



ABOUT OUR SOLAR SYSTEM

Cross-curricular lessons

Below you will find curriculum-linked lesson ideas and student activity sheets to extend students' learning in the 'About our solar system' Unit of Work.

The education resource materials have been designed for a national audience and offer a broad range of learning experiences for middle to upper primary students.

English

- Students to construct a short narrative about:
 - being an astronaut and discovering a new planet
 - an encounter with an alien from outer space
 - being stranded on the moon after being left behind by fellow astronauts
 - a topic of their choice.
- Students to respond to the statement: 'There is no existence of life outside Earth.' This could be answered individually by an exposition argument or in groups as part of a structured debate.
- Students to start a solar system word wall using the '**Alphabet grid**' activity sheet. This can be added to as students learn more about the solar system.
- Students to read the information about the planets in the 'Facts for students' section in 'Themed curriculum support resources' on the FTfs website then answer the questions on one or more of the '**Planet comprehension**' activity sheets.
- Mnemonics are a common strategy used to help people remember things. A common one to remember the order of the planets is '**My Very Educated Mother Just Served Us Nuts**'. Students to think of other phrases that could be used.

Mathematics

- Students to research how far each planet is from Earth and then calculate how long it would take to reach it if:
 - flying in a plane (900 km/h)
 - travelling by high speed rail (200 km/h)
 - driving in a car (80km/h)
 - power walking (10 km/h)



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- Students to plot each planet's distance from the sun on a large piece of graph paper. Plots should be to scale.
- Students to plot graphs representing the difference in temperature, mass, diameter or distance from the sun between each planet. Different types of graphs to be used for each variable (e.g. bar, line, column, pie etc.).
- Students to calculate how much they would weigh on each planet in the solar system.
- Students to practice their coordinate plotting skills by completing the '**Cosmic coordinate drawing**' activity sheet.

Science

- Students to research the properties and composition of a planet of their choice then determine if they could survive on the planet. If so, why? If not, why not? What would they need to survive (e.g. temperature insulation suits, oxygen, water, etc.)?
- Students to research the difference between a solar and lunar eclipse. How are they caused? How often do they happen? Students to create an eclipse simulation using common materials (there are many videos online to show how this can be done).
- Students to research the role of astronomers, scientists, engineers and technicians in space exploration and knowledge. They should consider the role of people such as Copernicus, Galileo, Newton etc. as well as more contemporary contributors such as Hubble, Sagan and Hawking.
- Students to research the Sun. Consider its temperature, size, mass, importance to the solar system, lifespan, what would happen if it burnt out etc.

Humanities and Social Sciences

History

- Australia has played a major role in many space exploration events over the last 60 years. Our world-class facilities and clear, dark skies, make us perfectly placed to be heavily involved in partnerships with NASA. Students to research notable Australians who have contributed to space exploration events.



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Economics and Business

- Space exploration and research requires a high level of government finances. Students to debate the pros and cons of spending money in this area.

The Arts

- In small groups, students to create a model of the solar system using recyclable materials, papier mache or scrap materials from around the classroom.
- Students to design their own planet then create a multimedia advertisement to attract tourists.
- In groups of 3-4, students to create a short play (1-2 minutes) about a space exploration mission.
- Individually or in groups, students to create a dance sequence (or dance moves) to represent moving on the moon (e.g. as slow large steps, floating movements, etc.).
- Students to select a verse from a favourite (appropriate) song and replace the lyrics with solar system-related themes and lyrics.
- As a class, watch some appropriate space-themed movies. Discuss how they portray our solar system and space exploration. What mediums do the directors use to create mood and effect? How accurate do students think the portrayal is?

Technologies

Digital Technologies

- Students to research the digital technologies (such as satellites, telescopes, televisual technologies, computer systems etc.) used in space exploration events. How have these changed and evolved over the years?
- Students to consider the importance of networked systems, particularly when space stations in different locations are working together.



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Design and Technologies

- Students to research how rockets, space shuttles, satellites or space explorers work. Consider the materials they are made from and why?
- Students to build their own rocket and test it out. This could be a 'drinking straw rocket', a 'foam rocket' or a 'balloon rocket'. Instructions for all of these rockets can be found online.

Health and Physical Education

- Students to play a catch game using planet temperatures as a guide for how long students can hold the ball before passing (e.g. if teacher calls out 'sun', which is very hot, students must pass ball after 1 second. If teacher calls out 'Pluto', which is very cold, students may have 10 seconds to pass the ball).
- Students to investigate the nutritional value of the foods that astronauts eat when in space.
- Students to research the effect that going in to space has on the various systems in our bodies.
- Astronauts have to be physically fit. Students to research why.