



# Learning Activity

Years  
3-5

## Balloon rockets



### What you will need

- One or more balloons (round ones are ok, but long ones work better)
- Tape
- String
- A straw
- A ruler or measuring tape
- Notebook and pen
- Optional: a balloon pump



### What to do

- Watch the video of the balloon rocket.  
<https://www.youtube.com/watch?v=C-UvY5NFfeQ&feature=share>  
(Please note that this video is made for a younger audience, but you are going to take the concept further.)
- Thread the straw onto the string and tie the string between the two chairs.
- Put five breaths of air (or 5 pumps of air if using a balloon pump) in the balloon, tape it to the rocket and release it.
- Measure how far the balloon rocket travelled along the string and record it on the table below.
- Predict how far the balloon rocket will travel along the string when you put in 2,4,6 and 8 breaths of air. Record your prediction on the table below.
- Do a series of balloon rocket launches, each time with a different number of breaths (as per table and predictions). Measure and record the distance travelled.
- Create a column graph showing the number of breaths and distance the rocket travelled.
- Describe what happened and suggest explanations for the differences between predicted and measured distances.

This webpage also shows you how to set up the balloon rocket

<https://sciencebob.com/make-a-balloon-rocket/>





# What is happening?

The balloon moves because as the air comes out of the balloon in one direction, the balloon moves in the opposite direction.

Rockets work the same way. As the exhaust gases come out of the base of the rocket, the rocket moves in the opposite direction. This isn't because the exhaust gases push against the ground, but because the gases moving very fast one way push the rocket the opposite way.



## Curriculum links

### Year 3

#### Science

- Compare results with predictions, suggesting possible reasons for findings (AC SIS215)
- Use a range of methods including tables and simple column graphs to represent data and to identify patterns and trends (AC SIS057)
- Consider the elements of fair tests and use formal measurements and digital technologies as appropriate, to make and record observations accurately (AC SIS055)
- Science involves making predictions and describing patterns and relationships (AC SHE050)

#### Mathematics

- Measure, order and compare objects using familiar metric units of length, mass and capacity (AC M MG061)
- Identify questions or issues for categorical variables. Identify data sources and plan methods of data collection and recording (AC M SP068)
- Collect data, organise into categories and create displays using lists, tables, picture graphs and simple column graphs, with and without the use of digital technologies (AC M SP069)

### Year 4

#### Science

- Science involves making predictions and describing patterns and relationships (AC SHE061)
- Use a range of methods including tables and simple column graphs to represent data and to identify patterns and trends (AC SIS068)
- Compare results with predictions, suggesting possible reasons for findings (AC SIS216)

#### Mathematics

- Use scaled instruments to measure and compare lengths, masses, capacities and temperatures (AC M MG084)
- Construct suitable data displays, with and without the use of digital technologies, from given or collected data. Include tables, column graphs and picture graphs where one picture can represent many data values (AC M SP096)

### Year 5

#### Science

- Construct and use a range of representations, including tables and graphs, to represent and describe observations, patterns or relationships in data using digital technologies as appropriate (AC SIS090)
- Compare data with predictions and use as evidence in developing explanations (AC SIS218)
- Science involves testing predictions by gathering data and using evidence to develop explanations of events and phenomena and reflects historical and cultural contributions (AC SHE081)

#### Mathematics

- Choose appropriate units of measurement for length, area, volume, capacity and mass (AC M MG108)
- Pose questions and collect categorical or numerical data by observation or survey (AC M SP118)
- Construct displays, including column graphs, dot plots and tables, appropriate for data type, with and without the use of digital technologies (AC M SP119)



# Link to QVMAG

QVMAG houses a Skylark rocket in the Space Gallery.

The Skylark rockets didn't go to the Moon or orbit the Earth. These rockets made only short trips, mostly travelling between 200 and 300 kilometres above the Earth's surface, and then coming down again. They carried equipment to make measurements from space. Astronomers at the University of Tasmania used the equipment to detect X-rays. In some cases X-rays can be used to tell us the location of black holes.



Number of breaths	Predicted distance	Measured distance travelled
5		
2		
4		
6		
8		
Another number of breaths you choose		