

Spotlight on Patterns

Many elements in nature follow a pattern: the seasons, eclipses of the moon and sun, day and night, and the lunar phases. The motion of the sun, Earth, and the moon are responsible for these changing patterns.

When you look at the moon in the night sky, what you see may vary depending on the night. As the moon orbits Earth, different phases of the moon occur. This is because only part of the moon is reflecting the sun's light. The chart shows the different lunar phases.

One full lunar cycle occurs over approximately 29.5 days. The cycle starts with a full moon when the moon appears fully visible from Earth. It then travels through the waxing stages as less and less of the moon becomes visible. The new moon appears, which is not visible. The moon then travels through the waning stages as it increases in visibility until the cycle is complete and it repeats.



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Your Turn

Correctly name or draw the moon phase.

1. No moon is visible from Earth _____
2. More than half the moon is visible on the left side _____
3. A waxing crescent _____

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After you read through the lesson together, complete a demonstration for students to give them a more complete understanding of the changing phases of the moon. You will need a foam sphere stuck on a pencil or dowel rod and a lamp or light source. The foam sphere represents the moon, and the light source is the sun. Have a volunteer hold the sphere and rotate in a circle clockwise to see how the moon appears from Earth. Identify with the chart which phase the moon is in.

Display

On a screen that the whole class can see, visit <https://stardate.org/nightsky/moon> and type today's date in to determine which phase the moon is in.

Ask

Which phase is shown? (Student answers will vary depending on date taught.)

Ask

Which phase do you predict the moon will be in four days from now? (Student answers will vary depending on date taught.)

Ask

Ask for a volunteer to type July 20, 1969, into the website. Explain that this is the date people first walked on the moon. **Ask:** Which lunar phase was the moon in? (Student answer: waxing crescent.)

Activity

Provide students with a link to <https://stardate.org/nightsky/moon> and allow them to type in their birthdate. Ask them each to identify what the moon phase was on the day they were born.

Chart

If there is additional time, then **create a graph** of the results of everyone's birthday moons to determine which phase was most common in the class.

Your Turn

As students work to complete the practice items, remind them to refer to the chart so they can become more familiar with the phases. Look for students who are confusing waxing and waning or crescent and gibbous.

Additional Support

For those students who are more visual learners, it might be helpful to ask them to keep a moon journal for a month. Each evening, they should look for the moon in the night sky and draw what they see on a calendar. Over the course of the month, they will see both in the sky and on their calendar the lunar cycle.