



Lunar Phases

A Moon Month

Classroom Activity

Overview

Age Range:

9-11

Prep. Time:

10 minutes

Lesson Time:

1 hour

Cost per activity:

Medium

Includes the use of:

Balls, printouts, markers

Outline

Students will be expected to sequence the phases of the moon, before being introduced to facts about the satellite.

They will explore how we see the moon from Earth and how the moon travels around us. Giving them a full understanding for why we see the phases the way we do.

Pupils will Learn:

- The pattern and names for the phases of the moon
- Understand why we only see one half of the moon and in different amounts
- How the moon looks and moves in space

Lesson Plan:

Overview of the time required to complete lesson.

Description	Time	Notes
Introduction to the subject	10 min	
Activity 1	10 min	Ordering the moon phases

Online Observatory: onlineobservatory.eu

The online observatory collaboration consists of the following partners:

Baldone Observatory, Brorfelde Observatory, Cardiff University, Harestua Solar Observatory, Helsinki Observatory



		Use: 'LunarPhasesActivity1.pdf'
Assessment	5 min	Use: 'LunarPhasesModelAnswers.pdf'
Introduction to activity 2	5 min	Optional videos: https://www.bbc.co.uk/bitesize/clips/zy4pr82 https://www.bbc.co.uk/programmes/p00n6zhl
Activity 2	20 min	Create a model of the moon orbiting earth
Assessment	10 min	Complete the diagram of moon phases Use: 'MoonPhaseDiagram.pdf' or the student guide

Introduction to the subject:

Ask students to describe the moon. Encourage them to think of words like spherical and orbital. Ask where they believe the Moon gets its light from, if they do not know explain that it is reflective, rather than a light source of its own and that we can see it in the night sky because it is reflecting sun light. Explain that the moon orbits Earth because of Earth's gravity and that the moon has a much lower mass, and therefore much lower gravity, than Earth does.

Activity 1:

- Distribute printout sheets and have students work in pairs

Tell the students to consider how they have seen the moon at night, when it has been bigger (full) or smaller. Starting with a new moon they should try and place the images and descriptions in phase order.

1. Students cut out the images and attached descriptions.
2. Place the new moon at the top of their page/table.
3. Read the description given for each image of a moon phase.
4. Place the next moon phase beneath that of the 'new moon'
5. Continue until all images are in order of the lunar phases.

Assessment:

- What made you put the images in these positions/this order?

Show them the correct lunar phases and ask them to see how many they had in the correct spot.

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Introduction to Activity 2:

It takes the moon 29.5 days to complete all these phases and the reason we see them from Earth is because of the angle we look at the moon from. The next activity is an experiment which shows how it works and can be completed either as a class or in groups.

Variations on the following activity:

<https://www.bbc.co.uk/bitesize/clips/zy4pr82>

<https://www.bbc.co.uk/programmes/p00n6zhl>

Explain to students that there is a dark side of the moon which is never in the Sun because light can not curve around corners, only travelling in straight lines.

Activity 2:

- Prepare required equipment, this may be 8 balls (polystyrene/ping-pong) in total or 8 per group, along with paint, tape or felt tips/markers to colour the dark side.

Tell the students that they will be acting as Earth in this experiment and the balls will represent Earth. You may wish to have them suggest a suitable 'Sun' or even use a real light source.

1. Paint/colour half of each ball black and half white, these represent the moon.
2. Decide on where your sun and earth will be based, Earth is where the students will be looking from.
3. Place the painted 'moons' on sticks and stand them around the Earth, making sure to leave enough space in the middle for a person. The white sides of the balls are 'lit' by the Sun, reflecting its light, and therefore should all be facing towards it (as shown in the assessment diagram).
4. Have students take turns standing in the middle and being Earth, first facing towards the 'Sun' and describing what they see.
5. The students, 'Earth', should then slowly turn anti-clockwise and explain how what they can see of the moon changes.
6. If this is done as a class activity ensure all students get a turn.

Assessment:

Students complete the diagram, shown on the following page, drawing how the moon looks from earth at different points in the month.

