The Big Topic: Space

First Man on the Moon

A gripping illustrated account of the historic first moon landings in July 1969

Aimed at readers aged 8+, this book recounts the story of the first moon landing, from its beginnings in the Space Race, to early missions, the successful Apollo 11 voyage, Armstrong's legendary first steps on the moon and the astronauts' heart-stopping return to Earth

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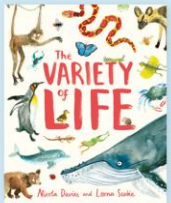
Cross-Curricular Lesson Ideas

This is a visually pleasing and fact-filled book that is perfect to share in a KS2 classroom to get your pupils excited about space travel. These resources are written with the KS2 National Curriculum for Year 3 and year 4 in mind.

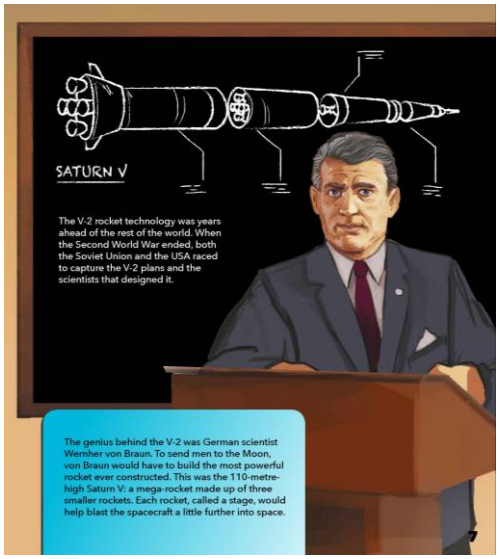
- Race for Rockets
- Countdown
- One Small Step

Resources created by:

Reading Rocks



Race for Rockets



After reading pages 4-7 together, set your pupils a challenge to design a rocket for your own space races.

Discuss how real rockets create THRUST to move upwards. https://www.grc.nasa.gov/WWW/K-12/rocket/rktfor.html

Explain to pupils that they will be using air trapped in a balloon to provide the thrust for their rocket. A straw should be stuck to a balloon. This is where a thread will provide a track for the rockets.

Pupils can design a rocket on card to attach to the balloon, or consider adding fins and wings to change the flight. This is a good point to consider weight and thrust as opposite forces.

When pupils let go of the balloon, releasing the air, the balloon should be pushed forwards.

Scientific enquiry:

There are so many opportunities for scientific enquiry in this activity, which are well worth doing whilst pupils are excited and engaged in the task.

- Try out changing the material of the thread: wool, cotton thread, string. Let pupils make a prediction about the effect the different tracks may have. Discuss the friction that each material may cause.

- Try changing the material of the straw: plastic, paper, metal. Let pupils make a prediction about the effect the different straws may have. Discuss the friction that each material may cause.

- Make sure pupils keep all other variables the same. Get them to think of ways to be sure it is a fair test. How can we keep the amount of air in the balloon the same? How can we keep the weight/mass of the rocket the same?

- Pupils can collect data to compare in tables they design themselves. Maybe they could measure how far the rocket travels, or time how quickly the rocket goes a set distance. All brilliant uses of real life maths. You may like to put this data into graphs or a Microsoft Excel to compare outcomes.

- Come to a conclusion together on the best track for your rockets.

Super challenge:

If you have great success with the rockets on a horizontal track (string across the room), why not see if you can get your rockets to go up, up, up on a vertical track, holding the string from the floor to as high as you can reach?

Do pupils think the rocket will go the same distance as it does on a horizontal track?

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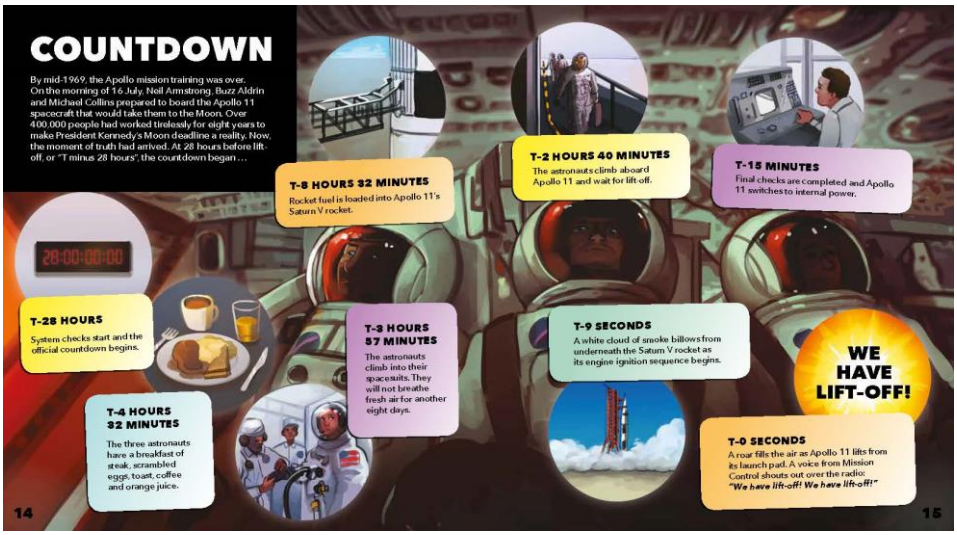
Countdown



Share together pages 14-15. Imagine the feelings of the astronauts in the build up to the launch.

- Are the events what pupils expected?
- Task pupils to take the information from these pages and to re format on to a timeline.
- Use an A4 page of cm squared paper (landscape). Use a square to represent an hour.

This task gives an opportunity to use negative numbers in a real situation. Encourage pupils to count away/back from the zero hours.

For some times, pupils will need to estimate and round the times, such as 8 hours and 32 minutes.

Setting it out to scale will allow them to see how far apart the events were, noting a big gap between the first and second event on page 14. Discuss with pupils which is the best format and why.

One Small Step:

Speeches:

Read together pages 20-21 and try to imagine what it was like to watch this momentous event. Why not watch some of the real footage available on YouTube.

- Armstrong's words are now incredibly famous. Discuss with pupils why they were a great choice. What does it suggest to them?
- Ask pupils to step into the moon boots of Armstrong and imagine it was them that got to set foot on the moon first. What would they have declared to all the viewers back on Earth? Consider the purpose of this speech – to show the significance of the event, to inspire.
- Turn this into a short speech writing task. Here are some sentences starters to spark ideas:

As I step onto the Moon, …..
I declare……
If you were here, you would…..
I do this for……
This momentous occasion should be remembered as…..

If you have a green screen and a suitable app to create green screen videos, why not get your pupils to perform their speeches (with their best low gravity walk) in a spacesuit with a moon scene behind them? Edit in iMovie, giving a black and white effect and a caption, too.

These would be a great outcome to share at a parents' event, on school social media or a class blog page. Why not tag in @NASA @ NASAMoon @astro_timpeake on Twitter?!

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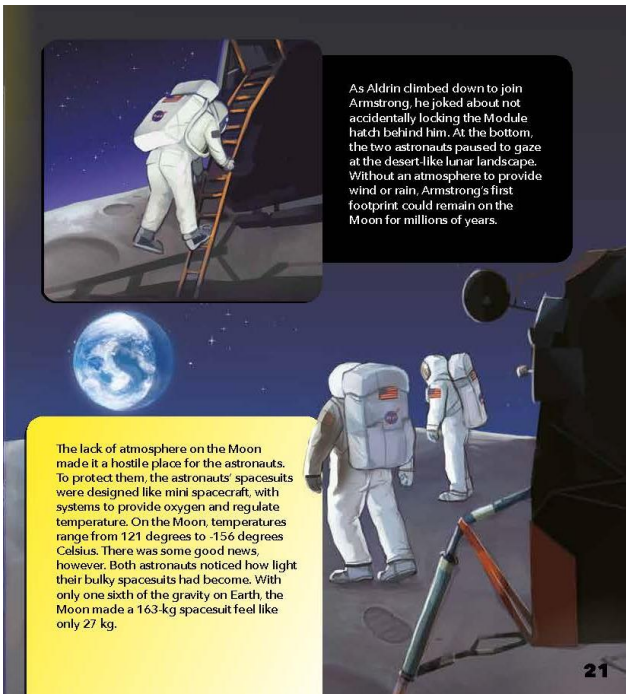
Making your Mark

Science:

- On page 21, note how long the astronauts' footprints could stay on the moon.
- Create an investigation to see how long footprints will last here on Earth, on your school playground.
- Select three types of ground and create them in trays. Maybe sand, mud, gravel.



Use the same boot to create a footprint in each and [lace in your chosen setting. Make sure they won't be disturbed by anyone!

Ask pupils to predict how the footprints will change over a week. Look at the weather forecast to inform the predictions.

Allow pupils to observe and monitor the footprints each day. They could note observations and take measurements of length, width and depth.

Art:

Create some footprints that will last forever! Use clay rolled out flat as a base for the footprint. Ask children to print their school shoe in the clay, creating a personal impression.

Leave to dry.

Mix white paint, sand and PVA and use to cover the dried footprints. This will give a lunar look!

These tiles could be displayed with pupil's moon landing speeches.

Extra Design Challenge:

Challenge pupils to create interesting boot sole designs. If a footprint is going to stay on the moon for a million years, it really should have a great message!

PSHE:

Neil Armstrong and Buzz Aldrin are remembered for this momentous event.

Discuss with pupils what they would like to be remembered for.

Would they like to be the first person to do something? Would they like to be remembered for certain actions and attributes?

Use the words aspiration and ambition as you discuss.