

SCIENCENTRE AT QUEENSLAND MUSEUM

Australian Curriculum Links for Years 5-6 - Term 3, 2017

Sciencentre exhibits link to the Australian National Science Curriculum specifically in the strands of Science Understanding and Science Inquiry Skills. Links to general capabilities and other learning areas may also be relevant.

Direct links below indicate content that is directly covered within the exhibition, while indirect links indicate content that is dependent on how people use and facilitate various exhibits.

General capabilities relevant to Sciencentre exhibits

Direct links	
<p>Literacy Comprehending texts through listening, reading and viewing.</p> <p>Numeracy Recognise and using patterns and relationships.</p>	<p>Critical and Creative Thinking Inquiring – identifying, exploring and organising information and ideas. Generating ideas, possibilities and actions. Reflecting on thinking and processes. Analysing, synthesising and evaluating reasoning and procedures.</p>

[Action Stations - Sciencentre](#)

Get hands-on with everyday science. Science is everywhere - at home, school, work and play. Discover what makes everyday things tick.

	Direct link	Indirect link	Sample exhibits that support the curriculum
Year 5	<p>Chemical sciences (ACSSU077) Solids, liquids and gases have different observable properties and behave in different ways.</p> <p>Physical science (ACSSU080) Light from a source forms shadows and can be absorbed,</p>	<p>Use and influence of science (ACSHE083) Scientific knowledge is used to solve problems and inform personal and community decisions.</p> <p>Questioning and predicting (ACSIS231) With</p>	<ul style="list-style-type: none"> Whirling around – observe the movement of the liquid water as it makes a whirlpool. Compare to... Slow bubbles – observe the bubbles of air moving through the liquid. Do you think this liquid is more or less viscous than the

	reflected and refracted.	guidance, pose clarifying questions and make predictions about scientific investigations.	<p>liquid water in the Whirling around exhibit?</p> <ul style="list-style-type: none"> • Spin up a storm – spin the sphere and watch the liquid move as you change direction. How does it flow? • Splashes of sound – sound vibrations can be transferred. Watch the liquid water splash, feel the vibration in the solid table, hear the sound vibrations in the air. • Staying cool – exploring how light energy is absorbed by different colours and transformed to heat. Think about how our eyes see these different colours. • Change your shape – mirrors reflect light, these curvy mirrors distort the reflected image – what’s going on? • See to infinity – using multiple mirrors can make repeating reflections
Year 6	Physical sciences (ACSSU097) Electrical energy can be transferred and transformed in electrical circuits and can be generated from a range of sources.	<p>Use and influence of science (ACSHE100) Scientific knowledge is used to solve problems and inform personal and community decisions.</p> <p>Questioning and predicting (ACSIS232) With guidance, pose clarifying questions and make predictions about scientific investigations.</p>	<ul style="list-style-type: none"> • Create a current – use your own energy to generate electricity which is transferred and transformed to switch on a light. • Hand battery – complete the circuit and become part of the path for the electrical energy to flow. • Floating dish – start up an electromagnet that uses electrical energy to turn on a magnet, which is used to move a dish. • Lighting ladder – see the 30,000 volt electrical charge move through the air to complete the circuit. • Touch the lightning – electrical energy flows from the core of the ball to the glass to earth through the exhibit’s base. Touch this giant plasma ball to make a short circuit where the electrical energy is transferred and flows through you instead.

Body Zone - Sciencentre

Your body - like you've never seen it before. Challenge it, move it, re-assemble it, confuse it. Collect your vital statistics. For a total hands-on, minds-on, body-on experience – jump in!

	Direct link	Indirect link	Sample exhibits that support the curriculum
Year 5	<p>Biological science (ACSSU043) Living things have structural features and adaptations that help them to survive in their environment.</p> <p>Chemical sciences (ACSSU077) Solids, liquids and gases have different observable properties and behave in different ways.</p> <p>Physical science (ACSSU080) Light from a source forms shadows and can be absorbed, reflected and refracted.</p>	<p>Use and influence of science (ACSHE083) Scientific knowledge is used to solve problems and inform personal and community decisions.</p> <p>Questioning and predicting (AC SIS231) With guidance, pose clarifying questions and make predictions about scientific investigations.</p>	<ul style="list-style-type: none"> • Hundreds of bones – look at the size and shape of bones and compare to the other objects to see how their structure reflects their uses. • Body bits – play with the giant human jigsaw and discuss structural features and adaptations you can see on each layer or body system. • Hairs to hear with – the hairs inside our ears are part of an adaptation to help us hear different sounds. • Pack the parcels – solid shapes can be rearranged to make different shapes. • Disappearing body – use reflection to make a great optical illusion.
Year 6		<p>Physical sciences (ACSSU097) Electrical energy can be transferred and transformed in electrical circuits and can be generated from a range of sources.</p> <p>Questioning and predicting (AC SIS232) With guidance, pose clarifying questions and make predictions about scientific investigations.</p>	<ul style="list-style-type: none"> • Steadiness Tester – the aim is not to complete the circuit! When the metal ring touches the metal bar the circuit is completed and so electrical energy flows and is transformed into sound energy.

[Mathamazing - Sciencentre](#)

Until 3 September 2017

Mathamazing encourages students to playfully explore maths concepts through 22 hands-on exhibits, five floor-based Mega Maths Puzzles and sixty Puzzle Placemats. Each *Mathamazing* experience will inspire mathematical curiosity and confidence, and build greater understanding of mathematical concepts. These concepts all link to real world experiences. For example:

- Where can we see the strong catenary arch shape in natural structures and buildings?
- What is the shape of the orbits of planets around our Sun?
- How can you measure the distance to objects or places that are far away?
- Why do you need to collect more data to get a more accurate result and make better predictions?

Students will leave the exhibition thinking that there is a lot more to maths than previously thought!

This exhibition is targeted at students in year 6 and over, but can be enjoyed by all year levels.

Five floor-based Mega Maths Puzzles are built to an oversized scale, so they have strong visual impact and they offer highly interactive maths experiences for groups and individuals and/or younger students.

[Learning resources](#) highlight the exhibition's main themes, identifies curriculum links and provides education materials which support pre, during or post a visit to *Mathamazing*.

Education materials have been developed for this exhibition. These include [Teacher Notes](#) with curriculum links and detail about each [exhibit](#) which covers:

- How the exhibit works
- Things to try or ask around the exhibit
- Background Science for the exhibit

Teachers may copy any material for educational purposes.

This exhibition supports the Australian National Mathematics Curriculum. Direct links to the curriculum exist for Measurement and Geometry including Shape, Geometric Reasoning, Location and Trigonometry (Year 6), Statistics and Probability including Chance and Data Interpretation (Year 6), Number and Algebra including Patterns (Year 6).

The exhibition also supports Problem Solving and Reasoning Skills.

Mathamazing. Developed by Questacon – The National Science and Technology Centre, Canberra.

[Fire and Ice Show - Sciencentre](#)

School show topic 10 July – 8 December 2017

From supercool liquid nitrogen to fireworks, things are heating up in the Sciencentre with the Fire and Ice Science Theatre Show. We will bring the temperature down as we rapidly cool, freeze and condense liquids and gases with some unexpected results. Things won't stay cool forever, as we burn our way through chemical reactions and hot colourful flames. This cool show will fire your imagination as we explore the science of fire and ice.

The Fire and Ice Show supports investigation of concepts in the **Chemical** and **Physical Sciences** sub-strands in the Australian Curriculum. Students will also apply **Science Inquiry Skills**, including questioning, predicting, observing cause and effect relationships and explaining.

The Fire and Ice Show is an interactive show where student volunteers are part of the show and students are encouraged share their observations, answer and ask questions and share their explanations.

Concepts explored in a Yr 5-6 show include:	Demonstrations and materials
States of matter – exploring properties and behaviours of solids, liquids and gases	<ul style="list-style-type: none"> • Water vs ice
States of matter – changing state from a solid to a liquid and liquid to solid	<ul style="list-style-type: none"> • Instant ice blocks and challenge (liquid nitrogen) • Frozen bubbles (liquid nitrogen) - OPTIONAL
Effects of low and high temperatures on materials	<ul style="list-style-type: none"> • Shrinking dog balloon (liquid nitrogen)
Making changes to materials can be reversible or irreversible	<ul style="list-style-type: none"> • Paper moon rocket OR • Sparkler
Chemical reactions such as combustion	<ul style="list-style-type: none"> • Burning paper • Coloured flames

	Direct link	Indirect link
Year 5	Chemical sciences (ACSSU077) Solids, liquids and gases have different observable properties and behave in different ways.	<p>Nature and development of science (ACSHE081) Science involves testing predictions by gathering data and using evidence to develop explanations of events and phenomena and reflects historical and cultural contributions.</p> <p>Questioning and predicting (AC SIS231) With guidance, pose clarifying questions and make predictions about scientific</p>

		investigations.
Year 6	Chemical sciences (ACSSU095) Changes to materials can be reversible or irreversible.	<p>Nature and development of science (ACSHE098) Science involves testing predictions by gathering data and using evidence to develop explanations of events and phenomena and reflects historical and cultural contributions.</p> <p>Questioning and predicting (ACSI232) With guidance, pose clarifying questions and make predictions about scientific investigations.</p>