p> <p>Investigating Friction</p>		<p>Digital Scales</p>