

# 50 YEARS SINCE THE BIRTH OF THE SPACE AGE

## DISCUSSION QUESTIONS AND ACTIVITIES

### NASA 1958–2008

#### The Mission

The National Aeronautics and Space Administration of the United States (NASA) is also celebrating 50 years of scientific and technological excellence. The mission of NASA is to pioneer humanity's future in space and to lead scientific discovery, particularly aeronautics research. Thousands of people around the world (including numerous Australians) are working to keep NASA's mission going. For 50 years NASA has been trying to answer questions such as:

- What is out there in space?
- How do we get there?
- What will we find?
- What can we learn there?
- What can we learn just by trying to get there?
- How will our discoveries make life better here on Earth?

#### *A brief history of NASA—Some important facts*

- NASA developed the technology and skills needed for the journey into space and the landing on the moon. On July 20, 1969, Neil Armstrong and Buzz Aldrin became the first of 12 men to walk on the moon.
- NASA carries out aeronautics research and developed the first weather and communications satellites.
- NASA developed America's versatile access to space, the Space Shuttle, which was first launched in 1981.
- NASA, together with Russia, established the first permanent human presence in space with the International Space Station, a multinational project representing the work of 16 nations.
- NASA continues with its scientific research and in 1997, Mars Pathfinder became the first in a new fleet of spacecraft to explore Mars.
- NASA helped to develop improved aircraft travel, making it safer and less polluting.
- NASA conducts or funds research that has led to numerous improvements to life here on Earth.

The NASA website is an invaluable resource for both teachers and students, providing a wealth of information about space exploration and space travel. Afford your students a glimpse into the exciting future in space at [www.nasa.gov](http://www.nasa.gov).

## DISCUSSION QUESTIONS

1. How long did it take for Sputnik's to complete one orbit around the Earth?
2. When were Sputnik 2 and 3 launched, and what was special about each of these satellites?
3. What were the first animals in space? Why were they sent into space?
4. What was the name of the first monkey in space?
5. What happened to the Space Shuttles Columbia and Challenger?
6. What was the role of the town of Parkes in space exploration?
7. What is gravity? Why is it important in space exploration?
8. Who was the first man to walk on the moon? What was the famous sentence spoken by this man when he stepped on the moon?
9. What is the International Space Station? What importance does it have to humankind?

## ACTIVITIES

### *Research project*

Divide the students into pairs. Ask the groups to research the life of Andy Thomas, the Australian-born NASA astronaut and aerospace engineer. Instruct students to include information such as when and where he was born, the training he received, his assignments and flights. Encourage the students to use a computer program to record and present their information to the class.

### *Australia's involvement in space exploration*

Allow the class to have access to the internet and books to find out about the town of Parkes and the role it played in the 1969 moon landing. Show the class snippets from the movie 'The Dish' to provide further information. Invite each student to act as a newspaper journalist reporting on the role played by Australian scientists in Parkes in 1969. Allow the students to make a model of 'The Dish' if they choose.

### *Measuring distances*

Divide the students into small groups and ask them to find the following:

- the distances between the sun and each planet
- the time each planet takes to orbit the sun
- the distance between:
  - the Earth and Venus
  - the Earth and Mars
- the number of moons of each planet
- the length of time it took in 1969 for each Apollo spacecraft to fly to the moon.

### ***Animals in space***

Divide the class into pairs. Ask them to use the internet to research animals in space. Invite the pairs to record their findings listing the animals (and their names where applicable) on a timeline. Display the timelines around the room. (*Teacher note:* It is recognised that many of animals used during space programs either died or were mistreated, so this activity might be too distressing for students.)

### ***Drama time***

Split the class into small groups. Ask them to research the moon landing in 1969. Encourage the groups to find out who was in the group that went to the moon, who walked on the moon, the name of the spacecraft and how they communicated with members of the team back on the ground. Invite each group to interpret and then to act out the moon landing.

### ***Life on mars***

Invite the students to write a narrative with the topic 'Life on Mars'. Encourage the students to research the planet Mars using books and the internet. Have them write a story using this information as well as including the life they imagine to be on Mars. Encourage the students to include descriptions of what they see, hear, smell and touch. Invite the students to read their stories to the class.

### ***Circle meeting***

Sit the class down on chairs in a circle. Present them with the topic 'Space exploration is a waste of money.' The first time around the circle ask each student to say 'yes' if they agree with the topic or 'no' if they disagree with the topic. The next time around, ask them to back up their initial answer. Continue around the circle allowing the students to express their opinions, reminding the class that only one person speaks at a time and that there are no wrong answers!

### ***The Space Shuttle***

Ask the students to form groups of 3 or 4. Invite the groups to select one of the four Space Shuttles built by NASA and research this spacecraft using books or the internet. Have the students collect and record information about their chosen shuttle including its name, dimensions, mission and interesting related facts. Ask each group to present their information in a creative way including a labelled sketch of their shuttle.

### ***The man in the moon***

Provide the students with photos or pictures of the moon. Discuss the fact that when you look at the moon it sometimes appears to have 'a man in the moon'. Give the students paper and paint and ask them to paint their own interpretation of the man in the moon. Invite them to write their own poem or prose about the moon to accompany their painting.

### ***Sputnik 1 model***

Encourage the students to research the dimensions of Sputnik 1. Invite them to use everyday objects and recycled materials to create a model of Sputnik 1 to display around the classroom.

### ***What lies ahead ...***

Encourage the students to look forward and think about the possibilities of future space exploration and travel. Ask them to list as many ideas as they can. Ask the students to design a travel brochure for a trip into space. Have them calculate costs, travel times, accommodation and activities. Invite them to include illustrations or photographs.

### ***International Space Station (ISS)***

Have the students work with a partner to find out about the International Space Station. Encourage them to find out and include the following information:

- purpose of the ISS
- altitude of the ISS
- travelling speed of the ISS
- mass, length, height and width of the ISS
- orbital period
- orbits per day
- the countries involved in its construction
- when it was first inhabited
- who is currently aboard
- other interesting facts

Have students include a sketch of the ISS.