# Fierce Earth – Waves and Tides

**ABC ME screening details: Tuesday** 26 May, 2020 at 12:45pm

This episode can also be viewed on [ABC iView](https://iview.abc.net.au/show/fierce-earth) after the scheduled screening time.

**Key learning areas:** Geography, Science

**Level:** Secondary

**About:** It's wet-suits on for the Fierce Earth team as they hit the surf to unlock the secrets of king-sized waves and fast rising tides.

## Before the episode

1. Brainstorm - what features of waves, tides and rips do you already know?

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| --- | --- | --- |
| Waves | Tides | Rips |
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## During the episode

1. Explain how waves form
2. Describe the process that causes a wave to break
3. Why is Santa Cruz so popular for surfing?
4. How often do tides change?
5. What is a lock? Draw a diagram in the box below to explain how tides work
6. Describe why tides can be dangerous
7. How do you spot a rip?
8. If caught in a rip what should you do?

## After the episode

1. Using the information gathered in the previous activities, create definitions for each of the following:
   1. Waves - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   2. Tides - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   3. Rips - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. If you go to a patrolled beach in Australia, safe swimming zones are identified with red and yellow flags. Use the space below to draw a sketch map of a beach. Include flags, waves and a rip.

**Follow-up activity:** In Australia we don’t use the term ‘rip currents’ as a current is a different ocean process. Research currents and discover how they may impact on waves, tides and the flow of water around the globe.

# NSW teacher notes

This is an optional standalone resource that could supplement student learning. The activities align with syllabus outcomes across stages and can be modified to meet the needs of your students. Students can complete the activities while learning at home and in the classroom. All activities can be completed without access to the internet or a device. Teachers could collect student work to offer feedback and as evidence of learning.

## Learning intentions

* To examine the process of energy transfer and wave formation
* Discuss management of people and places and technologies used to minimise the impact of natural processes.

## NSW Geography K-10 Syllabus outcomes

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| --- | --- |
| Stage 4 | Stage 5 |
| **GE4-2** describes processes and influences that form and transform places and environments | **GE5-2** explains processes and influences that form and transform places and environments |
| **GE4-5** discusses management of places and environments for their sustainability | **GE5-5** assesses management strategies for places and environments for their sustainability |
| **GE4-8** communicates geographical information using a variety of strategies | **GE5-8** communicates geographical information to a range of audiences using a variety of strategies |

## NSW Science 7-10 Syllabus outcomes

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| --- | --- |
| Stage 4 | Stage 5 |
| **SC4-7WS** processes and analyses data from a first-hand investigation and secondary sources to identify trends, patterns and relationships, and draw conclusions | **SC5-7WS** processes, analyses and evaluates data from first-hand investigations and secondary sources to develop evidence-based arguments and conclusions |
| **SC4-11PW** discusses how scientific understanding and technological developments have contributed to finding solutions to problems involving energy transfers and transformations | **SC5-11PW** explains how scientific understanding about energy conservation, transfers and transformations is applied in systems |

[NSW Geography K-10 Syllabus](https://www.educationstandards.nsw.edu.au/wps/portal/nesa/k-10/learning-areas/hsie/geography-k-10) and [NSW Science 7-10 Syllabus](https://educationstandards.nsw.edu.au/wps/portal/nesa/k-10/learning-areas/science/science-7-10-2018) © NSW Education Standards Authority (NESA) for and on behalf of the Crown in right of the State of New South Wales 2015 and 2018. See the [NESA website](https://educationstandards.nsw.edu.au/wps/portal/nesa/mini-footer/copyright) for additional copyright information.