

Moon Phases Journal Investigation



Introduction

The Moon makes many shapes in the sky, but the backyard astronomer can track those shapes at different times to figure out why! This investigation will guide learners in understanding the cycle of the moon's phases.

Think About This

Why does the moon look different on different days?

Materials



Paper Journal

- Create your own from loose paper (15-30 sheets)
- Use pages of an old notebook (15-30 sheets)
- Printable Option (*copy this link into your browser*): https://www.jpl.nasa.gov/edu/pdfs/moonjournal_worksheet.pdf
- A 30-page version works if you combine observations & drawings on a single sheet; otherwise, the journal should have 60 pages.

Pencil

Colored Pencils, Markers, and/or Pens

Do Ahead of Time

Make your journal

Find a place to observe the moon

Directions

Look at the moon for 5 minutes every night for one month. Record your thoughts on one sheet of your moon phases journal and draw what you see on the next sheet. To help make your best observations, each journal entry should have the following:

- 1 Record the time and date of your observation.
Any time that you can find the moon will work best
- 2 Record the location of the moon using directions (north, south, east, west, etc.)
- 3 Draw the moon as you see it in the sky (if you can't see it, still draw the sky).
What does it look like?
What shape is it?
Is it high, low, or elsewhere in the sky?
Is the color or shading on it a certain way?
Are there other things in the sky? Clouds? Stars?
Draw those too.
If labels or words help explain the drawing, add them in!
- 4 Record notes on other things that seem interesting about the night.
What noises are there?
What is the smell?
Is there wind? Rain?
- 5 Record any questions that come to mind during observation.

Moon Phases Journal Investigation Continued

6 Any time after two weeks of investigating the Moon, try this experiment at home:
<https://www.jpl.nasa.gov/edu/teach/activity/moon-phases/>

Any ball can be used in place of a Styrofoam ball, as long as you can poke a hole in it. A round fruit can work too.



What's Happening?

The Moon is a natural satellite of planet Earth and takes about one month to revolve (or completely move around) around our planet one time. Its path, or orbit, is very close to a circle, meaning it stays about the same distance (380,000 km or 236,000 miles) from Earth. As we see it from the Northern Hemisphere, it moves counterclockwise.

The Moon also rotates, or turns, around its own axis much like the Earth does. Each time the Earth rotates around its axis once, a full day has passed. However, each time the Moon rotates around its axis once, a full month has passed. The rotation of the Moon is just the right speed so that we can only ever see one side of the Moon.*

***Click here to see a helpful visual:**

https://www.youtube.com/watch?v=OZIB_leg75Q

The Earth-Moon system constantly has light shining on it from the Sun. Day and night occur for us depending on which side of Earth is rotated facing the Sun. The Moon has day and night for the same reason. The difference here is that the same face of the Moon is 'stuck' facing Earth. This means we can see bright parts where sunlight is reflecting off of the Moon, and dark parts where some of the Moon is hiding in its own shadow. Being able to see both the light and dark parts at the same time create the different phases and shapes we see in the sky. Those phases change depending on the position of the Earth-Moon system in relation to the Sun.