STARS RESOURCES

Observing the Moon

ACTIVITY

Observe the features on the Moon with the help of a telescope.

By the end of this activity students will:

- be familiar with collecting and accurately recording observational data

- be able to recognise common features on the Moon.

Note: it is suggested that this activity is conducted when the Moon is not full for safety reasons. The full Moon is dangerously bright and could damage your eyes.

BACKGROUND INFORMATION

If you wish to choose a specific night for the students to conduct their activity, and wish to supply them with a picture of what they should expect to see, use:

'NASA Dial-a-Moon tool', NASA Website, <u>https://svs.gsfc.nasa.gov/4874</u> (23 November 2020).

Observing the Moon from the southern hemisphere:

'Moon Map for Southern Hemisphere', NASA, <u>https://moon.nasa.gov/observe-the-moon-night/resources/moon-map-southern</u> (16 October 2021).

General reading about the Moon:

'Interesting facts about the Moon', Royal Museums Greenwich website, <u>https://www.rmg.co.uk/stories/topics/interesting-facts-about-moon</u>.

Virtual tour of the Moon:

'NASA | Tour of the Moon', NASA Goddard YouTube (4:39 mins), <u>https://youtu.be/2iSZMv64wuU</u> (15 March 2012).

Page 1



Ver: 1.0 March 2022

Teacher notes Observing the Moon

PLAN AHEAD

It is suggested that you look up the Moon phases and have the students observe the Moon two or three days after the first quarter.

SAFETY: The full Moon is very bright, and so it is recommended that students DO NOT look through the telescope at the surface at this time in the cycle.

Use this website to see what phase the Moon is in visit: 'Moonrise and Moonset Calculator - City Lookup', Time and Date website, <u>https://www.timeanddate.com/moon/</u>, Accessed 8/3/2022.

Depending on how many telescopes or binoculars you have access to, this activity could be completed in a single evening.

CURRICULUM LINKS

AUSTRALIAN CURRICULUM: YEAR 7 SCIENCE

Science Understanding

Predictable phenomena on Earth, including seasons and eclipses, are caused by the relative positions of the sun, Earth and the moon (ACSSU115)

Science as a Human Endeavour

Scientific knowledge has changed peoples' understanding of the world and is refined as new evidence becomes available (ACSHE119)

Science Inquiry Skills

Collaboratively and individually plan and conduct a range of investigation types, including fieldwork and experiments, ensuring safety and ethical guidelines are followed (ACSIS125)

Measure and control variables, select equipment appropriate to the task and collect data with accuracy (ACSIS126)

Construct and use a range of representations, including graphs, keys and models to represent and analyse patterns or relationships in data using digital technologies as appropriate (ACSIS129)

Summarise data, from students' own investigations and secondary sources, and use scientific understanding to identify relationships and draw conclusions based on evidence (ACSIS130)

Reflect on scientific investigations including evaluating the quality of the data collected, and identifying improvements (ACSIS131)



Teacher notes **Observing the Moon**

RECOMMENDED PRE-LAB ACTIVITY

As this is a purely observational task, you may like to ask the students to spend a lesson researching the Moon's surface features, and make small presentations in-class to each other to share their findings.

You may also like to conduct the other STARS activities, 'Tracking the Moon' and 'Phases of the Moon'.

SUGGESTED ANSWERS

1. How does studying the surface of the Earth help us understand the surface of the Moon?

Geological features such as lava fields (maria, on the Moon) appear on both bodies, indicating past volcanic activity. Craters on Earth from meteorite impacts resemble those on the Moon, so indicate the same cause. More unusual features, such as scarps and graben, are caused through tectonic plate movement on Earth. As there are no tectonic plates on the Moon, it stretches us to think of other reasons why the 'crust' of the Moon may fault and move, in this case, from cooling and shrinkage. Understanding the minerals that are on Earth (minerals being the ingredients of rocks) can help us to understand the source of the minerals on the Moon, e.g. basalt from volcanic eruptions.

2. Astronauts who have walked on the Moon had to have training from geologists. Why do you think this was important?

The astronauts were required to collect Moon rock, and some of those rocks needed to be dug or drilled for using specialised techniques and storage. The astronauts were also given some free choice on how to choose rocks, so needed to understand how to characterise their colour, grain size, etc. Astronauts also conducted geology experiments, such as looking at the conductivity of the rocks and measuring moonquakes!

3. During your observations you will have seen large craters created by asteroids colliding with the Moon in the past. The Earth must have also had collisions like these. Why are the craters harder to find on Earth, but easy to find on the Moon? Give three reasons.

The Earth has an atmosphere and water, so a lot of the evidence has been erased by weathering and erosion.

Plants may have grown over them.

The Earth has plate tectonics that are constantly moving and recycling rock, thereby erasing surface features.

They may be under the oceans.

