



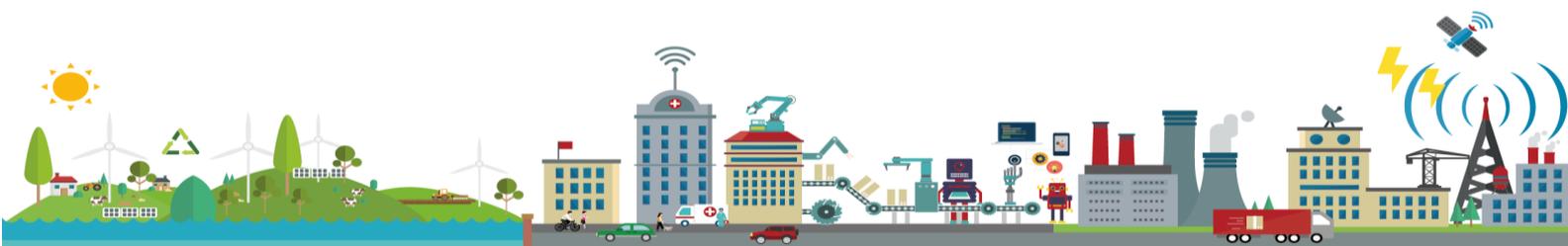
# Program Offerings 2023



As we move into 2023, we are excited to be refining our program offerings to what can be found on the following pages. These reflect the offerings developed with our partner schools over the previous years, as well as other areas we believe will be important for students' futures. A huge amount of thanks goes to all the teachers who have helped us with this development over the past few years. If you are needing customisation within any of our offered programs, or have a suggestion for future program development, please contact our Head of Programs, Dan Farrant at [dfarrant@gippslandtechschool.vic.edu.au](mailto:dfarrant@gippslandtechschool.vic.edu.au)



<p><b>Year 7 - 8</b></p>	<p><b>Program</b></p>
	<p><b><u>Art and Design</u></b>          Students will use technologies to achieve creative design outcomes. They will be exposed to a wide range of processes that combine art and technology and experiment with a range of artistic mediums.</p>
	<p><b><u>Cyber Safety</u></b>          In this program, students will understand the permanence of online data, the purpose of secure passwords/passphrases, learn to protect their online information, and recognise and protect against online threats.</p>
	<p><b><u>Industry Tech Taster</u></b>          Students will learn about how technology is changing the world of work and why this matters to them. They will rotate through three activities that will expose them to industry changing technologies and new ways of problem solving.</p>
	<p><b><u>Intro to Sports Science</u></b>          This program is designed as an introduction to new technologies relating to sports and exercise. Students will explore how technology is influencing sport and exercise. They will undertake hands on activities throughout the day to assess and analyse sports performance.</p>
	<p><b><u>A Renewable Future</u></b>          Students will be introduced to a variety of different types of renewable energy and their advantages and disadvantages. Students will use a variety of technologies to investigate and conduct experiments to design, build, and test a model city using renewable energy.</p>
	<p><b><u>Life in Space</u></b>          This program will expose students to careers in Space Science and plant the seed for a future career in STEM. They explore how technology is influencing Space Science and Exploration, experience mixed realities to learn about the solar system and code robots to collect data in a Mars exploration simulation.</p>
	<p><b><u>A Sustainable Future</u></b>          Students will investigate principles of sustainability and explore ways of designing an energy-efficient house. Students will use a variety of technologies to investigate and conduct experiments to design, build, and test a prototype.</p>



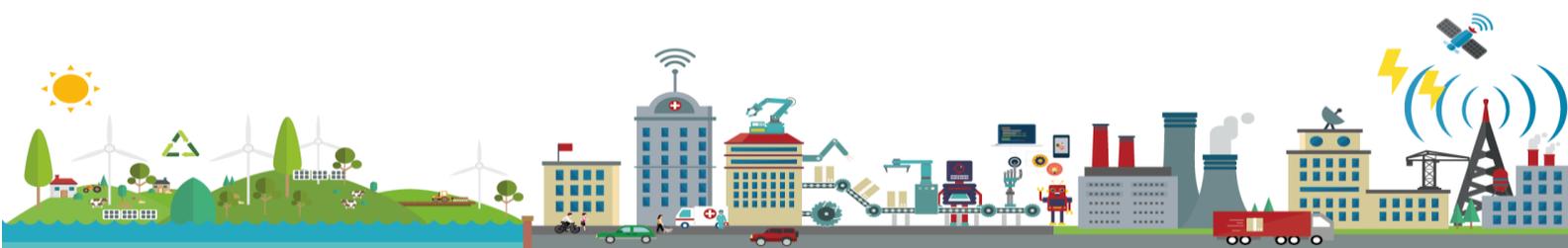


<p><b>Year 9 - 10</b></p>	<p><b>Program</b></p>
	<p><b><u>Advanced Sports Science</u></b>          Building on the 'Intro to Sport Science', students will experience technology used at an elite level to evaluate and improve athletic performance such as VO2 Max testing, biomechanical analysis using motion capture suits, and virtual reality.</p>
	<p><b><u>A Robotic Future</u></b>          Students will be introduced to a range of robots and their applications. They will learn about how robots are used in industry, as well as people's personal lives. Students will use the design thinking process to tackle a challenge using the information they learnt throughout the day.</p>
	<p><b><u>Electronics</u></b>          This program will enhance students understanding of the relationship between amps, volts, and resistance, and how they interact within a circuit. Students will learn about creating circuits in a safe virtual environment and be introduced to microcontrollers.</p>
	<p><b><u>Extended Reality Content Design</u></b>          Students will explore virtual reality, augmented reality, and mixed reality as an instrument to enhance world scenarios and learn about how extended reality technology fit as a tool for industry and community.</p>
	<p><b><u>Growing into the Future</u></b>          This program will expose students to two major areas of change in food production: automation in large-scale food production, and small-scale urban food production. They will explore a variety of technologies used in food production and alternative growing methods.</p>
	<p><b><u>How To Make A Difference</u></b>          Students will be introduced to Design Thinking and user centred design. They will learn by doing as they solve an identified problem for a classmate, moving through the empathy, define, ideation, prototype, and testing stages of Design Thinking.</p>
	<p><b><u>Flat Pack Furniture – 2 Days</u></b>          In this two-day program, students will use the Design Thinking Process to design a piece of flat-pack furniture and create a marketing strategy to sell their design with the use of new digital technologies.</p>





<b>VCE &amp; VCAL</b>	<b>Program</b>
	<p><b><u>Biomechanics and Human Movement</u></b>          Students will gain insight into advanced technology used at an elite level to analyse human movement. They will experience motion capture technology using an Xsens suit, speed gates, and digital jump mat.</p>
	<p><b><u>Digital Music &amp; Sound Production</u></b>          In this program, students will be challenged to harness their creativity as they create their own original music pieces of digital music using DAW and the Ableton Push 2 instrument.</p>
	<p><b><u>Drones in Media Production</u></b>          Students will learn the requirements for obtaining a Drone Operator Accreditation and the Standard Operating Conditions. They will also learn to safely pilot a drone in an indoor and larger outdoor environment.</p>
	<p><b><u>Film and Media</u></b>          This program explores the different techniques, technologies, and processes used in film and media. Students will demonstrate the use of materials, techniques, processes, visual conventions, and technologies to express ideas and convey meaning in their media.</p>
	<p><b><u>Make Me Safer</u></b>          Using the Design Thinking process, students will tackle a Health and Safety challenge from a local Gippsland industry. Undertaking a variety of masterclasses, they will then pitch their prototyped solutions to a panel of industry representatives.</p>
<p><b><u>VO2 Max Testing</u></b>          Students will learn about the VO2 Max Cardiorespiratory fitness test and collect and interpret the data using Omnia software to analyse physiological results.</p>	





# Art & Design

<b>INDUSTRY FOCUS AREA:</b>	Advanced Manufacturing
<b>VICTORIAN CURRICULUM LINKS:</b>	Digital Technologies, Visual Arts, Critical and Creative Thinking
<b>TECHNOLOGY USED:</b>	Laser cutters, Extended Realities (AR, VR, MR), microscopes, iPad
<b>YEAR LEVEL:</b>	7 - 8
<b>DURATION:</b>	1 Day
<b>MAX STUDENT NUMBERS:</b>	56

## Introduction

The link between art and technology is not always clear; there are many varied career paths available for creatives in technology centric fields and a diverse range of creative industries that use advanced technologies to achieve outcomes. Students are often unaware these careers exist, and what skill sets and education are required to excel in the fields. This program hopes to start addressing that.

## Program Summary

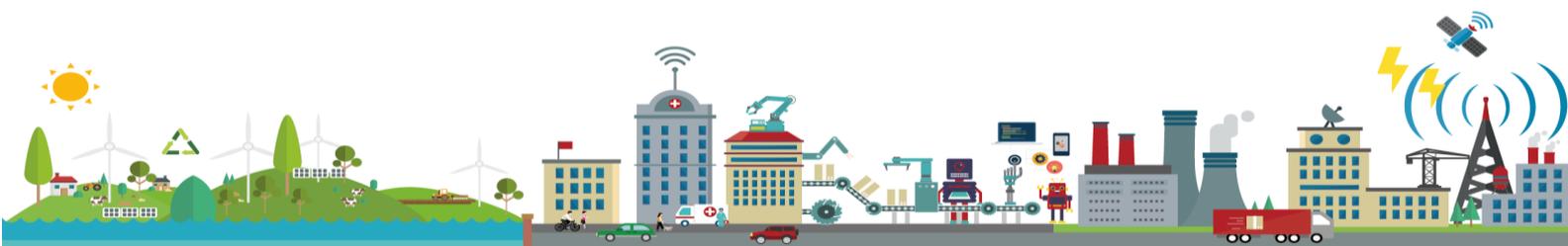
This program will see students create using Extended Reality, by using microscopes as an instrument to capture enhanced images, and using computer-aided design (CAD) in the creation of shadow puppets before bringing them to life with iPad. Taking part in the program will expose students to a wide range of processes that combine art and technology and will have them experimenting with a range of digitally enhanced artistic mediums.

## Taking part in this program, students will collaboratively:

- Experience your own virtual studio, explore painting techniques, and paint your own masterpiece
- Create shadow puppets using CAD and then bring them to life
- Create microscopic artworks using different materials and substances

## Career Links:

Animator, Creative Director, Industrial Designer, Multimedia Artist, Professional Artist, Painter.





# Cyber Safety

<b>INDUSTRY FOCUS AREA:</b>	All
<b>VICTORIAN CURRICULUM LINKS:</b>	Ethical Capability, Critical and Creative Thinking, Personal and Social Capability
<b>TECHNOLOGY USED:</b>	PC, iPad
<b>YEAR LEVEL:</b>	7 - 8
<b>DURATION:</b>	1 Day
<b>MAX STUDENT NUMBERS:</b>	56

## Introduction

Digital technologies have become a ubiquitous part of our lives. We live more and more of our lives online for school, work, and in our personal time. Through the world wide web, we can connect with people from across the world to spread information, play games, and share cat memes. We have the opportunity to be more connected than at any other time through history, creating whole new digital communities in which students can interact. However, with this connection also comes some challenges. While we consciously teach students to look both ways before crossing the road and not to talk to strangers, the same kind of safety advice is often overlooked for these online communities. Students need to understand how to be a positive contributor to these communities and how to keep themselves safe while online.

## Program Summary

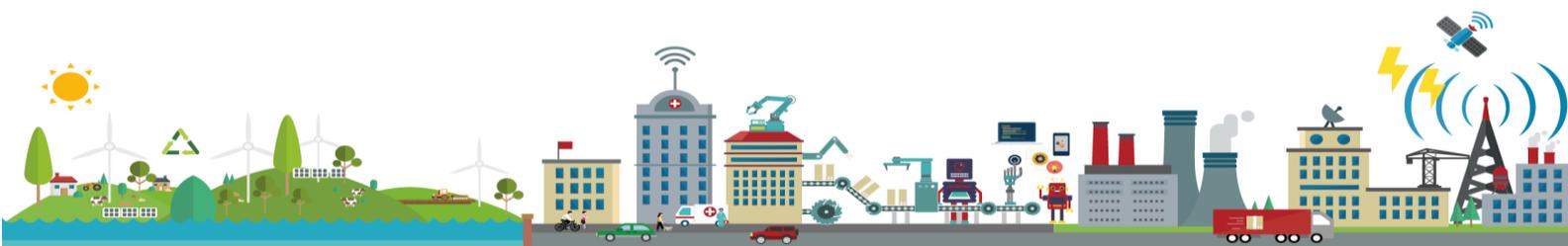
Who are you online? Why shouldn't you use the same password for everything? Why does that Nigerian Prince need my help? These are all questions that will be explored through this program. Students will investigate the importance of secure passwords/passphrases, how to create them, and why they should be changed regularly. They will also understand their online brand and the importance of protecting this with regards to future employment with the knowledge that once something is online, it is online forever. Understanding the importance of managing personal data online and tools and techniques to stay protected online will also be covered through the program.

## Taking part in this program, students will collaboratively:

- Understand their online reputation and the permanence of online data
- Develop and understand the purpose of secure passwords/phrases
- Learn to protect their information online
- Recognise and protect against online threats

## Career Links:

These skills apply to all online interactions, in students' school, work, and private lives.





# Industry Tech Taster

<b>INDUSTRY FOCUS AREA:</b>	Advanced Manufacturing, Food & Fibre, Health
<b>VICTORIAN CURRICULUM LINKS:</b>	Digital Technologies, Personal and Social Capability, Critical and Creative Thinking
<b>TECHNOLOGY USED:</b>	Laser cutting, virtual reality, robotics, coding
<b>YEAR LEVEL:</b>	7 - 8
<b>DURATION:</b>	1 Day
<b>MAX STUDENT NUMBERS:</b>	56

## Introduction

Technology is a disruptive force which has always led to changes in the way that people work and the types of jobs that are in demand. This change is happening more and more rapidly with the increased pace of technological development. We have seen changing technologies and a reduction in traditional industries have a dramatic impact on Gippsland. This means that today's students need to develop skills that will allow them to be adaptable and to meet unforeseen challenges and opportunities in their lives. They also need to be open to new experiences and to understand how the world of work is changing around them.

## Program Summary

The program will begin with students learning about how the world of work is changing and the skills that will be most important for them as they move into the workforce. Students will then rotate through three activities which will expose them to industry-changing technologies and new ways of problem solving. Students will collaboratively automate robots, use Design Thinking to create for each other using advanced manufacturing, and experience how extended realities are being used in workplaces.

## Taking part in this program, students will collaboratively:

- Explore the important skills needed in a technologically disrupted workforce
- Use the Design Thinking process to design and create using advanced manufacturing
- Experience and interact with digital realities
- Program robots to meet a challenge

## Career Links:

Designers: Civil Engineer, Product Tester, Electrical Engineer  
Technologists: Programmer, Software Engineer, ICT Analyst





# Intro to Sports Science

<b>INDUSTRY FOCUS AREA:</b>	Sports Science, Exercise and Health sciences
<b>VICTORIAN CURRICULUM LINKS:</b>	Health and Physical Education, Digital Technologies, Personal and Social Capability, Critical and Creative Thinking
<b>TECHNOLOGY USED:</b>	VO2 Max. Testing Equipment, Extended Realities (VR, AR, MR), Smart Speed Jump Mat, Xsens Motion Capture Suit, BlazePods
<b>YEAR LEVEL:</b>	7 - 8
<b>DURATION:</b>	1 Day
<b>MAX STUDENT NUMBERS:</b>	56

## Introduction

The impact of advancing technology and innovation is changing how we train and play sport. In this program, students will explore how science and technology are impacting the sports and fitness industries. Through hands on activities, students will experience new ways to exercise and assess performance and understand the impact of new and developing technology on sport and exercise.

## Program Summary

Students will use sensors to assess speed and jump height, test cardiorespiratory fitness using clinical VO2 max testing equipment, experience motion capture technology with the Xsens suit, and complete a workout in digital realities. Students will participate in a design sprint activity to learn about careers in Sports Science involving technology. Through the design thinking process, students will research and come up with ideas to solve real-world problems relating to sports, health, and fitness.

This program is designed as an introduction to new technologies relating to sport and exercise, and to increase awareness of careers in Sports Science.

## Taking part in this program, students will collaboratively:

- Explore how technology is influencing sports and exercise
- Evaluate movement using motion capture technology and video analysis
- Understand the data collected from sports science tests such as a VO2 max. test
- Experience a workout using extended realities
- Design a solution to a real-world problem presented by professionals working in Sports Science.
- Explore future education and career opportunities

## Career Links:

Health Professionals, Sports Scientists, Exercise Professionals, Data Analysts, Sport Technologists.





# A Renewable Future

<b>INDUSTRY FOCUS AREA:</b>	New Energy
<b>VICTORIAN CURRICULUM LINKS:</b>	Science, Personal & Social Capability, Critical & Creating Thinking
<b>TECHNOLOGY USED:</b>	Wind turbines, solar panels, hydrogen generation kits
<b>YEAR LEVEL:</b>	7 - 8
<b>DURATION:</b>	1 Days
<b>MAX STUDENT NUMBERS:</b>	56

## Introduction

Gippsland is currently in the middle of a transition away from the traditional forms of energy generation which have been a staple of the region for over 100 years. While coal power generation is still an important employer in the region, these stations are slated to close over the next 15-20 years. There is also worldwide pressure to reduce CO2 emissions and move towards renewable energy sources. The Victorian government has set a target of 25% renewable energy production by 2020, increasing to 40% by 2025<sup>1</sup>. Excitingly, there are a range of new industries proposed for the Gippsland region including OSMI wind farms, solar farms, Star of the South offshore wind turbines, and the Latrobe Valley Battery Energy Storage System. A range of hydrogen-based ideas are also currently under development. Building students' understanding of these technologies has never been more important.

## Program Summary

In this program, students will investigate the advantages and disadvantages of generating energy from renewable sources and some of the different ways that this can be achieved. They will experiment with solar and wind energy generation as well as investigate energy storage as a way to combat one of the major challenges of renewable energy, intermittency. They will produce hydrogen from electrolysis and use a fuel cell to produce electricity from the hydrogen. Students will conclude the day by using their learning to design, build, and test a model city with a focus on liveability, powering their project using renewable energy.

## Taking part in this program, students will collaboratively:

- Conduct experiments to understand different types of renewable energy
- Build their understanding of the types of energy transfer in renewable energy systems
- Design, built, and test a prototype

## Career Links:

Artisans:	machinery operators, electricians, carpenters
Designers:	architects, product testers, draftspersons
Engineers:	civil, construction, electrical

<sup>1</sup> <https://www.energy.vic.gov.au/renewable-energy/victorias-renewable-energy-targets>





# Life in Space

<b>INDUSTRY FOCUS AREA:</b>	Space Science, Engineering, Robotics
<b>VICTORIAN CURRICULUM LINKS:</b>	Science, Digital Technologies, Personal and Social Capability, Critical and Creative Thinking
<b>TECHNOLOGY USED:</b>	Virtual reality, mixed reality, robotics, 3D modelling
<b>YEAR LEVEL:</b>	7 - 8
<b>DURATION:</b>	1 Day
<b>MAX STUDENT NUMBERS:</b>	56

## Introduction

*"Space is for everybody. It's not just for a few people in science or math, or for a select group of astronauts. That's our new frontier out there, and it's everybody's business to know about space."*  
--Christa McAuliffe [US Teacher & Astronaut]

Space inspires a sense of wonder and curiosity in people. Technology and advances in space exploration have allowed us to know more about what lies beyond Earth than ever before. Space-based technology supports many aspects of our daily lives, including communications, weather forecasts, and GPS. This program will use space as a platform to explore STEAM-related topics and allow students to experience technologies being used in space exploration and research.

## Program Summary

Students will experience virtual space environments to learn about the unique position of Earth in the solar system and to consider the use of mixed realities in astronaut training. Students will work together to code robots to navigate through a Mars simulation combining real-world and virtual environments to recreate previous rover missions. Students will also identify and plan for the needs and challenges of humans living in space before applying this knowledge to habitat designs.

This program will expose students to careers in Space Science and plant the seed for a future career in STEM.

## Taking part in this program, students will collaboratively:

- Explore how technology is influencing space science and space exploration
- Experience virtual and mixed realities to learn about the Solar System and training for space
- Code robots to collect data in a Mars simulation
- Explore future education and career opportunities

## Career Links:

Space Science, Engineering, Robotics, Computing, Space Medicine, Communications.





# A Sustainable Future

<b>INDUSTRY FOCUS AREA:</b>	New Energy, Advanced Manufacturing
<b>VICTORIAN CURRICULUM LINKS:</b>	Science, Personal & Social Capability, Critical & Creating Thinking
<b>TECHNOLOGY USED:</b>	STELR housing kits, FLIR cameras, Minecraft Edu
<b>YEAR LEVEL:</b>	7 - 8
<b>DURATION:</b>	1 Day
<b>MAX STUDENT NUMBERS:</b>	56

## Introduction

Globally, there is an increasing push for sustainability and environmental protection. To ensure a habitable future for our planet, we need to improve our focus on sustainability and use our resources in a way that protects and repairs the planet. Locally, homes across Australia currently use a vast number of resources on everyday heating and cooling. This leads to higher energy bills and a greater need for energy generation and resource consumption to meet these needs. A key part of a sustainable future is building more resource efficient homes. Using good design principles can save energy, water, and money while creating more enjoyable and comfortable homes.

## Program Summary

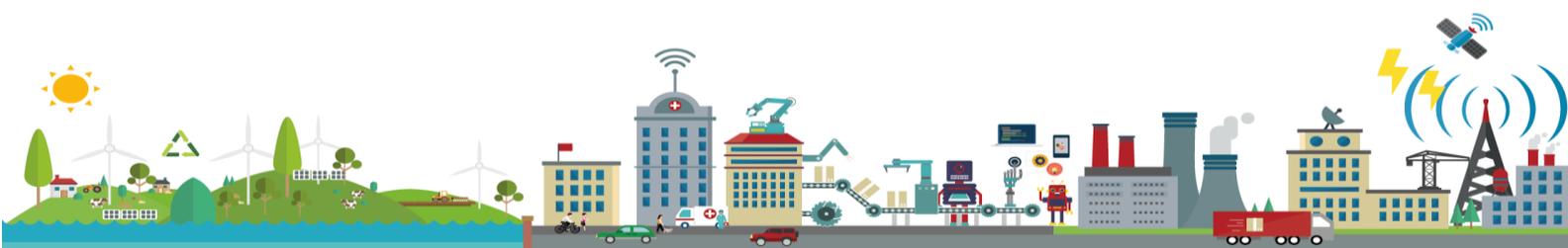
During the program, students will investigate principles of sustainability with a focus on house design. They will undertake experiments to investigate different insulation materials and their effects on a house's efficiency. They will also investigate heat and cooling loss with the use of infrared (FLIR) cameras. To further build on this understanding, students will learn about a variety of other elements of sustainable housing design and put these into practice using Minecraft Edu. Students will conclude the day by bringing together their learning to create their ultimate sustainable house design.

## Taking part in this program, students will collaboratively:

- Explore the importance of sustainability
- Conduct experiments investigating principles of energy-efficient housing design
- Design, build, and test a prototype

## Career Links:

Artisans:	machinery operators, electricians, carpenters
Designers:	architects, product testers, draftspersons
Engineers:	civil, construction, electrical





# Advanced Sports Science

<b>INDUSTRY FOCUS AREA:</b>	Sports Science, Exercise and Health sciences
<b>VICTORIAN CURRICULUM LINKS:</b>	Health and Physical Education, Digital Technologies, Personal and Social Capability, Critical and Creative Thinking
<b>TECHNOLOGY USED:</b>	VO2 Max. Testing Equipment, Extended Realities (VR, AR, MR), Smart Speed Jump Mat, Xsens Motion Capture Suit, BlazePods
<b>YEAR LEVEL:</b>	9 - 10
<b>DURATION:</b>	1 Day
<b>MAX STUDENT NUMBERS:</b>	56

## Introduction

Accurate health and fitness testing is a critical part of successful athletic performance. Technology is widely used in sports and health science to collect data from athletes and report back on their abilities. The use of technology and the application of sports science principles has seen huge changes to increase sporting performance and a reduction in injuries.

## Program Summary

Through this program, students will experience technology used at an elite level to evaluate and improve athletic performance such as VO2 max testing, biomechanical analysis using motion capture suits, and virtual reality. Through this experience, they will develop an understanding of the impact this technology can have on health, fitness, injury prevention, return to sport, and performance enhancement.

## Taking part in this program, students will collaboratively:

- Explore how technology is influencing sports and exercise
- Participate and/or observe a VO2 max. test and evaluate fitness data
- Evaluate movement using motion capture technology and video analysis
- Use extended realities to observe human anatomy
- Design a solution to a real-world problem presented by professionals working in Sports Science.
- Explore future education and career opportunities

## Career Links:

Health Professionals, Sports Scientists, Exercise Professionals, Data Analysts, Sport Technologists.





# A Robotic Future

<b>INDUSTRY FOCUS AREA:</b>	All
<b>VICTORIAN CURRICULUM LINKS:</b>	Digital Technologies, Critical and Creative thinking
<b>TECHNOLOGY USED:</b>	Robots, Machine Learning, Coding
<b>YEAR LEVEL:</b>	9-10
<b>DURATION:</b>	1 Day
<b>MAX STUDENT NUMBERS:</b>	56

## Introduction

Robotics and machine learning are starting to become a ubiquitous part of everyday life. From robotic vacuum cleaners to home assistants, manufacturing lines to airport assistants, robots are taking on a wider role in both our personal and working lives. Robots can be seen as something that poses a risk to people's careers, replacing people and putting them out of work, or as a tool to make people's lives easier and free them up for more creative pursuits. Whichever way they are viewed, an understanding of how robots work and how to harness their potential will provide great benefits to students in both their personal and working lives.

## Program Summary

By taking part in this program students will be introduced to a range of robots and their applications in a variety of roles. Students will learn about robotics in industry by looking at their role in manufacturing, working with robotic arms and assembly lines, and their role in the service industry by creating a chatbot. They will also learn about the increased use of robots in people's personal lives by investigating their role as a robotic companion.

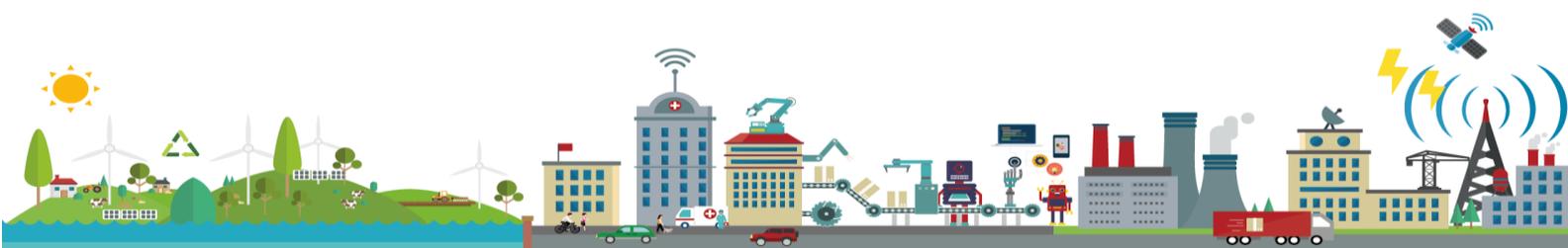
Students will conclude the program by using Design Thinking to identify and tackle an industry or personal challenge using their learning from throughout the day.

## Taking part in this program, students will collaboratively:

- Learn about industry and personal applications for robotics
- Code, test, and debug robots
- Identify and tackle real-world problems using robotics

## Career Links:

Robotacist, manufacturing, production, programming, sales





# Electronics

<b>INDUSTRY FOCUS AREA:</b>	Advanced Manufacturing, New Energy
<b>VICTORIAN CURRICULUM LINKS:</b>	Science, Digital Technologies
<b>TECHNOLOGY USED:</b>	Digital Circuits, Physical Circuits, Microcontrollers
<b>YEAR LEVEL:</b>	9 - 10
<b>DURATION:</b>	1 Day
<b>MAX STUDENT NUMBERS:</b>	56

## Introduction

Electricity surrounds us every day. We use electricity to light, heat and cool our homes, charge our devices, and increasingly in transportation. An understanding of electricity and the interaction of different components helps us to understand the world around us. Understanding how electricity works can also help reduce waste by fixing, rather than throwing, our electronics. The field of electrical work is a wide one and developing skills in this area can lead to a range of career opportunities for students.

## Program Summary

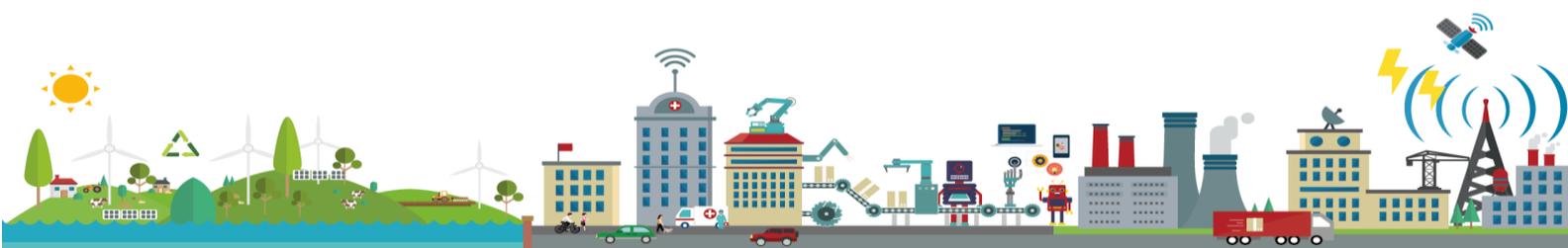
The program will begin by enhancing students' understanding of the relationship between amps, volts, and resistance and how they interact within a circuit. They will then learn about creating circuits in a safe virtual environment. This will allow students to experiment with different components and break parts, without any real-world consequences. Students will also be introduced to microcontrollers and how to use sensors and different outputs to add functionality to their circuits. The final part of the day will see students apply this knowledge by using Design Thinking to take on a real-world challenge from an industry partner.

## Taking part in this program, students will collaboratively:

- Build their understanding of volts, amps, and resistance
- Construct simple circuits
- Add functionality to circuits using microcontrollers
- Break down real-world challenges using Design Thinking
- Solve these challenges using electronics

## Career Links:

Electrical Engineer, Electrician, Electrical Technician, Plant Operator





# Extended Reality Content Design

<b>INDUSTRY FOCUS AREA:</b>	Advanced Manufacturing, Health, Food and Fibre, New Energy
<b>VICTORIAN CURRICULUM LINKS:</b>	Digital Technologies, Visual Communication Design, Media Arts, Visual Arts
<b>TECHNOLOGY USED:</b>	Virtual Reality, Microsoft HoloLens, iPad, Smart Glass, Merge Cube
<b>YEAR LEVEL:</b>	9 - 10
<b>DURATION:</b>	1 Day
<b>MAX STUDENT NUMBERS:</b>	56

## Introduction

Imagine you are a service technician. During a maintenance task, you use your iPad to scan an AR (augmented reality) code from a machine and see 3D-animated KPIs through your display. Next, you use your MR (mixed reality) glasses to repair a complex item of machinery by video-calling an expert, who sends animated 3D hologram instructions onto your device. The next day, using a headset, you undergo safety training and certification in a VR (virtual reality) simulation program. For many of our students, this could represent a standard working week. Careers in XR (extended reality) across a broad range of industries is a feature in the future world of work.

## Summary

Students will use technologies to achieve an Extended Reality outcome. They will explore virtual reality, augmented reality, and mixed reality as an instrument to enhance real-world scenarios and learn about how extended reality technologies fit as a tool for industry and community. Taking part in the program will expose students to a wide range of processes and technologies used in the creation of content for Extended Reality outcomes in both industry and community.

## Taking part in this program, students will collaboratively:

- Create an augmented reality story
- Experience a virtual reality workplace simulation
- Explore a mixed-reality experience
- Digitally manipulate text, images, and soundscapes

## Career Links:

XR Developer, Software Engineer, UI (user interface) Artist, AR Implementation Engineer





# Growing into the Future

<b>INDUSTRY FOCUS AREA:</b>	Food & Fibre, New Energy, Health
<b>VICTORIAN CURRICULUM LINKS:</b>	Design and Technologies, Digital Technologies, Sustainability
<b>TECHNOLOGY USED:</b>	Machine learning, Sensors, Alternative Growing Methods
<b>YEAR LEVEL:</b>	9 - 10
<b>DURATION:</b>	1 Day
<b>MAX STUDENT NUMBERS:</b>	56

## Introduction

Food security is a major concern throughout the world. The world was on track to eliminate hunger and malnutrition by 2030 but that has been set back due to the global pandemic.<sup>1</sup> With this aim in mind, finding ways to use land effectively and sustainably, as well as making food production more efficient has never been more important.

On a more local level, having access to fresh, healthy, and affordable food choices is a major factor that contributes to individual's health and wellbeing. As urban areas expand, being able to produce food in smaller areas is also becoming increasingly important. Providing students with the skills and knowledge around food production and sustainability is important for securing our food into the future.

## Program Summary

This program will expose students to a wide range of technologies which are changing the face of agriculture. During the program they will take on the role of agricultural consultants and will spend the day working to create a recommendation for their client. To do this, they will take part in an expo to learn about machine learning, sensors, robotics, drones, and more. Students will then use this new knowledge in combination with the Design Thinking process to plan, prototype, and test a solution for their client before pitching their ideas at the end of the program.

## Taking part in this program, students will collaboratively:

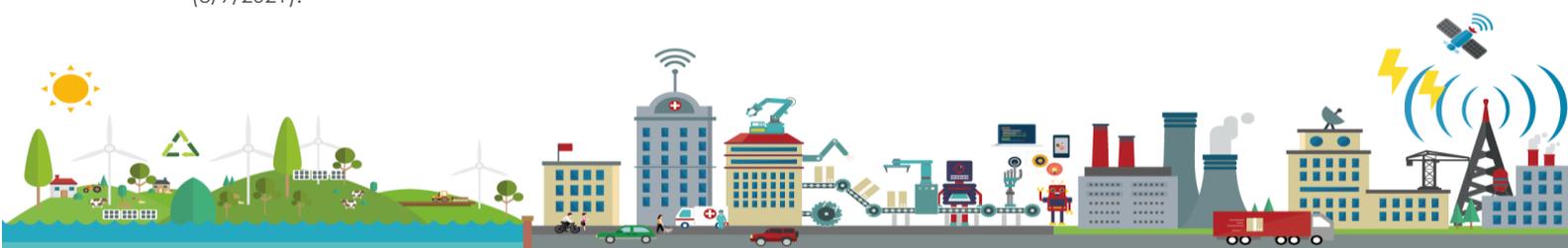
- Investigate how technology is changing agriculture
- Use machine learning and other sensor technology to automate elements of farming
- Identify and meet user centre problems

## Career Links:

Agriculture, Manufacturing, Automation, Engineering

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<sup>1</sup> Food and Agriculture Organisation of the United Nations, <http://www.fao.org/publications/sofi/2021/en/> (8/9/2021).





# How To Make A Difference

<b>INDUSTRY FOCUS AREA:</b>	All
<b>VICTORIAN CURRICULUM LINKS:</b>	Critical and Creative Thinking, Personal and Social Capability
<b>TECHNOLOGY USED:</b>	3d Design, Electronics, Robotics, Makerspace Materials
<b>YEAR LEVEL:</b>	9 - 10
<b>DURATION:</b>	1 Day
<b>MAX STUDENT NUMBERS:</b>	56

## Introduction

Apple, Microsoft, and Facebook; well-known companies that all started out as a simple idea and grew into a global phenomenon. They were able to do this for one simple reason; they identified and met the needs of a user group in a way that was different from anything else that was available at the time. Whether you are looking to make your millions or change the world for good, developing the ability to identify and meet genuine user needs is a skill that can set students up for life. It is also a skillset that is used across all industry areas and can be used to start their own successful enterprise.

## Program Summary

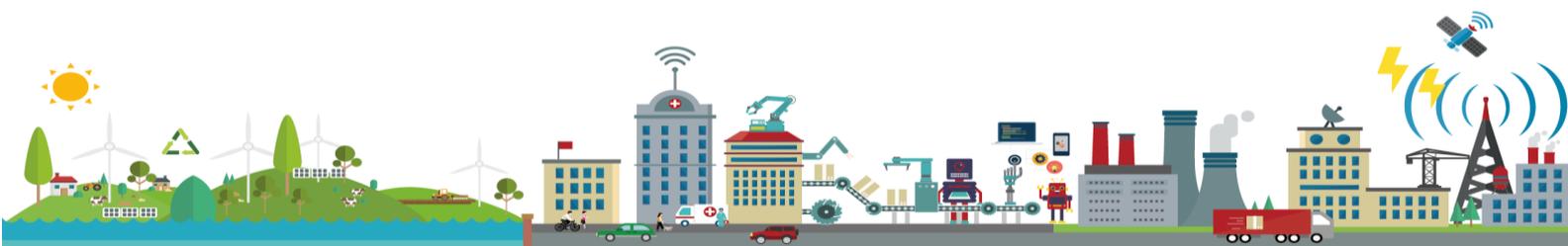
'How To Make A Difference' will introduce students to using the Design Thinking process to meet a user's need. Through the program they will learn by doing as they solve an identified problem for a classmate, moving through the empathy, define, ideation, prototype, and testing stages of Design Thinking. Students will learn about how to build knowledge of a user through interviews and research, and how to use this information to identify the key problem to address. They will be taught ways to generate a wide range of ideas and how to narrow these down practical solutions. They will learn the purpose and key elements of prototyping before presenting their solution back to their user for testing and feedback.

## Taking part in this program, students will collaboratively:

- Develop their understanding of and ability to use the Design Thinking process
- Understand the importance of user centred design
- Use rapid prototyping to develop and test solutions

## Career Links:

Design Thinking is being used across all industry areas. Developing this skill can help students in any future career they choose to pursue.





# Flat Pack Furniture Challenge

<b>INDUSTRY FOCUS AREA:</b>	Advanced Manufacturing
<b>VICTORIAN CURRICULUM LINKS:</b>	Design Technology, Digital Technologies, English, Mathematics,
<b>TECHNOLOGY USED:</b>	CAD, laser cutting, Augmented Reality
<b>YEAR LEVEL:</b>	9 - 10
<b>DURATION:</b>	2 Days
<b>MAX STUDENT NUMBERS:</b>	56

## Introduction

The ability to communicate with clients, to work within guidelines, and communicate ideas are employable skills that will always be in demand.

Businesses are often looking for ways to reduce the cost of transport and shipping. One common way to do this is to use flatpacks. These are packs that ship the components of an item in flat boxes that can then be assembled by the purchaser. IKEA are one of the most famous users of this method but there are many others.

## Program Summary

In this program, students will use the Design Thinking Process to design a piece of flat pack furniture and create a marketing strategy to sell their design.

Students will be presented with a design challenge from a customer from which they will need to identify the design requirements. They will use CAD software to design their product before making a model of their design using the laser cutter.

Students will then design a campaign to market and sell their product focusing on the use of new digital technologies.

## Taking part in this program, students will collaboratively:

- Identify design parameters and constraints
- Use industry level design software to create a model of their designs
- Evaluate their work against client requirements
- Create an advertising campaign to market their product using digital marketing tools

## Career Links:

Artisans: Carpenter, Machinery Operator, Manufacturing  
Designers: Architect, Industrial Engineer, Draftsperson  
Generators: Sales Representative, Retail Supervisor, Entertainer





# Biomechanics and Human Movement

<b>INDUSTRY FOCUS AREA:</b>	Exercise Science, Health Science.
<b>VICTORIAN CURRICULUM LINKS:</b>	VCE PE Unit 1, Area of Study 1, Unit 3, Area of Study 1
<b>TECHNOLOGY USED:</b>	Motion Capture Technology, Movement Analysis Equipment, Wearable Technology
<b>YEAR LEVEL:</b>	VCE
<b>DURATION:</b>	2 hours
<b>MAX NUMBER STUDENTS:</b>	28

## Introduction

Professionals working in health and exercise science rely on accurate data to analyse human movement in detail. High quality biomechanical analysis can improve performance in athletes, reduce the risk of injury, enable more efficient movement patterns, and assist people with movement difficulties to move with more freedom.

## Program Summary

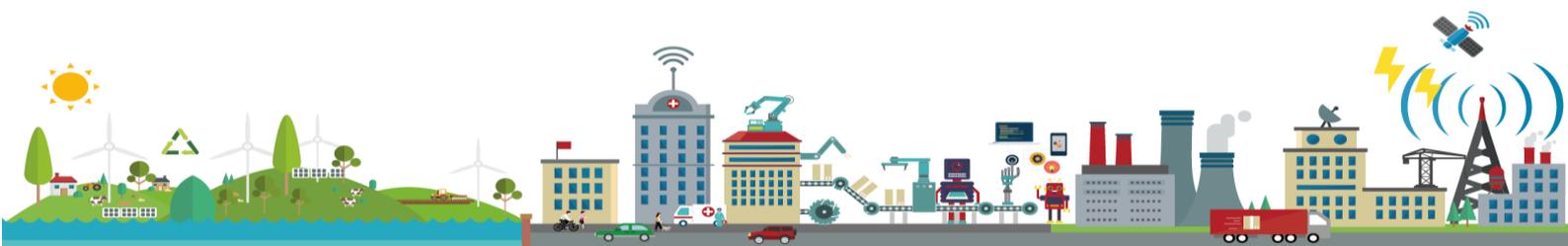
This program will give insight into advanced technology used at an elite level to analyse human movement. Students will experience motion capture technology using the Xsens suit and use the associated software to analyse captured movement in detail. Students will review kinetic concepts of human movement using speed gates and a digital jump mat. Video analysis will support student learning of biomechanical principles as they record, review, and analyse specific movements in the class.

## Taking part in this program, students will collaboratively:

- Learn about different ways technology can be used to test human movement
- Collect and interpret data using motion capture, video, and sensors
- Apply collected information and knowledge to real life contexts

## Career Links:

Careers: Physiotherapist, Sports Scientist, Prosthetist, Bio-mechanist, Exercise Physiologist





# Digital Music & Sound Production

<b>INDUSTRY FOCUS AREA:</b>	All
<b>VICTORIAN CURRICULUM LINKS:</b>	VCE Music Performance Unit 2, Area of Study 2 and 4, Unit 4, Area of Study 1. Music Style and Composition Unit 4, Area of study 3
<b>TECHNOLOGY USED:</b>	Ableton DAW on Mac, Ableton Push, Recording equipment
<b>YEAR LEVEL:</b>	VCE, VCAL
<b>DURATION:</b>	1 Day
<b>MAX STUDENT NUMBERS:</b>	26

## Introduction

Music is an integral part of all cultures from the earliest of times, expressing and reflecting human experience. Music exists in a myriad of forms, each able to elicit an array of intellectual and emotional responses from its audience.

In much of modern music, traditional instruments have been replaced or augmented with digital and virtual instruments. This program introduces students to the Digital Audio Workstation (DAW), digital instruments, and sound production and recording techniques.

## Program Summary

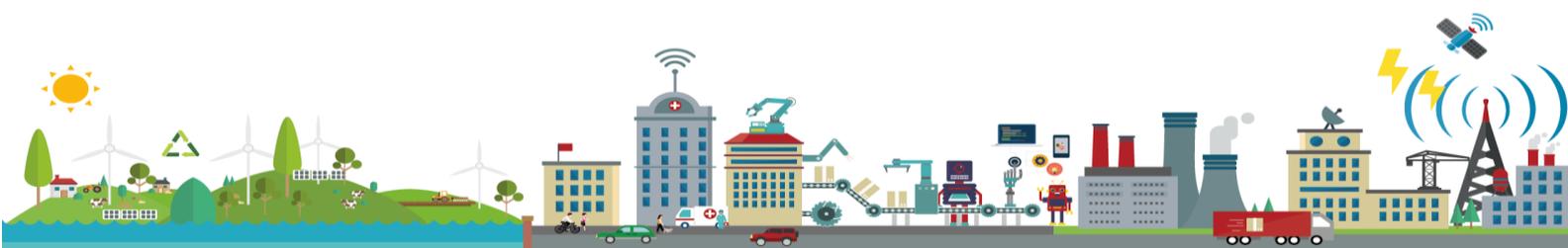
Students will be challenged to harness their creativity in this program as they create their own original music pieces of digital music using a DAW and the Ableton Push 2 instrument. Push 2 allows live real time music creation by making beats, playing notes and chords, and working with samples. Students will use Ableton Live as a tool for composing, recording, arranging, mixing, and mastering. The program will conclude with students presenting a live performance of their musical creation.

## Taking part in this program, students will collaboratively:

- Create a short musical piece for a live performance
- Investigate the use of digital audio techniques - composing, recording, arranging, mixing, and mastering
- Present their piece to an audience
- Reflect on learning

## Career Links:

Artisans: Film makers, sound engineers, set designers, journalists, musicians





# Drones in Media

<b>INDUSTRY FOCUS AREA:</b>	All
<b>VCE STUDY DESIGN LINKS:</b>	VCE Media Unit 4, Area of Study 1
<b>TECHNOLOGY USED:</b>	Drones
<b>YEAR LEVEL:</b>	VCE
<b>DURATION:</b>	2 hours
<b>MAX STUDENT NUMBERS:</b>	25

Please note, this program is designed to be run on-site at a partner school where a safe flying area is available.

## Introduction

Remotely piloted aircraft (commonly referred to as drones) are a technology that are becoming more common across a wide range of industry areas. The increasing ability for drones to carry heavier and more sophisticated camera equipment is also increasing their utility in a range of media applications. However, because of the ease of acquiring and putting a drone in the air, there are a range of legal restrictions and implication to using drones which are often overlooked by novice pilots. A knowledge of how to use a remotely piloted aircraft legally and safely is vital for anyone considering using drones in their media projects.

## Program Summary

Students will start by learning the current requirements for operating a drone in Australia. This will focus on the requirements for obtaining an Operator Accreditation and the Standard Operating Conditions. At the conclusion of this, students should have the knowledge required to successfully pass the Operator Accreditation test.

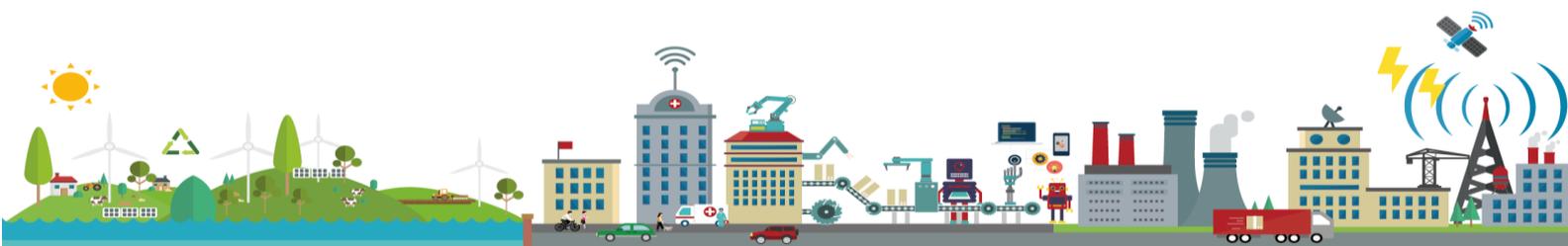
Students will then learn how to pilot a drone using line of sight in an indoor environment before moving to a large outdoor area where they can practice piloting a larger, camera carrying drone.

## Taking part in this program, students will collaboratively:

- Learn the Standard Operating Conditions
- Learn how to obtain an Operator Accreditation
- Learn how to safely pilot a drone

## Career Links:

Photographer, Videographer, Real Estate, Surveyor, Chief Pilot, RPA Pilot





# Film and Media

<b>INDUSTRY FOCUS AREA:</b>	Advanced Manufacturing, Health, Food and Fibre, New Energy
<b>VICTORIAN CURRICULUM LINKS:</b>	Visual Communication Design – Unit 1, Area of Study 2, Unit 2, Area of Study 3
<b>TECHNOLOGY USED:</b>	iOgrapher, Zoom sound recorders, iPad, Mac, Broadcast equipment
<b>YEAR LEVEL:</b>	VCE
<b>DURATION:</b>	1 Day
<b>MAX STUDENT NUMBERS:</b>	26

## Introduction

Screen stories shape the way we think and feel about the world around us. From Netflix to virtual reality, global cinema and film festivals, screen stories are changing the world. The film, television and creative industries are filled with careers for skilled, creative, and adaptable people, and the demand has never been higher. Many opportunities exist both in front of the camera and behind. Technologies to support the industries are developing at a rapid pace changing by whom, how, and when they can be created.

## Summary

During this program students will explore different techniques, technologies, and processes used in film and media. They will demonstrate the use of materials, techniques, processes, visual conventions, and technologies to express their ideas and convey meaning in their media.

## Taking part in this program, students will collaboratively:

- Explore the power of images to tell stories when placed in sequence
- Explore the links between creative and business imperatives
- Investigate how sound can complement the moving image to engage audiences
- Bring together ideas and skills in collaborative and industry focused production activities

## Career Links:

Creative roles generating and realising screen stories, In-house Video Content Producers, Film and Television Production, Cinematographer, Foley Artist





# Make Me Safer

<b>INDUSTRY FOCUS AREA:</b>	New Energy
<b>VICTORIAN CURRICULUM LINKS:</b>	Digital Technologies, Critical & Creative Thinking, Personal & Social Capability
<b>TECHNOLOGY USED:</b>	Robotics, CAD, Virtual Electronics, Coding, Makerspace Materials
<b>YEAR LEVEL:</b>	VCAL
<b>DURATION:</b>	1 Day
<b>MAX STUDENT NUMBERS:</b>	56

## Introduction

While workplace health and safety are always a priority for businesses, there are jobs that always come with an element of risk to the people undertaking them. Eliminating risks entirely is not always possible within a workplace, so planning ways to mitigate and reduce the risk becomes the priority. A knowledge of workplace OH&S and an ability to design solutions to these safety challenges are valuable skills desired by employers.

## Program Summary

In this program, students will use the Design Thinking process to tackle a health and safety challenge from a local Gippsland industry. They will begin by learning about the industry and some of the challenges they face in their everyday work. They will then undertake a variety of masterclasses to build their skills to tackle these challenges. The final part of the day will see students prototyping solutions and pitching their ideas to make the workplace safer.

## Taking part in this program, students will collaboratively:

- Identify the safety risks posed in a Gippsland industry
- Proposed, develop, and test a solution to reduce this risk
- Pitch an idea

## Career Links:

Designers: Electrical Engineer, Building Inspector, Product Tester  
Technologists: Programmer, Software Engineer, Web Designer  
Artisans: Machinery Operator, Farm Worker, Electrician





# Breathe Deep: Assessing Cardiorespiratory Fitness with VO2 Max

<b>INDUSTRY FOCUS AREA:</b>	Exercise Science, Health Science.
<b>VICTORIAN CURRICULUM LINKS:</b>	VCE PE UNIT 1 - Area of Study 2, UNIT 3 - Area of Study 2
<b>TECHNOLOGY USED:</b>	Cosmed K5 Portable VO2 Max Testing Equipment, Omnia Analysis Software, Heart Rate Monitors, Virtual and Mixed Reality.
<b>YEAR LEVEL:</b>	VCE
<b>DURATION:</b>	2 hours
<b>MAX STUDENT NUMBERS:</b>	25

## Introduction

Understanding how the cardiovascular and respiratory systems work together to meet the demands of the body during exercise is critical to evaluating fitness and performance, particularly at elite levels of sport. The VO2 max test gives accurate information on physiological changes during exercise and is an effective way to test cardiorespiratory fitness.

## Program Summary

In this program, students will undertake or observe a VO2 max test using industry standard testing equipment. Students will evaluate the data obtained by the test to understand the changes that occur in the body during intense exercise, and how this information can be useful to athletes. Students will observe the cardiovascular and respiratory systems in virtual and mixed realities to see gas exchange in action and view blood flow around the body.

## Taking part in this program, students will collaboratively:

- Learn about the VO2 max cardiorespiratory fitness test
- Collect and interpret data using Omnia software to analyse physiological results
- Discuss and present their understanding using a video recording.

## Career Links:

Physiotherapist, Sports Medical Professionals, Exercise Physiologist, Sports Scientist, Health Professionals

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