

One Giant Leap for Mankind: Neil Armstrong and Courage

- **Compelling Question**
 - How can your courageous actions help to advance freedom in your life and the lives of others?
- **Virtue:** Courage
- **Definition** – Courage is the capacity to overcome fear in order to do good.
- **Lesson Overview**
 - In this lesson, students will consider the courage of Neil Armstrong who led the Apollo 11 space mission and became the first man to walk on the moon. They will also consider how to cultivate and apply courage in their own lives.
- **Objectives**
 - Students will evaluate Neil Armstrong’s courage during the early days of the space race.
 - Students will analyze how courageous acts can promote progress.
 - Students will apply their knowledge of courage to their own lives.
- **Background**
 - The American landing on the Moon was inextricably linked to Cold War tensions and competition as the United States and Russia began a “space race” in the 1950s and 1960s. In October, 1957, the Russians sent a satellite, Sputnik, into orbit around the earth and then followed this launch by sending a dog into space. Unfortunately, the U.S. Vanguard rocket exploded on the launch pad. The following year, Congress created the National Aeronautics and Space Administration (NASA) to organize the American effort to get to space. In April, 1961, the Russians again beat the Americans by sending the first human, Yuri Gagarin, into space. American Alan Shepard made the first U.S. spaceflight shortly after, and President John F. Kennedy addressed Congress the following month and issued a ringing challenge: “I believe this nation should commit itself to achieving the goal, before the decade is out, of landing a man on the moon and returning him home safely to earth. No single space project in this period will be more impressive to mankind, or more important for the long-range exploration of space.”

The American astronauts made several flights into orbit around the earth for Projects Mercury and Gemini, but, in 1965, a Russian cosmonaut actually walked in space. Americans soon matched the feat and were spending as much as two weeks in space orbiting around earth and performing the first rendezvous in space between different spacecraft. In early 1967, a tragic fire on a launch pad killed three American astronauts in Apollo 1, but the Americans were undaunted in efforts to put a man on the Moon and improve safety procedures. Apollo 8, 9, and 10 flew in orbit around the Moon, scouted out potential landing sites, and tested the landing vehicle in orbit. Buzz Aldrin, Neil Armstrong, and Michael Collins then prepared and trained to be the first humans to land on the moon in July, 1969.

Astronauts were experienced military test pilots who were highly-educated, logical, introspective, and they were also very courageous, confident, and competitive. They pushed limits and took risks, but not unnecessary ones. They were engineers and problem-solvers who had excellent disciplined study habits and had a great deal of motivation to work very hard. Neil Armstrong, for example, grew up in Ohio and was an Eagle Scout. He studied aeronautical engineering at Purdue University and then flew jet fighters during the Korean War. He served as a test pilot and flew the X-1 and X-15 rockets. He courageously pushed the envelope of human discovery and in 1969 was the first human to walk on the Moon.

- **Vocabulary**
 - Space race
 - Sputnik
 - NASA
 - Yuri Gagarin
 - Alan Shepard
 - Mercury
 - Gemini
 - Cosmonaut

- Rendezvous
- Apollo
- Buzz Aldrin
- Neil Armstrong
- Michael Collins
- Columbia
- Eagle
- Deploy
- Quarantine
- **Introduce Text**
 - Have students read the background and narrative, keeping the “Walk-In-The-Shoes” question in mind as they read. Then have them answer the remaining questions below.
- **Walk-In-The-Shoes Questions:**
 - As you read, imagine you are the protagonist.
 - What challenges are you facing?
 - What fears or concerns might you have?
 - What may prevent you from acting in the way you ought?
- **Observation Questions**
 - What contributions did Neil Armstrong and the other astronauts make to the advancement of freedom through their demonstration of courage in the space race?
 - In what ways did Armstrong’s courage contribute to his ability to lead the Apollo 11 mission?
- **Discussion Questions:** Discuss the following questions with your students.
 - What is the historical context of the narrative?
 - What historical circumstances presented a challenge to the protagonist?
 - How and why did the individual exhibit a moral and/or civic virtue in facing and overcoming the challenge?
 - How did the exercise of the virtue benefit civil society?
 - How might exercise of the virtue benefit the protagonist?
 - What might the exercise of the virtue cost the protagonist?
 - Would you react the same under similar circumstances? Why or why not?
 - How can you act similarly in your own life? What obstacles must you overcome in order to do so?
- **Additional Resources**
 - “July 20, 1969: One Giant Leap for Mankind” Nasa. https://www.nasa.gov/mission_pages/apollo/apollo11.html
 - The Apollo Program, Smithsonian National Air and Space Museum. <http://airandspace.si.edu/explore-and-learn/topics/apollo/apollo-program/landing-missions/apollo11-crew.cfm>
 - James Vincent, Treasure Trove of Apollo 11 Souvenirs Discovered in Neil Armstrong’s Home <http://www.theverge.com/2015/2/10/8010665/apollo-11-souvenirs-discovered-in-neil-armstrongs-home>
 - Jay Barbree, *Neil Armstrong: A Life of Flight*. New York: Thomas Dunne Books, 2014.
 - Craig Nelson, *Rocket Men: The Epic Story of the First Men on the Moon*. New York: Viking, 2009.

Handout A: One Giant Leap for Mankind: Neil Armstrong and Courage

Background

The American landing on the Moon was inextricably linked to Cold War tensions and competition as the United States and Russia began a “space race” in the 1950s and 1960s. In October, 1957, the Russians sent a satellite, Sputnik, into orbit around the earth and then followed this launch by sending a dog into space. Unfortunately, the U.S. Vanguard rocket exploded on the launch pad. The following year, Congress created the National Aeronautics and Space Administration (NASA) to organize the American effort to get to space. In April, 1961, the Russians again beat the Americans by sending the first human, Yuri Gagarin, into space. American Alan Shepard made the first U.S. spaceflight shortly after, and President John F. Kennedy addressed Congress the following month and issued a ringing challenge: “I believe this nation should commit itself to achieving the goal, before the decade is out, of landing a man on the moon and returning him home safely to earth. No single space project in this period will be more impressive to mankind, or more important for the long-range exploration of space.”

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Narrative

On July 5, 1969, three astronauts, Buzz Aldrin, Neil Armstrong, and Michael Collins, were answering questions from reporters at a press conference about ten days before their historic trip on Apollo 11 to be the first humans to land on the moon. When asked whether the mission was worth the billions of dollars it cost, Armstrong responded: “I think we’re going to the moon because it’s in the nature of the human being to face challenges. It’s by the nature of his deep inner soul.” His answer perfectly captured the curiosity that led humans to land on the moon and the courage that was needed by all the astronauts who flew in rockets into outer space.

As the sun rose in Florida on the morning of July 16, the heat and humidity were stifling with temperatures rising over 100 degrees at 7:30 a.m. An estimated one million spectators were too excited to notice the weather as they crowded the grounds, beaches, and water around the perimeter of the Cape Canaveral launch site at a distance of at least three and a half miles for safety. The three astronauts meanwhile had eaten a breakfast of steak and eggs with coffee and orange juice before donning their spacesuits and heading over to the launch pad. They rode an elevator to level 34, and at 6:54 a.m. they boarded their Apollo spacecraft atop the 363-foot high Saturn V rockets filled with six million pounds of freezing liquid propellant. They powered up and ran through their safety checklist as more than 300 scientists, engineers, and doctors worked in launch control and hundreds more in Houston’s mission control to ensure safety and success.

The final countdown commenced, and the engines were ignited with an incredible blast of 7.5 million pounds of thrust erupting in flame and smoke that the crowd saw fifteen seconds before the ear-splitting roar. At 9:32 a.m., the rocket lifted off and soon pitched into its flight plan with the astronauts pinned into their seats by the growing G forces. They blasted into the heavens with an 800-foot trail of fire behind them and were soon rocketing at more

than 6,000 m.p.h. dozens of miles above the Earth. Many American astronauts and Russian cosmonauts had died in the course of spaceflight, and Armstrong and his fellow astronauts were showing great courage attempting a feat no human had ever achieved as they traveled into the unknown. Countless minor technological or human errors could mean certain death in space.

The astronauts burned the second-stage rocket in the blackness of space in orbit around the Earth as they began to enjoy the magical feeling of weightlessness in space. Their spacecraft circled the Earth at over 17,500 m.p.h. until mission control agreed with Armstrong that all was a go and the third-stage rocket hurtled them out of Earth's orbit at more than 24,000 m.p.h. toward the Moon.

After about 25 hours, Armstrong and his two fellow astronauts were halfway to the Moon. They slept, flew their spacecraft, and transmitted audio and visual images back to Earth, but there was nothing routine about their flight. They were all too aware that, in addition to the dangers of space travel, several probes from the United States and the Soviet Union either crashed into the Moon or skipped past it into deep space. Moreover, the scientists did not even know whether the Moon's crust would hold the weight of their landing craft or how deep the dust was on the surface.

Armstrong nevertheless confidently braved the dangers and proceeded on the mission. After 75 hours in space, Apollo 11 was caught in the Moon's gravity and safely entered into its orbit. On Sunday, July 20, Armstrong and Aldrin prepared the lunar lander and climbed aboard while Collins selflessly circled the Moon and waited for them to return. With countless hours of simulated training on Earth, Armstrong expertly piloted the craft, and despite a malfunction, calmly put it down on the Moon. "The Eagle has landed," he reported to billions of people back on Earth.

Armstrong was the first human being to walk on the Moon, and as he set foot down on the surface, he said, "That's one small step for man. One giant leap for mankind." Armstrong and Aldrin walked in the footsteps of trailblazing, brave discoverers who had conquered new frontiers for millennia in the human experience. Once Aldrin joined Armstrong, the pair stood on the surface of the Moon a quarter million miles from Earth. President Richard Nixon spoke to them, saying, "For people all over the world, I am sure they, too, join with Americans in recognizing what an immense feat this is."

Armstrong and Aldrin leapt short distances in the reduced gravity of the Moon. They conducted scientific experiments, collected rocks and soil for analysis, and set up an American flag with wire because there was no air to make it appear to be flying proudly. After several hours, it was time for the pair to return to the landing craft with their samples and attempt to sleep. Armstrong was too excited and too cold to sleep so he lay there and contemplated their achievement.

They launched from the Moon and docked safely with the Columbia in orbit where they transferred all the materials and left the Eagle in orbit. It is believed that Eagle crashed into the moon a few weeks later. The astronauts fired their rocket exactly the right amount to break free of the Moon's gravity and get back to Earth. The astronauts were not free from peril during their return trip. The most difficult challenge would be re-entering Earth's atmosphere at exactly a six-and-a-half degree angle, or the spacecraft would skim off the atmosphere into space. Meanwhile, the heat shield would have to hold at temperatures nearing 4,000 degrees. The Russians had not solved the problems of re-entry, and the Americans would later lose a space shuttle during re-entry.

Apollo 11 successfully navigated re-entry as they came in at nearly 25,000 m.p.h. They slowed until the parachutes deployed and then drifted down into the Pacific Ocean where they were rescued by a helicopter and swimmers from a U.S. aircraft carrier. Aldrin, Armstrong, and Collins were quarantined for a few weeks and then honored with a ticker-tape parade celebrating their grand, heroic achievement. They courageously proved that humans could walk on the Moon and that brave humans could achieve what many others previously thought impossible.