



Plastic Planet: Community of Inquiry

YEAR 5-9

CHEMICAL SCIENCES

DESIGN AND TECHNOLOGIES



QGC

FUTUREMAKERS



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Future Makers

Future Makers is an innovative partnership between Queensland Museum Network and Shell's QGC business aiming to increase awareness and understanding of the value of science, technology, engineering and maths (STEM) education and skills in Queensland.

This partnership aims to engage and inspire people with the wonder of science, and increase the participation and performance of students in STEM-related subjects and careers — creating a highly capable workforce for the future.

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EXPLORE

Plastic Planet: Community of Inquiry

Teacher Resource

In this activity, students participate in a community of inquiry to discuss the properties that make plastics useful and the impacts of plastics on the planet. This process provides students with an opportunity to reach a deep, shared understanding of the concepts and issues underpinning the inquiry topic. The activity could lead on from the object analysis *All Bottled Up* and/or the litter sorting activity *Plotting Against Waste*.

The community of inquiry is a structured, dialogic process that requires participants to ask open inquiry questions, listen and think, share ideas and consider alternative viewpoints. Problematic issues and concepts are discussed collaboratively within a supportive learning environment where all views are considered and respected. Reflecting on thinking is integral to the process.

The following engagement protocols are used during the community of inquiry process, and these should be included on the walls for all students to see.

- Listen attentively
- Build on and connect ideas
- Respect self, others and place
- Disagree reasonably and respectfully
- There may be many responses considered to be correct

Detailed step-by-step instructions for this activity can be seen below.

1. In small groups, students discuss the overarching question: **Why do we use so much plastic?** Remind students to give reasons for their answers. (Students may wish to start this activity with the object analysis *All Bottled Up* and/or the litter sorting activity *Plotting Against Waste*.)
2. Ask students to share their responses to these questions and you can record their answers on the whiteboard or butchers paper.
3. Pose the next question: **What are the disadvantages of plastic use?** Students should again discuss in small groups. This discussion should include: **Why should we care?**
4. Ask students to share their responses to these questions and you can record their answers on the whiteboard or butchers paper. Record any questions posed by students on a separate page. These can be addressed in the future.
5. Keep a record of the responses to display around the room. These can be added or referred to throughout the unit.

Curriculum Links

Science

YEAR 5

Science as a Human Endeavour

Scientific knowledge is used to solve problems and inform personal and community decisions (ACSHE083)

Science Inquiry Skills

Communicate ideas, explanations and processes using scientific representations in a variety of ways, including multi-modal texts (ACSIS093)

YEAR 6

Science as a Human Endeavour

Scientific knowledge is used to solve problems and inform personal and community decisions (ACSHE100)

Science Understanding

Communicate ideas, explanations and processes using scientific representations in a variety of ways, including multi-modal texts (ACSIS110)

YEAR 7

Science as a Human Endeavour

Solutions to contemporary issues that are found using science and technology, may impact on other areas of society and may involve ethical considerations (ACSHE120)

Science Inquiry Skills

Communicate ideas, findings and evidence based solutions to problems using scientific language, and representations, using digital technologies as appropriate (ACSIS133)

YEAR 8

Science as a Human Endeavour

Solutions to contemporary issues that are found using science and technology, may impact on other areas of society and may involve ethical considerations (ACSHE135)

Science Inquiry Skills

Communicate ideas, findings and evidence based solutions to problems using scientific language, and representations, using digital technologies as appropriate (ACSIS148)

YEAR 9

Science as a Human Endeavour

Values and needs of contemporary society can influence the focus of scientific research (ACSHE228)

Science Inquiry Skills

Communicate scientific ideas and information for a particular purpose, including constructing evidence-based arguments and using appropriate scientific language, conventions and representations (ACSIS174)

Design and Technologies

YEAR 5 AND 6

Design and Technologies Knowledge and Understanding

Examine how people in design and technologies occupations address competing considerations, including sustainability in the design of products, services, and environments for current and future use (ACTDEK019)

Investigate characteristics and properties of a range of materials, systems, components, tools and equipment and evaluate the impact of their use (ACTDEK023)

YEAR 7 AND 8

Design and Technologies Knowledge and Understanding

Investigate the ways in which products, services and environments evolve locally, regionally and globally and how competing factors including social, ethical and sustainability considerations are prioritised in the development of technologies and designed solutions for preferred futures (ACTDEK029)

YEAR 9 AND 10

Design and Technologies Knowledge and Understanding

Critically analyse factors, including social, ethical and sustainability considerations, that impact on designed solutions for global preferred futures and the complex design and production processes involved (ACTDEK040)

Explain how products, services and environments evolve with consideration of preferred futures and the impact of emerging technologies on design decisions (ACTDEK041)

Humanities and Social Sciences

YEAR 5

Knowledge and Understanding: Geography

The influence of people, including Aboriginal and Torres Strait Islander Peoples, on the environmental characteristics of Australian places (ACHASSK112)

The environmental and human influences on the location and characteristics of a place and the management of spaces within them (ACHASSK113)

Knowledge and Understanding: Business and Economics

The difference between needs and wants and why choices need to be made about how limited resources are used (ACHASSK119)

Types of resources (natural, human, capital) and the ways societies use them to satisfy the needs and wants of present and future generations (ACHASSK120)

Influences on consumer choices and methods that can be used to help make informed personal consumer and financial choices (ACHASSK121)

YEAR 6

Knowledge and Understanding: Business and Economics

The effect that consumer and financial decisions can have on the individual, the broader community and the environment (ACHASSK150)

Geography

YEAR 9

Geographical Knowledge and Understanding

The effects of the production and consumption of goods on places and environments throughout the world and including a country from North-East Asia (ACHGK068)

YEAR 10

Geographical Knowledge and Understanding

Human-induced environmental changes that challenge sustainability (ACHGK070)

Environmental world views of people and their implications for environmental management (ACHGK071)

General Capabilities

Literacy

Comprehending texts through listening, reading and viewing

Critical and Creative Thinking

Inquiring – identifying, exploring and organising information and ideas

Reflecting on thinking and processes

Personal and Social Capability

Self-management

Social awareness

Ethical Understanding

Understanding ethical concepts and issues

Reasoning in decision making and actions

Exploring values, rights and responsibilities

Intercultural Understanding

Interacting and empathising with others

Cross-Curriculum Priorities

Sustainability

Sustainable patterns of living rely on the interdependence of healthy social, economic and ecological systems. (OI.3)

World views are formed by experiences at personal, local, national and global levels, and are linked to individual and community actions for sustainability. (OI.5)

Actions for a more sustainable future reflect values of care, respect and responsibility, and require us to explore and understand environments. (OI.7)

Designing action for sustainability requires an evaluation of past practices, the assessment of scientific and technological developments, and balanced judgements based on projected future economic, social and environmental impacts. (OI.8)