



Teacher Resource

Antarctic Sea Ice

Focus Questions

Discuss the BTN story as a class and record the main points of the discussion. Students will then respond to the following:

1. Where is Antarctica? Find on a map.
2. Why are scientists concerned about the sea ice surrounding Antarctica?
3. Complete the following sentence. Sea ice helps to regulate the Earth's _____.
4. What is ice-albedo feedback?
 - a. When sea ice reflects the sun's heat back into space.
 - b. When sea ice absorbs the sun's heat into the ocean.
5. How will melting sea ice impact animals that live in Antarctica?

Activity: See, Think and Wonder?

After watching the BTN Antarctic Sea Ice story students will respond to the following:

- What did you SEE in this story?
- What did this story make you WONDER?
- How did this story make you FEEL?
- Think of three questions you have about the BTN story.

Activity: Questions and Answers

All scientific discoveries start with a question! As a class, come up with some questions you think scientists ask and solve in relation to Antarctica. As a class, make a list of questions that you would like to ask a scientist that works in Antarctica. Organise the questions into common themes. Use the internet to find answers to your class questions.

What scientific questions do you have about Antarctica?

In this [BTN Antarctica Q&A video](#), a group of experts answer questions that kids had about Antarctica and the people and animals that live there.

EPISODE 20

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KEY LEARNING

Students will investigate the impact of melting Antarctic sea ice on the environment.

CURRICULUM

Science – Year 5

Living things have structural features and adaptations that help them to survive in their environment.

Science – Year 6

Scientific understandings, discoveries and inventions are used to solve problems that directly affect peoples' lives.

The growth and survival of living things are affected by physical conditions of their environment.

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

Science – Year 7

Science knowledge can develop through collaboration across the disciplines of science and the contributions of people from a range of cultures.

HASS – Year 4

Record, sort and represent data and the location of places and their characteristics in different formats, including simple graphs, tables and maps, using discipline-appropriate conventions.

Activity: Glossary

Students will brainstorm a list of key words that relate to the BTN Antarctic Sea Ice story. The glossary will help inform students while working through the activities in this resource. Below are some words to get them started.

SEA ICE	EXTREME WEATHER	LAND ICE
OCEANOGRAPHER	SOUTH POLE	ECOSYSTEMS

Further investigation:

- Ask students to clarify their understanding of the key words by writing down what they think the word means. Swap definitions with a partner and ask them to add to or change the definition. Check them using a dictionary or other source.
- Students will choose additional keywords and terms to add to their class glossary that are tricky. For example, ice shelf, ice sheet, glacier, snow melt, climate change, and ice–albedo feedback. Students will find a definition and add to their glossary.
- What is the difference between land ice and sea ice? Write a short explanation for each type of ice and make comparisons.

Activity: Research project

Discuss the information raised in the BTN Antarctic Sea Ice story. What questions were raised in the discussion and what are the gaps in students' knowledge? The following KWLH organiser provides students with a framework to explore their knowledge on this topic.

What do I <u>k</u> now?	What do I <u>w</u> ant to know?	What have I <u>l</u> earnt?	<u>H</u> ow will I find out?

Students will develop their own question/s to research or select one of the questions below.

- What animals rely on sea ice to survive? Describe the sea ice habitat.
- Where is Antarctica? Find on a map. How far is Antarctica from where you live? Calculate the distance.
- How large is the Antarctic sea ice in winter? How large is the Antarctic sea ice in summer? Plot your findings on a bar graph.
- What marine animals live in Antarctica? Choose one species to explore in more detail. Create a 3D model of the animal and display in the classroom.
- Investigate some of the ways animals are affected by the extreme weather conditions in Antarctica. What behaviours and adaptations do they have for coping with such extreme conditions? For

example, explain how emperor penguins' huddling behaviour helps to keep them warm, and effectively makes sure that no individual penguin is left to freeze on the outside of the huddle.

- Describe the landscape and weather conditions you would expect to see and experience on an expedition to Antarctica. Imagine you are an adventurer visiting Antarctica for the first time. What will you need to understand about Antarctica's environment before embarking on your trip? What equipment and clothing will you need? What transport will you use? Plan an itinerary for your adventure. What challenges do you think you will face on your adventure?

Activity: Species profile

Students will imagine they are marine biologists and study a species that calls Antarctica its home. Students can use the animal profile worksheet at the end of this activity to record their findings. Encourage students to use a range of sources to find their information.

Research

Students will research the following and then share their research findings with the class or create a display in the classroom. Students can use the Animal Profile at the end of this activity.

- Name (common and scientific name)
- Biological illustration or photo
- Classification (class, family, genus)
- Description (size, colour, physical features)
- Habitat
- Diet
- Behaviours
- Adaptations
- Threats and conservation status



Share

- Share and compare your findings with your classmates.
- Present your research in an interesting way.
- Think of ways to raise awareness about the impact of melting ice in Antarctica.

Action

- What steps can you take to help protect the species?
- Email your local MP to voice your concern.
- Become a citizen scientist!

Further Investigation

Students will then choose one of the following activities to complete:

- **Model** – Create a 3D model of the species using upcycled materials. Display your model in the classroom.
- **Diary** – Write a diary of what might happen in the daily life of an Antarctic sea species.

- **Haiku** – Write a haiku poem about the species.
- **Children’s book or comic** – Write and illustrate either a children’s book or comic which tells the story of the species.
- **True or false?** – Find out as much as you can about Antarctica and the species that live there. Create a true or false quiz and test your classmates.
- **Celebrate** – Celebrate the Antarctic Treaty on the 1st of December. Think of a creative way to celebrate the day in your class.

Activity: BTN Antarctica Special

BTN reporter Emma went on a journey to one of the world’s most remote and amazing places - Antarctica! She’s met the people that live and work there, discovered why the frozen continent is so important to science and spotted some of the amazing animals that call it home. Check out the special [here](#).

Take a look at this [BTN video](#), where a group of experts answer questions that kids had about Antarctica and the people and animals that live there. What questions would they ask an expert about Antarctica?



Activity: Antarctica Q&A

In this [BTN video](#), a group of experts answer questions that kids had about Antarctica and the people and animals that live there. Respond to the following questions:

- What did you learn watching this video?
- What information was surprising?
- What question would you ask an expert about Antarctica?



Useful Websites

- [Antarctic Sea Ice Concerns](#) – BTN Newsbreak
- [Antarctic sea ice levels dive in 'five-sigma event', as experts flag worsening consequences for planet](#) – ABC News
- [Sea Ice](#) – Australian Antarctic Program
- [Antarctic Special](#) – BTN
- [Antarctic Habitat](#) – Antarctic and Southern Ocean Coalition

ANIMAL PROFILE

Scientific Name

APPEARANCE

Common Name

ADAPTATIONS

Unique Features or Interesting Facts

HABITAT

THREATS