

The Moon's journey

Same Moon. Changing view.

Explain how the Moon moves and why it looks different across a month.



Start with what you think

01

Supported: point to the full Moon on a phase strip.

02

Standard: estimate the time for one orbit of Earth.

03

Stretch: add where the Moon's light comes from.

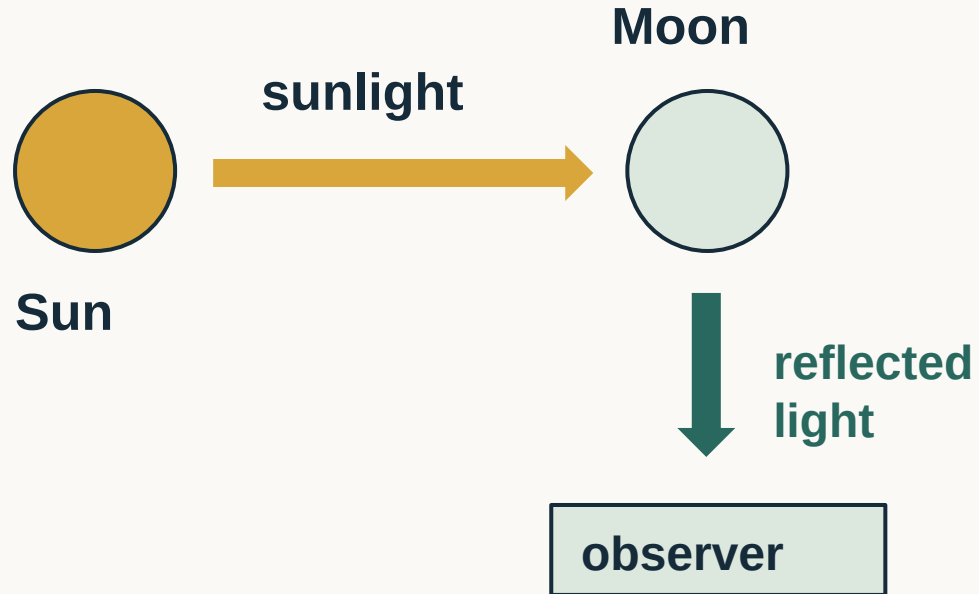
Three things to work out

1 Orbit and time.

2 Where the light comes from.

3 Model the changing view.

Moonlight begins at the Sun



Sunlight reaches the Moon. Some light is reflected to us.

The Moon does not make its own visible light.

Keep the light direction fixed

01

Torch = Sun. Ball = Moon. Observer = a view from Earth.

02

Keep the light fixed while the ball changes position.

03

Watch the visible lit part. The ball stays round.

New, half and full: three views

VIEW FROM EARTH

New Moon
Half Moon
Full Moon

WHAT WE SEE LIT

Little or none of the lit half
About half the visible disc
The whole visible disc

What explains each observation?

01

An ordinary crescent Moon.

02

An ordinary full Moon.

03

New Moon is hard to see.

04

The Moon looks dark red during a lunar eclipse.

Phases and eclipses differ

ORDINARY PHASES

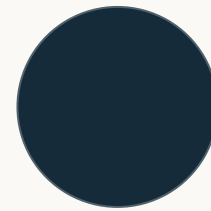
The viewing angle changes.
The visible lit portion changes.
The Moon remains round.

LUNAR ECLIPSE

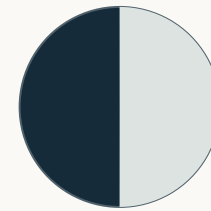
Earth blocks direct sunlight.
Earth's shadow reaches the Moon.
This is not the monthly
phase cause.

Explain cause, then observation

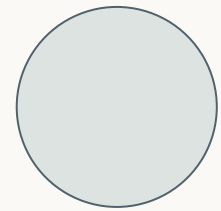
As the Moon orbits Earth, we see different amounts of its sunlit half.



New



Half



Full

View from Earth • schematic

That is why its phase appears to change.

Sort the five claims

- 01 The Moon reflects sunlight.

- 02 The Moon glows by itself.

- 03 Ordinary phases are caused by Earth's shadow.

- 04 The Moon orbits Earth in about a month.

- 05 The Moon is only visible at night.

Check the original claims

TRUE

The Moon reflects sunlight.
One orbit is roughly a month.

FALSE

It makes its own visible light.
Earth's shadow causes phases.
It is only visible at night.

A complete model answer

The Moon reflects sunlight. As it orbits Earth, our view of the lit half changes.

Ordinary phases are not Earth's shadow.

Keep your explanation for Tuesday

01

Keep your claim-sort and corrected explanation.

02

Next lesson: test new, half and full views.

03

Choose one view to check again.
