

Year 9 – iSTEM 2022

TERM 1

TERM 1		
	STEM Fundamentals - Design Thinking	
	UNIT OVERVIEW	ASSESSMENT
TIMING Weeks:10	<p>STEM fundamentals</p> <p>STEM fundamentals develop knowledge, skills and understanding of essential STEM principles and processes. Students engage with engineering design processes to solve a range of problems. They develop fundamental skills required to complete other elective topics which form the basis of this course.</p> <p>To satisfy the requirements of this core topic, students must utilise iterative engineering design processes to undertake a range of problem-solving exercises, collaborative tasks and inquiry-based learning activities that occupy the majority of the time.</p> <p>Main Activities</p> <ul style="list-style-type: none"> • Design Thinking Portfolio – Assessment Task 1 • Levers and Gears • Brainstorming and Research • Prototyping • Testing 	<p>Task Number: 1</p> <p>Nature of Task: Engineering Report and Design</p> <p>Percentage: 40</p> <p>Week: 10</p> <p>Reported: Semester 1</p>

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TERM 2

TERM 2		
	STEM Fundamentals and Practical Skills	
	UNIT OVERVIEW	ASSESSMENT
TIMING Weeks: 10	<p>Project Based Learning - Catapult Game</p> <p>Construction and Game Design – develops the students team skills by collaboratively designing and building a game using the skills acquired in the previous topic and deliver a project by the due date.</p> <p>Main Activities</p> <ul style="list-style-type: none"> • Work in a team, design and construct a game using a catapult as the main component. • Document the design process using the Design Thinking portfolio template used in Task 1 <ul style="list-style-type: none"> ○ Design Thinking ○ Empathy ○ Define ○ Ideate ○ Prototype ○ Test ○ Final Design • Participate in practical skills using power tools and complete safety assessments • Complete peer reflections on team skills used during the project. 	<p>Task Number: 2</p> <p>Nature of Task: Practical Task & Portfolio</p> <p>Percentage: 60</p> <p>Week: 6</p> <p>Reported: Semester 1</p>

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TERM 3

TERM 3		
CSIRO STEM Community Partnerships		
	UNIT OVERVIEW	ASSESSMENT
TIMING Weeks: 10	<p>Project Based Learning</p> <p>Students will participate in a CSIRO Community Based Partnership in the Parramatta local area.</p> <p>Projects will be selected from the CREST resource database and students will research and design a STEM based solution which addresses the brief provided.</p> <p>Students will construct a pitch and build a solution for their project by participating in the CSIRO CREST Awards scheme to be eligible for the Blue Award.</p> <ol style="list-style-type: none"> 1. Choose a topic. 2. Conduct background research to build knowledge and understanding of related ideas. 3. Plan an investigation/project to be approved by the teacher using the Intermediate CREST Awards Science Investigation Project Planner or Technology and Engineering Project Planner. 4. Undertake the investigation/project, record results and maintain a logbook. 5. Meet with the teacher regularly to discuss progress and receive feedback. 6. Once investigation/project is finalised, student completes the 'Explaining your results' section on the planner. 7. Teacher will submit the award for completed projects and students will receive a medallion 	<p>Task Number: 3</p> <p>Nature of Task: Practical task and portfolio</p> <p>Percentage: 50</p> <p>Week: 10</p> <p>Reported: Semester 2</p>

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TERM 4

TERM 4		
TIMING Weeks: 10	CSIRO STEM Community Partnerships	
	UNIT OVERVIEW	ASSESSMENT
	<p>STEM project-based learning</p> <p>Working in teams of no more than 3 students will develop a STEM based solution to one of 6 challenges in the local area provided by the CSIRO STEM Community partnerships. Students will create a presentation of their solution to be delivered at the STEM Community Partnerships Showcase in November. Students will participate in site visits and will be mentored by an Industry Partner. The project will be chosen from the following scenarios.</p> <ul style="list-style-type: none"> • Western Sydney Aerotropolis • Aging Population • Heat Stress • Managing Natural Environments • Mental Health • Recycling and Waste Management 	<p>Task Number: 4</p> <p>Nature of Task: Project Management Portfolio</p> <p>Percentage: 50</p> <p>Week: 6</p> <p>Reported: Semester 2</p>