



## Lesson and Activity Ideas

The following lesson and activity ideas have been designed to cater for a wide age group. It is anticipated that students will require considerable assistance from teachers in these lessons. Students will:

- learn about hot-air balloons and how they fly
- understand some of the general principles involved in aviation
- gain an understanding of the Air Force, and how it assists and protects the Australian community.

### Science / Design & Technology

- Students to collect a variety of objects made from different materials, and of various sizes and shapes. They are then to carefully throw and drop the objects, and observe their behaviour in flight. Discuss with students why movement through the air varies for different objects; for example, why some objects might stay in the air longer than others, or why the path made through the air might vary between objects of different shape.
- Hot-air balloons are able to climb, descend and travel great distances without engines. Discuss with students how a combination of heating the air inside the hot-air balloon, releasing warm air from a vent in the top of the balloon, and the nature of the wind in which it is flying, make this possible. What might be some of the advantages and disadvantages of this form of flight in comparison to aircraft that have engines?
- In groups, students to blow up balloons of the same type with different amounts of air and seal them to prevent the air escaping. They are then to observe the different flight characteristics of the balloons when they are dropped and thrown horizontally. Investigate with students why they behave differently and what principles of flight might be involved.

### Mathematics / Mathematics - Numeracy

- Assist students to blow up balloons of the same type with a single breath of air. They are to then measure the circumference of each balloon. Discuss with students how the size of the circumference of a hot-air balloon might affect the way in which it flies, and the number of passengers it can carry.

### SOSE / HSIE / The Humanities / Society & History

- Discuss with students the types of humanitarian missions undertaken by the Royal Australian Air Force, both in Australia and overseas. In groups, students to draw what they have learnt on a poster.

### English / English Language / English - Literacy

- Students to complete a KWL chart. It should include: what they Know about how hot-air balloons fly, What they would like to know and then, following some research and discussion, what they have Learnt about how hot-air balloons fly.

### The Arts / Creative Arts

- Students to imagine taking a hot-air balloon flight. They are to draw or paint what they think they would see as their balloon carried them over the countryside.

### Health & Physical Education / Personal Development / Health & Wellbeing

- Investigate with students what safety features are provided for jet fighter pilots who are required to fly their aircraft to extreme manoeuvrability and performance limits. Discuss with students why each of the safety features are important to these pilots.



### Languages / LOTE / English - Literacy

- Investigate with students the Phonetic Alphabet e.g. A = Alpha, B = Bravo, C = Charlie etc. This alphabet is used in aviation throughout the world to communicate over the radio. Students to discuss why they think pilots would use this special alphabet instead of just saying A, B, C. Students to write a short word using the Phonetic Alphabet and then spell the word to the class to see if it can be accurately interpreted.