

Moon Water Discovery

Focus Questions

1. Retell the BTN *Moon Water Discovery* story using your own words.
2. What are the two building blocks of water?
 - a. Hydrogen and Oxygen
 - b. Helium and Oxygen
 - c. Hydrogen and Krypton
3. Complete the following sentence. Water has been found in frozen _____ on the Moon.
4. Water has only been found on the north pole of the Moon. True or false?
5. What is the name of the flying telescope that helped scientists find water on the Moon?
6. How much water did scientists find on the Moon?
7. What does NASA want to achieve as part of its Artemis program?
8. How can water be used to make rocket fuel?
9. Name three facts you learnt while watching the BTN story.
10. What questions do you have about this story?

Activity

Before students watch the BTN *Moon Water Discovery* story, ask them to record what they know about the Moon and record on a mind map.

Class Discussion

Discuss the BTN *Moon Water Discovery* story as a class. Continue to add to the mind map during the discussion. What questions do they have about the Moon? Use the following questions to help guide discussion:

- What are the conditions like on the Moon?
- Why do you think the recent discovery of water on the Moon is significant?
- Brainstorm a list of things humans need to survive. Do these things exist on the Moon?
- What do you think it would be like to live on the Moon?

Key Words

Students will brainstorm a list of key words that relate to the BTN *Moon Water Discovery* story. Here are some words to get you started.

Moon	Crater	Solar System
Lunar	Telescope	SOFIA

Key Learning

Students will investigate the discovery of water on the Moon and what it means for the possibility of living on the Moon.

Curriculum

Science – Year 5

Scientific understandings, discoveries and inventions are used to solve problems that directly affect peoples' lives.

The Earth is part of a system of planets orbiting around a star (the sun).

Science – Years 5 & 6

Scientific knowledge is used to solve problems and inform personal and community decisions.

Science – Year 6

The growth and survival of living things are affected by the physical conditions of their environment.

Science – Year 7

Predictable phenomena on Earth, including seasons and eclipses, are caused by the relative positions of the sun, Earth and the moon.

Scientific knowledge has changed peoples' understanding of the world and is refined as new evidence becomes available.



Activity

True or False

Students will read the following statements about the Moon and tick true or false next to them.

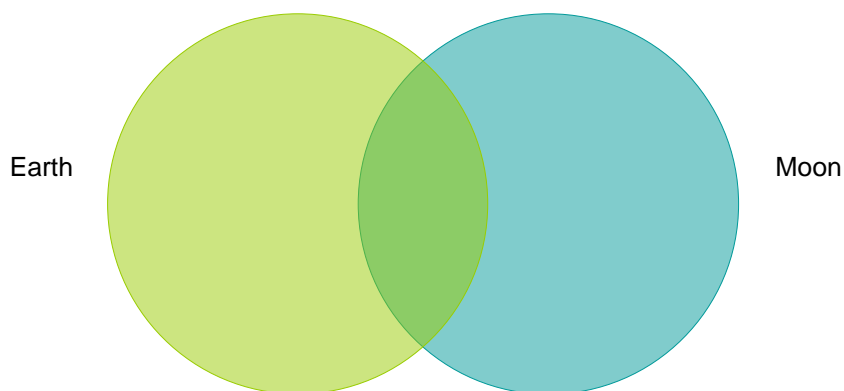
Statement	True	False
The Sun and the Moon are the same size.		
The Moon is 4.5 billion years old.		
Humans can breathe easily on the Moon because the atmosphere is similar to that on Earth.		
There are high levels of solar radiation on the Moon.		
The temperature on the Moon is similar to temperatures on Earth.		
From Earth, we always see the same side of the Moon.		
The gravity on the Moon is the same as Earth's gravity.		
The Moon has earthquakes call moonquakes.		

Answers: F, T, F, T, F, T, F, T

Activity

Compare the Earth and the Moon

Working in pairs, students will create a Venn diagram to compare and contrast the Earth and the Moon. Begin by brainstorming the characteristics of both the Earth and the Moon. Record similarities in the overlapping areas.



Activity

Research the Moon

Students will explore the Moon in more detail. After watching and discussing the BTN *Moon Water Discovery* story, what questions do students have and what are the gaps in their knowledge? Here are some possible questions for students to research:

- Investigate why the discovery of water on the Moon is significant. Apart from drinking, how can it be used?
- Research and prepare a profile on Earth's Moon. Include the following information: distance from Earth, how long it takes to orbit Earth, the minimum/maximum temperatures of the Moon and geographical features of the Moon. Include any other interesting facts you find.
- What are the relationships between Earth, the Moon and the Sun? Draw a diagram showing the relative sizes and movement of Earth, the Moon and the Sun. In your description include words like orbit, revolution and axis.
- How does gravity affect the Moon? Investigate Earth's gravitational pull on the Moon and explain why we only ever see one side of the Moon.
- How can we see the Moon? Explain why we can sometimes see the Moon during the day.
- What would humans need if they were going to survive on the Moon for a long period of time. Make a list.

Activity

Creating a colony on the Moon

Students discuss in pairs what the recent discovery of water on the Moon means for the possibility of one day living on the Moon. Students will think about the different ways in which water could be used to help people to stay on the Moon for longer periods of time (these were mentioned in the BTN story). Watch [The Living on the Moon video](#) and the [BTN Moon Living video](#) to learn more.

Students will then need to research conditions on the Moon so they can plan and design a settlement on the Moon that will sustain human life. Things they will need to consider include:

- What are the three basic things we need to survive?
- What are the conditions like on the Moon?
- What needs to be considered when planning a colony on the Moon? For example:
 - Water supply
 - Atmosphere
 - Temperature
 - Solar radiation
 - Food Production
 - Waste Management
 - Gravity



- What materials could be used to build a space settlement? Investigate the idea of using Moon dust and Sulphur to make bricks.
- What do you think it would be like to live on the Moon?
- What are the benefits of having a space settlement on the Moon?
- What are the challenges?

Students can create either a model or a labelled diagram of their 'Moon settlement'. Make sure that it has all the support systems to enable humans to survive. Display students' work in a public space in the school.

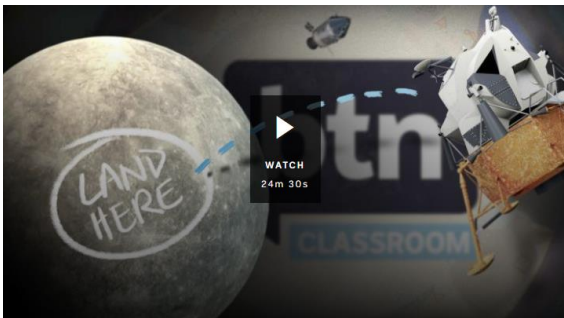
Further Investigation

Create an advertisement for your Moon settlement persuading people to live there.

Activity

BTN Moon Stories

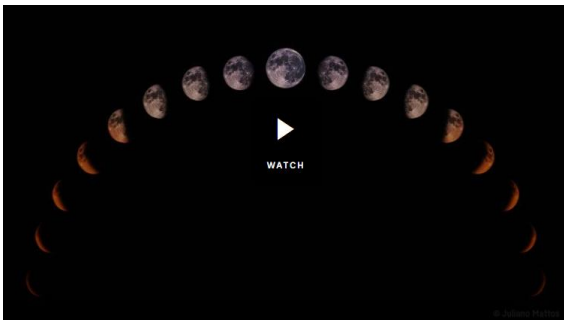
These BTN stories are all about the Moon. After watching any one of the BTN videos ask students to respond to the discussion questions (to find the teacher resources go to the related BTN Classroom Episode and download the Episode Package).



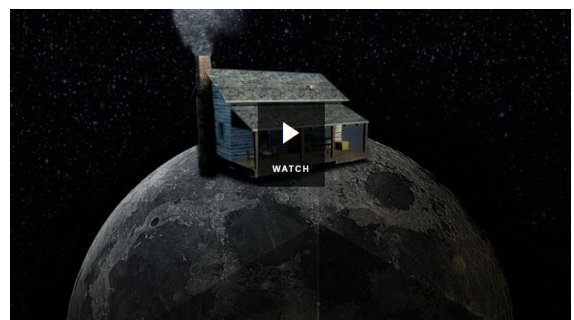
[50th Anniversary of the Moon Landing](#)



[Moon Exploration](#)



[Super Blue Blood Moon](#)



[Moon Living](#)

50th Anniversary of the Moon Landing

Watch [Ask a Reporter](#) Moon Landing and find out more about the Apollo 11 mission and more!



Useful Websites

NASA finds liquid water on the Moon, raising hopes for exploration and habitation – ABC News

<https://www.abc.net.au/news/science/2020-10-27/water-molecules-discovered-on-moon-using-nasa-flying-telescope/12806148>

There's more water on the moon than originally thought and it could be drinkable – Newsround

<https://www.bbc.co.uk/newsround/54658717>

NASA's SOFIA Discovers Water on Sunlit Surface of Moon – NASA

<https://www.nasa.gov/press-release/nasa-s-sofia-discovers-water-on-sunlit-surface-of-moon/>

Moon Living – BTN

<https://www.abc.net.au/btn/classroom/moon-living/10527786>

Living on the moon! – ABC Education

<https://education.abc.net.au/home#!/media/1902269/living-on-the-moon>

50th Anniversary of the Moon Landing – BTN

<https://www.abc.net.au/btn/classroom/20190723-ep19-btn/11313570>