



Teacher Resource

Space Junk

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. Summarise the BTN Space Junk story in 3-4 sentences.
2. What is space junk? Give a definition.
3. How fast does space junk travel when it is orbiting in space?
4. Who is responsible for space junk?
5. What are some solutions that scientists are working on to reduce space junk? Give one example.

Activity: Class Discussion

Before watching the story...

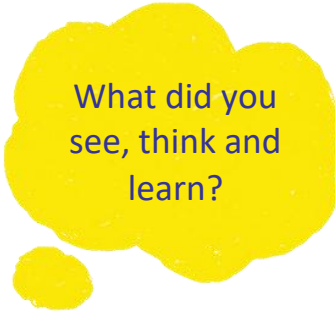
Before watching the BTN Space Junk story hold a class discussion about space junk using the following prompts.

- What do you think you will see in the BTN story?
- What do you already know about space junk? Brainstorm ideas as a class.

After watching the story...

After watching the BTN Space Junk story, students will respond to the following questions:

- What is space junk? Give some examples.
- How does space junk get into space?
- How much space junk is there?
- Why is space junk a problem?
- What might happen if we don't address the problem of space junk? What do you think space will look like in 30 years' time? Make some predictions.



What did you see, think and learn?

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KEY LEARNING

Students will explore the impact of space junk on Earth, the Moon and space exploration. Students will consider the challenges of space junk.

CURRICULUM

Science – Year 5

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

The Earth is part of a system of planets orbiting around a star (the sun).

Science – Years 5 & 6

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

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

Science – Year 6

Describe the movement of Earth and other planets relative to the sun and model how Earth's tilt, rotation on its axis and revolution around the sun relate to cyclic observable phenomena, including variable day and night length.

Science – Year 7

Model cyclic changes in the relative positions of the Earth, sun and Moon and explain how these cycles cause eclipses and influence predictable phenomena on Earth, including seasons and tides.

Activity: Key Words

Students will brainstorm a list of key words that relate to the BTN Space Junk story. Here are some words to get them started.

Space Debris

Orbit

Space Junk

Satellite

Space exploration

Rocket

Spacecraft

Collision

Ask students to write what they think is the meaning of each word (including unfamiliar words). They will swap definitions with a partner and ask them to add to or change the definition. Check these against the dictionary definition.

Further activities for students:

- Students will add to their glossary by downloading the transcript for the BTN Space Junk story and highlight all the words that relate to the topic. Additional words include fragments, atmosphere, lunar, Moon, crater, gravity, scientists, space station, robot, clean-up and impact.
- Where does the word *debris* come from? Explore the word's origins and meaning.
- Why are satellites called *satellites*? Explore the origin and meaning of the word satellite.
- What is the history of Einstein Crater on the Moon? Explore its location, discovery and how it got its name.

Activity: Visual Literacy

Students will work individually or in small groups to find 3-4 images online that show the impact of space junk. Images may include:

- Actual photographs of space debris or damaged spacecraft
- Photographs showing satellites or objects in orbit
- Diagrams or visual presentations of orbital debris
- An artist's impression of space junk in space
- Artwork showing possible future impacts of space junk

Students will examine the image/s and respond to the following. Encourage students to use vocabulary from their list of keywords in their responses.

- What can you see? Write a short paragraph describing what you see in the image.
- What objects or details stand out?
- What do you think is happening in the image?
- What does the image tell you about space junk?
- How does the image make you feel? Identify what emotion you feel and what features of the image make you feel this way.

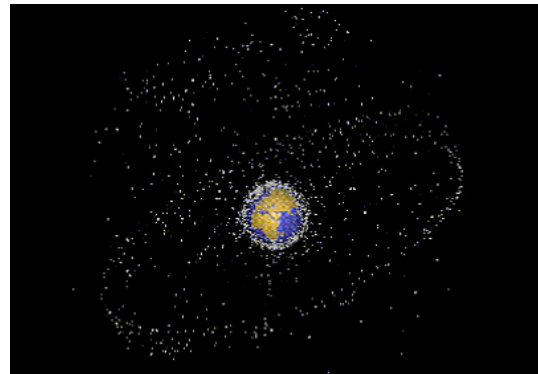


NASA

- Create a caption for each image.
- Record the source (website) for each image.



[ABC News](#)



[ESA Kids](#)

Further investigation

- Imagine you are a scientist investigating the impact of space junk. Explain using scientific vocabulary and terms, explain why space junk exists and the impact it has on space and Earth.
- Could the problem of space junk have been avoided? Research the different ways scientists and organisations are working to prevent and reduce space junk.
- What are some of the strangest objects that humans have left in space? Visit the [National Geographic Kids](#) website to find out. Create a poster to illustrate your findings.

Activity: Six Hat Thinking

As a class, use Edward De Bono's Six Hat Thinking to explore the issues raised in the BTN Space Junk story. Make your own coloured hat cut outs and place on the floor. Students will take it in turns answering questions in relation to what they already know about the issue, what they have learned from the story and what they want to learn further about the topic. Ask students to respond to the following questions:

- How did the BTN Space Junk story make you feel?
- What do you know about space junk?
- What have you learnt from the story?
- Were there any positives from the story? If so, what were they?
- What are some of the negatives or challenges that you learnt from the story?
- Why is it important to learn about the issue?
- What questions were raised during this activity? Think of three questions you would like to ask about the story.
- What do you want to learn further about this topic?



Reflection

After this activity, ask students to reflect on what they have learnt. Students can include details about how their thinking on this issue has changed and why they think we should act.

Further investigation

In small groups, students will brainstorm innovative ways to clean up and reduce space junk. Encourage creativity during this activity and give students the time to explore their thinking and illustrate their ideas. Students will then share their ideas with the class, taking it in turns explaining how their creations will help reduce the amount of debris that is orbiting in space.

Encourage the class to ask questions about the other groups' creations and then reflect on their own learning.

- What was challenging about this activity?
- What did you enjoy about this activity?

Useful Websites

- [Moon Crash?](#) – BTN Newsbreak
- [Space Junk](#) (2023) – BTN
- [Is Space Junk Dangerous?](#) – BTN High
- [Space Junk](#) (2022) – BTN
- [Space junk: What is it and why is it a problem?](#) – CBBC Newsround
- [What is space junk and why is it a problem?](#) – Natural History Museum
- [Space Junk](#) – ESA Kids
- [Space Junk! 20 seriously strange things you'll find in space](#) – National Geographic Kids