PIONEERS IN SCIENCE:

Friday, 23 March 2018
1.30pm-2.30pm

Emeritus Professor Alan Mackay-Sim Streaming

PIONEERS IN SCIENCE: Emeritus Professor Alan Mackay-Sim at the World Science Festival Brisbane can provide Year 9 and senior students with valuable curriculum links and a unique classroom learning experience.

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

Year 9 curriculum links

Links with Cross-Curriculum Priorities

Sustainability

- Discuss how human actions can play a vital part in meeting the needs of living things in some environments

Links with General Capabilities

Numeracy

- Interpreting statistical information

Critical and Creative Thinking

- Inquiring generating ideas, possibilities and actions

Personal and Social Capability

- Self-awareness
- Social management

Ethical Understanding

- Reasoning in decision making and actions
- Exploring values, rights and responsibilities

The possible curriculum links between Pioneers in Science and the Australian Curriculum are described in the table below. The applicable Achievement Standard (relevant section bolded), content descriptions and C2C units have been outline for Year 9.

Australian Curriculum: Digital Technologies

Year	Achievement Standard	Content descriptions	C2C
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.** **Students design questions that can be investigated using a range of inquiry skills.** They design methods that include the control and accurate measurement of variables and systematic collection of data and describe how they considered ethics and safety. They analyse trends in data, identify relationships between variables and reveal inconsistencies in results. They analyse their methods and the quality of their data, and explain specific actions to improve the quality of their evidence. They evaluate others' methods and explanations from a scientific perspective and use appropriate language and representations when communicating their findings and ideas to specific audiences.	**Science Understanding** • Multi-cellular organisms rely on coordinated and interdependent internal systems to respond to changes to their environment (ACSSU175) **Science as a Human Endeavour** • Advances in scientific understanding often rely on developments in technology and technological advances are often linked to scientific discoveries (ACSHE158) • The values and needs of contemporary society can influence the focus of scientific research (ACSHE228)	Year 9 Unit 5 Students outline how essential requirements for life are provided internally through a coordinated approach. Students analyse and predict the effects of the environment on body systems, and discuss how the body responds to changes in the environment and to diseases. They research the positive and negative aspects of vaccination and use evidence to justify decisions related to vaccination. Students consider current and future developments in vaccine technology and reflect on how the needs of society influence the focus of scientific research.

Senior Syllabus (Years 11-12 Subjects) curriculum links

Biology

Participation in Pioneers in Science will provide opportunities for students to address the general objective of the syllabus that develops attitudes and values to:

- understand that science is a human endeavour and has limitations
- retain a commitment to scientific reasoning, openness to new ideas, intellectual honesty, and respect for evidence
- appreciate the contribution of Biology to local, national and international issues
- acknowledge responsibility when making decisions about the use of biological information

Science in Practice

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 21

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