Murdoch University

Outreach workshops

CREATIVE MEDIA & COMMUNICATION, HUMANITIES & SOCIAL SCIENCES (HASS) AND SCIENCE, HEALTH, TECHNOLOGY, ENGINEERING & MATHEMATICS (STEM)

Workshops

at Murdoch University

At Murdoch University, we offer a range of **FREE, hands-on workshops for secondary students**. These workshops have been specifically designed to align with the Australian National Curriculum and to teach your students skills relevant to their school studies.

Students will learn from our community of academics and student ambassadors in industry standard facilities. Our workshops give students a fantastic insight into what **life as a Murdoch University student is like**.

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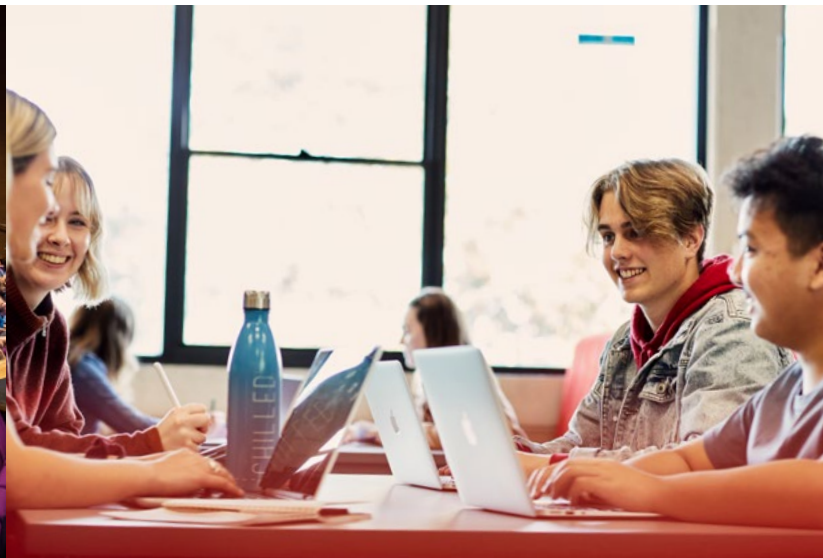


About our programs

Excursions and incursions

All workshops are delivered at Murdoch University's Perth Campus, however, many can be delivered at your school as an incursion. This will be dependent on the specific equipment requirements of your chosen workshop.

Half and full day experiences

Single, stand-alone workshops can be booked or a schedule of multiple workshops can be created for a half or full day experience. If you are bringing a larger cohort, students can be divided into groups and rotated through activities. There are a number of workshops that complement one another, allowing for the transferral of skills, knowledge and techniques to a variety of mediums.

Tailored experiences

If the advertised workshops do not suit your needs, workshops can be tailored to your requirements. We cater for secondary students in Years 7 to 12 across a variety of subject areas. If there is a specific topic or aspect of the curriculum you would like to explore, please contact an Outreach Officer to discuss your options.

Availability

Workshops run during school hours and are subject to the availability of academics. The best time for excursions is during non-teaching weeks at Murdoch University, such as during study break and exam times. Bookings can only be taken for the current semester as successive semester timetables have yet to be confirmed.

Additional activities and programs

The Amazing Race is a fun, engaging way for students to explore the campus on excursions to the University. Teams of students are given a map with numbered locations where they must complete a challenging task. Students submit their answers at the end of the game to be in the draw to win a prize.

The Big Quiz is an interactive game complete with intense music and sound effects (think of a cross between Who Wants to be a Millionaire and The Chase). Using electronic buzzers, groups of students compete against one another to answer questions as quickly and accurately as possible. Watch the excitement build as students check the leader-board after each round to find out who's in the running to win the grand prize!

We also have a range of careers and course sessions that are relevant to a variety of subject areas and age groups. Please contact an Outreach Officer to discuss your options.

Contact

For more information or to make a booking, please contact

Becca Scollay - Outreach Officer, Career Tasters
Phone: **9360 7328**
Email: **Becca.Scollay@murdoch.edu.au**

Jason Dohle - HASS & Creative Media Outreach Officer
Phone: **9360 7619**
Email: **j.dohle@murdoch.edu.au**

Andrew Schembri - STEM Outreach Officer
Phone: **9360 2307**
Email: **andrew.schembri@murdoch.edu.au**

Dr. Anna Pryor - STEM Outreach Officer
Phone: **9360 2524**
Email: **A.Pryor@murdoch.edu.au**

Stephanie Wong - STEM Outreach Officer
Phone: **9360 6229**
Email: **stephanie.wong@murdoch.edu.au**

Activities

Workshops

At Murdoch University, we offer a range of free, hands-on workshops for secondary students across all years, including ATAR. These workshops have been specifically designed to align with the Western Australian Curriculum and to teach your students skills relevant to their school studies. Students will learn from our community of Academics and Student Ambassadors in industry standard facilities. Our workshops give students a fantastic insight into what life as a Murdoch University student is like.

Talks

Murdoch University staff have a wealth of experience to share with prospective scientists, mathematicians and engineers. Learn what it's really like working in these fields to solve real-world local and global challenges by requesting a talk from one of Murdoch University's STEM experts.

Breakout Boxes

Breakout Boxes are immersive game experiences for students that test knowledge and understanding of a particular topic, and develop team-work, communication and problem-solving skills. Student teams race against the clock to solve a series of problems, the answers of which provide the combination to different locks (number, letter, symbol, colour). All games have been developed for a physical experience (teams have their own locked box, equipment and resources to work through) but several are available via an online learning platform.

Tours

Take a guided tour across the Murdoch University campus or through one of our learning facilities. Led by our Student Ambassadors, your students will see and learn about a range of on-campus services available to them as undergraduate students,and explore practical learning environments used by our own students.

Career Tasters

Our popular Career Taster Program provides Year 9 students with a unique Murdoch experience. Student Ambassadors facilitate workshops that demonstrate their individual journeys to university study, lead interactive, hands-on activities and explore career prospects with your students. Whether you want to do a full or half day, hold it at your school or on our Perth campus, we can create a Career Taster day that works for you!

Tailored Experiences

If our workshops are not quite what you need, workshops can be tailored to your requirements. We cater for secondary students in Years 7 to 12 across a variety of subject areas. If there is a specific topic or aspect of the curriculum you would like to explore, please contact an Outreach Officer to discuss your options.

Themed Quizzes

Need a fun challenge for your class? Let your students compete for first place in one of our topical quizzes. Our quizzes are written with a specific year group and section of the curriculum in mind. Each is presented in a fun competition format by a member of the Outreach team, live in your classroom or on our campus. Contact Outreach to see if a quiz is available to support your current teaching.

The Amazing Race

The Amazing Race is a fun, engaging activity that allows students to explore the Murdoch University campus while developing their teamwork and communication skills. Teams of students are provided with a map of numbered locations they must visit and complete a challenging task. Students submit their answers at the end of the game to go in the prize draw.

The Big Quiz

The Big Quiz is an interactive general knowledge challenge complete with music and sound effects (think of a cross between Who Wants to be a Millionaire and The Chase). Using electronic buzzers, groups of students compete against one another to answer questions as quickly and accurately as possible. Watch the excitement build as students check the leader-board after each round to find out who's in the running to win the grand prize!

Career and Course Information

We also have a range of careers and course sessions that are relevant to a variety of subject areas and age groups. Please contact an Outreach Officer to discuss your options.

Availability

Workshops run during school hours and are subject to the availability of academics, professional and technical staff. The best time for excursions to Murdoch University is during our non-teaching weeks – late March, June, July, late August, November and December. Bookings can only be taken for the current semester as successive semester timetables have yet to be confirmed. Talk to us about excursions at different times of the year to see what may be possible.

Modes of engagement

Excursions

All workshops can be delivered at Murdoch University's Perth campus, and a schedule of multiple workshops can be created for a half or full day experience.

If you are bringing a larger cohort, students can be divided into groups and rotated through activities. There are several workshops that complement one another, allowing for the transferal of skills, knowledge and techniques to a variety of mediums.

Incursions

Many of our activities can be delivered at your school as an incursion (dependent on the specific equipment and technical requirements of your chosen workshop).

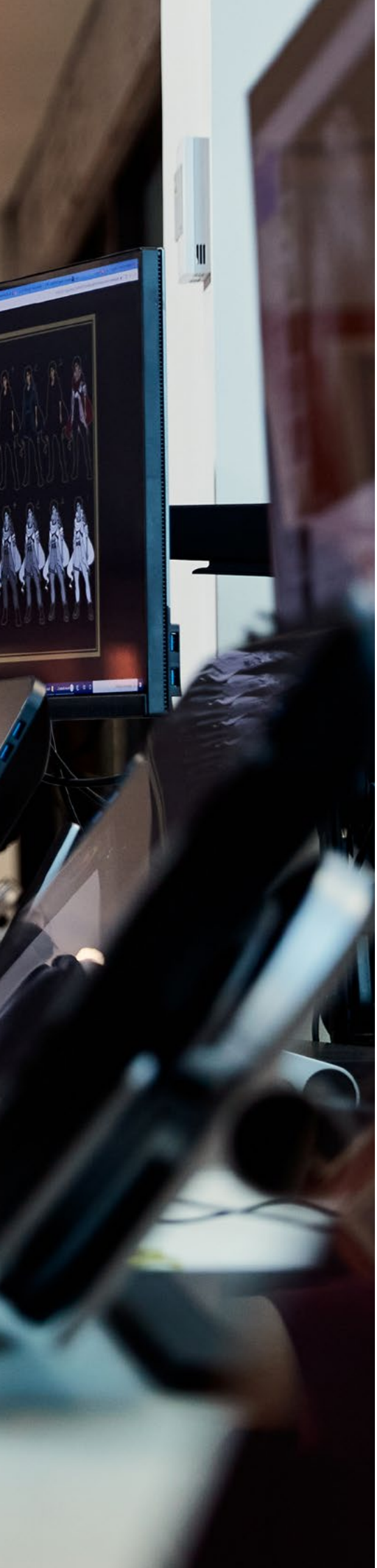
Contact a member of the Outreach team to discuss whether an activity can be appropriately delivered at your school.

Online workshops

We have a selection of online workshops available.

Please discuss with a member of the Outreach Team to find out if these might be appropriate for your students – in particular, if you are a regional or rural school, who is unable to connect with us in person.

Creative Media & Communication



Creative Media workshops

Games Art & Design

Character Animation 07
Introduction to Digital Painting 07
3D Modelling 07
Introduction to Pixel Art 08
Digital Painting for Game Design 08
Digital Painting Skills 09
Low Poly Portraits 09

Graphic Design

Ideation - How to Generate World Changing Ideas 10
Build an Augmented Reality Instagram Filter with User Experience (UX) Design 10
Deep Diving into Design Problems 10
Grid Layout 11
Masks, Masquerades and Fakes 11
Portfolio Review - Tips & Tricks for Innovative Portfolio Design 11
The Magic of Paper Prototyping 11

Screen Production

3D Video/Stereoscopy 12
Green Screen and Chroma Key 12
Adobe After Effects: Transparencies 12
Music Video Effects 12
TV Studio Live Panel Show 13
Writing Original Scripts: Finding Inspiration 13
YouTube and Video Blogging 13

Communication workshops

Creative Writing

Creative Writing: Getting your Story Started 15

Strategic Communication

Personal Branding 15
The Social Impact of Social Media 15

Journalism

Basics of Video Journalism 16
News Storytelling 16
Investigative Reporting & Fake News 16

Creative Arts Futures program 17

Creative Media workshops

Games Art & Design

Character Animation

YEAR 9-12

In this workshop, students will learn how to create their very own 3D character animation. This class has been designed for secondary school students starting out as beginners. Students will complete the session with a copy of their animated character on a USB.

Duration
1 hour

Study areas
Media Arts (Year 9 & 10), Visual Arts (Year 9 & 10); ATAR Media Production and Analysis (Year 11 & 12); ATAR Visual Arts (Year 11 & 12); Creative Industries (Cert II & III)

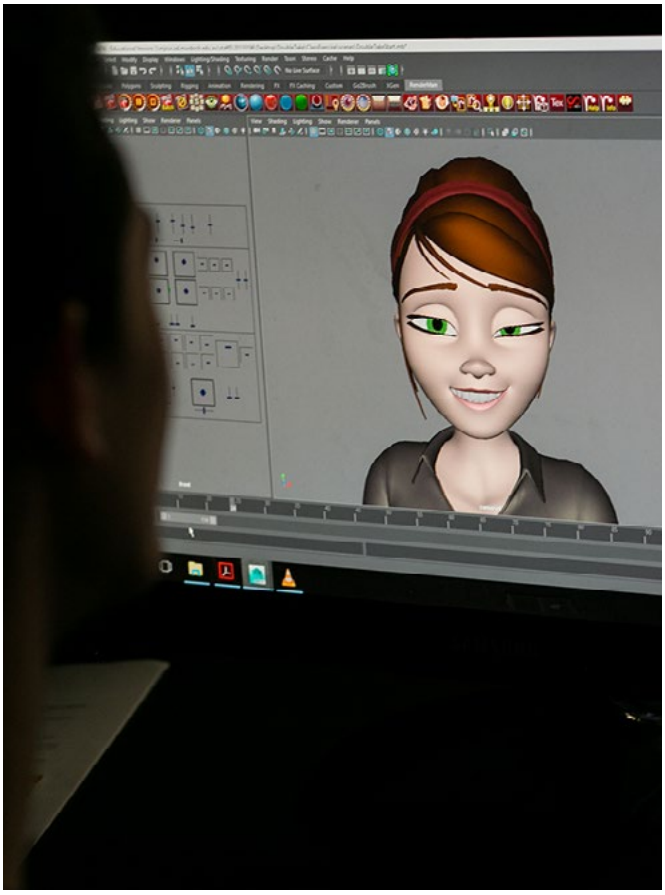
Participants
Maximum of 15 students

Curriculum links
Year 9 – Media Arts ACAMAM073, ACAMAM075; Visual Arts ACAVAM125, ACAVAM126, ACAVAM129

Year 10 – Media Arts ACAMAM073, ACAMAM075; Visual Arts ACAVAM125, ACAVAM126, ACAVAM129

Year 11 – ATAR Media Production and Analysis Unit 1; ATAR Visual Arts Units 1 & 2

Year 12 – ATAR Media Production and Analysis Unit 3; ATAR Visual Arts Units 3 & 4



Introduction to Digital Painting

YEAR 9-12

This workshop will introduce students to skills and techniques used for digital painting in Photoshop through developing their own character design. By the end of the session, each student will have a basic understanding of how to navigate the program and will learn a simple approach to designing and drawing characters that is used by industry professionals.

Duration
1 hour

Study areas
Media Arts (Year 9 & 10); Visual Arts (Year 9 & 10); ATAR Media Production and Analysis (Year 11 & 12); ATAR Visual Arts (Year 11 & 12); Creative Industries (Cert II & III)

Participants
Maximum of 15 students

Curriculum links
Year 9 – Media Arts ACAMAM073, ACAMAM075; Visual Arts ACAVAM125, ACAVAM126, ACAVAM129

Year 10 – Media Arts ACAMAM073, ACAMAM075; Visual Arts ACAVAM125, ACAVAM126, ACAVAM129

Year 11 – ATAR Media Production and Analysis Unit 1; ATAR Visual Arts Units 1 & 2

Year 12 – ATAR Media Production and Analysis Unit 3; ATAR Visual Arts Units 3 & 4

3D Modelling

YEAR 9-12

This workshop aims to show students the basics of using 3D model creation. Using simple, industry-standard programs, students will use the basics to understand the complex nature of model creation. This activity

Duration
1 hour

Study areas
Media Arts (Year 9 & 10); Visual Arts (Year 9 & 10); ATAR Media Production and Analysis (Year 11 & 12); ATAR Visual Arts (Year 11 & 12); Creative Industries (Cert II & III)

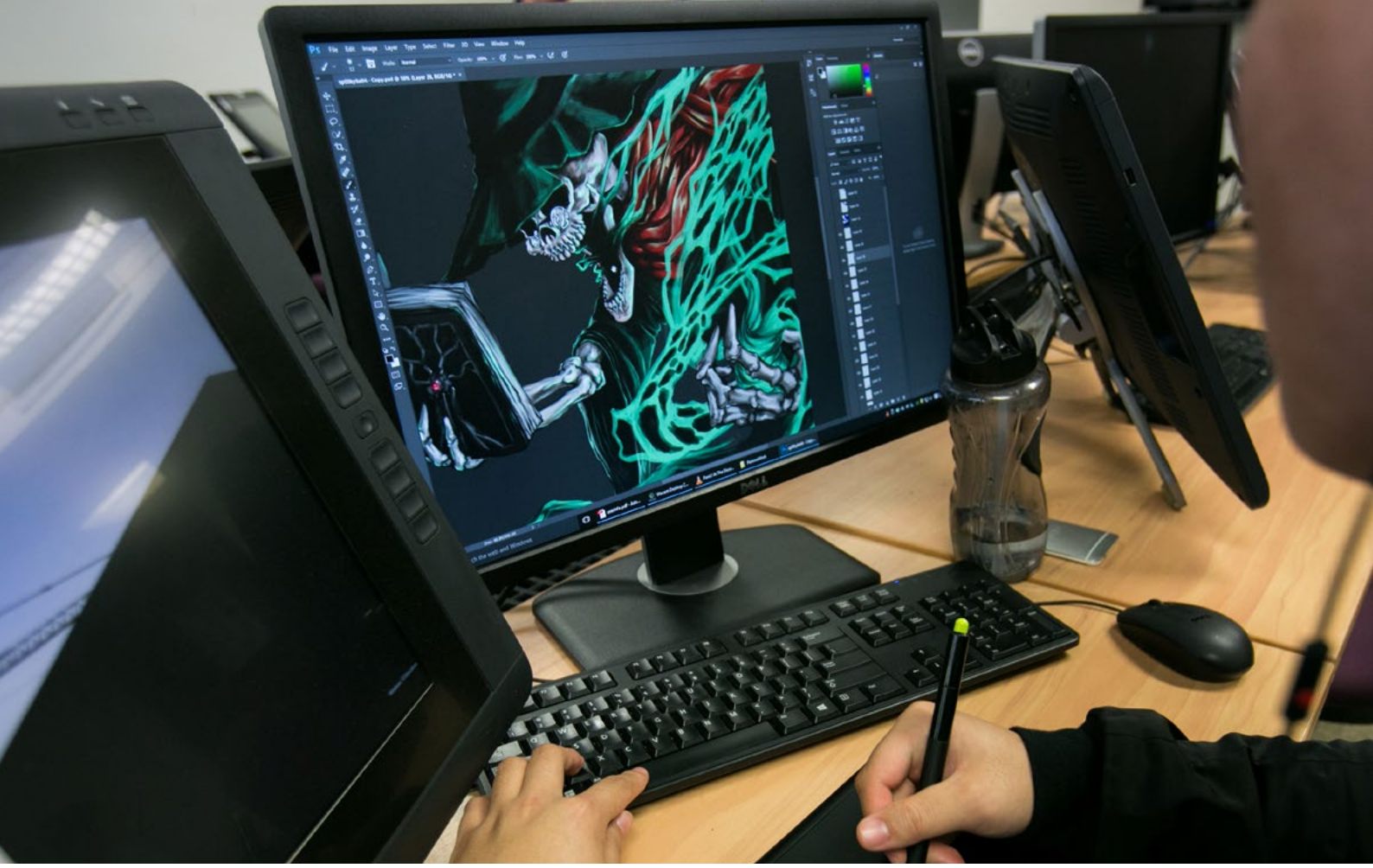
Participants
Maximum of 15 students

Curriculum links
Year 9 – Visual Arts ACAVAM121, ACAVAM118, ACAVAM125

Year 10 – Visual Arts ACAVAM125, ACAVAM126, ACAVAM129

Year 11 – ATAR Media Production and Analysis Unit 1; ATAR Visual Arts Units 1 & 2

Year 12 – ATAR Media Production and Analysis Unit 3; ATAR Visual Arts Units 3 & 4



Games Art & Design continued

Introduction to Pixel Art

YEAR 9-12

Pixel Art is probably one of the most simple art styles, however creating a compelling design can sometimes be challenging. This workshop will teach students about the history of Pixel Art in game design and show them how to use this knowledge to create their own retro self-portrait or design of their favourite character using the website Pixilart.

Duration
1 hour

Study areas
Media Arts (Year 9 & 10); Visual Arts (Year 9 & 10); ATAR Media Production and Analysis (Year 11 & 12); ATAR Visual Arts (Year 11 & 12); Creative Industries (Cert II & III)

Participants
Maximum of 15 students

Curriculum links
Year 9 – Media Arts ACAMAM073, ACAMAM075; Visual Arts ACAVAM125, ACAVAM126, ACAVAM129
Year 10 – Media Arts ACAMAM073, ACAMAM075; Visual Arts ACAVAM125, ACAVAM126, ACAVAM129
Year 11 – ATAR Media Production and Analysis Unit 1; ATAR Visual Arts Units 1 & 2
Year 12 – ATAR Media Production and Analysis Unit 3; ATAR Visual Arts Units 3 & 4

Digital Painting for Game Design

YEAR 9-12

This workshop is aimed at students who already have a basic understanding of Photoshop and digital painting, and will help to hone and develop the skills they already have. This class will take students through the process concept artists use in developing video game characters and will show them how to finesse their own work in the future.

Duration
1.5 hours

Study areas
Media Arts (Year 9 & 10); Visual Arts (Year 9 & 10); ATAR Media Production and Analysis (Year 11 & 12); ATAR Visual Arts (Year 11 & 12); Creative Industries (Cert II & III)

Participants
Maximum of 15 students

Curriculum links
Year 9 – Media Arts ACAMAM073, ACAMAM075; Visual Arts ACAVAM125, ACAVAM126, ACAVAM129
Year 10 – Media Arts ACAMAM073, ACAMAM075; Visual Arts ACAVAM125, ACAVAM126, ACAVAM129
Year 11 – ATAR Media Production and Analysis Unit 1; ATAR Visual Arts Units 1 & 2
Year 12 – ATAR Media Production and Analysis Unit 3; ATAR Visual Arts Units 3 & 4

Low Poly Portraits

YEAR 10-12

Low polygon (or low poly) effects and patterns are used in almost all visual communication fields today. From interior design, web design, graphic design and interface design, the low poly effect turns complex surfaces into simplified faceted 3D forms. This workshop will help students to think about the underlying structure and forms of surfaces and objects. Students will use images of animals, humans or themselves to create a low poly portrait using Adobe Illustrator.

Duration
1 hour

Study areas
Media Arts (Year 10); Visual Arts (Year 10); ATAR Media Production and Analysis (Year 11 & 12); ATAR Visual Arts (Year 11 & 12); Creative Industries (Cert II & III)

Participants
Maximum of 15 students

Curriculum links

Year 10 – Media Arts ACAMAM073, ACAMAM075, ACAMAR078; Visual Arts ACAVAM125, ACAVAM126, ACAVAM127, ACAVAM129

Year 11 – ATAR Media Production and Analysis Unit 1; ATAR Visual Arts Units 1 & 2

Year 12 – ATAR Media Production and Analysis Unit 3; ATAR Visual Arts Units 3 & 4

Digital Painting Skills

YEAR 9-12

This workshop will teach students tips and tricks on improving their artwork and introduce the basics of blending and the painterly style of digital drawing in Photoshop. This class follows on from the skills taught in *Introduction to Digital Painting* and students should have a basic idea of how to navigate Photoshop already.

Duration
1 hour

Study areas
Media Arts (Year 9 & 10); Visual Arts (Year 9 & 10); ATAR Media Production and Analysis (Year 11 & 12); ATAR Visual Arts (Year 11 & 12); Creative Industries (Cert II & III)

Participants
Maximum of 15 students

Curriculum links

Year 9 – Media Arts ACAMAM073, ACAMAM075; Visual Arts ACAVAM125, ACAVAM126, ACAVAM129

Year 10 – Media Arts ACAMAM073, ACAMAM075; Visual Arts ACAVAM125, ACAVAM126, ACAVAM129

Year 11 – ATAR Media Production and Analysis Unit 1; ATAR Visual Arts Units 1 & 2

Year 12 – ATAR Media Production and Analysis Unit 3; ATAR Visual Arts Units 3 & 4

Graphic Design

Ideation - How to Generate World Changing Ideas

YEAR 9-12

Ideation is the design process of developing project concepts using creative methods such as sketching, prototyping, brainstorming and many other thought provoking strategies. During this workshop, participants will engage in creative techniques for producing bold, innovative ideas that can literally change the world!

Duration
1 hour

Study areas
Visual Arts (Year 10); ATAR Visual Arts (Year 11 & 12); ATAR Design (Year 11 & 12); Creative Industries (Cert II & III)

Participants
Maximum of 30 students

Curriculum links
Year 9 – Visual Arts ACAVAM125, ACAVAM126, ACAVAM128, ACAVAM129

Year 10 – Visual Arts ACAVAM125, ACAVAM126, ACAVAM128, ACAVAM129

Year 11 – ATAR Visual Arts Units 1 & 2; ATAR Design Units 1 & 2

Year 12 – ATAR Visual Arts Units 3 & 4; ATAR Design Units 3 & 4

Build an Augmented Reality Instagram Filter with User Experience (UX) Design

YEAR 10-12

In this workshop, students will follow a UX design process to build an Augmented Reality Instagram filter. Students will interview users, create insights, co-design through ideation and then prototype and test an augmented reality app.

Duration
2 hours

Study areas
Media Arts (Year 10); Visual Arts (Year 10); Design and Technologies (Year 10); ATAR Design (Year 11 & 12); ATAR Applied Information Technology (Year 11 & 12); Creative Industries (Cert II & III)

Participants
Maximum of 15 students

Curriculum links
Year 10 – Media Arts ACAMAM073, ACAMAM075, ACAMAM077, ACAMAR078; Design and Technologies ACTDEK040, WATPPS61, WATPPS62, WATPPS64, WATPPS65

Year 11 – ATAR Design Units 1 & 2; ATAR Applied Information Technology Unit 1

Year 12 – ATAR Design Units 3 & 4; ATAR Applied Information Technology Unit 3

Deep Diving into Design Problems

YEAR 9-12

Design thinking is a practice which involves rethinking how we approach problems of any kind, for any project. It focuses on exploring the underlying core issues of project problems through creative and game-oriented methods. Participants in this session will be introduced to design methods involving play to investigate, redefine and understand how problems are generated and therefore, learn how to approach them effectively. Big business, government and socially driven organisations are applying these radical techniques to rethink how we might improve the way we live around the globe.

Duration
1 hour

Study areas
Visual Arts (9 & 10); Design & Technology (Year 9 & 10); ATAR Visual Arts (Year 11 & 12); ATAR Design (Year 11 & 12); Creative Industries (Cert II & III)

Participants
Maximum of 15 students

Curriculum links
Year 9 – Visual Arts ACAVAM125, ACAVAM126, ACAVAM127, ACAVAM128, ACAVAM129; Design and Technologies ACTDEK040, WATPPS54, WATPPS55, WATPPS56, WATPPS57

Year 10 – Visual Arts ACAVAM125, ACAVAM126, ACAVAM127, ACAVAM128, ACAVAM129; Design and Technologies ACTDEK040, ACTDEK041, WATPPS61, WATPPS62, WATPPS63, WATPPS64, WATPPS65

Year 11 – ATAR Visual Arts Units 1 & 2; ATAR Design Units 1 & 2

Year 12 – ATAR Visual Arts Units 3 & 4; ATAR Design Units 3 & 4

Grid Layout

YEAR 9-12

One of the fundamental staples of the graphic designer's toolbox is the grid system. These systems are essential for cohesive, efficient and flawless designs. This workshop will introduce students to a brief history of grid systems, including Swiss International Style, how to create common grid systems and, of course, how to use a grid system to create dynamic and engaging layouts.

Duration
1 hour

Study areas
Visual Arts (Year 9 & 10); ATAR Visual Arts (Year 11 & 12); ATAR Design (Year 11 & 12); Creative Industries (Cert II & III)

Participants
Maximum of 15 students

Curriculum links
Year 9 – Visual Arts ACAVAM125, ACAVAM126, ACAVAM127, ACAVAM128, ACAVAM129, ACAVAR131

Year 10 – Visual Arts ACAVAM125, ACAVAM126, ACAVAM127, ACAVAM128, ACAVAM129, ACAVAR131

Year 11 – ATAR Visual Arts Units 1 & 2; ATAR Design Units 1 & 2

Year 12 – ATAR Visual Arts Units 3 & 4; ATAR Design Units 3 & 4

Portfolio Review - Tips & Tricks for Innovative Portfolio Design

YEAR 10-12

This session explores what makes for a dynamic portfolio of work. Students will learn how effective portfolios are created and why certain portfolios' work stands out more than others. This workshop will reveal powerful portfolio techniques used among a variety of industries and how/why these portfolios vary based upon common platform deliverables (including digital and print). Participants in this workshop will be taken through portfolio examples which demonstrate strong visual communication and showcase exciting content, with particular focus on graphic design techniques such as grids, hierarchy, typography and image treatments.

Duration
1 hour

Study areas
Visual Arts (Year 10); ATAR Visual Arts (Year 11 & 12); ATAR Design (Year 11 & 12); Creative Industries (Cert II & III)

Participants
Maximum of 15 students

Curriculum links
Year 10 – Visual Arts ACAVAM125, ACAVAM126, ACAVAM127, ACAVAM128, ACAVAM129, ACAVAR131

Year 11 – ATAR Visual Arts Units 1 & 2; ATAR Design Units 1 & 2

Year 12 – ATAR Visual Arts Units 3 & 4; ATAR Design Units 3 & 4

Masks, Masquerades and Fakes

YEAR 10-12

How images and text communicate when placed together is at the heart of visual communication. In this workshop, students will experiment with this idea using Adobe Photoshop. They will be provided with an introduction to the use of text and its ability to anchor the meaning of image. Students will apply a displacement map over a photograph of themselves and add typographic elements to change the image's meaning.

Duration
1 hour

Study areas
Study Areas: Media Arts (Year 10); Visual Arts (Year 10); ATAR Media Production and Analysis (Year 11 & 12); ATAR Visual Arts (Year 11 &12); Creative Industries (Cert II & III)

Participants
Maximum of 15 students

Curriculum links
Year 10 – Media Arts ACAMAM073, ACAMAM075, ACAMAR078; Visual Arts ACAVAM125, ACAVAM126, ACAVAM127, ACAVAM129

Year 11 – ATAR Media Production and Analysis Unit 1; ATAR Visual Arts Units 1 & 2

Year 12 – ATAR Media Production and Analysis Unit 3; ATAR Visual Arts Units 3 & 4

The Magic of Paper Prototyping

YEAR 11-12

Prototypes are a great way to test ideas and products and are used in User Experience and Design Thinking processes. Prototypes are also a great way to experiment with concepts and provide a quick understanding of user's needs. Students will build a paper prototype of a simple app and experiment with layout, information hierarchy and task flow whilst playing with the concept of a digital product.

Duration
1.5 hours

Study areas
ATAR Visual Arts (Year 11 & 12); ATAR Design (Year 11 & 12); Creative Industries (Cert II & III)

Participants
Maximum of 15 students

Curriculum links
Year 11 – ATAR Design Units 1 & 2; ATAR Applied Information Technology Units 1 & 2

Year 12 – ATAR Design Units 3 & 4; ATAR Applied Information Technology Units 3 & 4

Screen Production

3D Video/Stereoscopy

YEAR 9-12

Making 3D images is not overly complex, but it takes some understanding of the mechanics and supporting theory to get it looking great and use it to maximum effect. In this workshop, students will learn the practical process of creating 3D video using cheap anaglyph glasses, a DSLR camera and free software. With this knowledge, students can continue experimenting with 3D images in their own time.

Duration
1.5 hours
(2 hours for extended session, including seminar)

Study areas
Media Arts (Year 9 & 10); ATAR Media Production and Analysis (Year 11 & 12); Creative Industries (Cert II & III)

Participants
Maximum of 15 students

Curriculum links

Year 9 – Media Arts ACAMAM073, ACAMAM075, ACAMAM077, ACAMAR078

Year 10 – Media Arts ACAMAM073, ACAMAM075, ACAMAM077, ACAMAR078

Year 11 – ATAR Media Production and Analysis Unit 1

Year 12 – ATAR Media Production and Analysis Unit 3

Adobe After Effects: Transparencies

YEAR 9-12

Digital visual effects usually involve some form of composing and After Effects is arguably the most widely used digital compositing tool for emerging filmmakers. In this workshop, students will learn to make transparency areas in video planes and layer them for particular effect. Understanding and mastering this process includes learning Chroma-keying, masking, key frame animation and rotoscoping techniques.

Duration
1.5 hours

Study areas
Media Arts (Year 9 & 10); ATAR Media Production and Analysis (Year 11 & 12); Creative Industries (Cert II & III)

Participants
Maximum of 15 students

Curriculum links

Year 9 – Media Arts ACAMAM073, ACAMAM074, ACAMAM075, ACAMAM077, ACAMAR078

Year 10 – Media Arts ACAMAM073, ACAMAM074, ACAMAM075, ACAMAM077, ACAMAR078

Year 11 – ATAR Media Production and Analysis Unit 1

Year 12 – ATAR Media Production and Analysis Unit 3

Green Screen and Chroma Key

YEAR 9-12

Chroma Key is the core of many visual effects seen in cinema and on TV and it is how virtual sets for news and entertainment shows are created. In this workshop, students will learn the technical aspects of creating a good Chroma key environment, including complex aspects of lighting, subject positioning and exposing the shot.

Duration
1 hour

Study areas
Media Arts (Year 9 & 10), ATAR Media Production and Analysis (Year 11 & 12); Creative Industries (Cert II & III)

Participants
Maximum of 15 students

Curriculum links

Year 9 – Media Arts ACAMAM073, ACAMAM075, ACAMAM077, ACAMAM076, ACAMAR078

Year 10 – Media Arts ACAMAM073, ACAMAM075, ACAMAM077, ACAMAM076, ACAMAR078

Year 11 – ATAR Media Production and Analysis Unit 1

Year 12 – ATAR Media Production and Analysis Unit 3

Music Video Effects

YEAR 9-12

Though it's clear that music videos are a marriage of music and moving images, it may not be obvious to some that they also often rely on post-production effects to increase the viewer's engagement. This short course explores how video manipulation programs, such as Adobe Premiere Pro and Adobe After Effects, can be used to create and employ a visual style that points towards the surreal. The music video foundations of cutting-on-the-beat and beats within shots themselves are also explained. This course assumes some basic knowledge of Adobe Premiere Pro, and a willingness to learn digital compositing software in Adobe After Effects. (An online version of this workshop is also available).

Duration
1.5 hours

Study areas
Media Arts (Year 9 & 10); ATAR Media Production & Analysis (Year 11 & 12); Creative Industries (Cert II & III)

Participants
Maximum of 15 students

Curriculum links

Year 9 – Media Arts ACAMAM073, ACAMAM074, ACAMAM075, ACAMAM077, ACAMAR078

Year 10 – Media Arts ACAMAM073, ACAMAM074, ACAMAM075, ACAMAM077, ACAMAR078

Year 11 – ATAR Media Production & Analysis Unit 1

Year 12 – ATAR Media Production & Analysis Unit 3

TV Studio Live Panel Show

YEAR 9-12

In this workshop, students will learn the technical aspects of operating a TV studio, including the specific roles found on the studio floor (camera, lighting, floor manager, presenter, talent) and in the control room (director, switcher, sound, auto prompt, video playback). They will work as a team to create a 5-minute live panel show, complete with titles, music and video.

Duration
2 hours

Study areas
Media Arts (Year 9 & 10); ATAR Media Production and Analysis (Year 11 & 12); Creative Industries (Cert II & III)

Participants
Maximum of 15 students

Curriculum links
Year 9 – Media Arts ACAMAM073, ACAMAM074, ACAMAM075, ACAMAM076, ACAMAM077, ACAMAR078

Year 10 – Media Arts ACAMAM073, ACAMAM074, ACAMAM075, ACAMAM076, ACAMAM077, ACAMAR078

Year 11 – ATAR Media Production and Analysis Units 1 & 2

Year 12 – ATAR Media Production and Analysis Unit 4

YouTube and Video Blogging

YEAR 9-12

The moving image genre of video blogging emerged from the early 2000s, and has since evolved into an industry with professional creators. Though students often have much experience in watching vlogs, they often have many questions as to how to approach creating them. For this online video Q&A session, we ask students to compile a list of questions they have and supply them in advance to an academic specialising in YouTube and video blogging. The class session can then run from 1 to 2 hours when needed, depending on availability. It can also be run as an excursion at Murdoch.

Duration
1-2 hours

Study areas
Media Arts (Year 9 & 10); ATAR Media Production & Analysis (Year 11 & 12); Creative Industries (Cert II & III)

Participants
Maximum of 20 students (excursion)/No maximum for online session

Curriculum links
Year 9 – Media Arts ACAMAM073, ACAMAM074, ACAMAM075, ACAMAR078, ACAMAR079

Year 10 – Media Arts ACAMAM073, ACAMAM074, ACAMAM075, ACAMAR078, ACAMAR079

Year 11 – ATAR Media Production & Analysis Unit 1

Year 12 – ATAR Media Production & Analysis Units 3 & 4

Writing Original Scripts: Finding Inspiration

YEAR 9-12

Writing a short film script can be daunting: the blank digital page glares back in an unashamed defiance that has broken many before you. This workshop introduces the concept of Creative Limitation and provides a solid foundation in film story-telling to help get the ideas flowing. Existing films are analysed in terms of their story structure and characterisation, and methods for successfully seeking inspiration are detailed. (An online version of this workshop is also available).

Duration
1 hour

Study areas
Media Arts (Year 9 & 10); ATAR Media Production & Analysis (Year 11 & 12); Creative Industries (Cert II & III)

Participants
Maximum of 15 students

Curriculum links
Year 9 – Media Arts ACAMAM073, ACAMAM074, ACAMAM075, ACAMAR078, ACAMAR079

Year 10 – Media Arts ACAMAM073, ACAMAM074, ACAMAM075, ACAMAR078, ACAMAR079

Year 11 – ATAR Media Production & Analysis Unit 1

Year 12 – ATAR Media Production & Analysis Unit 3

Communication workshops

Creative Writing

Creative Writing: Getting your Story Started

YEAR 8-10

This workshop helps students generate creative stories and teaches approaches to developing first drafts. Students will respond to each other's ideas and experiment with alternatives, as they aim to produce an engaging narrative. They will give and respond to feedback from others and use creative writing strategies that can be expanded and developed back in the classroom.

Duration
1 hour

Study areas
English (Year 8 – 10)

Participants
Maximum of 20 students

Curriculum links
Year 8 – English ACELA1547, ACELT1627, ACELY1733, ACELY1736, ACELY1810

Year 9 – English ACELA1553, ACELA1557, ACELA1561, ACELT1634, ACELT1636, ACELT1772, ACELY1746, ACELY1747

Year 10 – English ACELA1569, ACELA1570, ACELA1571, ACELT1640, ACELT1642, ACELT1643, ACELT1814, ACELT1815, ACELY1757

Strategic Communication

Personal Branding

YEAR 9-12

This workshop will explore what online personal branding means, the increasingly blurred lines between our private lives and our public persona, the conventions of different social media, and the issues people face as a result of the need to manage their 'digital footprint'. The workshop will also offer practical help for students in how to create and curate an online identity that represents their character, while exploring some critical thought on the increasing commodification of our online personas.

Duration
1 hour

Study areas
English (Year 9 & 10); Media Arts (Year 9 & 10); ATAR English (Year 11 & 12); ATAR Media Production & Analysis (Year 11 & 12); Creative Industries (Cert II & III)

Participants
Maximum of 30 students

Curriculum links
Year 9 – English ACELY1742, ACELY1745; Media Arts ACAMAM073, ACAMAM074, ACAMAM077, ACAMAR078, ACAMAR079

Year 10 – English ACELA1565, ACELT1641, ACELT1643, ACELT1812, ACELT1814, ACELT1815, ACELY1749; Media Arts ACAMAM073, ACAMAM074, ACAMAM077, ACAMAR078, ACAMAR079

Year 11 – ATAR English Unit 1 & 2; ATAR Media Production & Analysis Unit 1

Year 12 – ATAR English Unit 3 & 4; ATAR Media Production & Analysis Unit 4

The Social Impact of Social Media

YEAR 9-12

This workshop will unpick the approaches of activists and advocates on social media, using case studies and a hands-on approach that digs deep into the social impact of social media. Social media has only been part of our lives for little more than 15 years and yet it has irrevocably changed how we communicate, affecting governments, big business and not-for-profits, while challenging some of society's major institutions. Social movements, once relying on street protests, stunts, printed posters, mainstream media and on-the-ground activism are now adept at garnering support through hashtags, livestreaming, likes and engagement, to name just a few tactics. Social media strategies and tactics by advocates and activists in the battleground for public opinion, as well as the results of their campaigns, will be interrogated.

Duration
1 hour

Study areas
English (Year 9 & 10); Media Arts (Year 9 & 10) ATAR English (Year 11 & 12), ATAR Media Production and Analysis (Year 11 & 12)

Participants
Maximum of 30 students

Curriculum links
Year 9 – English ACELY1742, ACELY1745; Media Arts ACAMAM073, ACAMAM074, ACAMAM077, ACAMAR078, ACAMAR079

Year 10 – English ACELA1564, ACELA1565, ACELT1641, ACELT1643, ACELT1812, ACELY1749; Media Arts ACAMAM073, ACAMAM074, ACAMAM077, ACAMAR078, ACAMAR079

Year 11 – ATAR English Unit 1 & 2; ATAR Media Production and Analysis Unit 1

Year 12 – ATAR English Unit 3 & 4; ATAR Media Production and Analysis Unit 4

Journalism

Basics of Video Journalism

YEAR 10-12

In this hands-on workshop, students will get a taste of what it's like to conduct a video interview and then edit it using Adobe Audition. The workshop will familiarise students with the basics of video journalism and how to handle equipment, work from the field and conduct a simple interview to camera. Back in the studio, students will learn the how to conduct a simple digital audio edit.

Duration
1.5 hours

Study areas
ATAR Media Production & Analysis (Year 11 & 12)

Participants
Maximum of 15 students

Curriculum links
Year 10 – Media Arts ACAMAM073, ACAMAM074, ACAMAM075, ACAMAM076, ACAMAR078,

Year 11 – ATAR Media Production & Analysis Unit 2

Year 12 – ATAR Media Production & Analysis Unit 4

Investigative Reporting & Fake News

YEAR 11-12

The world of social media is full of fake news and it is the job of a journalist to be able to spot a hoax and find the real story. In this workshop, we will look at the tricks and tools used to spot fake photographs and videos. We will discuss which sources are trustworthy and how journalists can unearth harder-to-find stories using simple investigative skills. If time allows, we will look at Freedom of Information laws and how journalists can use them to hold government officials to account.

Duration
1 hour

Study areas
ATAR Media Production & Analysis (Year 11 & 12)

Participants
Maximum of 15 students

Curriculum links
Year 11 – ATAR Media Production & Analysis Unit 2

Year 12 – ATAR Media Production Unit 4

News Storytelling

YEAR 10-12

The world will always need storytellers. In this workshop, students will learn the craft of writing a news article. They will be introduced to the process of finding a story, what a news angle looks like and how to structure stories using the inverted pyramid format. This workshop will be an introduction to journalism and will give students a hands-on experience at writing news. Come ready to put your writing skills to the test!

Duration
1 hour

Study areas
English (Year 10); Media Arts (Year 10); ATAR English (Year 11 & 12); ATAR Media Production & Analysis (Year 11 & 12)

Participants
Maximum of 15 students

Curriculum links
Year 10 – English ACELT1641, ACELT 1643, ACELT1815, ACELY1750, ACELY1813, ACELY1756; Media Arts ACAMAM073, ACAMAM074

Year 11 – ATAR English Units 1 & 2; ATAR Media Production & Analysis Unit 2

Year 12 – ATAR English Units 3 & 4; ATAR Media Production & Analysis Unit 4

Creative Arts Futures

In an ever-changing world due to technological challenges and social changes, a focus on the future can easily be lost as we attempt to solve the immediate problems in front of us.

The Creative Arts Futures program is a new initiative delivered by Murdoch University that offers your students a real taste of Creative Arts, building their knowledge and understanding the tertiary opportunities and the many career possibilities that will be available to them in this field. Your students will participate in a variety of activities aimed at building and maintaining their interest and participation in creative arts as they chose their subjects for Year 10 to 12. These day or half-day on-campus events plan to ensure that young people's passion and interests remains alive throughout the final years of secondary study by providing both an interesting experience in their chosen subject, along with the security of knowing that both tertiary opportunities and further employment will be available to them in the future.

The Futures sessions are offered to classes of years 9 or 10 at Murdoch University's Perth campus. The sessions include Creative Arts subjects and areas such as Photography, Games Art & Design, Theatre & Drama, Graphic Design and Sound. These subjects will showcase our facilities and academic expertise through quick, interactive activities that allow students to look both at their own interests, but also to taste other areas to gain an understanding or appreciation for areas they had not considered before.

Along with the activities, students will also receive the chance to explore the future of the industry they are interested in with talks and Q&A sessions led by academics here at Murdoch. Your students will gain a real insight into the current Creative Arts Industry, where its heading, and the challenges and potential opportunities in this field.

If you would like more information or to plan a Creative Arts Futures day tailored for your students with subjects your school teaches, please contact Outreach Officer Jason Dohle at j.dohle@murdoch.edu.au

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HASS workshops

Law

Mock Trials in our Court Room

YEAR 8-10

In this activity, we run through a simple mock trial situation. Students will learn about the onus of prosecution and defense, the types of issues that can and cannot be brought before a jury and the issues and knowledge needed to take part in our legal system. Students will fill the roles of jury members as they watch Murdoch Law students take part in a simulation of a legal trial. Students will also then be asked to pass their verdict on the trial.

Duration
1 hour

Study areas
Law, HASS

Participants
Maximum of 30 students

Mediation & Negotiation

YEAR 9-11

Mediation is a structured legal negotiation process that aims to assist people to resolve their legal dispute before heading to court. In this activity, students will act as mediators and explore different types of conflict and responses through a series of interactive activities. Students will be able to work collaboratively, debate, and reflect on their personal conflict responses and how they can best navigate their way to a positive resolution.

Duration
1 Hour

Study areas
HASS (Civics & Citizenship),
Politics & Law ATAR

Participants
Maximum of 30 students

Street Law

YEAR 7-12

Street law is a global, nonpartisan, non-profit program with more than 40 years of experience developing classroom and community programs that educate young people about law and government. Street Law programs and materials help advance justice by empowering people with the legal and civic knowledge, skills, and confidence to bring about positive change for themselves and others.

Murdoch's Street Law program trains up our law students to come into your classrooms and provide information and legal education (both curriculum and other) to your students in a fun way.

Bookings are essential and each program runs from the start of each semester.

Duration
2 Periods in your schools,
Starting Semester 1 & 2

Study areas
HASS (Civics & Citizenship),
Politics & Law ATAR

Participants
1 class

Criminology

For Psychology activities, please see page 39

How to Burglar Proof your Home

YEAR 8-12

This activity uses several fundamental aspects of Criminology and Crime Science to show students how criminology and psychology are used to protect potential victims and prevent crimes from ever happening. Students will gain an understanding of how criminologists interpret and use statistics, evaluate data, and advise people all while learning practical tips on how to better protect their own home!

Duration
1 hour

Study areas
Psychology/Criminology, HASS, Science

Participants
Maximum of 30 students

Criminological Profiling

YEAR 8-12

In this brief introduction to criminology and profiling, students will dive head-first into the world of serial killers and repeat offenders to sort the facts from the fiction. Learning how a profiler would approach a crime, what the tell-tale signs to look for can be and what certain features of crimes can tell us. Students will then be introduced to a real-world case and see what they can learn and infer, using their newly learned skill set.

Duration
1 hour

Study areas
Psychology/Criminology, HASS, Science

Participants
Maximum of 30 students

The Amazing Case

YEAR 9-11

A suspicious package has been found outside the local primary school. Using their wits, intelligence and criminology profiling skills, students are tasked to solve a series of codes, puzzles and profiling activities to collect the clues and find the suspect!

This activity is delivered across Murdoch University's Perth campus. Students are given a map and directions. Each clue station will provide a new clue and direction to help them in their investigation for the truth!

Duration
1 hour

Study areas
HASS, Criminology, Psychology, Science

Participants
Maximum of 30 students

Violent Offenders Workshop

YEAR 8-12

High risk violent offenders cause the greatest harm to the community. These individuals generally start offending at a young age, and continue offending into later ages. These individuals are only a very small proportion of offenders (around 6%) but they account for 70% of violent crime. We also hear that violent crime is increasing and out of control.

In this class, students will learn about the nature of violent offending and the psychology of high risk violent offenders. We will answer the questions about the level of violent crime. We will also look at who is most likely to be a victim of violent crime and where these crimes are committed. The class will also cover the psychology of violent offenders, that is, an examination of the psychological characteristics of violent offenders.

Duration
1 hour

Study areas
Criminology/Psychology

Participants
100

False Confessions Lecture

YEAR 8-12

Most people believe that no-one would confess to a crime they did not commit, especially a serious crime such as murder. Well, one of the first recorded false confessions was by a woman and one of her servants who confessed to murdering her husband. They were both executed. When her husband came back from the crusades you can understand that he was not very happy!!

In the Name of the Father is a movie about the Guildford Four. In this class we will examine some very famous false confessions including the Guildford four, the Birmingham Six and the case of Andrew Mallard. Andrew was convicted of a murder he did not commit and his "confession" was the major evidence used to get his conviction. We will examine why and how certain police interrogation tactics lead to such false confessions, focussing especially on Andrew Mallard's case.

Guy Hall was the expert witness for the defence who analysed the police interrogation and in this workshop he will go through his analysis.

Duration
1 hour

Study areas
Criminology/Psychology

Participants
100

Criminology Case Studies (x3 Activities)

YEAR 8-12

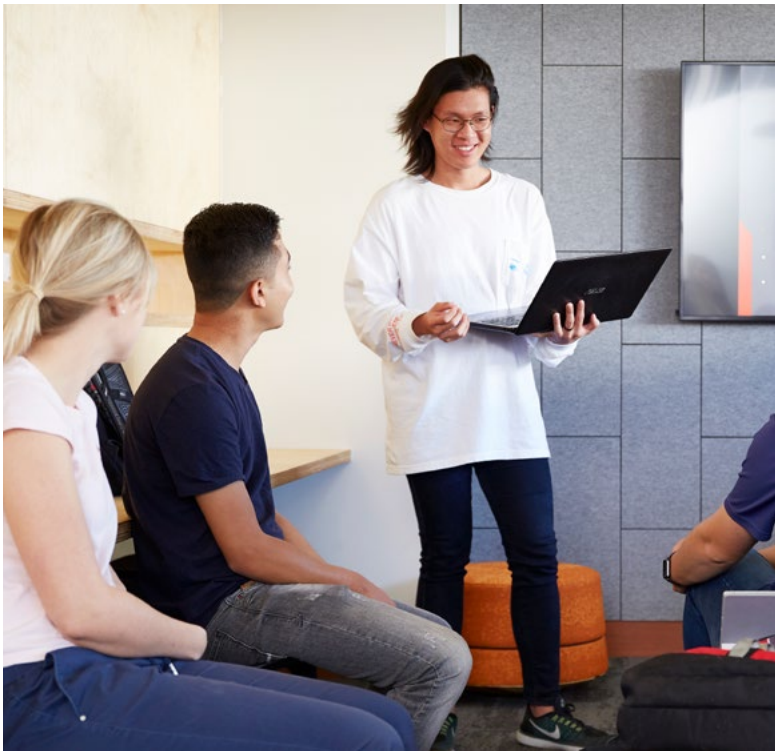
In this series of term-long activities run three times throughout a school term, students will be guided through basics to profiling while looking at two actual cold cases that still have not been solved. Students will run through how criminal profiling occurs and then try to implement it over two cases. Between Sessions 1 and 2, it is recommended to give students time to work in groups to research and discuss .

Duration
1 hour over three sessions (Additional class time will be needed for students to research on their own)

Study areas
Psychology/Criminology, HASS, Science

Participants
Maximum of 30 students

Entrepreneurship & Economics



Game Theory- How to Win at "Everything"

YEAR 7-12

In this fun, interesting and interactive workshop, students will be exposed to the basics of the mathematical model known as Game Theory. This science of logical decision making is an important part of Economics and social sciences.

Through interaction and technology, students will learn and gain understanding of concepts of Zero-sum games, The Nash Equilibrium, Homo Economicus and see versions of this theory in popular culture and the real world.

Duration
1 hour

Study areas
HASS, Economics, Law, Psychology

Participants
30 active participants

Save the Business with Murdoch Mad Money

YEAR 7-11

Have you ever wondered how a business works? What decisions can be made in regards to cash-flow and investments that can make or break a business? In this interactive activity, students will divide into four groups and act as the higher ups in a business and compete with rival groups to make the best profit for their company, all while making sure their business stays afloat in a volatile world filled with dips, peaks and conflicts! Students will learn and put into action the basics of accounting, along with small business management and decision making, to become the most profitable business in the classroom.

Duration
1 hour

Study areas
HASS, Accounting, Economics

Participants
Maximum of 30 students

How to Make your own Phone: A Marketing Workshop

YEAR 8-11

Marketers are the people who make us 'Just do it', 'Think Different' and know that M&Ms melt in your mouth not in your hand. As a marketer your job could involve understanding consumers and how they behave, developing new products or deciding the best way to distribute a product and how much to sell it for.

Our fun, interactive marketing workshops give students a taste of the typical activities undertaken by marketers. By the end, students will have a better understanding of why they might choose Apple over Samsung. They will never look at an advertisement, Facebook promotion or supermarket in the same way!

Duration
45 minutes

Study areas
HASS, Economics, English, Media

Participants
Maximum of 24 students

Skills for Your Future

YEAR 8-10

In our futures, we may be called to lead others. This activity will show students the basics of leadership from a Human resources Perspective. Students will look and learn about individual characteristics and how HR can help them become better, how HR makes certain decisions all the while showing how they would react in these positions in the real world.

Duration
50 minutes

Study areas
HASS, Economics, Human Resources, Entrepreneurship, Psychology

Participants
Maximum of 30 students

Design a Superhero (An introduction to Entrepreneurship)

YEAR 7-8

This introduction will put students into groups and they learn and start to use entrepreneurship and creative thinking as they work to create their own personal superhero that can do all the superhero tasks set before them. Students will need to think about issues, design flaws, ways to overcome problems and work collaboratively to pool resources and designs to improve their results.

Duration
1 hour

Study areas
Business, Entrepreneurship, HASS

Participants
Maximum of 30 students

Politics, History & Social Science

Designing Your Future

YEAR 7-10

Global Challenges brings together future forecasting, entrepreneurship and innovation, politics, history, philosophy, economics, sustainability, design and IT to study societal problems and future trends. Students will learn to envision, shape and prepare for future changes in society and industry.

Students will explore the techniques used to help predict and plan for the future and then apply this to their own journey.

Duration
1 hour

Study areas
HASS, Science, Sustainability, Environment, Geography

Participants
Maximum of 30 students

Historical Investigations

YEAR 8-10

Historical sources are a key to our study of history. Giving us valuable data to piece together the events of yesteryear. However, what would happen if they were forged? Can we even tell? What can we glean about what really happened when someone is trying to mess with us?

In this theoretical activity, we live in a future world where time travel exists but has been outlawed. The Department for Time Transportation have been alerted of an unauthorised time jump to WWI. It is the students' job to find out who the impostor is by analysing and critiquing historical sources. They will then have to race against the clock to crack the time code and bring the impostor back to the present.

Duration
1 hour

Study areas
HASS, History

Participants
Maximum of 30 students

What is your Global Footprint?

YEAR 7-10

This interactive event looks at our own habits and shows us a reflection of ourselves in the hopes of making students aware of their own choices in the fight to lower carbon footprints.

Students learn, discuss and add up their estimated footprint score to determine what their Earth Share is and how many earths we would need to host an entire population if we were all like them.

Duration
1 hour

Study areas
HASS, Sustainability

Participants
Maximum of 30 students

How to Win an Election

YEAR 7-9

Have you ever wanted to win an election? What is actually needed for you to step up and work in the Lower House of Australia? In this workshop, we will run a series of elections to discover who will be "Murdoch Class Champion", all while seeing what goes on behind the ballot boxes. Students will learn the differences between Australian and US systems, including First Past the Post, Preferential voting, Compulsory Voting and how the use of demographics can help you win!

Duration
1 hour

Study areas
Law, HASS

Participants
Maximum of 30 students

Indonesian

Indonesian Gamelan Orchestra

YEAR 7-12

Gamelan is a traditional musical ensemble from Indonesia, typically from the islands of Java and Bali. Gamelans have a long history in Indonesia and feature a variety of instruments such as metallophones, xylophones, kendang (drums) and gongs, bamboo flutes, bowed and plucked strings. In May 1993, the Provincial Government and people of East Java presented a handcrafted, 80-piece Gamelan orchestra to the government and people of Western Australia. That Gamelan Orchestra is housed at Murdoch University in the Peace Pavilion. This workshop provides students with a unique opportunity to learn about the music of the Gamelan and play the instruments together as an orchestra.

Duration
1 hour

Study areas
Indonesian

Participants
Maximum of 17 active participants

Indonesian Angklung

YEAR 7-12

The Angklung is a musical instrument that originated in today's Indonesia, but is popular throughout South-East Asia. Made from bamboo tubes carved to have a resonant pitch and tuned to octaves, the Angklung is played in ensembles of three or more players. In this workshop, students will learn the history of the Angklung and how to play it, then play together to create melodies.

Duration
1 hour

Study areas
Indonesian

Participants
Maximum of 25 students

HASS Futures

In an ever-changing world due to technological challenges and social changes, a focus on the future can easily be lost as we attempt to solve the immediate problems in front of us.

The HASS Futures program is a new initiative delivered by Murdoch University that offers your students a real taste of HASS, building their knowledge and understanding the tertiary opportunities and the many career possibilities that will be available to them in this field. Your students will participate in a variety of activities aimed at building and maintaining their interest and participation in the Humanities field as they chose their subjects for Year 10 to 12. These day or half-day on-campus events plan to ensure that young people's passion and interests remains alive throughout the final years of secondary study by providing both an interesting experience in their desired subject, along with the security of knowing that both tertiary opportunities and further employment will be available to them in the future.

The Futures sessions are offered to classes of years 9 or 10 at Murdoch University's Perth campus. The sessions aim to cover general school subjects like History, Law and Business, but also specific curriculum areas such as Global Security, Criminal Profiling and Entrepreneurship along with many others. These subjects will showcase our facilities and academic expertise through quick, interactive activities that allow students to look both at their own interests, but also to taste other areas to gain an understanding or appreciation for areas they had not considered before.

Along with the activities, students will also receive the chance for them to explore the future of the industry they are interested in with talks and Q&A sessions led by academics here at Murdoch. Your students will gain a real insight into the current HASS field, where its heading, and the challenges and potential opportunities a career and interest can bring.

If you would like more information or to plan a HASS Futures day tailored for your students with subjects your school teaches, please contact Outreach Officer Jason Dohle at j.dohle@murdoch.edu.au

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Learning Matrix

We have carefully designed our activities to enhance your teaching. Our recommended year levels below indicate where our workshops best align with the WA Curriculum.

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Biological Sciences	→ Backyard Bandicoots & Taxonomic Trees → Agricultural Investigators	→ Gardeners of the Galaxy	→ Bandicoot in a Box: Backyard Bandicoots Game → Chelodina Wetlands Tour	→ Our Unique Biodiversity → All Sheeps and Sizes
Chemical Sciences		→ Understanding Acids & Bases	→ Radioactivity & Isotopes! → "Meltdown Mayhem" Breakout Box	→ Chemical Rockets
Earth & Space Sciences				→ Quantifying Carbon
Physical Sciences	→ The Rube Goldberg Challenge	→ Water Rockets	→ Sensing Light	→ Energy Transformations
Forensic Sciences		→ Fingerprinting	→ Face in the Crowd: Facial Approximation	→ Bloodstain Pattern Analysis → "Murder Mystery" Breakout Box → Forensics Cold Case
Health Sciences			→ Brain Strain → "Save the Avengerz" Nursing Breakout Box	→ Body Building → Disease and Diagnosis → Let's Get Functional → Psychological Experiments
Engineering	→ Algorithms → Let's Get Rolling, Let's Get Coding	→ Introduction to Electrical Circuits → Electrical Circuits II: Ohm on the Range	→ "Hyperspeed Hijinks" Breakout Box → Renewable Energy Engineering: Wind Turbines → Remotely Operated Underwater Vehicles → CAD for Beginners → Microcontrollers for Beginners	→ Renewable Energy Engineering: Solar Cells
Information Technology		→ Information Privacy	→ The Internet of Things (IoT)	→ Cybersecurity
Mathematics	→ "Save Baby Yodee" Breakout Box → Heart Rate Statistics	→ Business Mathematics → "Mathematics at the Movies" Breakout Box → Gameshow Probability: Using Mathematics to Win!	→ "Mathematics Secret Agent" Algebra Breakout Box → Find My Phone!	→ Code Cracking → Bloodstain Pattern Analysis → Probability and Student Profiling
Cross-Curricular	→ Pitching Your Product	→ Communication for Scientists → Mystery Boxes → Everyone Lies on the Internet		→ "The Search for Userkare" Breakout Box → "The Treasure of Atlantis" Breakout Box"

Year 7-10 Workshops

Biological Sciences

Agricultural Investigators

YEAR 7

Crop farming is key to Western Australia's economy, and there is a lot more to the Wheatbelt than just wheat! Students will test their knowledge of WA's agricultural outputs (as well as their critical thinking skills) as they learn to identify grains, plants and products associated with agriculture in WA.

Duration
45 – 60 mins

Study areas
Science – Biological Sciences; Earth and Space Sciences

Participants
Maximum of 30 students

Curriculum links
Year 7 Science – ACSSU111, ACSSU116
Year 9 Science – ACSSU176

Backyard Bandicoots & Taxonomic Trees

YEAR 7

The local backyard bandicoot, the quenda, recently had its scientific name changed from Isoodon obesulus to Isoodon fusciventer. Why was it changed? In this workshop, your students will discover taxonomy and classification of species and how this is used to "make sense" of the diverse relationships that exist between different species.

Duration
45 – 60 mins

Study areas
Science – Biological Sciences

Participants
Maximum of 24 students

Curriculum links
Year 7 Science – ACSSU111, ACSSU112
Year 9 Science – ACSSU176

Gardeners of the Galaxy

YEAR 8

In this workshop, your students will be challenged to design and create their own prototype for growing vegetables in outer space. Imagining that they are working on an International Space Station, students must consider factors such as gravity as well as the limited supply of resources like water, oxygen, nutrients and sunlight. They will learn about plant growth habits and the use of plants for filtration and air purification.

Duration
45 – 60 mins

Study areas
Science – Biological Sciences; Design and Technologies

Participants
Maximum 32 students

Curriculum links
Year 8 Science – ACSSU150, ACSHE136, ACSIS139, ACSIS140, ACSIS146, ACSIS148
Year 8 Design and Technologies – ACTDEK029, ACTDEK030, ACTDEK032, WATPPS46, WATPPS48, WATPPS49, WATPPS53
Year 9 Science – ACSSU175, ACSHE158, ACSIS165, ACSIS170, ACSIS171, ACSIS174
Year 9 Design and Technologies – ACTDEK040, ACTDEK041, ACTDEK044, ACTDEK046, ACTDEK047, WATPPS554, WATPPS55, WATPPS56, WATPPS57, WATPPS59

Bandicoot in a Box: Backyard Bandicoots Game

YEAR 9

Quenda have an important role to play in the ecosystem and our backyards. Through an interactive boardgame, students will learn about quenda biology, their threats and understand how these threats can be exacerbated by urbanisation.

Duration
45 – 60 mins

Study areas
Science – Biological Sciences

Participants
Maximum of 24 students

Curriculum links
Year 9 Science – ACSSU175, ACSSU176

Chelodina Wetlands Tour

YEAR 9

Your students will explore the Chelodina Wetland and discover what it's like to study Environmental Science or Conservation and Wildlife Biology. Students will complete field tasks to identify various types of flora and fauna, observe food chains and discuss the cycle of abiotic and non-abiotic elements of an ecosystem. They will discover why urban wetlands are important, not only to the local biodiversity, but to humans as well.

This workshop can be run to support elements of either the Year 7 or Year 9 biological sciences curriculum.

Duration
1 hour each

Study areas
Science – Biological Sciences

Participants
Maximum of 20 students per workshop

Curriculum links
Year 9 Science – ACSSU176, ACSIS165, ACSIS166

All Sheeps and Sizes

YEAR 10

The health of livestock animals is a crucial concern for farmers, both to maintain animal wellbeing and to maximise economic return. To that end farmers selectively breed their livestock to emphasise desirable traits and minimise undesirable traits. This workshop teaches students what farmers want in a healthy sheep, and tasks students with 'breeding' successive generations of sheep to produce an optimal offspring.

Duration
45 – 60 mins

Study areas
Science – Biological Sciences

Participants
Maximum of 32 students

Curriculum links
Year 10 Science – ACSSU184, ACSSI185

Our Unique Biodiversity

YEAR 10

Through the processes of evolution and natural selection, Australia has developed a distinctly unique biodiversity that consists of species found nowhere else in the world. Having a significant impact on local biodiversity are feral and invasive species. This workshop will explore the historical and present-day situation of feral animals in our environment and strategies employed by Murdoch University researchers to ethically control these populations. Students will also discover the various methods used to track and observe species in the wild.

Duration
45 – 60 mins

Study areas
Science – Biological Sciences

Participants
Maximum of 30 students

Curriculum links
Year 10 Science – ACSSU185
Year 10 Geography – ACHGK070, ACHGK071, ACHGK074, ACHGK075

Chemical Sciences

Acids & Bases

YEAR 8

This workshop is designed to introduce the concepts of acid and bases in a way familiar to students. In this class, students will analyse the pH of common household items using three different methods. Method accuracy and specificity will also be discussed as students explore the pH of common solids and liquids around them.

Duration
45 – 60 mins

Study areas
Science – Chemical Sciences

Participants
Maximum of 32 students

Curriculum links
Year 7 Science – ACSIS124, ACSIS125, ACSIS126, ACSHE119, ACSHE120, ACSHE121
Year 8 Science – ACSSU151, ACSSU152, ACSSU225, ACSIS139, ACSIS140, ACSIS141, ACSIS144, ACSIS145, ACSIS146, ACSIS234, ACSIS148
Year 9 Science – ACSIS164, ACSIS165, ACSIS166, ACSIS169, ACSIS170, ACSIS171, ACSHE157, ASCHE158
Year 10 Science – ACSIS198, ACSIS199, ACSIS200, ACSIS203, ACSIS204, ACSIS205, ACSHE191, ASHE192, ACSHE194

Radioactivity & Carbon Dating

YEAR 9

In this workshop, radioactivity and isotopes are explored in a series of fun, hands-on experiments. Students will understand the concept of half-life by simulating radioactive decay of an atom over time. The importance of carbon dating in aging previously living materials will be discussed. Students will apply this concept to age their own once living material through graphing and extrapolation of their own experimental data

Duration
1 – 1.5 hours

Study areas
Science – Chemical Sciences

Participants
Maximum of 32 students

Curriculum links
Year 9 Science – ACSSU177, ACSHE157, ACSHE158, ACSHE160, ACSIS164, ACSIS169, ACSIS170

"Meltdown Mayhem" Breakout Box

YEAR 9

This immersive game experience allows students to test their knowledge of radioactivity and isotopes as they race against the clock to prevent a nuclear meltdown. Students must solve a series of problems to unlock the different locks and acquire the shutdown code needed to prevent complete meltdown of the core. This activity further develops team and communication skills of students. Note this workshop follows on from Radioactivity and Carbon Dating.

Duration
45 – 60 mins

Study areas
Science – Chemical Sciences

Participants
Maximum of 32 students

Curriculum links
Year 9 Science – ACSSU177, ACSIS169, ACSIS170

Chemical Rockets

YEAR 10

In this workshop, students exploit an acid base reaction to propel a rocket into the air. They will first learn of the physics that underpins both rocket launch and flight, and the importance of weight versus thrust. With this knowledge, students will explore different ratios of acid and base quantities and the effect this has on maximum height achieved. In this iterative experimental process, students will need to have a good understanding of dependent and independent variables as they systematically work to achieve optimal chemical conditions to launch their rocket.

Duration
45 – 60 mins

Study areas
Science – Chemical Sciences

Participants
Maximum of 32 students

Curriculum links
Year 9 Science – ACSSU177, ACSIS169, ACSIS170

Earth & Space Sciences

Quantifying Carbon

YEAR 10

Carbon dioxide is a major greenhouse gas which contributes to climate change due to the increased rate of emission. In this workshop, students will learn about the importance of trees in mitigating climate change through the storage of carbon. By taking different measurements of a tree, students can calculate the amount of carbon stored in a tree, including using trigonometry.

Duration
45 – 60 mins

Study areas
Science – Earth and Space Sciences;
Mathematics – Numbers and Algebra

Participants
Maximum of 24 students

Curriculum links
Year 10 Science – ACSSU189, ACSHE191, ACSIS199, ACSIS200,
Year 9 Mathematics – ACMMG224
Year 10 Mathematics – ACMMG245

Physical Sciences

Introduction to Electrical Circuits

YEAR 8

This workshop is a hands-on beginner's guide to electricity and circuits. Starting with the fundamentals (What is a power source? What is a load?) students investigate what is needed to make a simple circuit work. Class discussion leads to an introduction to the concepts of Voltage, Current and Resistance, and basic electrical measurements.

Duration
1 hour

Study areas
Science – Physical Sciences

Participants
Maximum of 24 students

Curriculum links
Year 8 Science – ACSSU155, ACSIS139, ACSIS140, ACSIS148

Electrical Circuits II: Ohm on the Range

YEAR 8

Ohm's Law is central to a working understanding of basic electronics. In this workshop students use Decade Resistor Boxes to experimentally verify the mathematical relationship V = I R. Suitable for students with an awareness of introductory electrical concepts, this workshop can either be run alone or paired with Introduction to Electrical Circuits.

Duration
45 – 60 mins

Study areas
Science – Physical Sciences

Participants
Maximum of 32 students

Curriculum links
Year 8 Science – ACSSU155

Water Rockets

YEAR 8

Students explore Newton's Laws, air resistance and optimal projectile trajectories by attempting to launch a water rocket as far as possible. This workshop can either (i) use prefabricated rocket parts to focus on the physics and mathematics of rocketry, or (ii) have students design and build their own rockets, test their creations, and iterate their designs to maximise performance.

Duration
1–2 hours

Study areas
Science – Physical Sciences;
Design and Technologies

Participants
Maximum of 25 students

Curriculum links
Year 7 Science – ACSSU117, ACSHE119, ACSHE121, ACSIS124, ACSIS125, ACSIS126, ACSIS131, ACSIS132, ACSIS133
Year 7 Design and Technologies – ACTDEK031, ACTDEK034, WATPPS39, WATPPS40, WATPPS41, WATPPS43, WATPPS44, WATPPS45
Year 8 Science – ACSSU155, ACSHE134, ACSHE136, ACSIS139, ACSIS140, ACSIS141, ACSIS146, ACSIS234, ACSIS148
Year 8 Design and Technologies – ACTDEK031, ACTDEK034, WATPPS48, WATPPS49, WATPPS53, WATPPS60
Year 9 Science – ACSHE160, ACSIS164, ACSIS165, ACSIS166, ACSIS169, ACSIS170, ACSIS171, ACSIS174
Year 9 Design and Technologies – ACTDEK043, ACTDEK046, ACTEK047, WATPPS56, WATPPS57
Year 10 Science – ACSSU190, ACSSU229, ACSHE191, ACSHE194, ACSIS198, ACSIS199, ACSIS200, ACSIS203, ACSIS204, ACSIS205, ACSIS208
Year 10 Design and Technologies – ACTDEK043, ACTDEK046, WATPPS63, WATPPS64, WATPPS66, WATPPS68

Sensing Light

YEAR 9

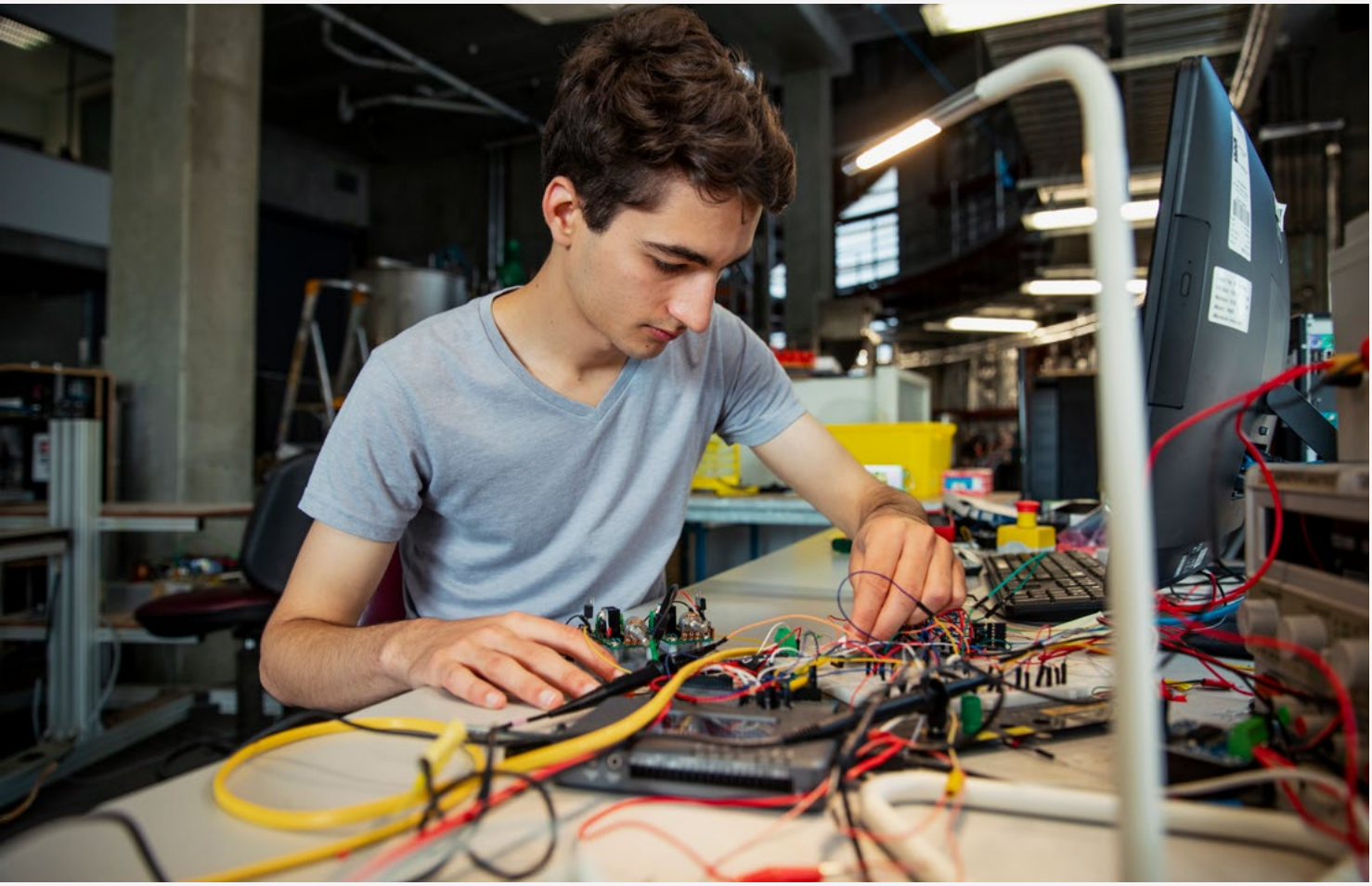
Vision is one of our primary tools for experiencing the world around us – but it isn't necessarily an objective measure of reality. Understanding the difference between 'light' and 'colour' bridges the fields of physics, biology and psychology. In this workshop students investigate the benefits and limitations of human sight and the role of the brain in converting 'detection' into 'perception'.

Duration
45 – 60 mins

Study areas
Science – Biological Sciences;
Science – Physical Sciences

Participants
Maximum of 32 students

Curriculum links
Year 9 Science – ACSSU175, ACSSU182, ACSIS166, ACSIS172, ACSIS174



Energy Transformations

YEAR 10

Using Nerf guns to their full scientific potential, students investigate the relationship between a projectile's kinetic energy, mass and velocity. This workshop can also be extended to act as an introduction to kinematic equations.

Duration
45 – 60 mins

Study areas
Science – Physical Sciences

Participants
Maximum of 24 students

Curriculum links
Year 10 Science – ACSSU190, ACSSU229, ACSIS203, ACSIS204, ACSIS205

The Rube Goldberg Challenge

ALL YEARS

'Rube Goldberg' machines perform a simple task in a complicated way. The Rube Goldberg Challenge asks students to design and build a working Rube Goldberg machine under set constraints within a limited time. As a team challenge, the workshop incorporates critical thinking and problem solving while also exploring physical science concepts relating to simple machines.

Duration
1 hour

Study areas
Science – Physical Sciences;
Design and Technologies

Participants
Maximum of 25 students

Curriculum links
Year 7 Science – ACSSU117, ACSHE119, ACSHE120, ACSHE121
Year 7 Design and Technologies – ACTDEK031, ACTDEK034, WATPPS39, WATPPS40, WATPPS41, WATPPS43, WATPPS44, WATPPS45
Year 8 Science – ACSSU155, ACSHE134, ACSHE135, ACSHE136
Year 8 Design and Technologies – ACTDEK031, ACTDEK034, WATPPS48, WATPPS49, WATPPS53, WATPPS60
Year 9 Design and Technologies – ACTDEK043, ACTDEK046, ACTEK047, WATPPS56, WATPPS57
Year 10 Science – ACSSU190, ACSSU229
Year 10 Design and Technologies – ACTDEK043, ACTDEK046, WATPPS63, WATPPS64, WATPPS66, WATPPS68

Forensic Sciences

Fingerprinting

YEAR 8

Have you ever wondered how the police collect, evaluate and identify fingerprints? In this workshop, your students will discover the complete process of fingerprinting including collecting reference prints from an individual, lifting fingerprints from a crime scene in addition to evaluation and identification of crime scene fingerprints. This workshop will also explore the requirements of fingerprinting evidence to be used in a court of law.

Duration
45 – 60 mins

Study areas
Science

Participants
Maximum of 30 students

Curriculum links
Year 7 Science – ACSIS124, ACSIS125, ACSIS126, ACSHE119, ACSHE120, ACSHE121
Year 8 Science – ACSHE134, ACSHE135, ACSHE136, ACSIS139, ACSIS140, ACSIS145, ACSIS146, ACSIS148
Year 9 Science – ACSIS164, ACSIS165, ACSIS166, ACSIS169, ACSIS170, ACSIS171, ACSHE157, ASCHE158
Year 10 Science – ACSIS198, ACSIS199, ACSIS200, ACSIS203, ACSIS204, ACSIS205, ACSHE191, ASHE192, ACSHE194

Face in the Crowd: Facial Approximation

YEAR 9

Facial approximation combines the principles of anatomy, osteology, anthropology and art to recreate a face from skeletal remains (the skull). It is often of assistance in police investigations to aid in identification of a victim. In this workshop, students will learn about the important facial muscles and tissues, then create representations of these using clay. Muscles will be layered upon a skull, gradually building up the facial profile of the victim. After this workshop your students will be able to name the important facial muscles, and bones and have an appreciation of forensic anthropology.

Duration
1 hour

Study areas
Science

Participants
Maximum of 30 students

Curriculum links
Year 9 Science – ACSHE156, ACSHE160, ACSHE158, ACSIS165, ACSIS170, ACSIS171, ACSIS174

Forensics Cold Case

YEAR 10

Do your students watch or listen to true crime shows and try to figure out who might have been involved in the crime? Have your students ever wanted to know what it's like to solve a case? Are your students interested in exploring the job of a forensic investigator? If the answer is yes to any of these questions, your students might enjoy working with the Cold Case Squad! In this workshop, you'll use your (new) forensic knowledge and investigative skills to review a murder case, exonerate the wrongly incarcerated and convicted and find the real killer!

Duration
45 – 60 mins

Study areas
Science – Forensics

Participants
Maximum of 32 students

Curriculum links
Year 10 Science – ACSHE191, ACSHE192, ACSHE194, ACSHE230, ACSIS203, ACSIS204, ACSIS205, ACSIS206

"Murder Mystery" Breakout Box

YEAR 10

This immersive game experience allows students to test their knowledge of forensic science as they play detective and work to establish the identity of the individual responsible for their colleague's disappearance and the murder of Taylor Potts. Students must interpret biological evidence (blood, DNA) as well as shoeprint and fingerprint evidence to unlock the different locks and acquire the missing suspect files. They will then need to interpret their evidence in relation to the suspect file to determine the kidnapper/killer's identity. This activity further develops team and communication skills of students.

Duration
1 hour

Study areas
Science

Participants
Maximum of 32 students

Curriculum links
Year 10 Science – ACSSU184, ACSIS199, ACSIS200, ACSIS204, ACSIS205, ACSIS208

Health Sciences

Brain Strain

YEAR 9

Ever wondered how your brain works or what different parts of your brain do? This workshop will take your students through the names of the different areas of the brain and the function of each of these parts. Students will then play the Brain-ectomy game where they use this knowledge to answer questions and build their own brain. Finally we will put this into context for the students by discussing traumatic brain injuries and explain the case study of Aaron Hernandez. This can also be a great workshop for year 11 students just starting Psychology.

Duration
45 – 60 mins

Study areas
Science – Psychology

Participants
Maximum of 32 students

Curriculum links
Year 9 Science – ACSHE157, ACSHE158, ACSHE160

Body Building

YEAR 10

Do your students know the difference between a muscle and a tendon? This workshop will take your students through different muscles and tendons as well as bony landmarks. From building a skeleton model to designing muscles and tendons using plasticine, your students will learn about yourself and your body. You'll also draw and label muscles and tendons on other students to understand the variability of the human body. This workshop is a great introduction for students looking to study ATAR Human Biology.

Duration
45 – 60 mins

Study areas
Science – Biological Sciences

Participants
Maximum of 32 students

Curriculum links
ACSHE191, ACSHE92

Disease and Diagnosis

YEAR 10

Laboratory Medicine is a key component of modern human (and veterinary) medical practice. Information provided by medical scientists guides the critical decisions made by doctors every day. In this workshop, your students will learn more about Laboratory Medicine by undertaking a series of hands-on activities and exploring the fascinating world of disease and diagnosis including histology, bacteria, and hematology. This is a great introduction for students wanting to study Human Biology in ATAR.

Duration
45 – 60 mins

Study areas
Science – Biological Sciences

Participants
Maximum of 32 students

Curriculum links
Year 9 Science – ACSSU175, ACSHE157, ACSHE158, ACSHE228, ACSIS170

Let's get Functional

YEAR 10

In this workshop, students are taken through the Functional Movement Screen, a screening tool used globally to diagnose issues with movement and help correct these. Students complete the same series of exercises as used with patients and learn of the different factors affecting movement (including both genetic and environmental factors). They are presented with case studies of the same screening tool being used with people of differing athletic ability – from professional athletes to the elderly.

Duration
45 – 60 mins

Study areas
Science – Biological Sciences, Health and Physical Education – Contributing to healthy and active communities

Participants
Maximum of 32 students

Curriculum links
ACSHE191, ACSHE192, ACSIS204, ACPPS096, ACPPS097

"Save the Avengerz" Nursing Breakout Box

YEAR 9

The Avengerz have returned to Earth from their most recent mission - fighting the evil Lord Thingy and saving Earth in the process. However, they have returned injured and with no access to medical supplies (Lord Thingmy has locked these away). Students will need to use their nursing knowledge and skills to triage patients, assess ECG, blood gas analysis results and x-rays, and complete medication calculations to successfully save the Avengerz. Nursing mentors will help guide your students through the activities (no prior knowledge needed). The fate of the world rests in your student's hands. Will they be successful? Only time will tell.

Duration
45 – 60 mins

Study areas
Science – Biological Sciences

Participants
Maximum of 32 students

Curriculum links
Year 9 Science – ACSSU175, ACSHE157, ACSHE158, ACSHE160

Psychological Experiments

YEAR 10

In this workshop, students will participate in a series of safe psychological experiments exploring conformity, taste and smell and being an eye witness to a crime. The Scientific Method, and how it is applied to psychological experiments, will also be discussed with students.

Duration
45 – 60 mins

Study areas
Science – Psychology

Participants
Maximum of 32 students

Curriculum links
Year 10 Science – ACSHE157, ACSHE160, ACSHE228, ACSIS164, ACSIS169, ACSIS170, ACSIS171

Engineering

Algorithms

YEAR 7

When people follow instructions, they interpret them using context, prior experience, assumptions and creativity to achieve the desired outcome. Machines simply follow instructions blindly, whether they make sense or not, leading to unintended behaviours when instructions are unclear. In this workshop, students write algorithms that describe how to do an everyday task. A volunteer 'machine' then puts these instructions to the test.

Duration
45 – 60 mins

Study areas
Digital Technologies

Participants
Maximum of 32 students

Curriculum links
Year 7 Digital Technologies – ACTDIP030, WATPPS39, WATPPS41, WATPPS42, WATPPS45
Year 8 Digital Technologies – ACTDIP029, ACTDIP030, WATPPS49, WATPPS50, WATPPS53
Year 9 Digital Technologies – ACTDIP040, WATPPS60
Year 10 Digital Technologies – ACTDIP040, WATPPS68

Let's Get Rolling, Let's Get Coding

YEAR 7-10

A two part introduction to robotics programming, students use Spheros to learn basic programming strategies through a series of competition style tasks.

Duration
45 – 60 mins

Study areas
Digital Technologies

Participants
Maximum of 16 students

Curriculum links
Year 7 Digital Technologies – ACTDIP028, ACTDIP030, WATPPS39, WATPPS40
Year 8 Digital Technologies – ACTDIP028, ACTDIP030, WATPPS49, WATPPS50
Year 9 Digital Technologies – ACTDIP039, WATPPS56, WATPPS60
Year 10 Digital Technologies – WATPPS64, WATPPS68

"Hyperspeed Hijinks" Breakout Box

YEAR 9

A test of a prototype hyperspeed train has gone catastrophically wrong, with the engineering team trapped inside and their oxygen leaking away. Students must solve a series of engineering-themed logic puzzles in order to find a way out of the train – before time (and oxygen) runs out!

Duration
45 – 60 mins

Study areas
Science

Participants
Maximum of 32 students

Curriculum links
Year 9 Science – ACSIS164, ACSIS169, ACSIS172, ACSIS174

Renewable Energy Engineering: Wind Turbines

YEAR 9

Students will investigate physics and engineering concepts as they test how to build a model wind turbine for maximum power generation. This workshop also includes electrical circuit building, data measurement and a focus on the principles of designing and carrying out a fair test.

Duration
1 hour

Study areas
Science – Physical Sciences;
Design and Technologies

Participants
Maximum of 24 students

Curriculum links
Year 9 Science – ACSHE160, ACSHE228, ACSIS164, ACSIS165, ACSIS166, ACSIS169, ACSIS170, ACSIS171, ACSIS174
Year 9 Design and Technologies – ACTDEK040, ACTDEK043, ACTDEK046, ACTDEK047, WATPPS55, WATPPS56, WATPPS57, WATPPS58, WATPPS60

Remotely Operated Underwater Vehicles

YEAR 9

Drones are not restricted to the sky! Remotely-Operated Underwater Vehicles (ROVs) are steerable submarine robots built for performing tasks that are difficult or impossible for humans, including science, military and industrial uses. Scientists at Murdoch are now using ROVs to research marine and estuarine environments by capturing data of animal and plant populations. In this workshop, students will learn to pilot a ROV and explore the underwater environment of our 'ROV driver training' pool.

Duration
45 mins

Study areas
Science;
Design and Technologies

Participants
Maximum of 16 students

Curriculum links
Year 9 Science – ACSHE158, ACSHE228
Year 9 Design and Technologies – ACTDEK043, ACTDEK046

CAD for Beginners

YEAR 9-10

Computer-Aided Design (CAD) is a powerful approach to design that allows both creativity and precision. CAD is used by engineers to visualise ideas, to design and test components, and to output schematics ready for manufacture.

This workshop is an introduction to CAD using the freeware SketchUp environment. Students will learn the basics of navigating a CAD program and practice using CAD to design their own creations.

Duration
45 – 60 mins

Study areas
Design and Technologies

Participants
Maximum of 32 students

Curriculum links
Year 9 Design and Technologies – ACTDEK047, WATPPS56
Year 10 Design and Technologies – ACTDEK041, ACTDEK047, WATPPS64

Microcontrollers for Beginners

YEAR 9-10

Microcontrollers lie at the heart of most modern technology – from cars to microwaves to washing machines. In the last decade microcontrollers and Systems-on-a-Chip (SoCs), have become accessible to any user with a basic understanding of electronics and coding. In this workshop students will learn how to assemble and program a simple system featuring LEDs, pushbuttons, and an Arduino-compatible microcontroller.

Duration
45 – 60 mins

Study areas
Design and Technologies

Participants
Maximum of 16 students

Curriculum links
Year 8 Design and Technologies – ACTDEK031, ACTDEK034, WATPPS48, WATPPS51
Year 8 Design and Technologies – ACTDEK031, ACTDEK034, WATPPS48, WATPPS51
Year 9 Design and Technologies – ACTDEK043, ACTDEK046, ACTDEK047, WATPPS55, WATPPS58
Year 10 Design and Technologies – ACTDEK041, ACTDEK043, ACTDEK046, ACTDEK047, WATPPS63, WATPPS66

Renewable Energy Engineering: Solar Cells

YEAR 10

Students will explore how to optimise power production from solar panel cells through investigative circuitry. The workshop emphasises the concepts of series and parallel circuits, as students explore how combining cells in different ways affects the total output voltage and current of the system.

Duration
1 hour

Study areas
Science – Physical Sciences;
Design and Technologies

Participants
Maximum of 24 students

Curriculum links
Year 10 Science – ACSSU190, ACSHE192, ACSIS198, ACSIS199, ACSIS200, ACSIS203, ACSIS204, ACSIS205, ACSIS208
Year 10 Design and Technologies – ACTDEK40, ACTDEK043, ACTDEK046, ACTDEK047, WATPPS64, WATPPS66, WATPPS68

Information Technology

Information Privacy

ALL YEARS

Students will become digital detectives as they look for clues in the lives of fictional social media users, using the Australian Computing Academy's Schools Cyber Security Challenge hosted on GROK. During the activity, students will learn to recognise safe and unsafe uses of personal information on the internet, and how to reflect on their own social
media use.

Duration
45 – 60 mins

Study areas
Digital Technologies;
Science – Science as a Human Endeavour

Participants
Maximum of 30 students

Curriculum links
Year 8 Digital Technologies – ACTDIP025, ACTDIP032;
Year 8 Science – ACSHE135

The Internet of Things (IoT)

YEAR 9

The Internet of Things is the ever-expanding, network of connected devices found throughout our lives. This network offers amazing possibilities for our future, as well as substantial potential for misuse if security is not handled correctly. During this workshop students discover how to control devices in Murdoch's Cybersecurity & Networking labs, using bash scripting on Ubuntu Linux. (No prior scripting knowledge is required!)

Duration
45 – 60 mins

Study areas
Digital Technologies

Participants
Maximum of 18 students

Curriculum links
Year 9 Digital Technologies – ACTDIK034, ACTDIP043, WATPPS55, WATPPS58

Cybersecurity

YEAR 10

Play the role of a cybersecurity expect, testing a fictional company's online defences by running a penetration test against their server. Participants will use the Kali Linux security testing distribution to learn the fundamental principles of real-world cybersecurity. Suitable for students with a basic awareness of console/command-line instructions.

Duration
45 – 60 mins

Study areas
Digital Technologies

Participants
Maximum of 18 students

Curriculum links
Year 10 Digital Technologies – ACTDIK034, ACTDIK035, WATPPS66

Mathematics

Heart Rate Statistics

YEAR 7

In this workshop, students will be both participants in a scientific trial and the statisticians investigating the data. Students will explore the effect of different types of exercise on heart rate and then assess the data by constructing Stem & Leaf plots and calculating mean, median, mode and range. They will review their data against their proposed hypothesis to draw an evidence-based conclusion, as well as noting the limitations of their methodology.

Duration
45 – 60 mins

Study areas
Mathematics – Statistics & Probability

Participants
Maximum of 32 students

Curriculum links
Year 7 Mathematics – ACMSP169, ACMSP170, ACMSP171, ACMSP172

"Save Baby Yodee" Breakout Box

YEAR 7

This immersive game experience allows students to test their knowledge of fractions, decimals and percentages and converting between them. There are five locks for the students to break before they get to the finish. In this Breakout Box, Baby Yodee has been captured by the evil majestic storm fighters. Students need to work through a series of locks to free Baby Yodee and save the galaxy.

Duration
45 – 60 mins

Study areas
Mathematics – Number & Algebra

Participants
Maximum of 32 students

Curriculum links
Year 7 Mathematics – ACNMA152, ACNMA153, ACNMA155, ACNMA156, ACNMA157, ACNMA173

Business Mathematics

YEAR 8

In this interactive workshop, student groups will act as business managers from rival businesses, competing against each other to grow their profit and survive in a volatile world filed with dips, peaks and conflict! Students will learn and put into action the basics of accounting, along with small business management and decision making, to become the most profitable business in the classroom. Through interactive roleplay, students will gain a greater understanding of business operation, cashflow and investments opportunities that may can make or break
their business.

Duration
45 – 60 mins

Study areas
Mathematics – Number & Algebra

Participants
Maximum of 30 students

Curriculum links
Year 8 Mathematics – ACMNA189

Gameshow Probability: Using Mathematics to Win Big!

YEAR 8

In this workshop, students play the game "Let 'em Roll" where they will attempt to win a car under different playing conditions. Students will use the class results to determine the probability of achieving a winning outcome. Students will also calculate the theoretical odds of winning and compare their and the class outcomes with these odds. Simple probability calculations involving both single and combined events are employed.

Duration
45 – 60 mins

Study areas
Mathematics – Statistics & Probability

Participants
Maximum of 32 students

Curriculum links
Year 8 Mathematics – ACMSP204, ACMSP205

"Mathematics at the Movies" Breakout Box

YEAR 8

This Breakout Box game experience allows students to test their knowledge of quadrilaterals through a series of puzzles focused on identification and calculation of perimeter and area. Students must correctly answer a series of problems to unlock the locked box and obtain fictional movie tickets for themselves and their friends.

Duration
45 – 60 mins

Study areas
Mathematics – Measurement & Geometry

Participants
Maximum of 32 students

Curriculum links
Year 8 Mathematics – ACMMG195, ACMMG196, ACMMG202

Bloodstain Pattern Analysis

YEAR 10

In this workshop, students will undertake pattern analysis of bloodstains found at a crime scene to determine the position of the victim during the bloodshed event. Students will use both a physical stringing approach and trigonometry to determine the angle of impact and the location of the victim. This workshop demonstrates the importance of trigonometry in the real world by having students adopt the role of bloodstain pattern experts in a fictional case.

Duration
45 – 60 mins

Study areas
Mathematics – Measurement & Geometry

Participants
Maximum of 28 students

Curriculum links
Year 10 Mathematics – ACMMG245, ACMMG273, ACMMG275, ACMMG276

Find My Phone!

YEAR 9

In this workshop, students apply Pythagoras' Theorem to cell phone data to track a stolen phone. Students begin by developing a picture model to represent the relationship between the phone tower, phone and its pinged distance, and then use this knowledge to pinpoint the location of the phone as it pings to different cell phone towers. Students will visually represent their calculated distances on scaled map, and then propose the route they believe their phone has travelled.

Duration
45 – 60 mins

Study areas
Mathematics – Measurement & Geometry

Participants
Maximum of 32 students

Curriculum links
Year 9 Mathematics – ACMMG222

Code Cracking

YEAR 10

In this workshop, your students will travel back in time to look at the different codes and code cracking techniques used throughout history. They will begin in Roman times, attempting to crack a code used by Caesar to send cryptic messages to his Generals. Next, they will assess the Affine cypher, which applies a mathematical equation to the alphabet, before lastly undertaking modern frequency analysis to decipher a cryptic murder note. This workshop emphasises the importance of mathematics in everyday life and in IT, and further develops students' problem solving, critical thinking and teamwork skills.

Duration
45 – 60 mins

Study areas
Mathematics – Number & Algebra

Participants
Maximum of 32 students

Curriculum links
Year 10 Mathematics – ACNMA234, ACMNA235, ACNMA241

"Mathematics Secret Agent" Breakout Box

YEAR 9

This immersive game experience allows students to test their knowledge of scientific notation, Distribution law, indices and binomials to become a Mathematics Secret Agent. Students must work together to solve the puzzles and unlock the different types of locks before the timer runs out. This activity further develops students' teamwork and communication skills.

Duration
45 – 60 mins

Study areas
Mathematics – Number & Algebra

Participants
Maximum of 32 students

Curriculum links
Year 9 Mathematics – ACMNS209, ACMNA210, ACMNA212, ACMNA213

Probability & Student Profiling

YEAR 10

In this workshop, probability in forensic science is discussed with a focus on student profiling. Using student census data, students determine the probability of a high school student having different physical attributes, and then use this knowledge to "create" a student that is "one in a million". This workshop involves simple and combined probabilities and introduces the concept of the likelihood ratio, dependent and independent events. Criminal cases involving flawed probability calculations are presented, along with a demonstration of witness reliability.

Duration
45 – 60 mins

Study areas
Mathematics – Statistics & Probability

Participants
Maxiumum of 32 students

Curriculum links
Year 10 Mathematics – ACMSP246, ACMSP253

Cross-curricular Workshops

Mystery Boxes

YEAR 8

In this workshop, students are tasked with identifying the contents of a set of mystery boxes without opening them. The process explores working scientifically and how a variety of skills and processes are used to generate scientific theories based on evidence.

Duration
45 – 60 mins

Study areas
Science – Science Inquiry Skills

Participants
Maximum of 32 students

Curriculum links
Year 7 Science – ACSIS124, ACSIS125, ACSIS130, ACSIS131, ACSIS132, ACSIS133
Year 8 Science – ACSIS139, ACSIS140, ACSIS145, ACSIS146, ACSIS234, ACSIS148
Year 9 Science – ACSIS164, ACSIS165, ACSIS169, ACSIS170, ACSIS171, ACSIS174
Year 10 Science – ACSIS198, ACSIS199, ACSIS203, ACSIS204, ACSIS205, ACSIS206, ACSIS208

Communication for Scientists

YEAR 8+

This session emphasises the wide variety of circumstances in which scientists need to use their communication skills – and the wide variety of challenges that face them. During the workshop students identify potential communication challenges facing STEM professionals and discuss possible steps towards solving these challenges. Finally, students put these new ideas into practice in a challenge to communicate complex science topics using amusingly restrictive means of communication, such as haiku or interpretive dance.

Duration
45 – 60 mins

Study areas
Science – Science as a Human Endeavour

Participants
Maximum of 30 students

Curriculum links
Year 7 Science – ACSHE223, ACSHS133
Year 8 Science – ACSHE226, ACSIS148
Year 9 Science – ACSHE157, ACSIS174
Year 10 Science – ACSHE191, ACSHE230, ACSIS208

Everyone Lies on the Internet

YEAR 8+

Researching a school project once meant browsing a library's non-fiction section or choosing the right volume of a hardcover encyclopedia. These days, information is a quick internet search away – and it comes with a hidden price.

This light-hearted workshop has a serious message. Social games will help students engage with questions like:

- How do you know what (and who) to trust?
- What can you do to mitigate against being misled?
- What do scientists do when 'truth' seems to be a matter of argument?

Duration
45 – 60 mins

Study areas
Science

Participants
Maximum of 32 students

Curriculum links
Year 8 Science – ACSSU155
Year 10 Science – ACSSU189, ACSSU190

"The Search for Userkare" Breakout Box

YEAR 10+

In this Breakout Box team challenge, students must decipher and interpret a series of clues to find Pharaoh Userkare's tomb and the treasure. Userkare was buried quickly following his sudden death and his tomb has never been recovered. Information has led archaeologists to the desert of Saqqara, once home to the Ancient Egyptian capital Memphis. Can the student archaeologists solve the logic and spatial awareness puzzles to find Userkare's tomb and treasure before the timer runs out, or will he continue to remain a historical mystery? Only time will tell.

Duration
45 – 60 mins

Study areas
Team work and problem solving skills development

Participants
Maximum of 32 students

"The Treasure of Atlantis" Breakout Box

YEAR 10

Students play the role of deep-sea explorers as they follow the trail of a lost expedition hunting for the mythical Atlantis. This activity's marine science-themed logic puzzles will test students' critical reasoning skills as they search for a sunken treasure lost to time.

Duration
45 – 60 mins

Study areas
Science

Participants
Maximum of 32 students

Curriculum links
Year 10 Science – ACSIS198, ACSIS203, ACSIS204, ACSIS206, ACSIS208

Pitching Your Product

ALL YEARS

You've made an app, a device, a website… but what comes next? This workshop prepares STEM students for the challenging next step – pitching their product to potential partners or investors. Students will learn how to identify their key messages, structure their presentation, and practice speaking with authority and confidence. This session is ideal for student groups who are participating in a Hackathon or other STEM challenge including a presentation component.

Duration
45 – 60 mins

Study areas
Science

Participants
Maximum of 32 students

Curriculum links
Year 8 Science – ACSSU155
Year 10 Science – ACSSU189, ACSSU190

Year 11-12 ATAR Workshops

Year 11-12 ATAR workshops

Brain Strain

YEAR 11

This workshop explores the different parts of the brain and their functions. Students will play the "Brain-ectomy" game where they will use this knowledge to answer questions and build their own brain. The concepts are put into context by discussing traumatic brain injuries and the case of Aaron Hernandez.

Duration
45 – 60 mins

Study areas
Year 11 ATAR Psychology

Participants
Maximum of 32 students

Curriculum links
Unit 1

Mole Olympics

YEAR 11

Are your students struggling to understand the concept of moles and related calculations? In this workshop, students compete in teams to complete different activities in the Mole Olympics, utilising different calculations as they relate to moles (mass, concentration, volume)

Duration
45 – 60 mins

Study areas
Year 11 ATAR Chemistry

Participants
Maximum of 32 students

Curriculum links
Unit 2

Psychological Experiments

YEAR 11

In this workshop, students will participate in a series of safe psychological experiments exploring conformity, taste and smell and being an eye witness to a crime. The Scientific Method, and how it is applied to psychological experiments, will also be discussed with students.

Duration
45 – 60 mins

Study areas
Year 11 ATAR Psychology

Participants
Maximum of 32 students

Curriculum links
Unit1/Unit 2

Projectile Motion

YEAR 11

Using Nerf guns to their full scientific potential, students fire projectiles to investigate basic kinematic equations. In doing so, students also discover how experimental uncertainty and experimental error are an inescapable counterpoint to theoretical modelling.

Duration
1 hour

Study areas
ATAR Physics, Mathematics

Participants
Maximum of 24 students

Curriculum links
Year 11 Physics – Unit 2
Year 12 Physics – Unit 3

Body Building

YEAR 11

Do your students know the difference between a muscle and a tendon? This workshop will take your students through different muscles and tendons as well as bony landmarks. From building a skeleton model to designing muscles and tendons using plasticine, your students will learn about yourself and your body. You'll also draw and label muscles and tendons on other students to understand the variability of the human body.

Duration
45 – 60 mins

Study areas
Year 11 ATAR Human Biology

Participants
Maximum of 32 students

Curriculum links
Unit 1

The Functional Game

YEAR 12

This workshop uses the Happy Atoms kit and learning app to develop and cement students' understanding of functional groups and chemical molecules. Happy Atoms employs magnetic connections to more realistically demonstrate sharing of electrons in a bond. In this workshop, students race against the clock and each other to create different functional groups, and use iPads to scan the molecule to check their work and learn more regarding each molecule.

Duration
45 – 60 mins

Study areas
Year 12 ATAR Chemistry

Participants
Maximum of 32 students

Curriculum links
Unit 4

Guided tours of Murdoch University facilities

Campus Tour

Take a guided tour across the Murdoch University campus or through one of our learning facilities. Led by our Student Ambassadors, your students will see and learn about a range of on-campus services available to them as undergraduate students,and explore practical learning environments used by our own students.

Duration	Participants
30 – 60 mins	Maximum of 30 students

Veterinary Anatomy Museum

Murdoch University's Anatomy Museum is core to the training of our Veterinary and Animal Science students. It facilitates learning in the areas of domestic species and wildlife anatomy. Your students will get a guided tour as well as having the opportunity to explore the museum complex which includes the Veterinary Anatomy Museum and the Primate museum.

Duration	Participants
30 – 45 mins	Maximum of 24 – 30 students

Seek Out Science

Seek Out Science is an interactive STEM day for Year 10 students to explore STEM at university. The event is held at Murdoch University's Perth campus and involves presentations and hands-on workshops across a range of STEM disciplines.

Term 2

21st June 2023 **22nd June 2023**

Term 4

8th November 2023 **9th November 2023**

Free program to attend

Places are limited and for equity reason there is a limit of two classes per school.

Teachers can register or find out more by emailing **outreach@murdoch.edu.au**

Scintillating Science Quiz Competition

Are your students the best in the state when it comes to science knowledge? Murdoch University is celebrating National Science Week for the entire month of August with a state-wide science quiz competition.

WHEN: Any weekday in the month of August 2023

WHERE: At your school (metropolitan only) or online via our secure learning portal for regional schools.

WHO: Year 9 and 10 students

CONTENT: 3x rounds of 10 questions each exploring a different topic of science.

DURATION: One class period (50-60 minutes)

CLASS SIZE: Single class to a whole cohort of Year 9 or Year 10 students

Winning schools for metropolitan and regional will win a prize as well a trophy to keep for the year for your display cabinet.

Register now by emailing **outreach@murdoch.edu.au**

YEAR 7-9

Biokémon Challenge





Are you teaching middle-school science this year? Sign your class up to Murdoch University's Biokémon Challenge!

Participating teachers and their classes will get:

- a ready-made challenge to complement in-class learning
- an opening presentation delivered by Murdoch University exploring ecology and food webs
- the chance to win great prizes, both for students and for the whole class

Expressions of interest are now open.

Contact: outreach@murdoch.edu.au

ALL YEARS

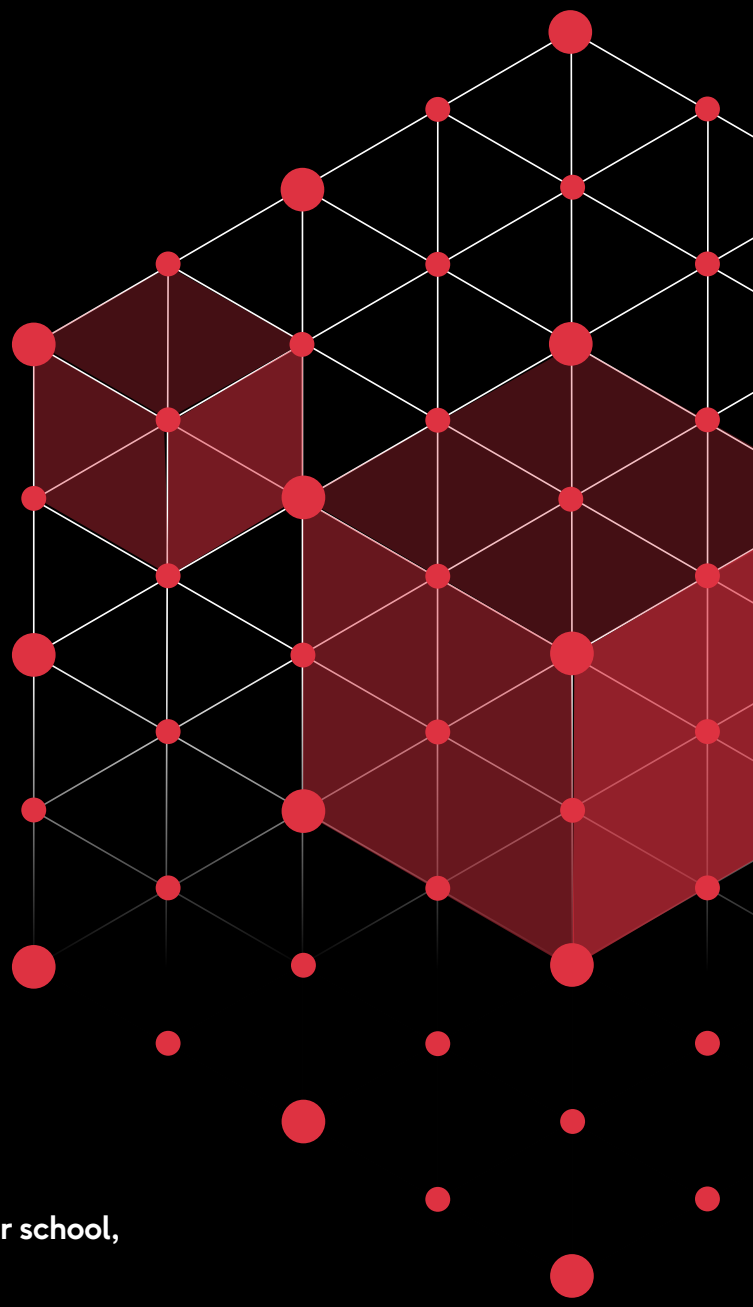
Murdoch Microgrid

Confront and solve modern energy challenges using an exciting new technology – the Murdoch Microgrid!

The Murdoch Microgrid is an ever expanding set of interconnectable model buildings. Each building element dynamically simulates the energy usage and production of its real-world counterpart, whether a house, a school or a power station. Students can connect these model buildings together into table-top power networks that explore a wide variety of engineering & energy scenarios.

Want to build your own model microgrid?

Our teacher and student guides will help you lead your class through the process of designing, constructing and programming your own microgrid building elements. Expert support from Murdoch University is available for your microgrid build through Maker skills workshops in Computer-Aided Design, microcontroller programming and more.



To discuss a Microgrid build project at your school, contact outreach@murdoch.edu.au

WA Schools Hackathon

From concept to execution, challenge your students to create an IT-oriented solution for a problem they experience in their everyday school life.

Participating groups will then be invited to the Hackathon Day at Murdoch's Perth campus, where they'll finalise their designs before presenting their tech solution to other participants. Selected groups will ultimately pitch their projects to a judging panel for the chance to win great prizes!

Schools can also request supporting incursions from Murdoch University on the topics of Entrepreneurship, Ideation and Pitching Your Product.

Expressions of Interest are now open!

Contact:
outreach@murdoch.edu.au

SOUTH COAST BAPTIST COLLEGE

WA SCHOOL HACKATHON

NIT AUSTRALIA

YEAR 9+10

12-14
DEC 2023

The Santos Science Experience

The Santos Science Experience is a great opportunity for Year 9 and 10 students to explore the vast array of science courses and experiences available at university, through 3 days of engaging and interactive workshops and challenges at Murdoch University.

Students will be able to broaden their experience across fields including agricultural science, marine biology, veterinary medicine, engineering, forensics and biomedical science.

Each program is designed to provide students with an opportunity to engage in a wide range of fascinating science activities under the guidance of scientists who love their work.

Places are limited and an attendance fee of $190 applies. To secure a spot or learn about Rotary sponsorships, head to: scienceexperience.com.au

THE Santos SCIENCE EXPERIENCE

Santos

science schools foundation

Murdoch University

90 South Street,
Murdoch WA 6150

Telephone: 1300 687 3624

Email: study@murdoch.edu.au

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