

## Year 7 – STEM 2022

### TERM 1

TERM 1		
	<b>STEM Fundamentals</b>	
	<b>UNIT OVERVIEW</b>	<b>ASSESSMENT</b>
<b>TIMING</b> Weeks:10	<p>Students will learn the fundamentals of</p> <ul style="list-style-type: none"> <li>• Design thinking</li> <li>• Scientific investigation</li> <li>• Mathematical evaluation</li> </ul> <p>By participating in teams to complete tasks applying these concepts.</p> <p>Students will document their activities using a design portfolio template with individual contribution and contributions worked through with their team.</p> <ul style="list-style-type: none"> <li>• Slender tower</li> <li>• Parachute drop</li> </ul> <p>The design portfolio used provides students with the opportunity to become familiar with the engineering design process using</p> <ul style="list-style-type: none"> <li>• Empathise</li> <li>• Define</li> <li>• Ideate</li> <li>• Prototype</li> <li>• Test and evaluate</li> <li>• Reflection of their project</li> </ul>	

## Year 7 – STEM 2022

TERM 2		
<b>TIMING</b> Weeks: 4	<b>Bridge the Gap</b>	
	<b>UNIT OVERVIEW</b>	<b>ASSESSMENT</b>
	<p>Working both individually and in a team, students will participate in a project based learning task to construct the strongest possible bridge using only the provided materials. They will use the Design Portfolio Template from the Term 1 unit to document the design process and evaluate their project. The project will be split into 2 tasks.</p> <p><b>Task 1</b> is an individual assessment where students will document the process under the following headings.</p> <ul style="list-style-type: none"> <li>• Empathise</li> <li>• Define</li> <li>• Ideate - their individual solution</li> </ul> <p><b>Task 2</b> is a group assessment where students will design, construct, test and evaluate their solution to the problem.</p> <ul style="list-style-type: none"> <li>• Ideate - their group solution</li> <li>• Prototype</li> <li>• Test and evaluate</li> <li>• Reflect on their project</li> </ul>	<p>Task Number: 1                      Nature of Task: Individual                      Task Design Portfolio                      Percentage: 20%                      Week: 4                      Reported: Semester 1</p> <p>Task Number: 2                      Nature of Task: Group                      Practical Task and Design                      Portfolio                      Percentage: 80%                      Week: 3-4                      Reported: Semester 1</p>
<b>TIMING</b> Weeks: 6	<b>STEM Olympics</b>	
	<b>UNIT OVERVIEW</b>	<b>ASSESSMENT</b>
	<p>Working in a team students will participate in a project-based learning using mini challenges called STEM Olympics. These projects will strengthen the student’s skills in team working and documentation of the design process.</p> <p>Students will be given tasks and activities to further develop their skills in drawing and documenting their designs. Students will also practice their Science Inquiry skills and Mathematical calculations when completing these challenges. The following challenges may be used.</p> <ul style="list-style-type: none"> <li>• Paper gyrocopter</li> <li>• Build a box</li> <li>• Spoon catapult</li> <li>• Rubber band powered vehicle</li> <li>• Mini greenhouse</li> <li>• Gravity pinball machine</li> </ul>	

## Year 7 – STEM 2022

### TERM 3

<b>TIMING</b> Weeks: 10	<b>3D Modelling</b>	
	<b>UNIT OVERVIEW</b>	<b>ASSESSMENT</b>
	<p>A completed theory notes and exercises for the following pages in the 3D Modelling Class Documents. Students will engage in various activities to create 3-Dimensional models using digital technology and research into the uses of modelling in society. The skills gained in these activities will be used in the remaining assessment.</p> <ul style="list-style-type: none"> <li>Knick Knack</li> <li>Uses in Technology</li> <li>Volume</li> <li>Mission to Mars</li> <li>Ziplines</li> </ul>	<p>Task Number: 3</p> <p>Nature of Task: Team</p> <p>Practical Project</p> <p>Percentage: 30%</p> <p>Week: 8</p> <p>Reported: Semester 2</p>

### TERM 4

<b>TIMING</b> Weeks: 10	<b>Mars Rover Perseverance and the Science of Ziplines</b>	
	<b>UNIT OVERVIEW</b>	<b>ASSESSMENT</b>
	<p><b>Practical Folio Work (Zipline Challenge)</b></p> <p>An individually completed theory portfolio and construction for the Zipline Challenge. This challenge will begin in Term 3 and continue into Term 4.</p> <p>Scenario: The student needs to imagine they are part of a team of astronauts exploring the Mars. While trying to collect soil samples for research, one of the astronauts on their team gets hurt. She is unable to climb back down to the base. Students need to design, build, and test a zipline to carry her down to safety. Students will work in class project-based learning activities</p> <ul style="list-style-type: none"> <li>Brainstorm</li> <li>Design</li> <li>Build</li> <li>Test</li> <li>Speed Calculations</li> <li>Weight Investigation</li> </ul>	<p>Task Number: 4</p> <p>Nature of Task:</p> <p>Individual Practical</p> <p>Task and Portfolio</p> <p>Percentage: 70%</p> <p>Week: 3</p> <p>Reported: Semester 2</p>