

# Teacher Resource

## Coastal Erosion

### Focus Questions

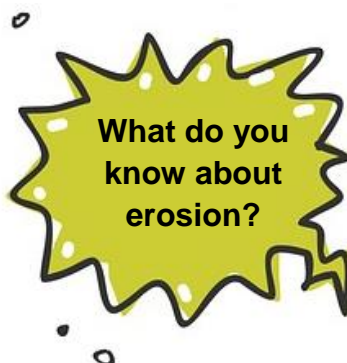
1. What did the BTN *Coastal Erosion* story explain?
2. Which Australian coastline recently experienced severe storm systems?
  - a. East coast
  - b. West coast
  - c. South coast
3. Erosion is a natural process. True or false?
4. What causes beach erosion?
5. Describe the experiment in the BTN story using your own words.
6. Why did a day care centre on the coast in Newcastle have to be pulled down?
7. How is the government trying to stop coastal erosion?
8. What is a seawall?
9. Why are many councils trying to protect sand dunes?
10. Illustrate an aspect of the BTN *Coastal Erosion* story.

### Activity

#### Class discussion

Hold a class discussion about the issues raised in the BTN *Coastal Erosion* story. Use the following questions to help guide discussion:

- What do you know about erosion?
- What causes coastal erosion?
- Why is coastal erosion a problem?
- What impact does coastal erosion have on people and the environment?
- What questions do you have about erosion?



#### KWLH

Record what students know about coastal erosion and its impact on people and the environment on a mind map. What questions do they have about what they have learnt in the BTN story? The following KWLH organiser provides students with a framework to explore their knowledge on this topic and consider what they would like to know and learn.

<i>What do I know?</i>	<i>What do I want to know?</i>	<i>What have I learnt?</i>	<i>How will I find out?</i>

### Key Learning

Students will investigate the cause of coastal erosion. Students will plan and conduct an experiment to demonstrate how coastal erosion works.

### Curriculum

#### Science – Year 4

Earth's surface changes over time as a result of natural processes and human activity.

Science knowledge helps people to understand the effect of their actions.

#### Science – Year 5, 6

Scientific knowledge is used to solve problems and inform personal and community decisions.

#### Science – Year 6

Sudden geological changes and extreme weather events can affect Earth's surface.

With guidance, pose clarifying questions and make predictions about scientific investigations.

## Activity

### Topics of inquiry

Students will determine a focus for their coastal erosion inquiry within an area of interest, for example, make a prediction or develop a key research question.

- What causes coastal erosion? Investigate the natural causes of coastal erosion and coastal erosion caused by people.
- How can we minimise coastal erosion?
- Why should we protect our coasts from erosion? Write a persuasive piece of writing explaining your reasons.
- What might happen if we don't look at the coastal erosion problem? What will our coasts look like in 30 years' time? Make some predictions.

## Activity

### Visual literacy

In this activity students will examine, analyse and query a range of images which show coastal erosion. Students will choose one or more of the images below and respond to the following:

- Write a short paragraph describing what you see in this image. Write a caption for the image.
- When and where was the photo taken?
- Imagine you are a scientist examining the damage caused by coastal erosion. Explain using scientific words and terms how the erosion occurred. In your description include one or more of the following terms: natural process, coastal erosion, tidal force, waves and shoreline.
- Could the damage have been prevented or minimised? Research how Australia's coast can be protected to minimise erosion.
- What questions do you have about what you see in the image?



[ABC News](#)



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## Further investigation

Students will analyse this image and then respond to the following:



[ABC News](#)

- Write a caption for this image.
- What do you think this image is illustrating?
- Imagine you are one of the residents living along this coastline. Write a letter to your local council member explaining your concerns.

## Activity

### Scientific experiment

Provide students with the opportunity to think and behave like scientists. Before starting the investigation, watch BTN's *Coastal Erosion* story. Working in pairs or small groups, students will then conduct the experiment using water and sand to demonstrate how coastal erosion occurs. Students will use the following framework as a guide before, during and after their investigation

**Experiment: Wave action** – Find a large tub. Fill 1/3 of the tub with sand and press into shape making a 'beach'. Fill the tub with 2 cups of water to provide an 'ocean'. Draw a 'before' picture. Create waves by moving the water with a paddle (e.g. lunchbox lid). Draw an 'after' picture.

## Research

Before starting this experiment, respond to the following:

- What causes coastal erosion? Describe using your own words
- How can coastal erosion be minimised? Give your suggestions.

## Investigation

Follow these steps during your investigation:

- What am I going to investigate?
- What do I think will happen (prediction)?
- Why do I think this will happen?
- What steps do I need to follow to investigate my prediction?
- What materials and equipment will I need? Make a list and then draw/label each item.
- Complete the experiment and document what you observe.
- Write a paragraph that summarises what happened.
- Was this what I expected? Explain.

## Reflection

Reflect on the investigation by responding to one or more of the following questions:

- What did you enjoy about this investigation?
- What did you find surprising?
- What would you do differently next time?

## Useful Websites

Storm Erosion – BTN

<https://www.abc.net.au/btn/classroom/storm-erosion/10524572>

What is coastal erosion? – Geoscience Australia

<https://www.ga.gov.au/scientific-topics/community-safety/coastalerosion>

Coastal Erosion - BOM

[http://www.bom.gov.au/pacificsealevel/pdf/Coastal\\_Erosion\\_fact\\_sheet.pdf](http://www.bom.gov.au/pacificsealevel/pdf/Coastal_Erosion_fact_sheet.pdf)

Coastal Erosion – Understanding cause, response and impact – Geoscience Australia

[http://geoscience-  
au.maps.arcgis.com/apps/Cascade/index.html?appid=14c50929ce1144f395bdd801440983d7](http://geoscience-au.maps.arcgis.com/apps/Cascade/index.html?appid=14c50929ce1144f395bdd801440983d7)

Newcastle beachside cabins in danger of toppling into sea after wild weather – ABC News

<https://www.abc.net.au/news/2020-02-11/newcastle-beachside-cabins-in-danger-of-toppling-into-sea/11953274>