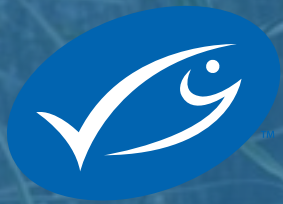


SEA COUNTRY STORIES

Ngarrindjeri Ruwi



Teacher Resources - Lesson Plan





Australian Curriculum Objectives



Science - Years 7 & 8 (Stage 4)

AC9S7U04

Investigate and represent balanced and unbalanced forces, including gravitational forces, acting on objects, and relate changes in an object's motion to its mass and the magnitude and direction of forces acting on it

AC9S7H02

Investigate how cultural perspectives and world views influence the development of scientific knowledge

AC9S8I02

Plan and conduct reproducible investigations to answer questions and test hypotheses, including identifying variables and assumptions and, as appropriate, recognising and managing risks, considering ethical issues and recognising key considerations regarding heritage sites and artefacts on Country/Place

AC9S7I04

Select and construct appropriate representations, including tables, graphs, models and mathematical relationships, to organise and process data and information

AC9S8I07

Construct evidence-based arguments to support conclusions or evaluate claims and consider any ethical issues and cultural protocols associated with using or citing secondary data or information

AC9S8I08

Write and create texts to communicate ideas, findings and arguments for specific purposes and audiences, including the selection of appropriate language and text features, using digital tools as appropriate

This resource is designed for students of all ages from Years 5-10, in line with the Australian Curriculum cross-curriculum priorities: **Aboriginal and Torres Strait Islander Histories and Cultures**

A_TSIC2

First Nations Australians' ways of life reflect unique ways of being, knowing, thinking and doing.

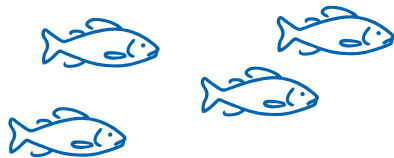
In this 50-60 minute lesson for ages 12+, learners explore how Aboriginal and Torres Strait Islander peoples crafted spears. Learners will then use chopsticks and blue tack to experiment with balanced and unbalanced forces.

Key terms

- Aboriginal and Torres Strait Islander
- Forces
- Balanced & unbalanced
- Hypothesis

You will need

- [AIATSIS Map of Indigenous Australia](#)
- [Sea Country Stories](#) film
- Experiment ingredients & materials (page 5)
- Activity sheet (page 6-7)



Key questions

- What are balanced and unbalanced forces?
- How did Aboriginal and Torres Strait Islander peoples craft their spears to ensure they were balanced?
- How can variables affect the outcome of an experiment?

Class Activities

- Learners participate in an Acknowledgement to Country
- Learners watch a short clip from the [Sea Country Stories](#) film
- Learners experiment with balanced and unbalanced forces using the experiment instructions as a guide (page 5)
- Learners use the Activity sheet to write up their experiment (page 6-7)



Lesson plan: Sea Country Stories

Appropriate Terminology

Language is a powerful tool for communication. The words we use are active, and can impact on the attitudes of those we speak to. Reconciliation Australia has created the following guidance around appropriate and respectful terminology to use when teaching about Aboriginal and Torres Strait Islander histories and cultures. Below is an abridged version of this guidance, however teachers are encouraged to read the entire document at <https://www.reconciliation.org.au/wp-content/uploads/2021/10/inclusive-and-respectful-language.pdf>

Aboriginal and Torres Strait Islander peoples

Using 'Aboriginal and Torres Strait Islander' is most often considered best practice.

- 'Aboriginal' (and less commonly accepted variants such as 'Aboriginals' or 'Aborigines') alone is also not inclusive of the diversity of cultures and identities across Australia
- As a stand-alone term, 'Aboriginal' is not inclusive of Torres Strait Islander peoples, and reference to both peoples should be spelt out where necessary.

First Nations and First Peoples

Other pluralised terms such as 'First Nations' or 'First Peoples' are also acceptable language, and respectfully encompass the diversity of Aboriginal and Torres Strait Islander cultures and identities.

Acknowledging diversity

Pluralisation should extend to generalised reference to Aboriginal and Torres Strait Islander 'histories,' 'perspectives,' 'ways of being,' 'contributions,' and so forth. This acknowledges that Aboriginal and Torres Strait Islander peoples are not homogenous.

Indigenous

In some parts of the country, the term 'Indigenous' can be considered offensive. That is, it has scientific connotations that have been used historically to describe Aboriginal and Torres Strait Islander peoples as part of the 'flora/fauna' rather than the human population of Australia. It can be seen as a problematically universalising or homogenising label for what are, in reality, highly diverse identities.

Unacceptable terms

Assimilationist terms such as 'full-blood,' 'half-caste' and 'quarter-caste' are extremely offensive and should never be used. Other terms which carry negative connotations and should never be used include Aborigines, native/native Australians, disadvantaged, lost (e.g. Lost language, cultures).





Starter (5 - 10 mins)

Begin this lesson with an Acknowledgement to Country. You can find out which country you are on by using the [AIATSIS Map of Indigenous Australia](#).

Note: The difference between a Welcome to Country and an Acknowledgement to Country is that a Welcome is only given by a First Nations person who is local to the country you are on. A person of any background can make an Acknowledgement to Country.

Next, inform learners that they are going to watch a short clip from South Australia, in which a Ngarrindjeri elder Major Sumner explains how he makes spears out of natural materials in the environment. Show learners the [Sea Country Stories](#) film from 3:06 to 5:41.

Main activity (35 - 40 mins)

Explain to learners that they are going to learn and experiment with ‘forces’ in this lesson. You can start by telling learners what a force is and provide an example. You could say:

A force is a push or a pull. Forces can cause objects to move, slow, stop or change the direction of an object’s motion. A force can be balanced or unbalanced. A person standing still is an example of a balanced force, whereas throwing a spear is an example of an unbalanced force.

In groups of 3-4, learners will experiment with balanced and unbalanced forces using chopsticks and blue tack. Learners will weigh different amounts of blue tack to attach to their chopstick before throwing it like a spear to see how different masses can affect force.

Discussion (10 mins)

As a class, discuss the experiment you’ve conducted. Determine which group threw the chopstick the farthest length and encourage learners to consider how variables may have impacted their final results. You can also discuss with learners how they think Aboriginal and Torres Strait Islander peoples balanced their spears to ensure they were effective.



Experiment: Balanced & Unbalanced Forces

Equipment:

- Chopsticks
- Blue tack
- Scale
- Activity sheet
- Measuring wheel/meter ruler

Method:

In this experiment, you're going to observe how different masses affect the force of an object. Before starting your experiment, consider how you think the mass of the blue tack will affect the force of the chopstick. Note down your prediction in the 'hypothesis' section of your activity sheet.

1. Start off by throwing your chopstick like a spear. Measure the distance between your starting point and where the chopstick landed (ensure you mark your starting point so it's easy to measure)
2. Weigh out an amount of blue tack and stick it on your chopstick, making sure to note down the weight you used on your activity sheet
3. Throw your chopstick like a spear again and measure the distance it travelled (to ensure consistency in your experiment, ensure the same person throws the chopstick each time)
4. Repeat this process 4 more times with varying amounts of blue tack (don't forget to note down the mass of your blue tack and the distance the chopstick travelled each time)
5. Once you've finished conducting your experiment, fill out your activity sheet



Major Sumner crafting a 'kaiki' spear

Activity Sheet: Balanced & Unbalanced Forces

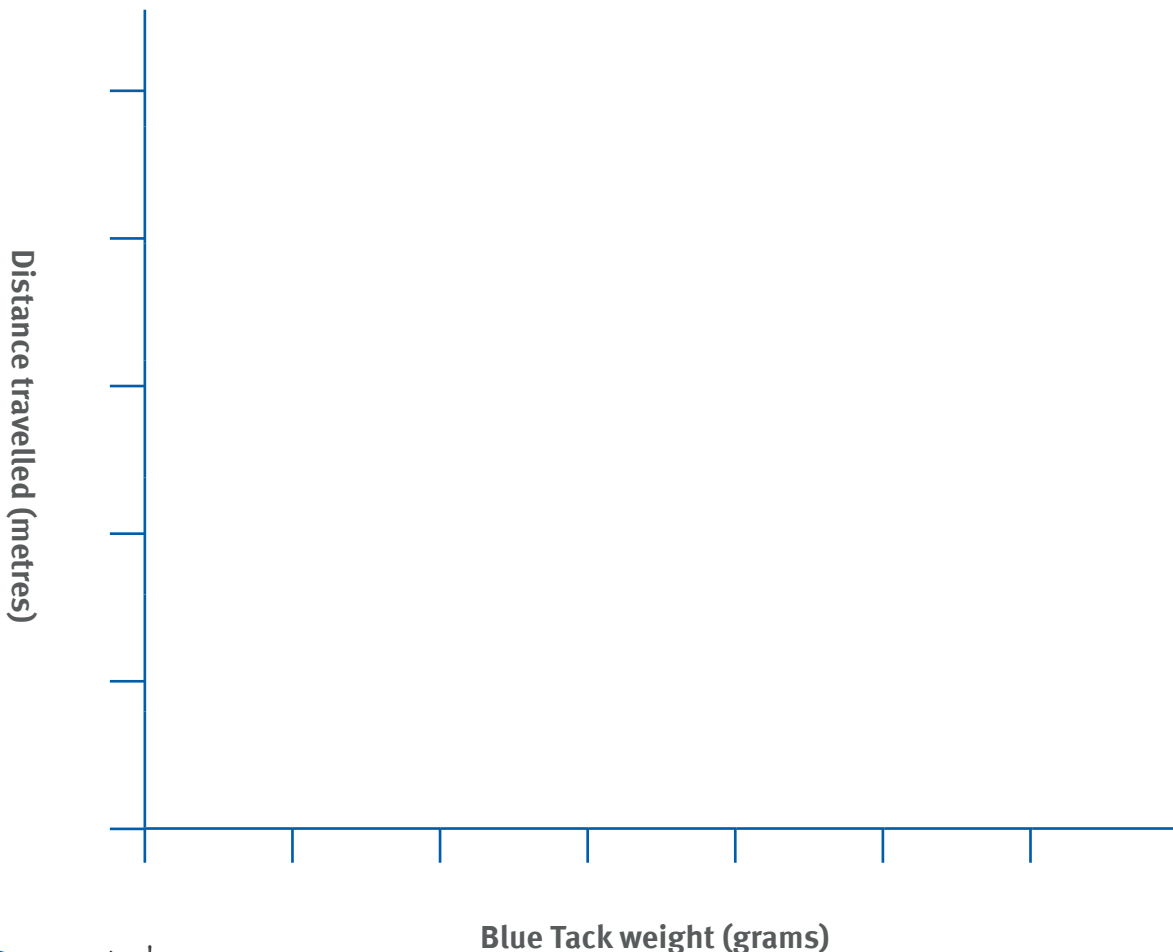
Group Member Names:

Hypothesis: *a prediction on what you think will happen in the experiment*

Results:

Blue Tack weight (grams)	Distance thrown (metres)
0	

Plot your results from the above table into the graph below and make a line graph



Activity Sheet: Balanced & Unbalanced Forces

Discussion: *analyse the experiment, your results and your hypothesis*

Limitations: *discuss any problems you encountered and how you might resolve them*

Conclusion: *summarise what you have found out from this experiment*

