WHAT IS STEAM?

Queensland Museum and The Cube are supporting a growing momentum in education circles to integrate the Arts into STEM education. STEAM encourages an experiential approach to learning — where emphasis shifts from content delivery to make room for self-directed discovery.

STEAM is a framework for teaching which “teaches people how to learn” (Yakman, 2011).

This framework explores multisensory, project-based and co-operative experiences to engage and prepare learners for problem solving in the 21st century.

CREATIVE LAB: STEM TO STEAM

Queensland Museum with The Cube, Queensland University of Technology and kuril dhagun, State Library of Queensland invite you to the Creative Lab; a two-day, hands-on, professional development activity for educators.

This Creative Lab will enable educators to explore new and engaging ways of connecting students with STEM (Science, Technology, Engineering and Maths) through a STEAM learning framework. Workshops partnering with industry professionals explore ways content and concepts can be learned through perceptual, instinctive and creative thinking, combining both sides of the brain in the process.

Encourage a culture of innovation in your students. Be part of the journey towards STEAM learning, where creative thought processes are integrated across the curriculum with particular emphasis on science, mathematics and technologies.

The two day schedule includes:

• Four interactive workshops
• Keynote presentation
• Immersive Indigenous dinner
• Light lunch on both days
• Closing networking event
• Take-home materials
PROGRAM AT A GLANCE

Friday 1 May 2015
Queensland Museum
8.30am – 9.00am Registration
9.00am – 11.00am Welcome and Keynote Presentation
11.00am – 1.00pm AM Workshop (1)
1.00pm – 2.00pm Lunch
2.00pm – 4.00pm PM Workshop (2)
4.30pm – 6.00pm Drinks
6.00pm – 8.30pm Plate up: Immersive Indigenous Dinner – kuril dhagun, SLO

The rippling waters of the Brisbane River will create the glorious backdrop for a night of Indigenous dining, conversation and discovery. Uncover the secrets of Indigenous bush-tucker and native foods in Brisbane prior to settlement before tucking into a first nations feast like no other.

Saturday 2 May 2015
The Cube, QUT
9.30am – 10.00am Registration
10.00am – 12.00pm AM Workshop (3)
12.00pm – 100pm Lunch
1.00pm – 3.00pm PM Workshop (4)
3.30pm – 4.30pm Closing event
SCIENCE IN MOTION:
IDENTIFY SHAPE AND
RHYTHM THROUGH NATURE

Investigate, Interpret,
Collaborate, Transform

Images and objects tell a story, but through action, that
time information is brought to life.

Using circus skills, explore body form and movement as ways
to investigate and communicate patterns or cycles in nature.

Adding kinesthetic, social and sensory learning to the agenda,
this workshop offers alternatives to today’s increasingly
isolating digital learning environment. This workshop offers
tools for empowerment, teamwork and a sense of agency.

By referencing Museum research, science is re-animated
through human movement, while applying learning processes
such as testing possibilities, managing risk and collaboration.

Curriculum Links:
H&PE: Moving and Physical Activity
SCIENCE: Science Understanding, Science Inquiry Skills

Industry Partner: Vulcana

ANIMATED CREATURES:
BRING YOUR STORY TO LIFE

Observe, Capture,
Adapt, Connect

Explore ways to illustrate scientific concepts through animated
imagery using Museum collections as your source material.

With mobile devices as your tool, create a series of digital
sequences that represent how living creatures may share
similar features and adapt to their environment over time.

Curriculum Links:
TECHNOLOGIES: Digital Technologies,
Design and Technology
SCIENCE: Science Understanding, Science Inquiry Skills,
ICT General Capability

Industry Partner: Human Ventures
INGENIOUS ENGINEERS:
BLUEPRINTING YOUR IMAGINATION

Create, Test, Reflect, Revise

Harness the design process to further explore STEM concepts. Observe the objects and collections from the museum galleries to gather ideas and inspiration. Craft your creation using the Meccano construction tools and other components provided. This style of creative problem solving and collaborative working can enrich learning around geometry, forces, motion and adaptation.

Curriculum Links:
TECHNOLOGIES: Design and Technology
MATHEMATICS: Measurement and Geometry
SCIENCE: Science Understanding, Science as a Human Endeavour, Science Inquiry Skills

Industry Partners: Engineers Australia

COLLECTION ELECTRONICA:
THE MUSEUM OF TOMORROW

De-construct, Classify, Document, Re-invent

Everyday electronic objects take on a new identity as we review the waste culture of modern society. Dissect the technologies, materials and components of e-waste and contribute to the “museum of tomorrow”. Raise a very current and conscious conversation by looking micro and thinking macro as we explore different contexts of sustainability, changing technologies and social and environmental impacts.

Curriculum Links:
TECHNOLOGIES: Digital Technologies, Design and Technology
SCIENCE: Science Understanding, Science as Human Endeavour, Science Inquiry Skills

Industry Partner: Queensland College of Art, School of Design Futures
MAKEY MAKEY: USING DIGITAL HARDWARE TO DESIGN A VIDEO GAMES CONTROLLER

Experiment, Identify, Prototype, Modify

MaKey MaKey is an invention kit for the 21st century. Its simple functionality transforms users from passive consumers of technology to developers, enabling everyone to turn ordinary conductive objects into internet-connected, interactive touchpads.

Using MaKey MaKey, software applications and conductive materials, you will brainstorm, plan and rapidly prototype a playable video games controller, and explore the basics of electric circuits and conduction throughout the design process.

Curriculum Links:
ICT General Capability
TECHNOLOGIES: Design and Technologies, Digital Technologies
SCIENCE: Science Understanding, Scientific Inquiry Skills

LITTLEBITS: PROTOTYPING WITH ELECTRONICS

Investigate, Ideate, Implement, Innovate

LittleBits are simple, modular blocks that snap together to create electronic circuits, providing an easy and extensive way to learn and prototype with electronics.

This hands-on workshop gives you the experience to produce designed solutions for a real world challenge, using prototyping as a strategy to critically and creatively problem solve. Together you will research the challenge, develop and communicate design ideas, and prototype solutions using LittleBits.

Curriculum Links:
ICT General Capability
TECHNOLOGIES: Design and Technologies, Digital Technologies
SCIENCE: Science Inquiry Skills, Science as a Human Endeavour
THE ARTS: Media Arts, Visual Arts
DESIGN ENGINEERING: ROBOTS IN SPACE

Connect, Construct, Contemplate, Continue

This hands-on workshop will challenge you to collaboratively design, build and program LEGO Education MINDSTORMS EV3 robots to move, act smarter and perform complex tasks. Throughout the workshop, you will gain and apply science, technology, mathematics and design thinking skills as you engineer a solution to a real-world problem: to extend human reach in space.

The structure of this workshop mimics the engineering design process used by scientists and engineers in many industries and is designed to develop 21st century creative thinking, problem solving, collaborative and communication skills.

The LEGO Education Learning Program at The Cube is the first to be embedded in an Australian University.

Curriculum Links:
ICT General Capability
TECHNOLOGIES: Digital Technologies, Design and Technology
MATHEMATICS: Numbers and Algebra, Measurement and Geometry
SCIENCE: Science Understanding, Science as a Human Endeavour, Science Inquiry Skills

Industry Partners: LEGO Education
and Moore Educational

CUBE JAM: DESIGNING DIGITAL STEM CONTENT

Explore, Evaluate, Imagine, Design

Cube Jam offers educators the opportunity to explore games design and systems thinking. By working with Australian industry veteran, Matt Ditton, educators will engage in collaborative games design ideation, and critical and creative thinking, by responding to the challenge of designing digital STEM content for The Cube.

Matt Ditton is a director, producer, programmer, and technical artist. He is also founder of Many Monkeys, a Victorian company set up to do two things: make games and make art.

Curriculum Links:
ICT General Capability
TECHNOLOGIES: Design and Technologies, Digital Technologies
THE ARTS: Visual Arts

Industry Partner: Matt Ditton
REGISTRATION INFORMATION

Registration includes: Four interactive workshops, keynote presentation, Plate up – immersive Indigenous dinner, light lunch on both days, closing networking event, take-home materials, booking fee and certificate of participation.

3 STEP REGISTRATION PROCESS:

1. Authorise payment: Purchase tickets to secure your booking. You may secure several tickets under the one booking. Delegate details are not required at this stage.

2. Check your email inbox: Check your inbox for the payment confirmation and note your booking number.

3. Complete online registration: Use the imbedded link in the confirmation email to complete your online registration and select your workshop preferences. Delegate details are captured at this stage in the process and can be completed individually by forwarding the email with the link to each participant.

TERMS AND CONDITIONS

Tickets are inclusive. We do not offer part-payment for part participation.
The Creative Lab is a Professional Development experience, open to adults only.
Ticket costs cover full two-day experience; attending all experiences within this program is at your discretion.
Cancellation conditions: Registrations are transferrable but non-refundable.
CONTACT

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ACKNOWLEDGEMENTS

The STEM to STEAM Creative Lab is a Queensland Museum initiative, developed in partnership with The Cube, Queensland University of Technology and kuril dhargan, State Library of Queensland.
LOCATION

Queensland Museum and State Library of Queensland
Corner of Grey and Melbourne Streets
South Bank Cultural Precinct, South Brisbane

For more information visit qm.qld.gov.au and slq.qld.gov.au

The Cube, Queensland University of Technology
Science and Engineering Centre
Gardens Point campus
2 George St, Brisbane

For more information visit thecube.qut.edu.au