

MAKING IT GREAT: Celebrating Queensland Invention

Thursday, 21 March 2019 1.00pm–2.15pm

This session is particularly suitable for Year 7-10 and senior science students

Possible curriculum links between MAKING IT GREAT: CELEBRATING QUEENSLAND INVENTION and the Australian Curriculum are described in the tables below. The applicable Achievement Standard (relevant section bolded), content descriptions and C2C units have been outlined for Year 7, 8, 9 Science, Year 9-10 Technologies and the senior subjects Science in Practice and Science21 as part of the Curriculum into the Classroom unit or as an additional activity that can be used to enhance classroom engagement with STEM.

YEAR 7 curriculum links

Links with Cross-curriculum Priorities	Links with General Capabilities
<p>Sustainability</p> <ul style="list-style-type: none"> Develop the knowledge, skills, values and world views necessary for people to act in ways that contribute to more sustainable patterns of living. 	<p>Numeracy</p> <ul style="list-style-type: none"> Recognising and using patterns and relationships <p>Critical and creative thinking</p> <ul style="list-style-type: none"> Generating ideas, possibilities and actions <p>Personal and social capability</p> <ul style="list-style-type: none"> Social management <p>Ethical understanding</p> <ul style="list-style-type: none"> Interacting and empathising with others

YEAR 9 curriculum links

Links with Cross-curriculum Priorities	Links with General Capabilities
<p>Sustainability</p> <ul style="list-style-type: none"> Discuss how human actions can play a vital part in meeting the needs of living things in some environments. 	<p>Critical and Creative Thinking</p> <ul style="list-style-type: none"> Generating ideas, possibilities and actions <p>Personal and Social Capability</p> <ul style="list-style-type: none"> Social management <p>Ethical Understanding</p> <ul style="list-style-type: none"> Reasoning in decision making and actions

The Queensland Museum acknowledges the expertise and support of the Department of Education in developing these curriculum links.

Australian Curriculum: Science

Year	Achievement Standard	Content descriptions	C2C
7	Students describe techniques to separate pure substances from mixtures. They represent and predict the effects of unbalanced forces, including Earth's gravity, on motion. They explain how the relative positions of Earth, the sun and moon affect phenomena on Earth. They analyse how the sustainable use of resources depends on the way they are formed and cycle through Earth systems. They predict the effect of human and environmental changes on interactions between organisms and classify and organise diverse organisms based on observable differences. Students describe situations where scientific knowledge from different science disciplines and diverse cultures has been used to solve a real-world problem. They explain possible implications of the solution for different groups in society.	<p>Science as a Human Endeavour</p> <p>Solutions to contemporary issues that are found using science and technology, may impact on other areas of society and may involve ethical considerations (ACSHE120)</p>	<p>Year 7 Unit 1 Water – waste not, want not</p> <p>Year 7 Unit 2 Water – waste not, want not</p>
8	Students compare physical and chemical changes and use the particle model to explain and predict the properties and behaviours of substances. They identify different forms of energy and describe how energy transfers and transformations cause change in simple systems. They compare processes of rock formation, including the timescales involved. They analyse the relationship between structure and function at cell, organ and body system levels. Students examine the different science knowledge used in occupations. They explain how evidence has led to an improved understanding of a scientific idea and describe situations in which scientists collaborated to generate solutions to contemporary problems. They reflect on implications of these solutions for different groups in society.	<p>Science as a Human Endeavour</p> <p>Use and influence of science</p> <p>Solutions to contemporary issues that are found using science and technology, may impact on other areas of society and may involve ethical considerations (ACSHE135)</p>	Year 8 Unit 5 Energy in my life & 6 What's up
9	Students explain chemical processes and natural radioactivity in terms of atoms and energy transfers and describe examples of important chemical reactions. They describe models of energy transfer and apply these to explain phenomena. They explain global features and events in terms of geological processes and timescales. They analyse how biological systems function and respond to external changes with reference to interdependencies, energy transfers and flows of matter. They describe social and technological factors that have influenced scientific developments and predict how future applications of science and technology may affect people's lives.	<p>Science as a Human Endeavour</p> <p>Advances in scientific understanding often rely on developments in technology and technological advances are often linked to scientific discoveries (ACSHE158)</p> <p>The values and needs of contemporary society can influence the focus of scientific research (ACSHE228)</p>	Year 9 Unit 5 My life in balance

Australian Curriculum: Technologies

Band	Subject	Achievement standard	Content Descriptions
9-10 Band	Australian Curriculum: Design and Technologies	Students explain how people working in design and technologies occupations consider factors that impact on design decisions and the technologies used to produce products, services and environments. They identify the changes necessary to designed solutions to realise preferred futures they have described. When producing designed solutions for identified needs or opportunities, students evaluate the features of technologies and their appropriateness for purpose for one or more of the technologies contexts.	Explain how products, services and environments evolve with consideration of preferred futures and the impact of emerging technologies on design decisions. Explain how products, services and environments evolve with consideration of preferred futures and the impact of emerging technologies on design decisions.

Senior Subject curriculum links

All senior subjects incorporate 21st century skills and attributes that students need to prepare them for higher education, work and engagement in a complex and rapidly changing world. Pioneers in Science links with the following 21st century skills and attributes:

- critical thinking (decision-making, reasoning, reflecting and evaluating)
- creative thinking (innovation, identifying alternatives, seeing or making new links)
- personal and social skills (citizenship, ethical understanding)
- collaboration and teamwork (participating and contributing, community connections)

There are a range of senior subject curriculum links with MAKING IT GREAT:CELEBRATING QUEENSLAND INVENTION. Explicit curriculum links are outlined below with Science in Practice and Science21. Possible associations are evident with Design (2019) and Engineering (2019).

Science in Practice (Year 12, 2019)

Core topic 1: Scientific literacy and working scientifically

This core topic is designed to encourage students to become scientifically informed individuals. Scientific literacy is a way of thinking and a way of viewing and interacting with the world; it is encouraged and developed through working scientifically.

Electives: Health and Lifestyles

Individuals and industry have a responsibility, to themselves and to society, to promote health. Increasing numbers of individuals are being diagnosed with diseases such as asthma, arthritis, cancer, obesity, allergies, diabetes and cardiovascular disease.

The impacts of science on health and safety have accelerated in the last century. Students should understand the potential impact of science, that it has great implications for the future and affects not only humans, but also plants and animals.

Science can provide preventative measures and solutions to health and lifestyle challenges.

Science in Practice (Year 11, 2019)

Core topic 1: Scientific literacy and working scientifically

This core topic is designed to encourage students to become scientifically informed individuals. Scientific literacy is a way of thinking and a way of viewing and interacting with the world; it is encouraged and developed through working scientifically.

Electives: Environments

Environments can be defined by their geology and ecology, their size, or whether they are natural or human-made. Students should understand that the management of environments relies on understanding their individual components, inherent interrelationships, and the impact of the human species on them. As part of, and determining factors in, the environment, human interactions with the Earth have a profound effect on present and future generations. Science can inform these complex global problems.

Science21 (Year 12, 2019)

Scientific Priority: Health and Wellbeing

Science impacts on human health. Indicative topics particularly in areas relating to the cause, spread and control of infectious disease. In terms of wellbeing, science directs attention to preventative measures and provides solutions to health and lifestyle challenges. The impacts of science on health and wellbeing have accelerated in the last century. They have great prospects for the future and affect not only humans, but also other animals and plants.

Indicative topic: Infectious disease and prevention

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