Teacher Resource

Aussie Rocket Launch

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. Describe the rocket testing facility in South Australia.
2. What is the technical name of Siobhan's qualification?
    a. Rocket Scientist
    b. Aerospace Engineer
    c. Rocket Technician
3. What does suborbital mean?
4. What is the purpose of the rocket?
5. Why is Australia considered to be in a good position for space exploration? Give one example.

Activity: Class Discussion

Discuss the information raised in BTN Aussie Rocket Launch story as a class. Create a mind map about space exploration and include information/questions about Australia's involvement in space exploration. Use the following questions to guide discussion:

- Why is a rocket being launched in South Australia?
- What is a suborbital rocket?
- Why is Australia a good place to launch a rocket?
- Why should we explore space?
- Is space exploration important? Why or why not?
- Is it important for Australia to be involved in space exploration? Why or why not?
- What are some of the benefits of space exploration?
- Are there any disadvantages? What are they?
- How has space exploration changed since the 1960s?
- What is the future of space exploration?

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KEY LEARNING
Students will learn more about how rockets work and how they are used to explore space. They will also investigate Australia's role in space exploration.

CURRICULUM
Science – Year 5
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.

Science involves testing predictions by gathering data and using evidence to develop explanations of events and phenomena and reflects historical and cultural contributions.

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

Change to an object's motion is caused by unbalanced forces, including Earth's gravitational attraction, acting on the object.

Activity: Glossary

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

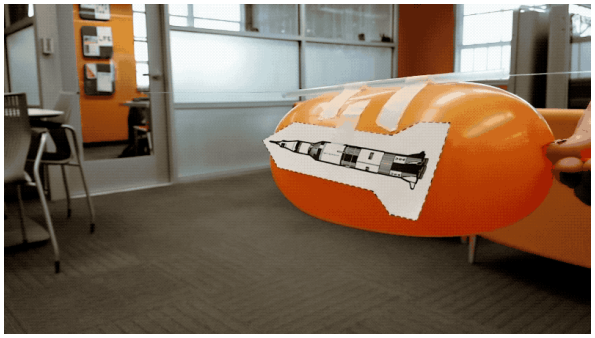
EXPLORATION	ROCKET	LAUNCH
SATELLITE	PAYLOAD	SUBORBITAL

Activity: Rocket Science

Students will learn more about rockets by conducting one or more of the following NASA experiments.

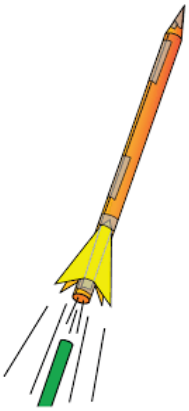
Simple Rocket Science

Students will learn how a rocket works and demonstrate Newton's third law of motion. They will make predictions about the motion of a rocket, perform an experiment to verify and repeat the experiment to validate the results. Find more information about the NASA experiment here.



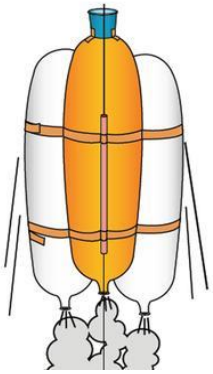
3...2...1...Puff! – Rocket Stability

Students will learn about rocket stability as they construct and fly small indoor paper rockets. They will determine their flight stability and launch them by blowing air through a drinking straw. Find more information about the NASA experiment here.



Heavy Lifting - Balloon Powered Rocket

Students construct balloon-powered rockets to launch the greatest payload possible to the classroom ceiling. Find more information about the NASA experiment here.



Investigation Framework

Below is an investigation framework to guide students when planning and conducting their experiments.

- 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 list or draw and label each item.
- How will I make it a fair test? What variables am I going to keep the same?
- Write a sentence that summarises what happened?
- A labelled diagram or a table of my results or observations to demonstrate what happened.
- Was this what I expected? Yes or no.

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.

How does a rocket work?
Create an information report about how rockets work and how they are used to explore space.

Australia and Space
Canberra Deep Space Communication Complex (CDSCC) has been involved in NASA missions for more than 50 years. Choose a mission CDSCC has been involved in and research it in more detail.

Quiz
Create a true or false quiz to test your classmate's knowledge about rockets or Australia's involvement in space exploration.

Did You Know?
Find out more about the important role Australia played in the Apollo 11 mission and create a *Did You Know* fact sheet to show what you have learnt.

Activity: BTN Stories

As a class watch one or more of the following BTN stories to learn about Australia's role in space exploration. After watching any one of the BTN videos ask students to respond to the discussion questions (to find the discussion questions and teacher resources go to the related BTN Classroom Episode and download the Episode Package).

Aussie Space Agency

Aussie Astronauts

Parkes Telescope Anniversary

Apollo 11 and Parkes

Useful Websites

- More rockets to launch from Whalers Way site on Eyre Peninsula as tests get federal approval – ABC News
- Aussie Space Agency – BTN
- Aussie Astronauts - BTN
- Australia's Big Rocket Launch – Newsbreak
- What is a rocket? - NASA