



Fourth Grade

ELA

GRADE 4 ELA ACTIVITY 4 – ADVENTURES BY LAND, AIR AND WATER

A video lesson of a Knox County 4th grade teacher that accompanies this text is available on KCS YouTube Channel and KCS TV.



In this text, your child will be looking for specific clues about:

TOPIC: Adventures by Land, Air and Water

ESSENTIAL QUESTION: What makes an adventure?

READING THE TEXT: *Lunar Vehicles*

- You may choose to take turns reading the text with your child, read the text at the same time, or have your child read independently.

ASK QUESTIONS:

- What is the difference between a Lunar Electric Rover and a Lunar Roving Vehicle?
- What are three interesting questions you could ask an astronaut about lunar vehicles?
- Do you think the astronauts from Apollo 15, 16, and 17 were seeking adventure? Why or why not?

PROMPT:

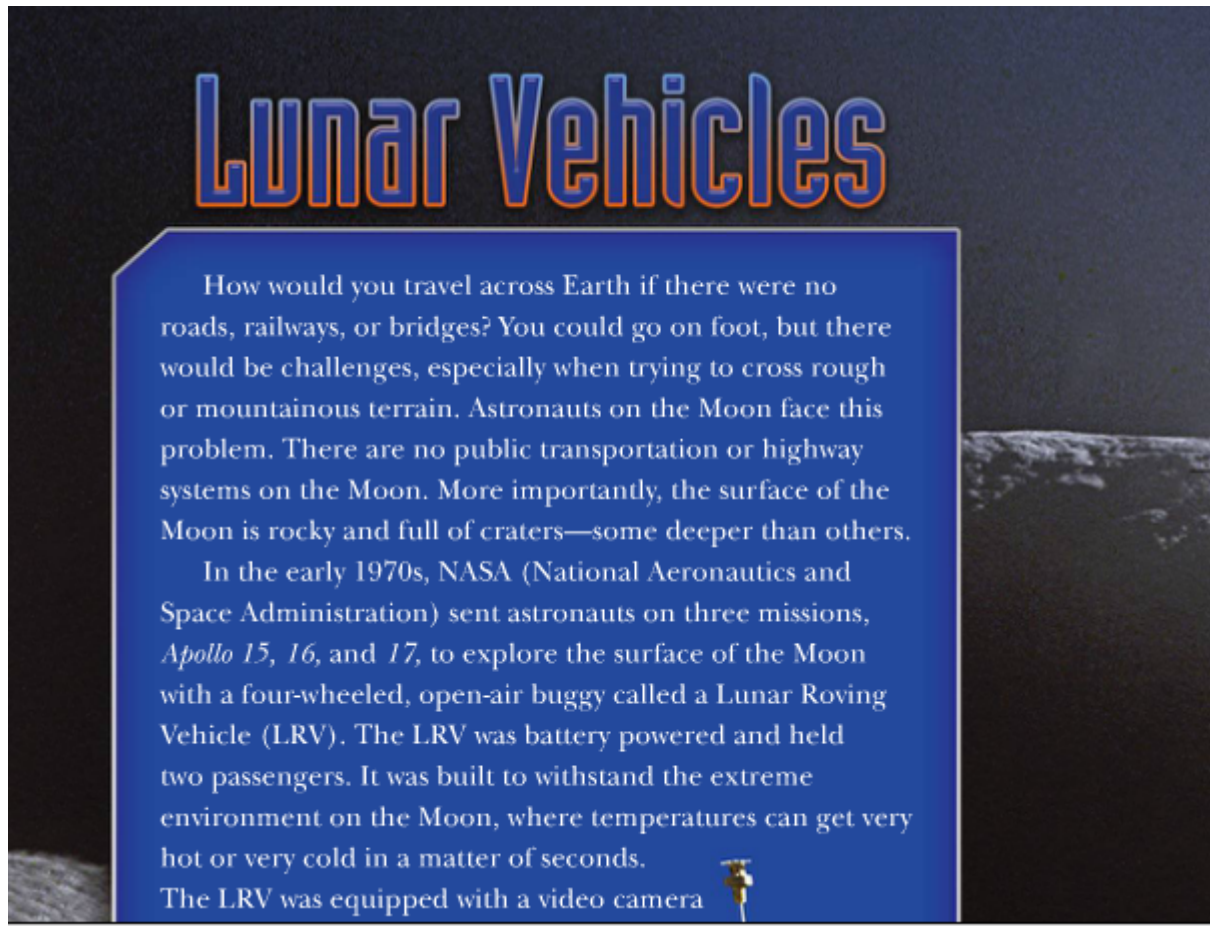
Write a paragraph to explain how lunar vehicles have evolved and why. Use evidence from the text to support your response.

EXEMPLAR:

Lunar vehicles have evolved to ensure that astronauts are able to explore the Moon's surface and to bring back important information to Earth. One improvement NASA made on their lunar vehicles was to increase from the four wheels of the Lunar Roving Vehicle to the twelve wheels of the Lunar Electric Rover. The increase of wheels most likely was to improve the quality of travel across the Moon's rocky and steep terrain. Astronauts needed to travel longer and further on their excursions; therefore, NASA improved the vehicle by creating a pressurized buggy that allowed extended trips. Early lunar vehicles were built to be used for one mission while the newer Lunar Electric Rover is intended to allow astronauts to travel thousands of miles that can last up to fourteen days. Longer missions could allow astronauts to gather more information that they can then send back to Earth. These longer missions required other improvements to the vehicle as well. The newer model provided a way for astronauts to sleep on the rover, as well as, use a sanitary facility. In conclusion, the evolution of the lunar vehicles from NASA allowed scientists to study and learn more about the Moon and continue to the present day.

EXTENSION IDEAS:

- Make a list of questions you have still about the Lunar Electric Rover.
- Research to learn about whether NASA is still on track to send the Lunar Electric Rover vehicle to the moon in 2020. What technology, if any, is still needed?
- Visit PBS Learning Media page for more Moon exploration information
- Visit NASA Space Place for more videos and space learning!
<https://spaceplace.nasa.gov/>




Lunar Vehicles

How would you travel across Earth if there were no roads, railways, or bridges? You could go on foot, but there would be challenges, especially when trying to cross rough or mountainous terrain. Astronauts on the Moon face this problem. There are no public transportation or highway systems on the Moon. More importantly, the surface of the Moon is rocky and full of craters—some deeper than others.

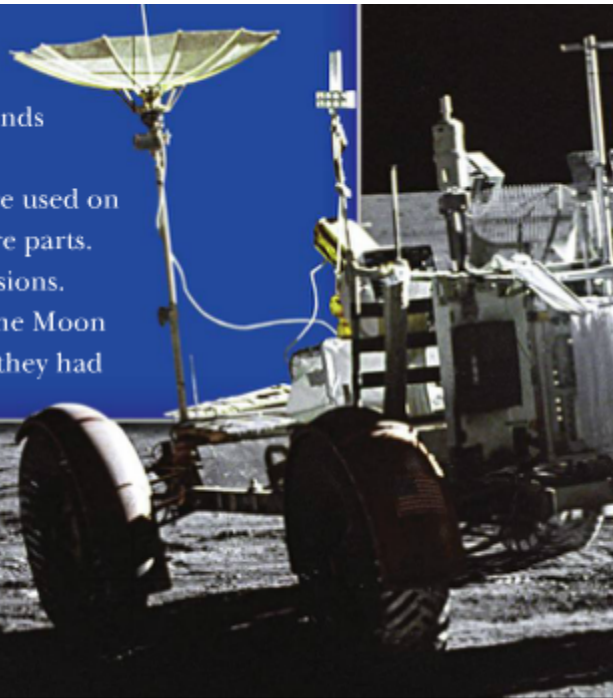
In the early 1970s, NASA (National Aeronautics and Space Administration) sent astronauts on three missions, *Apollo 15, 16, and 17*, to explore the surface of the Moon with a four-wheeled, open-air buggy called a Lunar Roving Vehicle (LRV). The LRV was battery powered and held two passengers. It was built to withstand the extreme environment on the Moon, where temperatures can get very hot or very cold in a matter of seconds.

The LRV was equipped with a video camera



and an antenna that looked like an umbrella. This enabled astronauts to send pictures and sounds from the Moon back to Earth.

Four LRVs were built: three were used on missions, and one was used for spare parts. Each LRV was used for three excursions. These trips let astronauts explore the Moon and travel farther and longer than they had



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on foot. The LRV could climb steep, rocky slopes and move easily over the Moon's surface. It was able to carry more than twice its weight. This allowed astronauts to bring equipment with them as well as collect rocks. The LRV was not designed to be used for a long time and each vehicle was only used on one mission.

At the turn of the twenty-first century, NASA began developing models for a modern vehicle. One model is called the Lunar Electric Rover. Unlike LRVs, the Lunar Electric Rover is pressurized and has twelve wheels. Additionally, it can be used for ten years rather than just one mission. Like its predecessor, it can only carry two astronauts. However, the astronauts can sleep and use sanitary facilities in the Lunar Electric Rover. These features would allow astronauts to travel thousands of miles on excursions lasting up to fourteen days.

Unfortunately, the technology needed to put a Lunar Electric Rover on the Moon is not yet available. In 2020, NASA plans to send astronauts back to the Moon.

A photograph of an astronaut in a white spacesuit standing on the lunar surface. The astronaut is positioned next to a Lunar Electric Rover, which is a small, two-wheeled vehicle with a large, dark, spherical wheel cover. The background shows the dark, cratered landscape of the Moon under a black sky.

Perhaps a Lunar Electric Rover will be their
“wheels” on the Moon.

Sleuth Work

Gather Evidence How is a Lunar Electric Rover different from a Lunar Roving Vehicle? Provide at least two pieces of evidence from the text.

Ask Questions Write two questions that you have about the Lunar Electric Rover. Note sources where you might find answers to your questions.



Make Your Case Do you feel it is a good use of money and time to send astronauts back to the Moon? State reasons to support your opinion.





ELEMENTARY READING ACTIVITY 4

Handouts can be found under the ***Student Resource Tab*** on The Knox County Schools website - www.knoxschools.org



KCS  **home**
Summer Edition





1. Turn on closed captions, if available.



2. Adjust the playback speed to slow down the video.



3. Consider watching short clips then pause, listen, and watch again.



4. Ask someone in your home to watch the video with you. Stop frequently and talk to your partner about what you heard and understood.

If this video
is hard to
understand:

ADVENTURES BY LAND, AIR, AND WATER

Essential Question: What makes an

adventure?

toward

come

action of

adventure = unusual and
exciting, typically
hazardous experience or
activity



KNOWLEDGE BUILDING

What makes an adventure?

ARE YOU PREPARED FOR AN EMERGENCY?

It is important to be prepared for emergencies. You never know when they may strike.

In school, you prepare for emergencies by practicing drills in case of a fire, tornado, or hurricane. However, do you practice being ready for emergencies at home?

One of the most important things you can do to be prepared for an emergency is to put together an emergency kit. This kit should always be kept in a place at home that is easy to remember and find. Once a disaster hits, the emergency kit should supply you with everything you need.

An emergency kit includes basic supplies that will help your family survive if there is no electricity or water or if you are unable to leave your home for as long as 72 hours. When a disaster hits, it can take days before rescue workers reach you, especially if you are stranded in your home. Therefore, it is important to pack supplies in the emergency kit that will allow you to survive without outside help for several days.

One of the most important supplies in an emergency kit is water. It is important to have one gallon of water per person in your family for at least three days. That means that you should have three gallons of water per adult just for you! You should also have three days' worth of food. Food needs to be nonperishable, or food that cannot spoil. Foods like granola bars, canned tuna, dried fruits, and peanut butter are foods that won't spoil for a long time.

A radio that can be powered by batteries is also important. If there is no electricity, the only way to know what is happening is to listen to a radio that is powered by batteries. Be sure to have extra batteries in your emergency supply kit too. Flashlights, a whistle to signal for help, and a first-aid kit are also very important to include among your emergency supplies.

Once you create your emergency supply kit, be sure to check your food and water supplies every six months. You may want to replace them then to have fresh food and water on hand.

During an emergency, always remember to remain calm. Knowing that you have planned ahead and are prepared can be very reassuring.

SLEUTH WORK

Gather Evidence: Make a list of items that you would include in your emergency supply kit. Refer to the text for clues as to what you should include.

Ask Questions: The Red Cross helps many communities when a disaster strikes. Write three questions you would ask a Red Cross volunteer about preparing for an emergency.

Make Your Case: How would you persuade someone to prepare for an emergency? Think about the reason a person may not have an emergency plan yet. Write a paragraph that includes both facts and opinions.

A MAN OF PERSISTENCE

Explorer Sir Ernest Shackleton might be the most persistent man who ever lived. On December 5, 1914, he and 27 men set out on a ship called *Endurance*. They hoped to reach the Antarctic continent and become the first people to cross the land on foot.

Despite the predictions of a terrible winter, *Endurance* left South Georgia Island, a remote island in the southern Atlantic Ocean. It headed for Vahsel Bay on Antarctica. Just two days later, the vessel ran into pack ice. For the next six weeks, the ship wove through ice floes.

On January 18, 1915, one day short of landing, the ship hit another thick pack ice. By the next morning, ice had enclosed the ship. Shackleton soon realized the ship was securely stuck in the ice and would remain stuck through many long winter months. During this time, Shackleton had his crew stick to their routines and exercise the sled dogs they had brought with them.

Ten months later, the crew still remained on board. In October 1915, pressure from the ice began to damage the ship, and it began slowly sinking. Shackleton and his crew abandoned the ship and made camp on the surrounding ice. On November 21, 1915, *Endurance* sank completely.

The crew camped on the ice for several months, and in April 1916, the ice floe broke in half, causing the crew to flee in

December 5, 1914 <i>Endurance</i> sets sail.	January 18, 1915 <i>Endurance</i> stranded in ice.	October 1915 Crew abandons ship.	November 21, 1915 <i>Endurance</i> sinks.
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AN AMAZING DISCOVERY

"Marcus, get your mother!" Aldo yelled. "I have something to show her!" It was a scolding hot day. Aldo had risen early as he and his son could work in the courtyard of the morning. They raised olives and grapes on a quaint farm in Italy in the early 1700s. These crops flourished in the fertile soil, made rich by volcanic ash.

That morning Aldo was digging a new well. As he was digging, his shovel hit something hard. He put the shovel down and started sifting at the dirt with his hands. When Marcus returned with his mother, Gina, they found Aldo looking into the eyes of a beautiful face. They helped him continue digging until they had uncovered an entire statue carved from marble.

"Aldo, my sister told me about a neighbor who found something like this when he dug his well," Gina said. "Do you think this is part of the same collection of ruins?"

The family met with their neighbors. Some everyone was comparing items they had found in their own farm fields. People had unearthed ruins, jewelry, bowls, and bricks. Some had even found bones.

Aldo and his neighbors worked their lands, and uncovered many other interesting artifacts buried in the soil. Soon, however, they were told to stop. They found out their farms were located near where the ancient city of Herculaneum had once been. The routine digging might damage the ruins and make it impossible to learn their secrets from the past.

Many centuries earlier, Herculaneum and Pompeii had been thriving cities. Yet one horrific day in A.D. 79, they were destroyed by a volcano's eruption. That day the nearby volcano known as Mount Vesuvius (or STV, for its) erupted. It buried the cities of Herculaneum and Pompeii under rock and ash. Thousands of people died, and everything in the cities was burned or buried.

Since the discovery of ruins that remain from the two cities, historians and archaeologists from all over the world have come to the area to excavate and see what else they can find. Today tourists flock to Pompeii and Herculaneum to see the ruins.

Aldo and his neighbors often talked about what life must have been like in Herculaneum. They thought about how, if they had lived in the first century A.D., their farms would have been right in the middle of the city. Certainly they were glad to have lived instead at a different time, when their farms became a popular tourist attraction that drew visitors from around the world.

SLEUTH WORK

Gather Evidence: What evidence helps you understand that this is a historical event? List three details.

Ask Questions: Write three interesting questions about Pompeii.

Make Your Case: Do you think historical artifacts should belong to the people who find them or be owned by a museum and displayed for more people to see? Give two reasons to support your opinion.

WHAT MAKES AN ADVENTURE?

- **Word Composition: Morphology**

- astronaut

- aeronautics

- terrain

- lunar



ADVENTURES BY LAND, AIR, AND WATER

Learning Target:

Read closely to explain how lunar vehicles have evolved and why.

Success Criteria: *How will you know you are successful?*

- Describe the lunar vehicles
- Explain how and why they evolved
- Include topic specific vocabulary
- Include a variety of sentences with correct punctuation and capitalization

Learning Target: Read closely to explain how lunar vehicles have evolved and why.

★ Lunar Vehicles

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Lunar Vehicles

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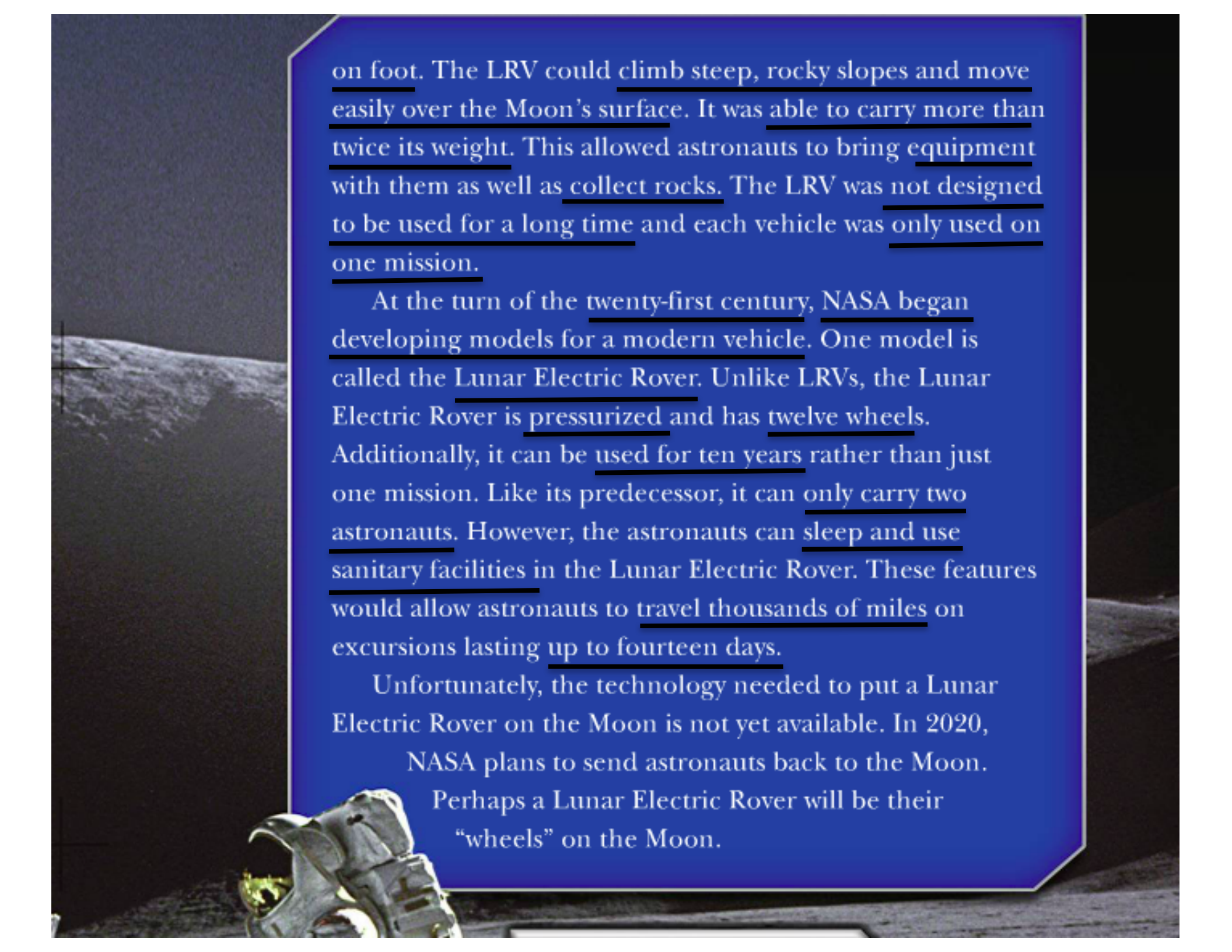


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Quick Write

Write a paragraph to explain how lunar vehicles have evolved and why. Use evidence from the text to support your response.

Success Criteria: *How will you know you are successful?*

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EXTENSION IDEAS

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RECAP

- **Essential Question:** What makes an adventure?
- Missions and astronauts
- Excursions on the moon
- Lunar vehicle evolution
- Details explaining why vehicles needed improvement
- Writing tasks
- Extension tasks



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ELEMENTARY READING
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