

Click®

Exploring Space

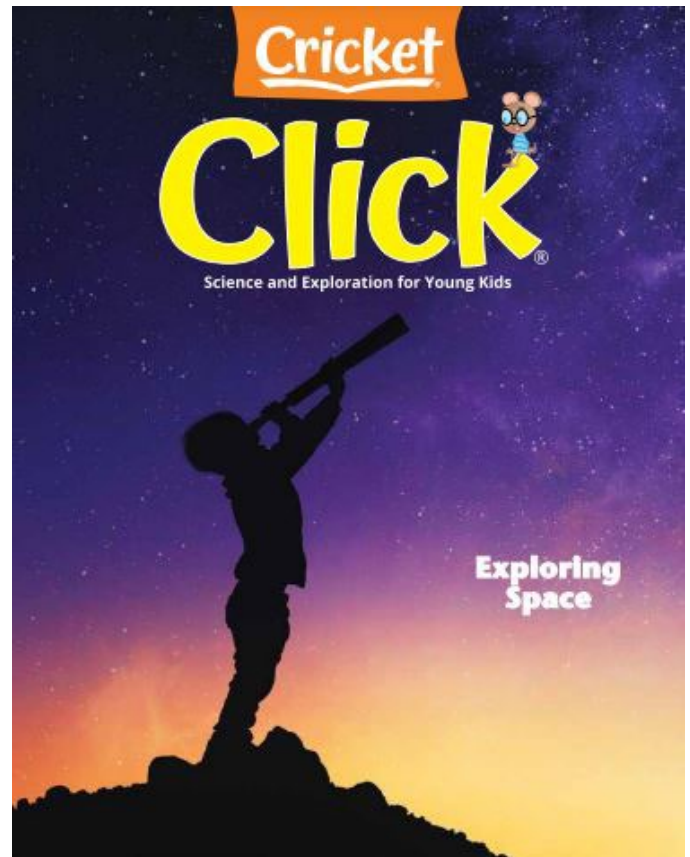
3-2-1...Blast Off! People of all ages are fascinated by the stars and enchanted with the silvery moon. This issue of CLICK magazine explores the mysteries of outer space through high-interest articles, stories, and photographs.

CONVERSATION QUESTION

How do we learn about outer space?

TEACHING OBJECTIVES

- Students will learn how astronauts train for their work on the International Space Station.
- Students will learn how an astronaut's suit is built to protect the wearer.
- Students will learn how the moon moves through different phases.
- Students will sequence events as happening before or after the main event.
- Students will examine the structure and function of a space suit.
- Students will collect and interpret data.
- Students will calculate elapsed time.
- Students will practice the mathematical skill of subitizing.
- Students will represent the phases of the moon with cookies.



In addition to supplemental materials focused on core STEM skills, this flexible teaching tool offers vocabulary-building activities, questions for discussion, and cross-curricular activities.

SELECTIONS

- **Astronauts at Work**
Expository Nonfiction, ~630L
- **Dress Like an Astronaut**
Graphic Nonfiction, ~760L
- **Waiting for Luna**
Contemporary Realistic Fiction, ~520L

Astronauts at Work

pp. 8–12, Expository Nonfiction

Board your spaceship and prepare for takeoff! This article teaches young readers how astronauts train for years to prepare for their work in space.



RESOURCES

- Sequencing Events: Blast Off

OBJECTIVES

- Students will learn how astronauts train for their work on the International Space Station.
- Students will sequence events as happening before or after the main event.
- Students will calculate elapsed time.

KEY VOCABULARY

- international (p. 8)** involving two or more countries
- model (p. 9)** a usually small copy of something
- gravity (p. 11)** the force that causes things to fall towards Earth

ENGAGE

Conversation Question: How do we learn about outer space?

Take a virtual field trip to NASA (via the website) and show students how astronauts fly, walk, eat, drink, and play games without gravity. As a motivational kinesthetic prereading activity, allow students to go on a “space walk” around the classroom. Direct them to mimic the actions of the astronauts they saw on the NASA website.

INTRODUCE VOCABULARY

Post and discuss the three vocabulary words and definitions. Have students Think-Pair-Share with a partner. Give them the following directives, one at a time:

- Discuss foods you might eat at an **international** dinner.
- How is a **model** airplane different from and similar to a real airplane?
- What happens when there is little or no **gravity**?

Emphasize the key words as they are revealed in the reading.

READ & DISCUSS

Lead a post-reading discussion based on the following questions.

- Where is the International Space Station?
- How does training in water help astronauts learn what it is like to work in space?
- How long does it take the rocket to go from Earth to space?
- What kinds of experiments do the astronauts do in space?
- Why is being an astronaut a very special job?

SKILL FOCUS: Sequencing

INSTRUCT: Elicit from students that the main idea of the article is to provide a detailed description of how astronauts train for their work on the International Space Station. Present the *Sequencing Events: Blast Off* graphic organizer. Tell students they need to indicate whether the sentence refers to training on Earth or working on the Space Station.

ASSESS: This activity may be completed as a whole-class activity. Students need to use a B (before) or A (after) to indicate if the sentence depicts an activity that occurred before or after the main event (blast off).

EXTEND

Mathematics The article explains that most astronauts stay on the Space Station for six months. Use this information to practice calculating elapsed time with students. Inform students that elapsed time is the amount of time that passes from the beginning of an event to the end of the event. Pose questions such as these:

- If an astronaut arrives on the Space Station in January, what month would she return to Earth?
- If an astronaut returns from the Space Station in November, what month did he leave Earth?

Blast Off

Sequencing Events Gather information from the photographs and words in the article to determine if the sentence is describing something that happened before or after the spaceship blasts off. Mark the sentence with a **B** (before) or **A** (after).

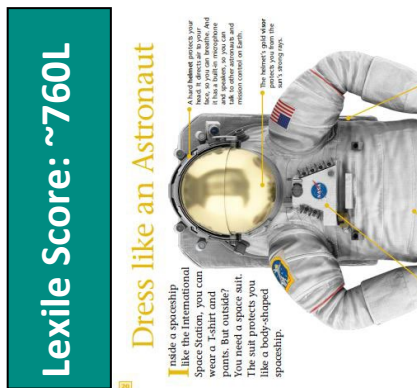
- _____ 1. A special headset shows the astronauts the inside of the space station.
- _____ 2. Astronauts put on suits and go on a space walk outside the craft to make repairs.
- _____ 3. The astronauts get a really amazing view of the Earth.
- _____ 4. Training in water helps astronauts learn what it's like to walk in outer space.
- _____ 5. Learning how to wear a space suit safely must be practiced.
- _____ 6. Astronauts perform science experiments in space.
- _____ 7. A model of the Space Station helps astronauts learn how to use equipment.
- _____ 8. Astronauts study how living without gravity changes the human body.

Draw a picture of a rocket blasting off in the space below.

Dress Like an Astronaut

pp. 20–21, Graphic Nonfiction

Enhanced with a large, eye-catching visuals, these article pages teach young readers how each part of a space suit is designed to protect and assist the astronaut.



RESOURCES

- Structure and Function: Suited for Space

OBJECTIVES

- Students will learn how an astronaut's suit is built to protect the wearer.
- Students will examine the structure and function of a space suit.
- Students will practice the mathematical skill of subitizing.

KEY VOCABULARY

- **protects** (p. 20) keeps someone or something from being harmed
- **displays** (p. 21) electronic devices, such as computer screens, that show information
- **2-way radio** (p. 21) a radio that can transmit and receive messages

ENGAGE

Conversation Question: How do we learn about outer space?

Ask students to think about how their clothing changes depending on where they are going (Ex: to school, a holiday party, soccer practice) and what they are doing (Ex: swimming, playing in the snow, riding a bike). Allow students to share experiences. Then have students consider how and why clothing can also change depending on occupation. Encourage students to discuss occupational clothing for a firefighter, a construction worker, a football player, and finally an astronaut.

INTRODUCE VOCABULARY

Display the following statements and underline the key vocabulary terms. Demonstrate how to infer the meanings of words using context clues and background knowledge. Then have partners work together to determine the meaning of each underlined word. Reveal definitions.

1. The turtle's hard shell protects the softer parts of its body.
2. The thermometer display showed it was only 23 degrees outside.
3. The skier used a 2-way radio to call down the hill for help.

READ & DISCUSS

Reinforce comprehension of the details in the article by using the following prompts to direct discussion.

1. Why do astronauts need to wear space suits outside the International Space Station?
2. Who can astronauts talk to through the built-in microphone and speakers in a space suit?
3. What does the suit's control module do?
4. How do the three layers of the suit closest to the skin keep astronauts comfortable?

SKILL FOCUS: Structure and Function

INSTRUCT: Elicit from students that the main idea of the article is to share real information about how an astronaut's space suit serves and protects the wearer. Present the *Structure and Function: Suited for Space* graphic organizer. Tell students they will use information from the article to "Show and Tell" the function of each part of the space suit. Students may write and/or draw their answers.

ASSESS: Remedial readers may work with a partner to complete the task.

EXTEND

Mathematics This exciting STEM activity incorporates fine motor skills with science while helping children practice subitizing with dice (looking at a group and knowing how many there are without counting). Each student will need a lump of gray play dough, a standard die, and a golf ball. Instruct students to flatten out their dough into a large circle. They will then roll the die and announce the number. Next, they will press the golf ball into the dough the same number of times to make craters on the moon. Ask: What forms craters on the moon?

Suited for Space

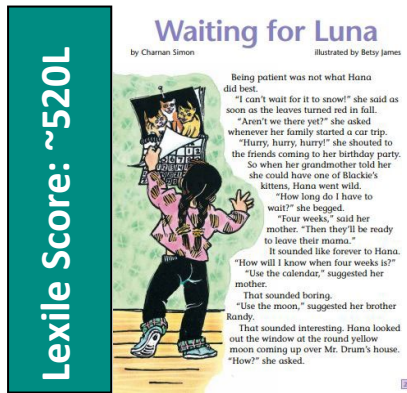
Structure and Function Gather information from the picture and words in the article to explain the function of each part of the space suit.

Equipment	Show/use pictures (What does it look like?)	Tell/use words (How does it help the astronaut?)
helmet		
control module		
backpack		
gloves		

Waiting for Luna

pp. 27–33, Contemporary Realistic Fiction

Hana must wait an entire month before she can take home one of Grandma’s kittens. This story will teach young readers about the phases of the moon over the course of four weeks.



RESOURCES

Collect and Interpret Data: Just a Phase

OBJECTIVES

- Students will learn how the moon moves through different phases.
- Students will collect and interpret data.
- Students will represent the phases of the moon with cookies.

KEY VOCABULARY

- **gibbous (p. 29)** the phase of the moon when more than half of the moon can be seen
- **half-moon (p. 29)** the phase of the moon when exactly half of the moon can be seen
- **crescent (p. 32)** the phase of the moon when only a thin slice of the moon can be seen

ENGAGE

Conversation Question: How do we learn about outer space?

Introduce the story “Waiting for Luna,” and tell students they will be reading a story about Hana, a young girl who is waiting to adopt a kitten. Read the first sentence aloud, “Being patient was not what Hana did best.” Ask students to share a time when they had to be patient. Was it difficult? What makes waiting easier?

INTRODUCE VOCABULARY

Post and discuss the three vocabulary terms. Lead students in creating an illustration to represent each of the phases. These pictures will be an additional reference for students when completing the SKILL FOCUS and EXTEND activities in this guide.

READ & DISCUSS

Post and discuss questions prior to reading. Read the story aloud, pausing when answers to the questions are revealed.

1. How does Randy teach Hana to use the moon to keep track of the passage of a month?
2. Why was the half-moon low in the sky when Hana woke up?
3. Explain how the moon shines.
4. When did Hana draw only clouds?
5. What did Hana draw when it was the new moon? Why?
6. Why did Hana name the kitten Luna?

SKILL FOCUS: Collecting and Interpret Data

INSTRUCT: Have students use information from the article and from the vocabulary activity to correctly shade in the moon phases on the *Collect and Interpret Data: Just a Phase* graphic organizer. Students may use a yellow crayon for the light of the moon and a gray crayon/pencil for the dark portion of the moon. You may want to share these additional terms depending on the level of your students: *waxing* (lit portion getting larger) and *waning* (lit portion getting smaller).

ASSESS: This may be done as a whole-class activity for younger students.

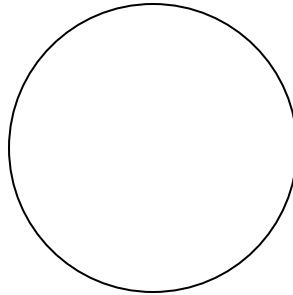
EXTEND

Astronomy Students will need eight round cream-filled chocolate sandwich cookies and a popsicle stick for scraping to create cookie moon phases. Have students twist open a cookie—the side with the icing circle is the full moon, and the dark wafer cookie with no icing is the new moon. Using information from the article and the worksheet, students will make all of the moon phases as discussed in the article: gibbous, crescent, half-moon, full moon, and new moon. (If you also teach waxing and waning, there will be a waxing and a waning gibbous and a waxing and a waning crescent moon.) If there are no food allergies, allow students to eat the moon phases!

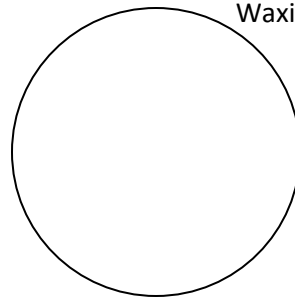
Just a Phase

Collect and Interpret Data Use information from the article to color the moon phases below. Use a yellow crayon to show the lit part of the moon and a gray crayon to show the shadowed part of the moon.

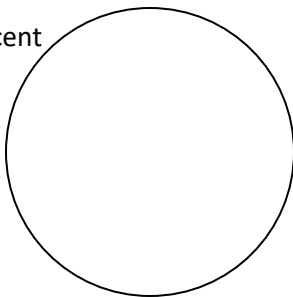
New Moon



Waxing Crescent

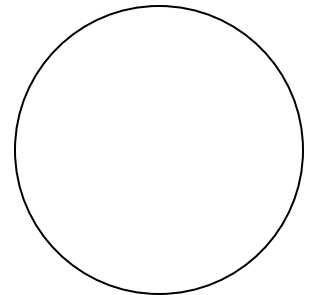


Waning Crescent



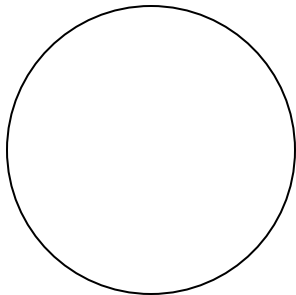
Half-Moon

(1st Quarter)

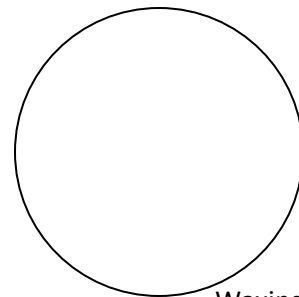


Half-Moon

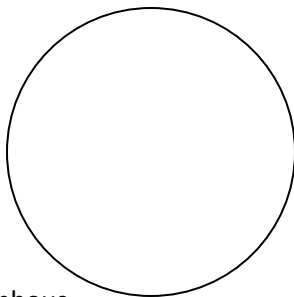
(3rd Quarter)



Waxing Gibbous



Waning Gibbous



Full Moon

