Teacher Resource

Starliner Spacecraft

EPISODE 14
28th May 2024

KEY LEARNING
Students will learn more about NASA's space shuttle program and the Starliner spacecraft.

CURRICULUM
Science – Year 5
The Earth is part of a system of planets orbiting around a start (the sun).

Science – Years 5 & 6
Scientific knowledge is used to solve problems and inform personal and community decisions.

Science – Year 7
Scientific knowledge has changed peoples' understanding of the world and is refined as new evidence becomes available.

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. Briefly explain NASA's space shuttle program.
2. Why was the program stopped in 2011?
3. How have astronauts been travelling to the ISS?
4. Why did NASA give private companies billions to build spacecrafts?
5. What challenges has the Starliner faced?

Activity: Note taking

Students will practise their note-taking skills while watching the BTN Starliner Spacecraft story. After watching the story, ask students to reflect on and organise the information into three categories. What information in the story was positive, negative, or interesting?

Activity: Class Discussion

Students will respond to one or more of the following questions after watching the BTN story:

- What is the Boeing Starliner?
- Why was the Starliner built?
- What is the International Space Station?
- How do astronauts travel to and from the ISS?
- What was surprising about the Starliner Spacecraft story?
- Think of three questions you have about the story.

Activity: Glossary

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

SPACECRAFT	REUSABLE	LAUNCH
SPACE SHUTTLE	MISSION	INTERNATIONAL SPACE STATION

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.

Activity: Research

Discuss the information raised in the BTN Starliner Spacecraft 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 **know**?	What do I **want** to know?	What have I **learnt**?	**How** will I find out?

Students will develop their own question/s to research or choose one or more of the questions below. Encourage students to collect and record information from a wide variety of sources and present the information they find in an interesting way.

- What were some significant space shuttle missions? Choose one to research in more detail.
- How did NASA's space shuttle program impact space exploration?
- What role did space shuttles play in building and maintaining the ISS?
- What were the challenges of launching and landing the space shuttle?
- What challenges do engineers face when designing reusable spacecraft?
- What missions is the Starliner designed to perform?
- How does the design of the Starliner differ from other spacecraft like SpaceX's Dragon or NASA's Orion?
- What are some features and technologies used in the Starliner spacecraft?
- Why do we have an International Space Station? Investigate the work astronauts do on the ISS.
- How have spacecrafts changed over time?
- Do you think space exploration is important? Why or why not?

In 2011 NASA's Space Shuttle Program was retired. Watch this BTN video to learn more about the program and why it came to an end.

Activity: Spacecraft Research

Students will choose a spacecraft to explore in more detail. Below are some examples to choose from. Students will then respond to the following research questions to create a profile about the spacecraft.

- Who created the spacecraft?
- When was it created?
- What is/was the purpose of the spacecraft?
- Is the spacecraft reusable?
- How much did it cost to build?
- Is it crewed or uncrewed? How many people can it carry?
- Did it complete any missions? Briefly summarise the mission and describe its purpose.
- How has the spacecraft and its missions been important to space exploration?
- Create a labelled diagram of the spacecraft.

SpaceX Dragon

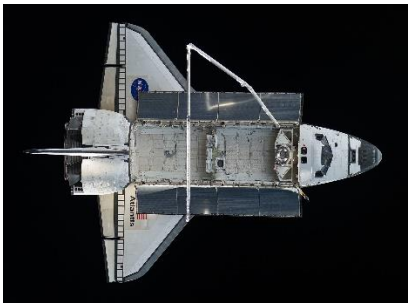
Apollo

Starliner Crew Spacecraft

Orion

Soyuz

Atlantis



Activity: Get to know the ISS

- What is the ISS? Why do we have an International Space Station?
- What do astronauts do on the ISS?
- How does the work carried out by the ISS astronauts contribute to science and affect life on Earth?
- What are some amazing moments on the ISS?
- How has technology used in space exploration changed over time?

Further investigation

- Find out what the astronauts are up to on the ISS and the research what they are doing by checking out the Space Station blog update Share what they are doing with another student.
- Spot the International Space Station. Watch the ISS pass overhead from locations all around the world. It is the third brightest object in the sky and easy to spot if you know when to look. Enter your location to find out when you can see it.

Activity: Choose a project

Individually or in small groups, students will choose one of the following projects to work on and then present their findings to the class.

Tour the ISS
Have you ever wondered how astronauts go to the toilet in space? Watch this tour of the ISS to learn more. What did you learn?

Did You Know?
Using the information in the BTN story and your own research, create a *Did You Know* fact sheet to show what you have learnt. Publish using Canva

Reporter for the Day
Research and write an online news report for kids about the launch of the Starliner spacecraft.

Spacecraft Design
Imagine you are an engineer and design a spacecraft. Think about:
What kind of spacecraft is it?
What missions is it suitable for?

Useful Websites

- Shuttle Shutdown – BTN
- International Space Station – NASA
- Crew launch to International Space Station delayed again – Newsround
- SpaceX Launch – BTN