



NASA Spotlite Interactive Lesson

Moon Phases and Shadows Grades 4-8



Student Packet



NASA Spotlite Interactive Lesson Guide



What are NASA Spotlites?

NASA Spotlites are 90-120 second student-produced video segments that address common science misconceptions.

NASA Spotlites are designed to increase scientific literacy in a standards-based classroom. By producing Spotlite videos, students gain production experience, as well as deepen their understanding of science content. Approved NASA Spotlites can be found at the NASA eClips website. <https://jpnasaclips.arc.nasa.gov>



A misconception is a view or opinion that is incorrect because it is based on faulty thinking or understanding.

This is an Interactive PDF. Features in this packet may include:

- fillable boxes
- quick checks
- multiple choice questions
- interactive GIFs (graphics interchange format)
- links to videos and online interactives

The hyperlinks included in this document open PDFs or webpages and may perform differently based on the device being used. Links may have to be cut and pasted into a web browser to open. PDFs and other documents may need to be downloaded to view.

Try using Adobe Acrobat Reader and Flash Player for optimal performance of all interactive features included in this guide.



Save



Remember to save your responses.

Under "file" choose "save as."

Type your name in front of the document name.

Choose "save."

Pretest

Moon Phases and Shadows Grades 4-8 Pretest NASA Spotlite Interactive Lesson

Read each question and select the best choice.

1. Which of the following does NOT play a part in creating moon phases?



Image credit: SVS.GSFC.NASA.gov

2. A new moon occurs when

3. When the illuminated portion of the Moon seen from Earth is getting larger, the Moon is said to be

4. The eight distinct stages in the Moon's cycle are called

5. Which of the following is a correct statement describing moon phases?

Engage

In today's lesson you will learn about the phases of Earth's Moon. Using interactive Frayer Models, you will learn key vocabulary that will help you form a clearer understanding of what causes the Moon's phases.

What do you already know about the phases of Earth's Moon?

True or False: The phases of the Moon are caused by shadows cast on its surface by other objects in the solar system.

Spotlite Video

Next, you will watch a short video on what causes the phases of the Moon. As you watch the video, pay close attention to any new vocabulary.

NASA Spotlite: Moon Phases and Shadows



Video Links - [NASA Spotlite: Moon Phases and Shadows](#)
NASA eClips™ Website - <https://nasaclips.arc.nasa.gov>
NASA eClips™ YouTube - https://youtu.be/_5AG2dFxe4s

Explore

Explore Activity

Visit the moon interactive at [Moon.NASA.gov](https://moon.nasa.gov).
From the tools menu, select phases.

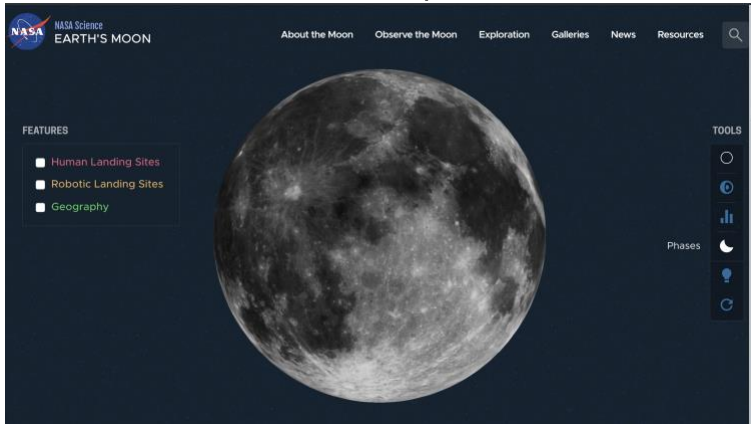
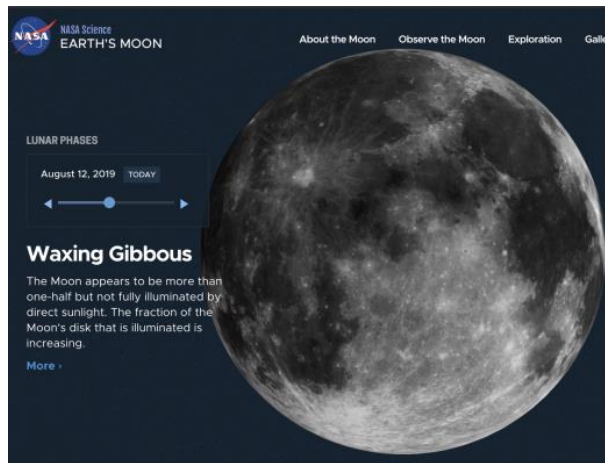


Image credit: Moon,NASA.gov

A slider bar will appear.



Select today's date. What phase is it today?

What phase was it 2 days ago?

What phase will it be a week from today?

How would you describe the pattern you see in the changing moon phases?

As you move the slider to the new moon, is the Moon still visible?

Explore

Think-Pair-Share

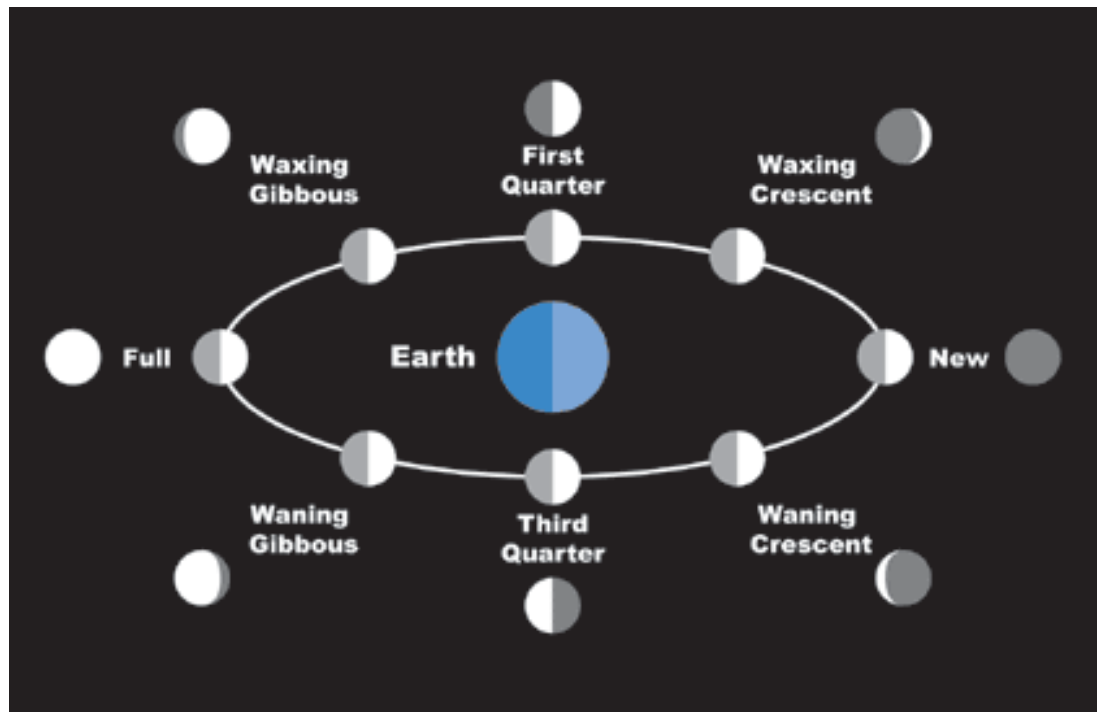


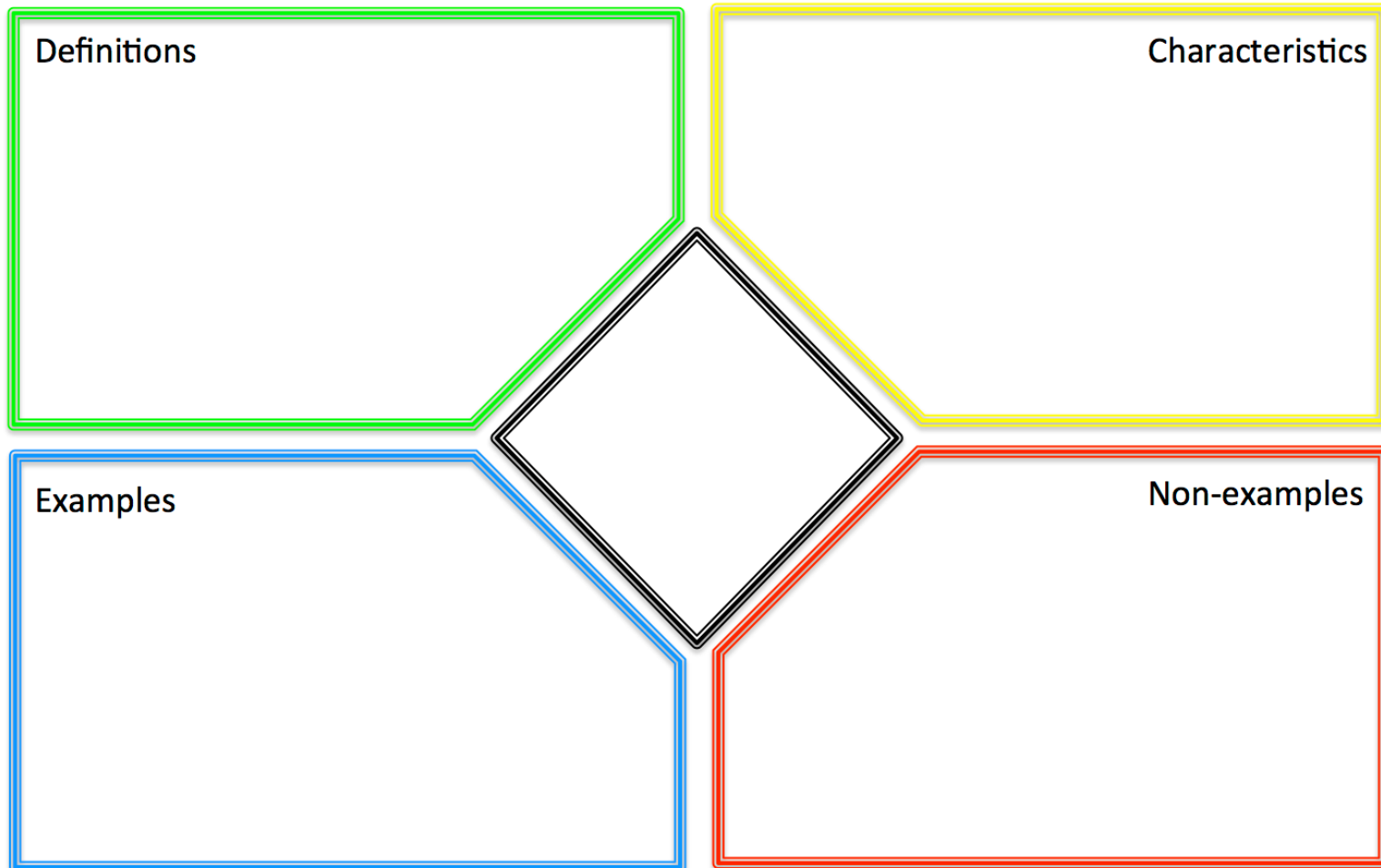
Image credit: spaceplace.nasa.gov

In this image of the phases of the Moon, where is the Sun?

Resources

Frayer Model for Vocabulary Development




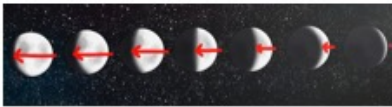
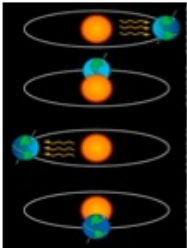
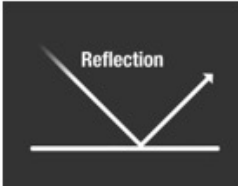
Use the graphic organizer to write definitions, characteristics, examples and non-examples for a vocabulary word. You can include drawings, graphics, and diagrams.



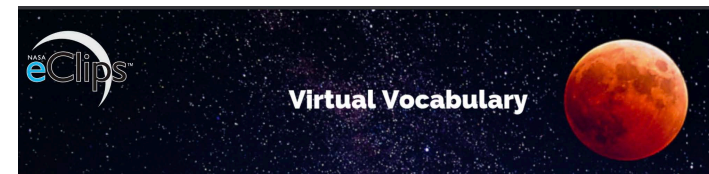
The diagram is a Frayer Model graphic organizer. It consists of a central diamond shape with a double black border. Four rectangular boxes are attached to the sides of the diamond, each with a double border of a different color: green for the top-left box, yellow for the top-right box, blue for the bottom-left box, and red for the bottom-right box. The boxes are labeled as follows: 'Definitions' in the top-left, 'Characteristics' in the top-right, 'Examples' in the bottom-left, and 'Non-examples' in the bottom-right.

Explain

Vocabulary Words

Word	Definition	Word	Definition
MOON PHASE 	<p>The phase of the Moon is how much of the sunlit side of the Moon that we see from our perspective on Earth.</p>	PATTERN 	<p>A pattern is a repeated design or recurring sequence.</p>
WANING 	<p>Waning is an adjective that means "decreasing," as in a "waning crescent moon."</p>	WAXING 	<p>Waxing is an adjective that means "increasing," as in a "waxing crescent moon."</p>
REVOLVE 	<p>To revolve is to circle around something or move in an orbit.</p>	REFLECTION 	<p>Reflection is the bouncing of light waves (or sound -- echo) off a surface.</p>

Visit the NASA eClips™ Virtual Vocabulary for more definitions.



Elaborate/Extend

Elaborate/Extend Activity

This picture shows the Moon rising over a ridge in the Wasatch Mountains, Utah.



Image credit: Solarsystem.NASA.gov

What is causing the moon phase shown in this picture?

Evaluate

Identify Misconception

What is a common misconception people have about moon phases and how can you correct this misconception?

Carefully re-watch the NASA Spotlite video about the Moon to assess your understanding of moon phases.

NASA Spotlite: Moon Phases



Video Links - NASA Spotlite: Moon Phases and Shadows
NASA eClips™ Website - <https://nasaclips.arc.nasa.gov>
NASA eClips™ YouTube - https://youtu.be/_5AG2dFxe4s

Vocabulary Review

Look at each picture. Name each moon phase.

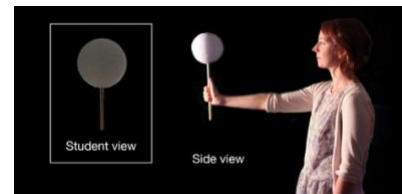
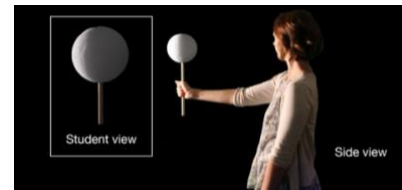


Image credit: JPL.NASA.gov

Posttest

Moon Phases and Shadows Grades 4-8 Posttest NASA Spotlite Interactive Lesson

Read each question and select the best choice.

1. Which of the following does NOT play a part in creating moon phases?



Image credit: SVS.GSFC.NASA.gov

2. A new moon occurs when

4. The eight distinct stages in the Moon's cycle are called.

3. When the illuminated portion of the Moon seen from Earth is getting larger, the moon is said to be

5. Which of the following is a correct statement describing moon phases?

Product Information

Image Credit:

female teacher - <https://www.careerindia.com/img/2018/06/education-3420037-1920-1528192194.png>

male teacher - <https://i.graphicmama.com/blog/wp-content/uploads/2017/01/27100054/afro-american-teacher.jpg>

moon phase - NASA SVS <https://svs.gsfc.nasa.gov/4118>

waning - NASA SVS <https://svs.gsfc.nasa.gov/4118>

revolve - NASA Space Place <https://spaceplace.nasa.gov/seasons/en/> pattern - NASA Space Place <https://spaceplace.nasa.gov/seasons/en/>

waxing - www.wikihow.com

reflection - NASA https://science.nasa.gov/ems/03_behaviors

This product has been developed by the National Institute of Aerospace's Center for Integrative STEM Education.

This document is based upon work supported by NASA under award No. NNX16AB91A. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Aeronautics and Space Administration (NASA).

Published 2019