



Transportation Through the Ages: Science as a Human Endeavour

YEAR 7, 8, 9, 10

EARTH AND SPACE SCIENCES

DESIGN AND TECHNOLOGIES



QGC

FUTUREMAKERS



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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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ENGAGE

Transportation Through the Ages: Science as a Human Endeavour

Teacher Resource

Humans are constantly working to develop and improve our technology and understanding. In this introductory activity, students will begin to think about why innovative design and improvement is important to their lives and how we learn from the past to improve technology and understanding for the future.

In this activity, students first have one minute to record on sticky notes as many types of transport, or ways for getting from one place to another, they can think of. This will then develop into a community of inquiry as students discuss why new types of transport are developed.

Detailed step-by-step instructions can be seen below. It is recommended that you use these instructions to guide your students through the activity as a class. Use prompts in your discussions such as, 'Why do you think that?' and ask students to give reasons for their answers.

Transportation Through the Ages Step-by-step Instructions

1. In groups of three, students have one minute to record onto sticky notes as many types of transport/ways of getting from one place to another as they can think of.
2. Groups take it in turns to read aloud one type of transport on their list. Students should listen carefully during this time and make a note of any responses on their list that are stated by another group (students should move these into a 'read' pile). Students should only read aloud responses that have not yet been stated by another group. You should continue to rotate between groups until the class has been through all responses.
3. Discuss with the class: Which transportation came first? Which was developed most recently?
4. Place a continuum line on the wall or floor with the oldest types of transport on one end and most recent types of transport on the other end.
5. In their groups, students place their transport sticky notes along the continuum, in order of oldest to most recent.
6. Facilitate a class discussion about this activity. Ask students: What do you notice? Were there any types of transport that you are not sure about? Are there any that you think should be rearranged?
7. Ask students to rearrange the order of the transport sticky notes from slowest to fastest. It is likely that very few will need to be moved.
8. Implement a Think-Pair-Share activity using the following questions: Why didn't many of the sticky notes move? What have you learned? Why do humans create new things? How do you think this has changed the world? We are always working to travel to places faster and to improve our technology. Why is this important?

Following this activity, you may wish to discuss why we are encouraged to walk and ride bikes now, rather than use cars and other modes of modern transport. Alternatively, you could extend this activity by asking students to invent a new type of transport based on those previously discussed. Students select a type of transport and then identify the features they would keep, improve or remove. Following this, students redesign the transport, while also considering the intended user and their needs. Students could even create a prototype, as a sketch, digital representation or physical object.

Curriculum Links

Science

YEAR 5

Science as a Human Endeavour

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

YEAR 6

Science as a Human Endeavour

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

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)

People use science understanding and skills in their occupations and these have influenced the development of practices in areas of human activity (ACSHE121)

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)

People use science understanding and skills in their occupations and these have influenced the development of practices in areas of human activity (ACSHE136)

YEAR 9

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)

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

YEAR 10

Science as a Human Endeavour

Advances in scientific understanding often rely on developments in technology and technological advances are often linked to scientific discoveries (ACSHE192)

Values and needs of contemporary society can influence the focus of scientific research (ACSHE230)

Design and Technologies

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)

General Capabilities

Critical and Creative Thinking

Inquiring: Identifying, exploring and organising information and ideas

Generating ideas, possibilities and actions

Analysing, synthesising and evaluating reasoning and procedures

Ethical Understanding

Exploring values, rights and responsibilities

Cross-Curriculum Priorities

Sustainability

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)