Learning Guide

The Moon

We hope you enjoyed learning all about the moon and space exploration. Extend your learning with this print-ready Learning Guide!

What's in this Learning Guide?

Get Set to Listen
Answer TRUE or FALSE statements before and after listening to the episode.

Vocabulary

Discussion Questions
CCSS.ELA-Literacy.SL.3-8.1, SL.3-8.3

Writing Prompts and Extension Projects
CCSS.ELA-Literacy.W.3-8.1, W.3-8.2, W.3-8.3, W.3-8.4, W.3-8.7, W.3-8.8

Make a Moon Map: Activity (including a paint-by-numbers version!)
NGSS: MS-ESS1-3, MS-ESS1-4, 5-ESS1-1; CCSS.ELA-LITERACY.RI.5–8.7; VA:Cr1.1.5–8

Life in Space
NGSS: 5-ESS1-2, MS-ESS1-2, MS-ETS1-1; CCSS.ELA-LITERACY.RI.5–8.7

Moon Math
CCSS.MATH.CONTENT.5.NBT.B.7, 5.MD.C.3–5, 5.G.B.4, 6.RP.A.3, 6.NS.C.5–7, 6.EE.B.6; NGSS: MS-ESS1-3, MS-ETS1-1

The Moon Connects and Inspires Us: Reading Passage & Moon Journal
NGSS: 3-ESS1-1; CCSS.ELA-LITERACY.W.3–5.10; CASEL: Self-Awareness & Reflection

Moon Stories: Reading Passage, Comprehension Questions, & Activities
CCSS.ELA-LITERACY.RL.3–5.2, RL.4–6.3, RL.5–7.6; VA:Re7.2.3–6

Planting with the Moon
AFNR: AS.07.01; CCSS.ELA-LITERACY.RI.4–8.7; C3 Framework: D2.His.14.6–8

Should We Colonize the Moon?
NGSS: MS-ESS3-3, MS-ESS3-4; CCSS.ELA-LITERACY.RI.6–8.1, RI.6–8.8, W.6–8.1, SL.6–8.1, SL.6–8.3, C3 Framework: D2.Geo.7.6–8, D2.His.14.6–8, D2.Civ.8.6–8

Moon Formation Comic Strip
NGSS: MS-ESS1-2, MS-ESS1-3; VA:Cr2.1.6–8

Additional Resources & Book List

The Children's Hour
kids public radio

https://www.childrenshour.org/moon/

Get Set to Listen

1. Before listening!
Read each statement and write TRUE or FALSE based on what you already know.

2. After listening!
Based on what the experts said in the episode, write TRUE or FALSE.

Before Listening	TRUE or FALSE?	After Listening
	1. Scientists think the moon may have formed after a Mars-sized object hit Earth.	
	2. The collision that formed the moon likely happened when Earth was already billions of years old.	
	3. Artemis II will land astronauts on the moon's surface.	
	4. Astronauts on the International Space Station spend part of their day exercising to keep their bodies strong.	
	5. The dark areas on the moon are called maria and were formed by volcanic lava flows.	
	6. Scientists can determine the age of moon rocks by studying radioactive isotopes inside them.	
	7. The moon's gravity affects Earth by helping create ocean tides.	

What did you learn?

_____

_____

_____

Get Set to Listen

Answer key

1. TRUE
2. FALSE. It happened when Earth was still very young, about 100 million years old.
3. F ALSE. It will fly around the moon but not land.
4. TRUE
5. TRUE
6. TRUE
7. TRUE

Vocabulary

Listening for Words

1. Make a four-column chart and label the columns “I don’t know,” “I’ve seen or heard, but don’t know the meaning,” “I think I know the meaning,” and “I know the meaning.”
2. Write the vocabulary word in the column that describes how well you know the meaning of the word.
3. Listen to **the episode**. Note how the speaker uses the words.

Matching Words with Definitions

1. Print and cut apart the word and definition cards.
2. Spread out the word cards so you can see them all. One by one, attach a definition card to each word card.

Writing with New Words

After working with the words and definitions, write a one-page essay or story that uses at least three of the words.

astronomer	A scientist who studies space, stars, planets, and moons.
astronaut	A person who is specially trained and prepared to travel into outer space. They conduct experiments, manage systems, install equipment, and complete other important research.

Vocabulary

planetary scientist	A scientist who studies planets, moons, and how they form.
Apollo Missions	NASA space missions (1960s–70s) that sent astronauts to the moon and brought back rock samples.
Artemis II	NASA's mission to send astronauts around the moon for the first time in over 50 years.
International Space Station (ISS)	A space station orbiting Earth where astronauts live and conduct experiments.

Vocabulary

Space Launch System (SLS)	NASA’s powerful rocket designed to send astronauts beyond Earth orbit.
trans-lunar injection	The rocket burn that sends a spacecraft from Earth orbit toward the moon.
microgravity	Very weak gravity, like what astronauts experience in space.
orbit	The path one object takes as it moves around another object (like the moon orbiting Earth).

Vocabulary

lunar surface	The ground or outer layer of the moon.
crater	A bowl-shaped hole formed by an impact.
mare (maria)	Dark, flat areas on the moon formed by ancient lava flows.
lunar highlands	The lighter-colored, older areas of the moon.

Vocabulary

lunar soil a.k.a. regolith	Fine dust and broken rock covering the moon's surface.
geological context	Understanding where a rock was found and what event it is connected to.
Theia	The Mars-sized object scientists think hit Earth and helped form the moon.
global community	All humans who live on earth are part of a global community. Being part of this community means having a responsibility to protect the planet that we all share and live on. As members of a global community, people should work together in the best interest of all humankind.

Discussion Questions

1. Why is Artemis II an important mission in space exploration history?
2. What qualities do you think make a good astronaut?
3. Would you want to be an astronaut and explore space like Commander Reid Wiseman? Why or why not?
4. Commander Wiseman said astronauts rely on each other. Why is teamwork especially important in space?
5. Imagine how life on Earth might be different if we didn't have a moon.
6. Why do you think humans continue to explore the moon even after landing there decades ago?
7. If you could ask one of the moon experts a question, what would it be?
8. Why do you think people have told stories for thousands of years that explain the movements of the moon and other celestial bodies in the sky?
9. What role does the moon play in your life?

Group Discussion Strategies

Think Pair Share:
1. Individually, student writes down their answer to a question.
2. Students pair up and tell each other their answers.
3. Teacher calls for volunteers to share with the whole class their answer (and/or their partner's answer). Teacher notes key words/phrases on board.

Round Robin:
1. Teacher poses one question (written on top of a large page) to students, who are assembled into small groups of 3 or 4.
2. Students take turns brainstorming the answers. The recorder of the group writes down all answers.
3. The leader reads the group's ideas to the entire class. Teacher moderates.

Writing Prompts

Narrative Prompts

1. Imagine you are an astronaut on Artemis II, traveling around the moon. Write a story about your journey, what you see, and how you feel.

2. Humans have been looking up at the moon and trying to understand it for thousands of years. Invent a story that explains its phases or its role in the seasons.

3. Write a diary entry as a scientist handling a piece of moon rock for the first time. What surprises you, and what do you discover?

Informative/Explanatory Prompts

1. Describe how astronauts live and work in space. Include details about gravity, exercise, eating, and teamwork.

Extension: *Make a sample daily schedule or draw the living area.*

2. Explain why moon rocks are important to scientists and how they are studied.

Extension: *Include labeled illustrations of different types of moon rocks and where they might be found on the moon.*

Opinion/Persuasive Prompts

1. Do you think humans should colonize the moon and other planets? Why or why not? *(See "Should We Colonize the Moon" activity in this Learning Guide.)*

Extension: *Write a counterargument and respond to it.*

2. If you were an astronaut, would you volunteer for a mission to the moon or Mars? Explain your reasoning.

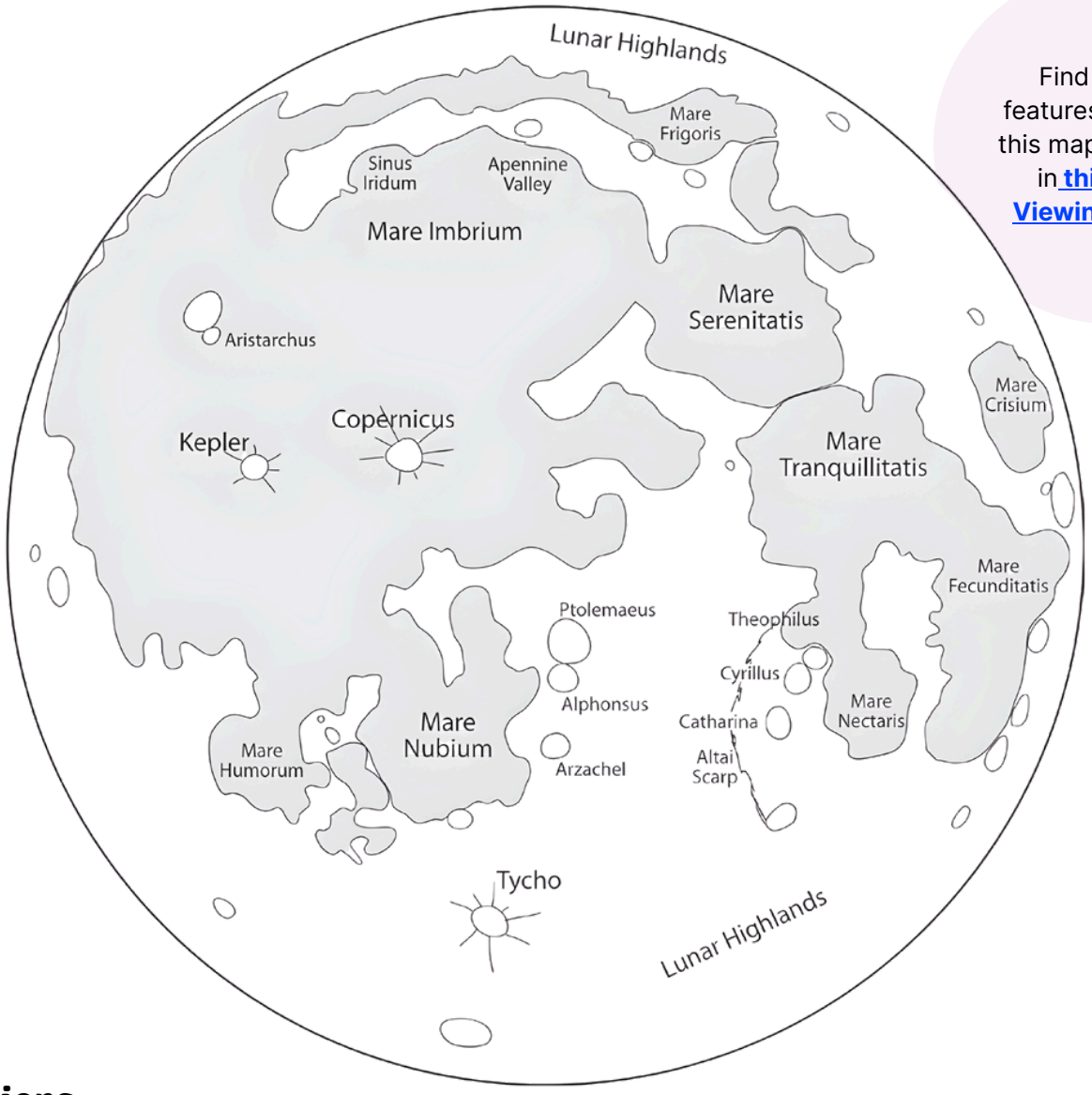
Make a Moon Map

Listen

to ***The Children's Hour*, "The Moon" episode** (segment 44:00-46:48) to learn about the different minerals that make up the differently colored areas of the moon.

Create

Use the base map, the paint-by-numbers moon map, or create your own map of the moon!
Include: craters, lunar seas, maria, and lunar highlands.
Download **these Moon Maps** from NASA for reference.



Find a moon features checklist, this map, and more in **this Moon Viewing Guide.**

Extensions

- Use different media to create your map: pencil, marker, water color, colored sand—the possibilities are endless! Try splatter painting to simulate crater formation.
- Create a paint-by-numbers style map of the moon with different numbers representing each area.
- Include a short explanation of the minerals in each feature and how impacts formed the craters.

Base Moon Map

Create

Use this base map, the paint-by-numbers moon map, or create your own map of the moon!
Include: craters, lunar seas, maria, and lunar highlands.
Download **these Moon Maps** from NASA for reference.

image **source**

Paint-by-Numbers Moon Map

Listen

to ***The Children's Hour*, "The Moon" episode** (segment 44:00-46:48) to learn about the different minerals that make up the differently colored areas of the moon.

*Try making your own paint-by-numbers style map of the moon! Label craters, lunar seas, maria, and lunar highlands. Download **these Moon Maps** from NASA for reference.*

1 2 3 4

image created with pbnify.com/

Life in Space

Listen

to *The Children's Hour*, "The Moon" episode about what it's like to be an astronaut:

- What's your day like in space? (segment 23:53-25:32)
- What was it like living 24/7 with no gravity? (segment 31:49-35:03)
- Peeing and farting in space! (segment 35:03-36:00)
- What does it feel like to set foot in the International Space Station (segment 36:00-37:26)

On the show, we learned what it is like to live in space from someone with firsthand experience. We heard from astronaut and Commander Reid Wiseman, who will be returning to space and traveling to the Moon as part of NASA's Artemis II mission.

Some of the research that astronauts conduct as part of a team with scientists and engineers back on Earth includes tracking their own health, such as measuring their heart rate, and performing ultrasounds to study changes to their bones and other body parts. They also do experiments related to plants and bacterial growth, to learn about the effects of gravity on objects in space, and much more.

Space food packaged for feeding astronauts. Image source

Astronaut Leland Melvin excercises aboard the Atlantis. Image source

Activity: Design a Space Experiment

Imagine you are an astronaut or an aerospace engineer who is designing an experiment to be performed by astronauts in space. What would your experiment be about? What objectives would you want to accomplish, what materials would be needed, and what questions could be answered from your experiment? Use this activity to complete the design.

Moon Math

Scientists use math, physics, samples, and observations to test theories about things that happened billions of years ago, like the formation of the moon. Solve the following math problems to learn about the moon, too!

1. Mare Tranquillitatis (Sea of Tranquility) is about 540 miles across. If you drove a lunar rover around its edge in a circular path, about how far would you travel? *(Use 3.14 for π and remember: Circumference = π × diameter)*
Show your work:

2. Tycho Crater is about 53 miles wide. Show your work:
a) What is its radius?

b) Using the formula for area of a circle (Area = πr^2), estimate the area of Tycho Crater.

Moon Math

3. Oceanus Procellarum (Ocean of Storms) covers about 4,000,000 square miles.
If scientists map 250,000 square miles each year, how many years will it take to map the entire area?

4. An astronaut walks across Copernicus Crater, which is about 58 miles wide.
If the astronaut walks 4 miles per hour, how many hours would it take to walk straight across the crater?

5. You weigh 120 pounds on Earth.

a) What would you weigh on the Moon (1/6 Earth gravity)?

b) If you can jump 2 feet high on Earth, how high might you jump on the Moon (about 6 times higher)?

Moon Math

6. Apollo 11 landed in Mare Tranquillitatis. If the spacecraft traveled 238,000 miles at an average speed of 3,000 miles per hour, about how many hours did the trip take?

7. The Moon can reach 250°F during the day and –280°F at night.

a) What is the temperature difference?

b) If the temperature rises from –280°F to 0°F, how much has it increased?

8. A 100-square-mile section of the Moon contains 425 craters.

a) What is the average number of craters per square mile?

b) How many craters would you expect in 350 square miles?

Moon Math

9. Engineers plan a square lunar base near Shackleton Crater. Each side of the base measures 2.5 miles.

a) What is the area of the base?

b) If solar panels cover 40% of the base, how many square miles of solar panels are there?

Challenge Question: (use the back or an extra sheet of paper to solve c).

The Moon's cycle lasts 29.5 days.

a) About how many lunar cycles occur in one year (365 days)?

b) How many days would 10 lunar cycles take?

c) How often is there a "blue moon"?

definition 1) 4 full moons in one 3-month season

definition 2) 13 full moons in one year

Moon Math: **Answer Key**

1. Circumference = 3.14 × 540
= 1,695.6 miles

2. a) Radius = 53 ÷ 2 = 26.5 miles
b) Area = 3.14 × (26.5^2)
26.5^2 = 702.25
Area ≈ 3.14 × 702.25 ≈ **2,204 square miles**

3. 4,000,000 ÷ 250,000 = **16 years**

4. 58 ÷ 4 = **14.5 hours**

5. a) 120 ÷ 6 = **20 pounds**
b) 2 × 6 = **12 feet**

6. 238,000 ÷ 3,000 ≈ **79.3 hours** (About 79 hours)

7. a) 250 – (–280) = **530°F difference**
b) **Increase of 280°F**

8. a) 425 ÷ 100 = **4.25 craters per square mile**
b) 4.25 × 350 = 1,487.5
≈ 1,488 craters

9. a) Area = 2.5 × 2.5 = **6.25 square miles**
b) 40% of 6.25 = 0.40 × 6.25 = **2.5 square miles**

See next page for answer to **Challenge Question.**

Moon Math: **Answer Key**

Challenge Question:

a) 365 ÷ 29.5 ≈ **12 cycles**
b) 29.5 × 10 = **295 days**

c) definition 1:

Step 1: How many days are in a season?
1 year = 365 days
4 seasons per year
365 ÷ 4 ≈ 91 days per season

Step 2: How many full moons fit in 91 days?
91 ÷ 29.5 ≈ 3.08 full moons
That means:

- Most seasons have 3 full moons
- Occasionally, a season fits 4 full moons

Step 3: How often does that extra full moon happen?
Since each season "gains" about 0.08 extra moon cycles:
0.08 × 4 seasons ≈ 0.32 extra moons per year
Over about 3 years, those fractions add up to one extra full moon.
So under this definition, a Blue Moon happens about every 2–3 years.

definition 2:

Step 1: How many full moons normally happen in a year?
365 ÷ 29.5 ≈ 12.37 full moons per year
That means:

- Most years have 12 full moons
- The extra 0.37 builds up over time

Step 2: When does it add up to one whole extra moon?
1 ÷ 0.37 ≈ 2.7 years
So under this definition, a Blue Moon also happens about every 2–3 years.

Final Answer
Both definitions lead to the same conclusion:
A Blue Moon happens about once every 2–3 years because the lunar cycle (29.5 days) doesn't fit evenly into the calendar year (365 days).

The Moon Connects and Inspires Us

When you look into the sky or horizon and see the Moon, it's special to know that other people around the world can see it too. Though they may be in a different time zone or on a different continent, everyone is still connected by the planet that we live on. The Moon connects us to each other, to our environment, to big questions, and to space.

Scientists from around the world have historically competed for knowledge and access to space exploration and the universe, but as we learned from Commander Wiseman, international partners work together, and this paves the way for future ways in which humans can continue exploring the solar system.

All humans who live on Earth are part of a **global community** and have a responsibility to protect the planet that we all share. Many Native cultures believe in living in harmony with the Earth by respecting natural resources and all living things. Some of their teachings can be **implemented to help protect the Earth** today. Early cultures of the Americas, such as the Maya, Inca, Mexica (Aztec), and other groups, passed down knowledge, architecture, and artifacts that prove they had an extremely high level of understanding about the Moon. They studied its paths, cycles, and relationship to the Sun, Earth, stars, and planets.

The Caracol ("snail") observatory in Chichen Itza, where the Maya studied astronomy.

Image **Source**

Tribes such as the Diné of the Southwestern US have a deep and high level of respect for these things. They teach their children that relationships of respect go beyond human relationships, and that they must also respect the Earth (mother), the Sun (father), and the Moon (grandfather). The Sun is a very important part of their culture; during eclipses, they believe that the Sun is undergoing a death or transformation, and a renewal, or rebirth, occurs afterwards in both our Sun and in people. They show respect to this powerful and important event by remaining indoors in a state of focus and prayer. Learn more with this **video.**

Activity: Moon Journal

The Moon has inspired all who have studied it. Now it's your turn to study the Moon and learn more about yourself! Complete the Moon Journal on the next page for 1 week and observe how the Moon changes. Use it as an opportunity to reflect on yourself and how you transform day to day through your thoughts, feelings, and emotions.

Moon Journal

Make arrangements to observe the moon each day for one week. For each observation, sketch a drawing of the moon, determine what phase it is in, and answer the reflection questions.

Date:

Phase:

Drawing of Moon

Before observing the moon, I feel _____

When I see the moon, I think about _____

_____

_____

_____

After observing the moon, I feel _____

Date:

Phase:

Drawing of Moon

Before observing the moon, I feel _____

When I see the moon, I think about _____

_____

_____

_____

After observing the moon, I feel _____

Date:

Phase:

Drawing of Moon

Before observing the moon, I feel _____

When I see the moon, I think about _____

_____

_____

_____

After observing the moon, I feel _____

Moon Journal

Date:

Phase:

Drawing of Moon

Before observing the moon, I feel ______________________________

When I see the moon, I think about ______________________________

____

____

____

After observing the moon, I feel ______________________________

Date:

Phase:

Drawing of Moon

Before observing the moon, I feel ______________________________

When I see the moon, I think about ______________________________

____

____

____

After observing the moon, I feel ______________________________

Date:

Phase:

Drawing of Moon

Before observing the moon, I feel ______________________________

When I see the moon, I think about ______________________________

____

____

____

After observing the moon, I feel ______________________________

Date:

Phase:

Drawing of Moon

Before observing the moon, I feel ______________________________

When I see the moon, I think about ______________________________

____

____

____

After observing the moon, I feel ______________________________

Moon Stories

Read the following excerpt from Oceti Sakowin (Great Sioux Nation) writer Ruth H. Hopkins and answer the questions that follow:

Folklore across cultures and spanning through time is replete with stories about the Moon, including mine. To the Oceti Sakowin (Great Sioux Nation), Hanwi, the Moon, is a Goddess. Hanwi is the wife of Wi, the Sun God. Long ago, they traveled through the sky as one, but Wi started to take Hanwi for granted. During a ceremonial feast for the spirits, Wi allowed Anog Ite to sit in Hanwi's place, at his right hand. Hanwi felt shame at having been forgotten and pulled her shawl over her face. Skan, the Motion of the Universe and the most powerful of all spirits, saw this and was incensed. He chastised Anog Ite by turning one half of her beautiful face ugly, and banished everyone involved in the plot against Hanwi, namely Iktomi, the Trickster, to the underworld. After that, he punished Wi in the worst manner imaginable—by taking Hanwi away.

From then on, Wi controlled the day, and Hanwi controlled the night. Wi would spend eternity in pursuit of the wife he loved more than anything, barely catching glimpses of her on the horizon. Only during an eclipse would they be allowed to become one again, but just for an instant. Grandmother Moon still hides her face under her shawl, only removing it when the Sun is farthest away. This is when the Moon is full.

*Read the **full article here.***

Comprehension Questions

1. Who is Hanwi, and what role does she play in the sky?
2. Who is Wi, and how is his relationship with Hanwi described?
3. What caused Hanwi to hide her face under her shawl?
4. What role does Skan play in the story?
5. Who is Iktomi, and what happens to him?
6. According to the story, when are Hanwi and Wi allowed to be together again?
7. Can you think of another culture's story about the Moon or Sun? How do you think these stories help people explain the movements of the Sun and Moon?

Activities

- Draw a scene showing Hanwi hiding under her shawl and Wi chasing her across the sky. Label the Sun, Moon, and any spirits you want to include.
- Imagine Grandmother Moon hiding her face under her shawl. This represents the Moon's waxing and waning. Draw the Moon's phases across a month in small circles below and label which phase could represent Hanwi hiding vs. fully visible.

Planting with the Moon

In 1957, the ***Farmers' Almanac*** *named the 12 Moons, some of which were adopted by settlers from Indigenous peoples. The names vary based on location and geography, and fit into different calendar systems depending on cultural groups. Something that they all have in common is that many of the names relate to what is happening in nature, climate, and agriculture. It is believed that farming and gardening would be more successful when planned in a way that takes the moon into account. See if you can identify names that relate to nature in* ***this list*** *of Native American Moons and learn more about why they named the Moon* ***here.***

Listen

to ***The Children's Hour*** **"The Moon" episode** (segment 39:24-41:11) to hear about how *The Farmer's Almanac* gave Earth's Moon some of its various names, including "Blue Moon".

Watch

this video to learn more about the names and significance of the 13 moon cycles in the Navajo year as well as what activities, including when to plant and harvest, each moon cycle signified.

Activity: Planting with the Moon

Many people have used the moon to guide their planning of agriculture and farming. Use **this Farmers Almanac guide** to garden according to the Moon. Type in your zip code to view a **planting calendar** to try your hand at gardening with the Moon. Keep a journal with sketches and diagrams of how your garden was planned and its progress throughout the growing season.

Should We Colonize the Moon?

Research & Prep

Use the **"Lunar Colonization Considerations" page** and the following articles to inform your argument:

Colonization of the Moon
History and background of moon colonization efforts from EBSCO.

Moon Research Colonization
Oceti Sakowin (Great Sioux Nation) writer Ruth H. Hopkins urges us to consider the implications of lunar colonization in this article from Atmos Deep Ecology.

Debate

Assign roles (pro-colonization, against colonization, judge) and hold a debate.

Debate Norms

- Listen without interrupting
- Critique ideas, not people
- Use evidence
- Stay respectful
- Be open to changing your mind

Write

Write a persuasive essay defending your personal position.

Reflect & Discuss

- How should the history of colonization on Earth inform decisions about space exploration?
- Is colonizing the Moon a necessary next step for humanity, or should we prioritize solving problems on Earth before expanding into space?

James Baldwin was an American writer, poet, and civil rights activist.
Image source

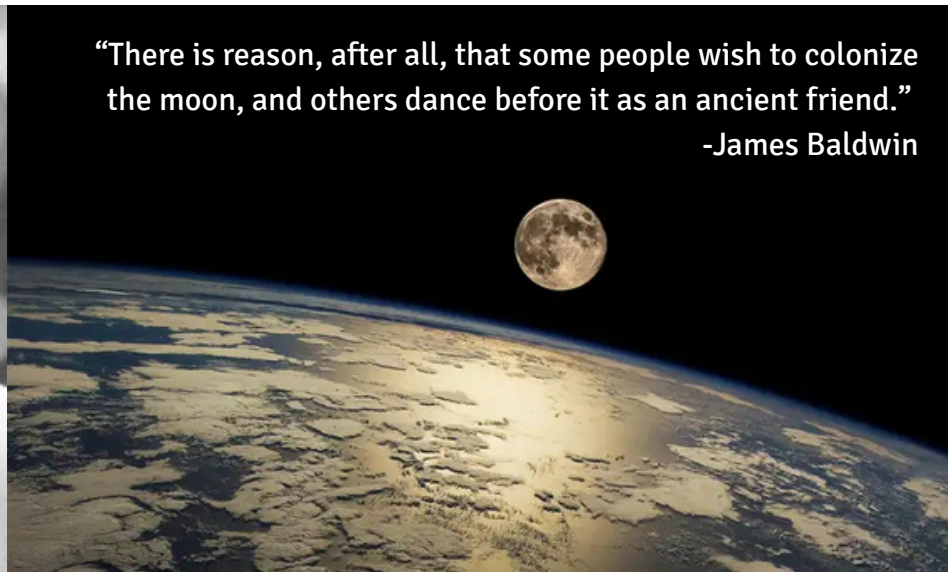


Image source

Lunar Colonization Considerations

1. Scientific Benefits
- Opportunity to study the Moon's history and the early solar system
- Practice for future missions to Mars
- Build telescopes far from Earth's atmosphere
- Learn how humans live long-term in low gravity

2. Environmental Concerns
- The Moon has no weather or erosion—damage lasts a very long time
- Rocket launches create pollution on Earth
- Space debris and contamination risks
- Unknown impacts on Earth, such as tides and axial tilt stability

3. Ethical & Cultural Considerations
- Who owns the Moon? (International agreements say no country can claim it. What about private companies or corporations? Should it belong to all humanity?)
- Respect for Indigenous cultural and spiritual relationships with the Moon
- Avoid repeating patterns of harmful colonization from Earth's history

4. Economic Factors
- Extremely expensive to build and supply a lunar base
- Potential mining of water ice or rare materials
- Could create new industries and jobs
- Who benefits financially?

5. Human Health & Safety
- Radiation exposure (no protective atmosphere)
- Extreme temperatures
- Mental health in isolated environments
- Effects of low gravity on bones and muscles

6. Technological Challenges
- Transporting materials 238,000 miles
- Producing food, water, and oxygen locally
- Reliable communication systems
- Sustainable energy sources (solar, nuclear)

7. Global Cooperation vs. Competition
- Will countries collaborate peacefully?
- Could the Moon become militarized?
- How can international partnerships promote peace?

8. Long-Term Survival of Humanity
- Backup location in case of an Earth disaster
- Expanding human knowledge and presence
- But: should we focus on protecting Earth first?

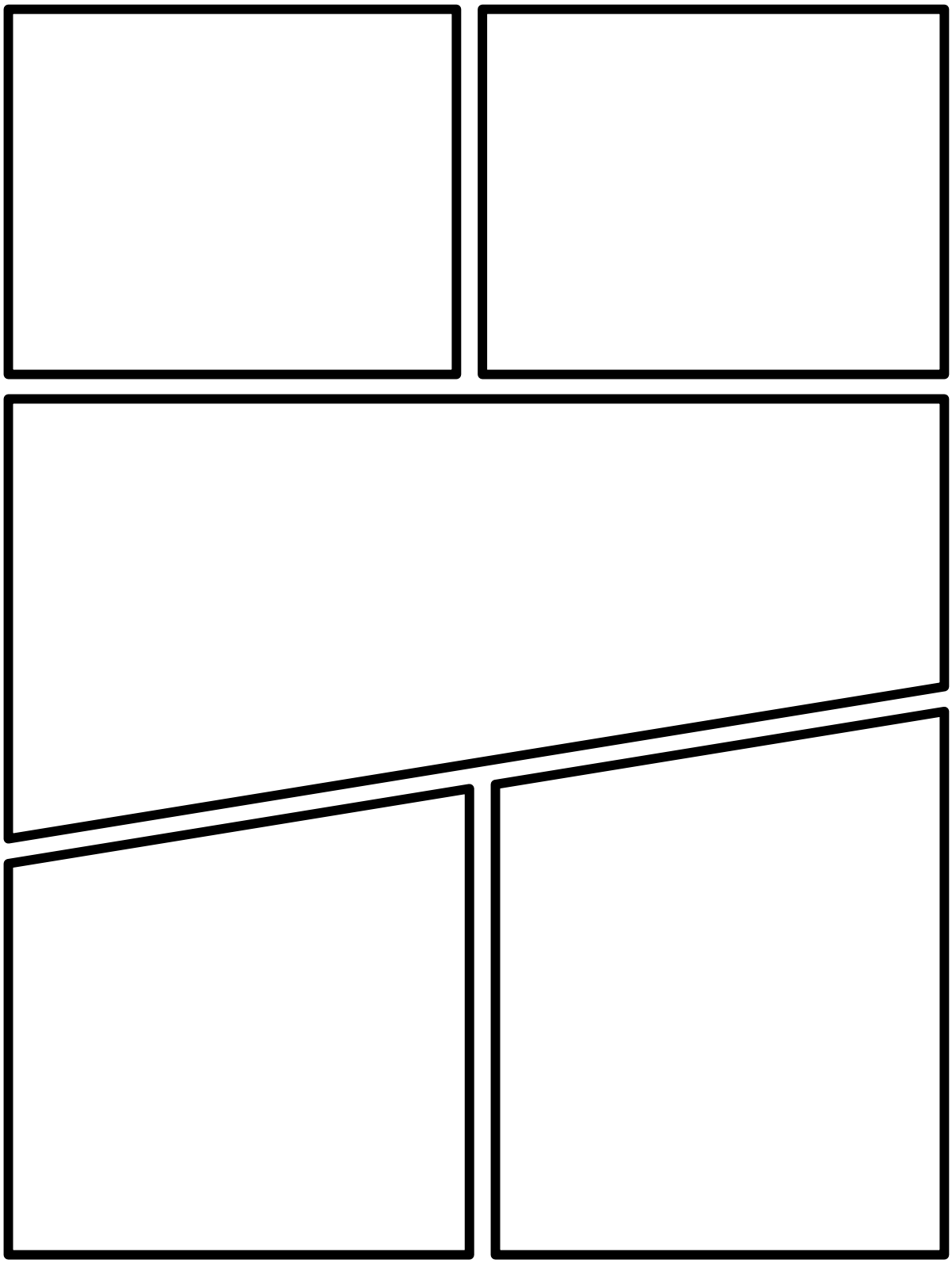
Moon Formation Comic Strip

Listen

to how the moon was formed on ***The Children's Hour*, "The Moon" episode** (segment 7:03-9:50).

Draw & Write

a comic strip explaining the Giant Impact Theory of how the moon was formed, including labeled steps.



Additional Resources

Go Out and Observe the Moon!
These lunar science investigations from Science Friday and **NASA's International Observe the Moon Night** are designed for 3rd-5th graders.

Modeling the Earth-Moon System
This hands-on lesson from the Jet Propulsion Laboratory at Cal Tech is designed for 6th-8th graders.

Check out these space **experiments** for kids.

Join the Artemis mission to the Moon with activities from NASA **learning resources**.

NASA: The Moon
A collection of "moon stories", resources, and activities about the moon, including a daily moon guide and moon observation journal.

Hands-on activities about the Artemis mission, designed for day camp experiences.

Play **games** and learn about NASA.

Learn more about the Apollo 11 mission in which humans first set foot on the Moon, through this **interactive timeline.**

Learn about how the Maya studied astronomy from this fun website from the Smithsonian Museum of the American Indian.

Learn more about the different types of full Moons using **NASA's Space Place website** for kids.

Navajo (Diné) Knowledge of the Cosmos
A collection of statements and videos about the stories of the sky told by Navajos, collected by the Exploratorium.

Moons of the Anishinaabeg
Learn about the moons of the Anishinaabeg people from the Center for Native American Studies.

Additional Resources

Moon Research Colonization
Oceti Sakowin (Great Sioux Nation) writer Ruth H. Hopkins urges us to consider the implications of lunar colonization in this article from Atmos Deep Ecology.

Colonization of the Moon
History and background of moon colonization efforts from EBSCO.

Videos

Moon 101: National Geographic
What is the moon made of, and how did it form? Explore its dramatic origins, its role in early calendars, and how humans first visited it over 50 years ago.

Everything About Living in Space
Commander Reid Wiseman answers a barrage of questions about what it's like to live in space!

NASA: Moon Phases 2016, Northern Hemisphere
This 4K visualization shows the Moon's phase and libration at hourly intervals throughout 2016, as viewed from the Northern Hemisphere. Each frame represents one hour.

Native American (Navajo) Beliefs on the Moon Cycles
Navajo historian and elder Wally Brown explains the names and significance of the 13 moon cycles in the Navajo year.

Phil Plait: The Bad Astronomer
Crash Course Astronomy: The Moon

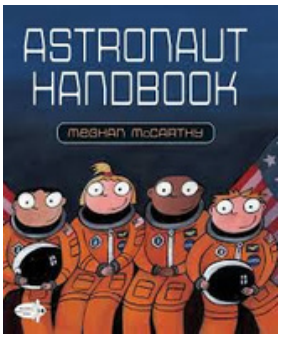
Crash Course Astronomy: Moon Phases

Crash Course Astronomy: Tides

Book List

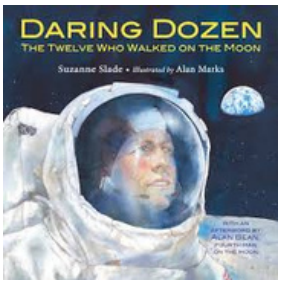
Mae Among the Stars
by Roda Ahmed

An inspiring story about Mae Jemison, the first African American woman to travel in space.
ages 5-10



Astronaut Handbook
by Meghan McCarthy

An engaging non-fiction book with bright illustrations that shows kids what it takes to become an astronaut—from training in the “vomit comet” to how to eat astronaut food.
ages 5-10

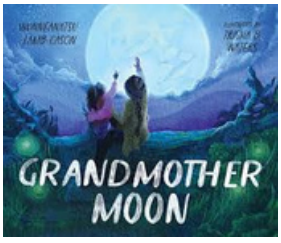


Daring Dozen: The 12 Who Walked on the Moon
by Suzanne Slade, illustrated by

A beautifully illustrated and poetic account of the Apollo missions with expanded facts, photos, and details about the missions and spacecraft.
ages 6-9

Margaret and the Moon
by Dean Robbins, illustrated by Lucy Knisley

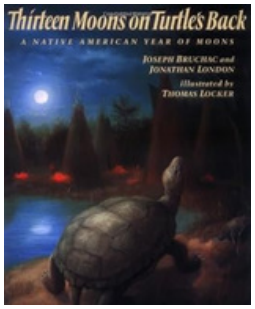
So far, only men have walked on the moon, but this book tells the story of Margaret Hamilton, the software engineer who made the moon landing possible.
ages 4-8



Grandmother Moon
by Wunneanatsu Lamb-Cason

In this picture book, we follow a young Native girl on a car ride with her grandmother, where she learns about "Grandmother Moon" and its significance in their culture.
ages 4-8

Book List



13 Moons on Turtle's Back
by Joseph Bruchac

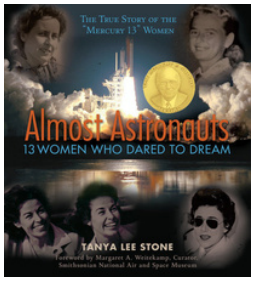
Beautiful paintings illustrate thirteen legends from different tribes, showing how Native Americans connect the moon's cycles to the changing seasons.
ages 3-10

Apollo: The Panoramas
by Mike Constantine

With over 50 high-resolution panoramic photos with detailed captions, this book offers a stunning visual record of the Apollo moon landings.
all ages!

What is NASA?
by Sarah Fabiny and Who HQ, illustrated by Ted Hammond

Learn all about the birthplace of astronauts in this fact-packed guide.
ages 8-12

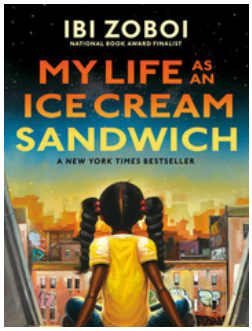


Almost Astronauts: 13 Women Who Dared to Dream
by Tanya Lee Stone

In 1961, thirteen women passed the same astronaut tests as men but weren't allowed to fly. Their story inspired future generations of women in space.
ages 9-12

See You in the Cosmos
by Jack Cheng

Eleven-year-old Alex, inspired by Carl Sagan, records his own "Golden Record" on an old iPod to launch on a homemade rocket—a heartfelt story told in his own voice about chasing a space dream.
ages 9-12



My Life as an Ice Cream Sandwich
by Ibi Zoboi

Twelve-year-old Ebony-Grace, a space-loving Trekkie, moves from Alabama to Harlem and discovers her sci-fi dreams can thrive there, too.
ages 10+