



Exploration of the Moon

7

☑ **Lesson Objectives**

Core Content Objectives

Students will:

- ✓ Explain that astronomers study the moon and stars using telescopes
- ✓ Explain that the moon orbits the earth
- ✓ Explain that astronauts travel to outer space
- ✓ Describe the landing on the moon by American astronauts
- ✓ Explain the importance of the first trip to the moon

Language Arts Objectives

The following language arts objectives are addressed in this lesson. Objectives aligning with the Common Core State Standards are noted with the corresponding standard in parentheses. Refer to the Alignment Chart for additional standards addressed in all lessons in this domain.

Students will:

- ✓ Describe the connection between unmanned and manned missions to the moon (RI.1.3)
- ✓ Make personal connections to the concerns the first astronauts may have felt before heading in to space, and about what they would see, do, or feel if they went to the moon as an astronaut (W.1.8)
- ✓ With assistance, categorize and organize information about what would be seen and experienced on the surface of the moon (W.1.8)
- ✓ Ask questions to clarify directions for an activity in which students are creating a sketch and written statement about what they might do, see, or feel if they went to the moon (SL.1.3)

- ✓ Describe the moon with relevant details, expressing ideas and feelings clearly (SL.1.4)
- ✓ Add drawings to descriptions of the moon to clarify the concepts (SL.1.5)
- ✓ Use possessive pronouns orally

Core Vocabulary

determined, *adj.* Committed to or focused on a decision or a goal

Example: I walked fast because I was determined to get to school on time.

Variation(s): none

disaster, *n.* A sudden and terrible event that is very unpleasant

Example: The tornado was a disaster for our town.

Variation(s): disasters

historic, *adj.* Famous or important in history (events of the past)

Example: The day the thirteen colonies signed the Declaration of Independence was a historic day.

Variation(s): none

missions, *n.* Tasks assigned to achieve set goals

Example: My dad gave us all a job to do to clean up the house and said we needed to complete our missions before we could play.

Variation(s): mission

nervously, *adv.* Doing something in a worried or slightly frightened way

Example: My grandmother watched my football game nervously because she was afraid I would get hurt.

Variation(s): none

<i>At a Glance</i>	Exercise	Materials	Minutes
Introducing the Read-Aloud	Personal Connections		10
	Purpose for Listening		
Presenting the Read-Aloud	Exploration of the Moon		15
Discussing the Read-Aloud	Comprehension Questions		10
	Word Work: Determined		5
 Complete Remainder of the Lesson Later in the Day			
Extensions	Astronomy Journals	journals from Lesson 1; drawing tools	20
	Syntactic Awareness Activity: Possessive Pronouns <i>my, your, his, her, our, their</i>		



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Introducing the Read-Aloud

10 minutes

Personal Connections

Review the previous read-aloud about space exploration and the first astronauts. Emphasize that the first astronauts didn't land anywhere in space. They were launched into space, orbited the earth, and landed back on Earth. Remind students that in other read-alouds, they learned that the sun and other stars are too far away and too hot to visit. Ask, "What is the one celestial body that is close enough to Earth to visit, and made of rock instead of gas?" (the moon) Explain that today's read-aloud will teach them about the first astronauts ever to visit the moon.

Emphasize that traveling to the moon for the first time required astronauts to be brave. Ask students if they remember learning in Core Knowledge Language Arts in Kindergarten about Christopher Columbus and the time he traveled to the New World for the first time. If so, ask students what made Columbus brave for going on his journey. Point out that today it might not seem very brave to cross an ocean in a ship. But, unlike Columbus, if we wanted to cross the ocean we could ask people who have done it before what it was like. Being one of the first meant that Christopher Columbus had many questions that he couldn't answer, such as:

- Would his ships be strong enough for the voyage?
- What dangers would he face on his trip over the ocean? (The crew worried about sea monsters and falling off the edge of the world.)
- Would he actually get to Asia, his goal? (In fact, he didn't get to Asia after all.)

In much the same way, the first people to go to the moon didn't have anyone to ask what it would be like. Ask students to imagine what concerns or fears the first astronauts may have felt before going into space. Some concerns may have been:

- Would their spacecraft be able to handle the trip?
- What dangers would they face on their trip through space?
- Would they actually get to the moon?
- What would they discover if they did land on the moon?

Ask students to think about whether or not they would have decided to travel to the moon, knowing some of these unanswered questions.

Purpose for Listening

Tell students to listen carefully to identify steps scientists took to find out what the trip would be like before sending the astronauts to the moon. Additionally, tell students to listen and find out who won the Space Race to the moon.



Exploration of the Moon

← Show image 7A-1: JFK¹

- 1 This was the president of the United States many years ago. Who is the current president of the United States?
- 2 They were committed to making it happen.
- 3 They didn't have much information about what it would be like to visit.

In 1961, the president of the United States, John F. Kennedy, announced that the United States would send astronauts to the moon within ten years. This seemed impossible to many people, but President Kennedy and the NASA scientists were **determined** to succeed.² Thus, they started the Apollo Program in order to send people to the moon. But there was a lot of work to be done before anyone could get anywhere near the moon.³



← Show image 7A-2: Surveyor 1

- 4 or study
- 5 This would help them answer questions about what they would discover when they landed.

Surveyor 1 was the first spacecraft Americans sent to the moon, but it was an unmanned spacecraft, that is, a spacecraft without any people aboard. The purpose of Surveyor 1 was to survey⁴ the moon's surface. It carried equipment to study the land, temperature, and other things NASA scientists needed to know before sending people to the moon.⁵



← Show image 7A-3: Apollo 4 launch

- 6 or jobs that needed to be done to accomplish what they wanted to do
- 7 A disaster is a sudden event that is unpleasant.
- 8 These missions would help answer questions about whether their spacecraft could handle the trip.

The Apollo program involved many **missions**.⁶ The first mission, Apollo 1, was a **disaster**.⁷ The spacecraft caught on fire before they had a chance to launch it. After that, however, the Apollo scientists had better success. First, there were unmanned missions to test various rockets and systems.⁸ This beautiful picture shows Apollo 4, an unmanned mission to test a rocket engine. This is the type of engine that would eventually carry men to the moon.



← Show image 7A-4: Apollo 7 crew

- 9 or missions with people

Next came manned missions,⁹ but these astronauts did not get to go to the moon. Instead, they were practicing and testing equipment to make sure everything would work properly. This photo shows the crew of the Apollo 7 mission.



← **Show image 7A-5: Apollo 11 crew**

- 10 [Point to the three astronauts in the center of this image.]
- 11 It was historic because it was important and many people would remember it for many years.
- 12 Does that sound like a long time? You heard in an earlier read-aloud that it would take thousands of years to travel to some stars.
- 13 The rocket's job was done after it launched the spacecraft beyond the earth's atmosphere.

Finally, on July 16, 1969, Apollo 11 was launched from the Kennedy Space Center in Florida. There were three astronauts aboard:¹⁰ Neil Armstrong, Michael Collins, and Buzz Aldrin. This picture was taken shortly before they went on their **historic** mission.¹¹

It took four days for Apollo 11 to travel the 239,000 miles from Earth to the moon.¹² During the launch, the astronauts were sitting in the very top of the rocket. Once it reached outer space, the part they were in broke off from the rocket and continued on toward the moon. The rocket was not needed once the ship reached outer space.¹³



← **Show image 7A-6: Eagle in orbit**

- 14 In fact, the word *lunar* is used to describe anything that is related to the moon.
- 15 So the spacecraft had three parts at launch, but only the lunar module [point to the picture] actually landed on the moon.
- 16 or go down

Michael Collins was the pilot for the command module, which drove the lunar module close to the moon but did not actually land there. The lunar module, called the Eagle, was attached to the command module during the journey from Earth to the moon.¹⁴ Once they got close enough to the moon, however, the Eagle broke off from the command module and landed on the surface.¹⁵ The Eagle orbited the moon as Buzz Aldrin and Neil Armstrong prepared to descend¹⁶ and land on the surface.



← **Show image 7A-7: Mission control**¹⁷

- 17 This is mission control, where NASA scientists on the ground talk to and help astronauts in space.
- 18 or worried about what might happen
- 19 or mistakes

Meanwhile, as the Eagle approached the surface, hundreds of scientists back at mission control were watching their computers **nervously**¹⁸ to make sure everything went as planned. There is little room for error¹⁹ in space travel. The NASA scientists monitored every single part of the ship, making sure every fuse and wire were working properly.



← **Show image 7A-8: TV news broadcast**

- 20 watching the news

At the same time, people all over America were glued to their television sets,²⁰ also nervously waiting to see what would happen. The Eagle was equipped with television cameras, so

21 Remember the “Space Race” with the Soviet Union? The United States was the first country in the world to send people to the moon.



← **Show image 7A-9: The Eagle has landed**

It took longer than expected, but finally Neil Armstrong announced the famous words, “The Eagle has landed.” Great sighs of relief and cheers went up from mission control and in living rooms across America.



← **Show image 7A-10: Armstrong stepping onto the moon**

Next, Neil Armstrong prepared to leave the Eagle and step out onto the moon. This picture shows what Americans back home saw on their television sets. As you can see, the picture was not very clear, but if you look closely you can see Armstrong about to set foot on the moon’s surface.

Armstrong stepped down and landed on the fine, soft dust of the moon’s surface. With his first step he said, “That’s one small step for man, one giant leap for mankind.” What did Neil Armstrong mean?²² He meant that he himself had taken a small step—from the Eagle’s ladder onto the moon—but that step represented a huge leap in terms of the advances humans had made by landing on the moon.

22 [Pause for responses.]



← **Show image 7A-11: Buzz Aldrin**

Buzz Aldrin followed Armstrong down the ladder. Both astronauts wore special spacesuits designed to endure the harsh temperatures on the moon’s surface.

The astronauts conducted experiments to help future astronauts and scientists. The first thing they noticed was their mobility, or how easy it was to walk and move around. The moon has very little gravity compared to Earth. Here on Earth, when you jump up you come straight back down—not so on the moon. When you hop on the moon, you stay up for a few seconds and come down rather slowly.²³

23 Can you imagine hopping up in the air and staying up there for a bit? Imagine how far you could jump!



← **Show image 7A-12: The flag**

24 Explorers often planted flags to claim the new land for their home countries. Columbus planted the Spanish flag when he landed in the New World.

25 [If additional manned lunar missions have occurred since 1972, mention them here.]

The astronauts collected samples of the moon's dust and rocks. Then they planted an American flag in the moon's soil.²⁴ They had prepared the flag beforehand by inserting wires in it so that it would be firm and appear to be waving, even though there is no wind on the moon.

Five more Apollo missions landed successfully on the moon after that first mission. In the end, the Apollo astronauts brought back a total of 842 pounds of moon rocks. Many of these rocks are on display in museums around the world.

Apollo 17, launched in 1972, was the last mission to reach the moon. Nobody has returned to the moon since. That is bound to change as humans continue to explore outer space.²⁵

Discussing the Read-Aloud

15 minutes

Comprehension Questions

10 minutes

1. *Literal* You heard in today's read-aloud that President Kennedy, the president of the United States, was determined to do something within just ten years. What goal did he set? (to send people to the moon)
2. *Inferential* An unmanned mission is a task to be completed on a spacecraft with no people on it. Why did NASA send unmanned missions to the moon before manned ones? (to first make sure that it was safe for people) What were the purposes of these unmanned missions? (to study the temperature and surface of the moon; test the rockets and equipment) Before the unmanned missions, how did astronomers get most of their information about the moon? (telescopes)

3. You learned that the Apollo 11 spacecraft had three parts: the rocket, the command module, and the lunar module (or Eagle).
 - a. *Literal* Which part launched it into space? (rocket)
 - b. *Literal* Which part held the pilot who orbited the moon without landing? (command module)
 - c. *Literal* Which part landed on the moon? (the lunar module, also called the Eagle)
4. *Evaluative* You learned that scientists at mission control and people at home were nervous and excited as they watched the spacecraft approach the moon. Why do you think they were nervous? (worried something would go wrong) Why do you think they were excited? (The first person on the moon was big news.)
5. *Inferential* In another read-aloud, you learned that gravity is a force that pulls one object to another. The moon has very little gravity. What did the low gravity mean for the astronauts when they walked on the moon? (They hopped and stayed up in the air for a few seconds.)
6. *Evaluative* You learned that astronauts brought back over 842 pounds of moon rocks. Why do you think they brought back so many rocks from the moon? (to study them, and to find out what they're made of)

[Please continue to model the *Think Pair Share* process for students, as necessary, and scaffold students in their use of the process.]

I am going to ask a question. I will give you a minute to think about the question, and then I will ask you to turn to your neighbor and discuss the question. Finally, I will call on several of you to share what you discussed with your partner.

7. *Evaluative Think Pair Share:* Neil Armstrong stepped off the ladder and said, “That’s one small step for man, one giant leap for mankind.” In the read-aloud, we heard that humans made a giant leap by sending people to the moon. Why do you think this was a big accomplishment? (Answers may vary.)

Word Work: Determined

5 minutes

1. In the read-aloud you heard, “President Kennedy and the NASA scientists were *determined* to succeed [in sending astronauts to the moon].”
2. Say the word *determined* with me.
3. *Determined* means committed to a decision or a plan of action.
4. I am determined to do well in school.
5. Tell about something you are determined to do. Try to use the word *determined* when you tell about it. [Ask two or three students. If necessary, guide and/or rephrase the students’ responses: “I am determined to . . .”]
6. What’s the word we’ve been talking about?

Use a *Making Choices* activity for follow-up. Directions: Listen to the following sentences people might say. If you think the person talking is determined to succeed, say, “He is determined.” If you think the person talking is not determined, say, “He is not determined.”

1. I will keep on trying until I get it. (He is determined.)
2. It’s too hard; forget it. (He is not determined.)
3. I will never give up. (He is determined.)
4. It doesn’t matter that much to me. (He is not determined.)
5. I will achieve my goal. (He is determined.)



Complete Remainder of the Lesson Later in the Day



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Extensions

20 minutes

Astronomy Journals

Tell students that, so far, they pretended to be astronomers and engineers when completing their astronomy journals. Explain that today they will complete their journals by pretending to be astronauts. First, direct students to draw a sketch of themselves in an astronaut's suit and helmet on the moon's surface. Remind them that a sketch is quickly drawn, and does not include many colors or details. Then direct students to write a sentence about what they might do or see or feel if they actually went to the moon as an astronaut, using the following sentence structure: "If I went to the moon, I would . . ." Remind them that as they write they will use the letter-sound correspondences learned thus far.

Before students begin, say, "Asking questions is one way to make sure everyone knows what to do. Think of a question you can ask your neighbor about the directions I have just given you. For example, you could ask, 'What should we do first?' Turn to your neighbor, and ask your own question now. I will call on several of you to share your questions with the class."

Remind students that they can use the information they learned about the moon and astronauts in the three most recent read-alouds to complete their sketches and sentences. As students work, circulate around the room, encouraging the use of read-aloud vocabulary in their sentences. You may want to require that advanced writers write an additional sentence, and you may want to use dictation for students who need additional assistance.

Syntactic Awareness Activity: Possessive Pronouns *my, your, his, her, our, their*

The purpose of these syntactic activities is to help students understand the direct connection between grammatical structures

and the meaning of text. These syntactic activities should be used in conjunction with the complex text presented in the read-alouds.

Note: There may be variations in the sentences created by your class. Allow for these variations, and restate students' sentences so that they are grammatical.

Teacher Model and Group Practice

1. We use **possessive pronouns** to replace words that identify to whom things belong.
2. [Tell students that you will read pairs of sentences to them. Students should listen carefully to hear what the words **my, your, his, her, our, their** replace in each sentence pair. Whenever you see a person's name in brackets, please replace that name with the name of a student or co-teacher in your class.

Possessive Pronoun	Sentence 1	Sentence 2	Replacement
My	[Point to yourself and use your name as you say the sentence.] [Ms. Gilbert's] watch is blue.	My watch is blue.	The word my replaces [Ms. Gilbert's].
<i>Now, you try: Work with your neighbor to create a sentence to describe something that belongs to you, using the word my. Use this sentence starter to help you begin: "My _____ is..."</i>			
Your	[Point to a student close by and use their name as you say the sentence.] [Aida's] shirt is red.	Your shirt is red.	The word your replaces [Aida's].
<i>Now, you try: Work with your neighbor to create a sentence to describe something that belongs to your neighbor, using the word your. Use this sentence starter to help you begin: "Your _____ is..."</i>			
His	[Speak to the student close by and tell him or her about a male student in the classroom.] [Enrique's] hair is brown.	His hair is brown.	The word his replaces [Enrique's].
<i>Now, you try: Work with your neighbor to create a sentence to describe something that belongs to a male student, using the word his. Use this sentence starter to help you begin: "His _____ is..."</i>			
Her	[Speak to the student close by and tell him or her about a female student in the classroom.] [Marletty's] eyes are brown.	Her eyes are brown.	The word her replaces [Marletty's].
<i>Now, you try: Work with your neighbor to create a sentence to describe something that belongs to a female student, using the word her. Use this sentence starter to help you begin: "Her _____ is..."</i>			
Our	[Gesture to everyone in the classroom, including yourself, and use your name.] [Ms. Gilbert's and Aida's and Enrique's and Marletty's] classroom is a fun place!	Our classroom is a fun place.	The word our replaces [Ms. Gilbert's and Aida's and Enrique's and Marletty's].
<i>Now, you try: Work with your neighbor to create a sentence to describe something that belongs to a group to which you belong, using the word our. Use this sentence starter to help you begin: "Our _____ is..."</i>			
Their	[Speak to the student close by and talk about two students in the classroom.] [Aida's] and [Enrique's] shoes are black.	Their shoes are black.	The word their replaces [Aida's and Enrique's].
<i>Now, you try: Work with your neighbor to create a sentence to describe something that belongs to a group to which you don't belong, using the word their. Use this sentence starter to help you begin: "Their _____ is..."</i>			

Authentic Text-Based

I am going to read a letter that contains many of the words we just practiced. Please stand up or raise your hand when you hear me say one of those words. Remember, the words we just practiced are *my, your, his, her, our, and their*. [Acknowledge students for correctly identifying the possessive pronouns in the read-aloud.]

Dear First Graders,

Our fifth-grade class is studying astronomy, too, just like ***your*** class. ***My*** favorite part of the astronomy unit has been learning about astronauts and all of ***their*** fantastic adventures. You might like to hear about Sally Ride, a famous astronaut. In 1983, she became the first woman to travel in space. She even used a robot arm to fix a satellite while in space! Later, Sally wrote children's books to encourage girls and boys to study science and space travel. Thanks to ***her*** hard work, kids all over are excited about space and science and know that they, too, can travel in space one day if they work hard and stay focused on ***their*** goals!

Happy learning,

Josefa