

ABORIGINAL AND TORRES STRAIT ISLANDER
HISTORIES AND CULTURES

LIVING CULTURES – FIBRES

DEPARTMENT OF
EDUCATION
learners first

YEAR 2

The
Orb

FIBRES

WHO SANK THE BOAT?

Learners explore a range of materials to establish what floats and what sinks, and what further conditions are required for materials to float on water. They consider design principles required for constructing watercraft with natural materials.

CROSS CURRICULUM PRIORITY**Aboriginal and Torres Strait Islander Histories and Cultures**

Organising idea 2

Aboriginal and Torres Strait Islander communities maintain a special connection to and responsibility for Country/Place.

ACHIEVEMENT STANDARDS**Design and Technologies**

Students describe the purpose of familiar products, services and environments and how they meet a range of present needs. They list the features of technologies that influence design decisions.

They design solutions to simple problems using a sequence of steps and decisions. With guidance, students produce designed solutions for each of the prescribed technologies contexts.

CONTENT DESCRIPTORS**Design and Technologies**

Explore needs or opportunities for designing, and the technologies needed to realise designed solutions (ACTDEP005).

Use materials, components, tools, equipment and techniques to safely make designed solutions (ACTDEP007).

GENERAL CAPABILITIES**Critical and Creative Thinking**

Generating ideas, possibilities and actions

Imagine possibilities and connect ideas

Level 2 – build on what they know to create ideas and possibilities in ways that are new to them

Intercultural Understanding

Recognising culture and developing respect

Develop respect for cultural diversity

Level 2 – describe ways that diversity presents opportunities for new experiences and understandings

Learning Goals

Learners will:

- » Investigate the properties of objects that float or sink.
- » Discover how to make an object that floats.
- » Explain the design process that lead to making an object that floats.
- » Reflect upon the effectiveness of their design and suggest improvements.

Learning Sequence**Activating and Engaging**

Land Links

View *Launch Party* from the 'Living Cultures - Fibres' section of The Orb.

Generate a class discussion around what students saw in the clips.

Present learners with materials in an outdoors space to investigate which objects sink and which float.

Ask learners:

- » Which of these objects do you think will float?
- » Which of these objects do you think will sink?

Ask learners to make predictions about the objects, and whether or not they will float.

Ask learners:

- » What properties mean that an object will float?
- » What properties mean that an object will sink?

Conduct the investigation with learners and reflect upon findings.

Ask learners:

- » What did we observe that was expected?
- » What did we observe that was unexpected?

Have learners make lists or draw the properties that mean that an object floats.

Investigate traditional craft with learners. Look especially at Tasmanian First Peoples' use of stringy bark and waterproofing with ochre and seal oil.

Read *Who Sank the Boat?* by Pamela Allen and ask the learners to design a craft that can hold all the animals in the story. Use toy animals to model the problem.

Ask learners:

- » What problem do we have to solve?
- » How can technology help us to solve this problem?

Define the terms buoyancy and water resistance. Ask learners to explore ways to maximise these two features.

Organise learners into groups to design a canoe or craft using bark and string that can hold all the toy animals and not sink. Discuss with the learners the need to have a space for the toy animals to sit/stand.

Exploring and Discovering

Non-verbal

Conduct the experiment with the whole class and observe the features that help the craft maintain buoyancy and water resistance.

Ask learners:

- » Which designs were most successful at holding all the animals? Why?
- » Which designs were most successful at floating/maintaining buoyancy? Why?

Have learners reflect upon their designs and make suggestions about what they would change to make their craft more buoyant/water resistant.

Ask learners to find pictures in magazines, books, or online of objects that float or sink and create a display of these. Have learners create a list of features of objects that float and share their findings with the class.

Synthesising and Applying

Learning Maps

Non-verbal

Using the information collected, learners explore other types of boats from pre-history to modern day.

In groups, learners are provided with pictures of the craft and order the craft in a timeline.

Ask learners:

- » How do you know this craft is an earlier craft based upon the design?
- » How do you know a craft is a later craft based upon resources used?

Discuss with the learners how the design process has been used since the earliest craft, and the importance of trial and error to developing successful ideas.

Have learners share their timeline with the class.

Ask learners:

- » Why are there so many different types of watercraft?
- » Why do you think there is so much variation between types of watercraft?

Organise learners to design their own craft based upon any of the resources or designs explored. Ask learners to explain why they chose the resources and design based upon the findings of the last investigation.

Conduct an experiment with the learners to test the buoyancy and water resistance of their vessels and see which designs can float the longest, or under the most extreme conditions.

Success Criteria

Learners:

- » Explain features that make an object float or sink.
- » Design a craft that can float and hold toy animals.
- » Work collaboratively in a group.
- » Share thinking and reflections one-on-one and in a whole class setting.
- » Begin to order watercraft based upon complexity of design and resources used.

Resources

- » [The Orb](#)
- » [Australian Curriculum](#)
- » [Aboriginal Sharers of Knowledge \(ASK Program\) Guidelines](#)
- » [Aboriginal Sharers of Knowledge \(ASK Program\) Application Form](#)
- » The Aboriginal Education Library: email Aboriginal.education.library@education.tas.gov.au or telephone 03 6165 5480 for more resources, including the ones listed below.
- » The Eight-Way Framework of Aboriginal Pedagogy
- » The story: [Who Sank the Boat?](#)

Glossary

Culture

The way of life, especially the general customs and beliefs, of a particular group of people at a particular time. **C**

Fibres

Aboriginal people have used in the past and continue to use natural fibres – plant and animal – to make useful and important objects. **G**

Materials

The matter from which a thing is or can be made. **O**

Resource

A useful or valuable possession or quality of a country, organization, or person. **C**

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| C | Cambridge Dictionary |
| G | General understanding |
| O | Oxford Online Dictionary |



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