



The Space Race

We've come a long way since humans first launched things into space. In 1957, scientists from the Soviet Union launched a small silver ball into orbit. They called their machine Sputnik, and it was the first man-made object to send a radio message from outer space. This is what started the space race between the United States and the Soviet Union. During the 12 years after Sputnik was launched, American and Soviet scientists raced to see who could be the first to send people to

the moon. The Soviets were ahead for most of the race. They were the first to send people into space and bring them back home safely, but American scientists kept working. We finally won the space race in 1969 when Neil Armstrong and Buzz Aldrin were the first people to walk on the moon.

Florida played a very important part in this race. Our city of Cape Canaveral was where some of our best scientists and engineers worked together to build one of our planet's first spaceports. Today, we call this spaceport the Kennedy Space Center. It was built a few miles away from Cape Canaveral. It is where we launch rockets, satellites and other spacecraft into orbit around our planet.

If you have ever wanted to be an astronaut, then Florida is the place for you!



Connections

Retiring the Shuttle Discovery

Has your family ever had to get rid of an old car? Maybe it had too many miles on it or was costing too much money to keep fixed up? Sometimes it just makes more sense to find something new. It especially makes sense if you've been driving the same vehicle for 25 years and logged over 150 million miles!

In 2011, NASA retired the space

shuttle Discovery, the last of the three shuttles to be retired. Since 1984, Discovery has been one of five space Shuttles in regular use. The other shuttles were the Columbia, Challenger, Atlantis and Endeavor. Sadly, Challenger was destroyed in a terrible accident in 1986, and Columbia met a similar fate in 2003. The three remaining shuttles ended their service

in 2010 and 2011.

The Discovery retired after traveling almost 150,000,000 miles. It flew around the world 4,648 times and spent a world-record (galaxy-record?) 365 days in space. It took the Hubble Space Telescope into space and even went back several times to fix it.

Discovery will spend retirement

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The Space Program

1. Mercury: Pioneers in a New World

The main goal of the Mercury program was simply to get someone into space. A small, one-man capsule rode high on top of a tall rocket.



the Mercury astronauts

The six Mercury flights were generally pretty short — the first few only lasted 15 minutes — but even so, this was the beginning of America's adventures in space. Alan Shepard, a Navy test pilot, was the first American in space. He did it with a quick suborbital flight in his capsule called Freedom 7. "Suborbital" means the capsule flew into outer space but not into orbit around the Earth. John Glenn was the first American to orbit the Earth in Friendship 7. You may have heard of Glenn. He went up into space again in 1998 in the space shuttle.

2. Gemini: Twice the Adventure!

The Mercury program proved a person could be sent into orbit and land again safely. But was that all there was to exploring space? No way! Could we steer a spacecraft in orbit, instead of just sending it up and bringing it back down? Could we

put two people in space? Could astronauts walk in space outside their capsules? Could two spaceships come together out there? These questions were all answered by the second phase of manned spaceflight in America, the Gemini program. In the Gemini program, each capsule held two astronauts and included new space experiments. What were the answers to their questions? Yes, yes, yes and yes.

3. Apollo: Shoot for the Moon

The Gemini program was a great success. After that, it seemed like all we had to do was build a rocket that would go to the moon. The moon is 240,000 miles away, farther than anywhere on Earth, and it became the job of the Apollo program to get us there. Until then, the rockets that took people into outer space had been about 100 feet tall. Do you want to guess how tall Apollo's Saturn V rockets were? They were almost 400 feet high — as tall as a 40-story building! Inside was enough fuel to get astronauts as far as they needed to go and in style. Some Apollo missions were test flights, traveling farther and faster than ever before, just to see if the ships could do what they needed to do. Then, on July 20, 1969, 500 million people watched on television as Neil Armstrong became the first human being to walk on the moon. Everyone listened as his voice came through loud and clear: "That's one small step for man, one giant leap for mankind." On later Apollo missions, from 1969 to 1972, astronauts collected rocks

and even rode around in special electric "moon buggies" called Lunar Rovers. There are currently three Lunar Rovers still parked on the moon. Astronauts placed a metal plaque on the moon's surface that says, "We came in peace for all mankind."

4. Skylab: Living in Space

Our space program didn't stop after we landed on the moon. The last few Apollo missions were used to send a space station into orbit. The station was called Skylab. It was a place where astronauts could live and work in outer space for long periods of time. Three groups of astronauts worked in Skylab between 1973 and 1974. They did scientific experiments, miles and miles above the Earth's surface.

Skylab fell from orbit on July 11, 1979, after solar storms hit the Earth's atmosphere. Pieces of the station fell into the ocean. Thankfully, nobody was hurt, but it put an end to American space stations for a while.

Skylab prepared the way for the International Space Station. For example, scientists from Canada built a large robot arm for the space shuttle that helped put the new space station together.



5. STS: Commuting to Space

The Apollo and Skylab missions weren't the end of our adventures in space. Not by a long shot! Plans were made for a spacecraft that could be used again and again, taking off for space and landing safely on Earth again. The result? The STS, which stands for "Shuttle Transportation System." That was the official title for the space shuttle program. The shuttles took off with the help of huge rockets but landed by themselves on runways, much like jet planes. They carried anything that needed to get into orbit — up to 65,000 pounds. The first shuttle, Columbia, was launched in 1981. More than 130 shuttle missions took place over 30 years, and astronauts became more comfortable living and working in outer space than ever before. However, NASA decided to end the space shuttle program, and the last flight took place in 2011.

Challenger

Brave men and women of the space program have always understood that space exploration is dangerous. Every once in a while, someone pays the highest price anyone can pay for the cause of knowledge and exploration: his or her own life. Near the visitor center at Spaceport U.S.A. is a monument to astronauts who have died in the space program. Our country will always remember the tragedy of the space shuttle Challenger in 1986 that killed all seven crew members, including Christa McAuliffe, who would have been the

first schoolteacher to travel in space. As long as people continue to explore the far



crew members of the space shuttle Challenger

reaches of outer space, these brave astronauts will be remembered as heroes.

Columbia

The morning of Feb. 1, 2003, dawned clearly and brightly. Before sunrise, stargazers as far west as California and Utah watched a bright streak heading east across the sky. It was the space shuttle Columbia, returning to Earth after more than two weeks in outer space. Its payload included, among other things, science experiments by school children all over the planet. Its brave crew members were anxious to get home to their waiting families. It looked like another perfect shuttle mission. Then, over Texas, just before 8 o'clock, the unthinkable happened. The shuttle lost contact with mission control for a moment and then simply broke apart. Traveling at more than 12,000 miles per hour and more than 30 miles high, something had gone horribly wrong. In just moments, there was nothing left of Columbia but tiny pieces, strewn from California to Alabama. The shocked and saddened public was warned to report any shuttle pieces they found but not to touch them because of the danger of toxic fuels and other harmful chemicals that might cover the wreckage. Each piece was an important part of a mysterious and horrifying puzzle, helping NASA to unravel the mystery of what went wrong. Columbia was the oldest surviving member of NASA's five-shuttle fleet, and its crew that day included six brave American astronauts and the first Israeli ever to go into space, a war hero named Ilan Ramon.

TIMELINE

The Soviet Union launches Sputnik into orbit, 1957



President John F. Kennedy is assassinated, Nov. 22, 1963



Neil Armstrong and Buzz Aldrin walk on the moon, July 20, 1969



Disney World opens in Florida, 1970



The Miami Dolphins play an undefeated season, 1972



Like Movies?

Florida Facts

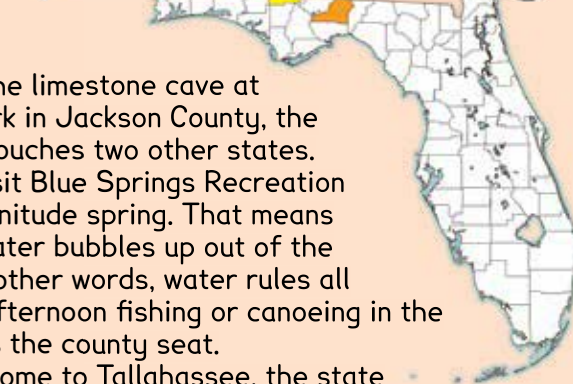
There are many terrific movies about outer space. Some are just science fiction, but others are based on true stories. Maybe you've seen the film "Apollo 13," which is about a nearly disastrous mission that never made it to the moon. In some scenes of the film, the actors seem weightless, just like in outer space. Those aren't special effects! The makers of "Apollo 13" filmed some weightless scenes in a special training jet used to train real-life astronauts. The jet takes off and flies nearly straight up, right close to the top of Earth's atmosphere, then turns sharply around and heads back to Earth again. Right at the top of that trip, everyone aboard the jet is weightless for about a minute.

Apollo 13 astronauts from left to right: Fred Haise, Jack Swigert and Jim Lovell



Jackson and Leon Counties

Florida Counties



Jackson County: Don't miss the limestone cave at Florida Caverns State Park in Jackson County, the only Florida county that touches two other states. (Can you name them?) Visit Blue Springs Recreation Area, home to a first-magnitude spring. That means an enormous volume of water bubbles up out of the aquifer every second. In other words, water rules all here. Spend a laid-back afternoon fishing or canoeing in the Chipola River. Marianna is the county seat.

Leon County: This county is home to Tallahassee, the state capital and county seat. There are many museums and historic sites here. Did you know that the first reading of the Emancipation Proclamation in Florida took place in Tallahassee on May 20, 1865? Do you remember when President Lincoln issued it? Leon is home to Florida State University and Florida Agricultural and Mechanical (A&M) University. Quick — cover this paragraph and spell Tallahassee!



Do you want to be an astronaut?

This Week's Question

The astronauts who were part of the Mercury and Gemini programs proved it was possible to travel to space and back. Apollo astronauts went all the way to the moon. Others have lived in space stations for months at a time. It takes a lot of hard work to become one of these brave people, and it can be risky. The Apollo 13 mission is famous because an explosion almost killed three astronauts. You have also read about how two of America's space shuttles were lost in accidents. Even with these challenges, people still want to see what we can learn by visiting outer space.

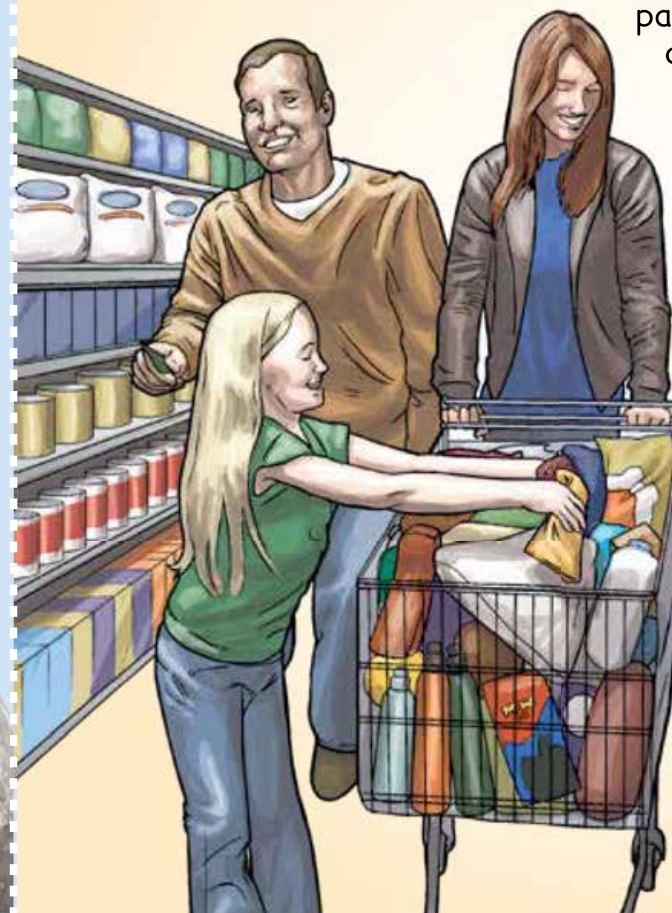
What are some of the challenges that astronauts face? Do you think you would like to be an astronaut? Why or why not? Does anyone in your class feel differently than you do? Find out why.



Earning a Profit

Financial Literacy

Businesses earn money by selling goods and services that people need or want. A grocery store is a business. The store buys food from farms and sells that food to people nearby. Businesses make money, or a profit, by charging more for food than they paid to buy it. Customers are willing to pay the higher prices because it is easier and faster to get everything at one place.



An entrepreneur is someone who starts a new business. Entrepreneurs have to take a big risk. They do not know if their business will be able to earn money. Entrepreneurs find a want or need in a town or city. If enough people want the new business, the entrepreneur may be able to make a profit.

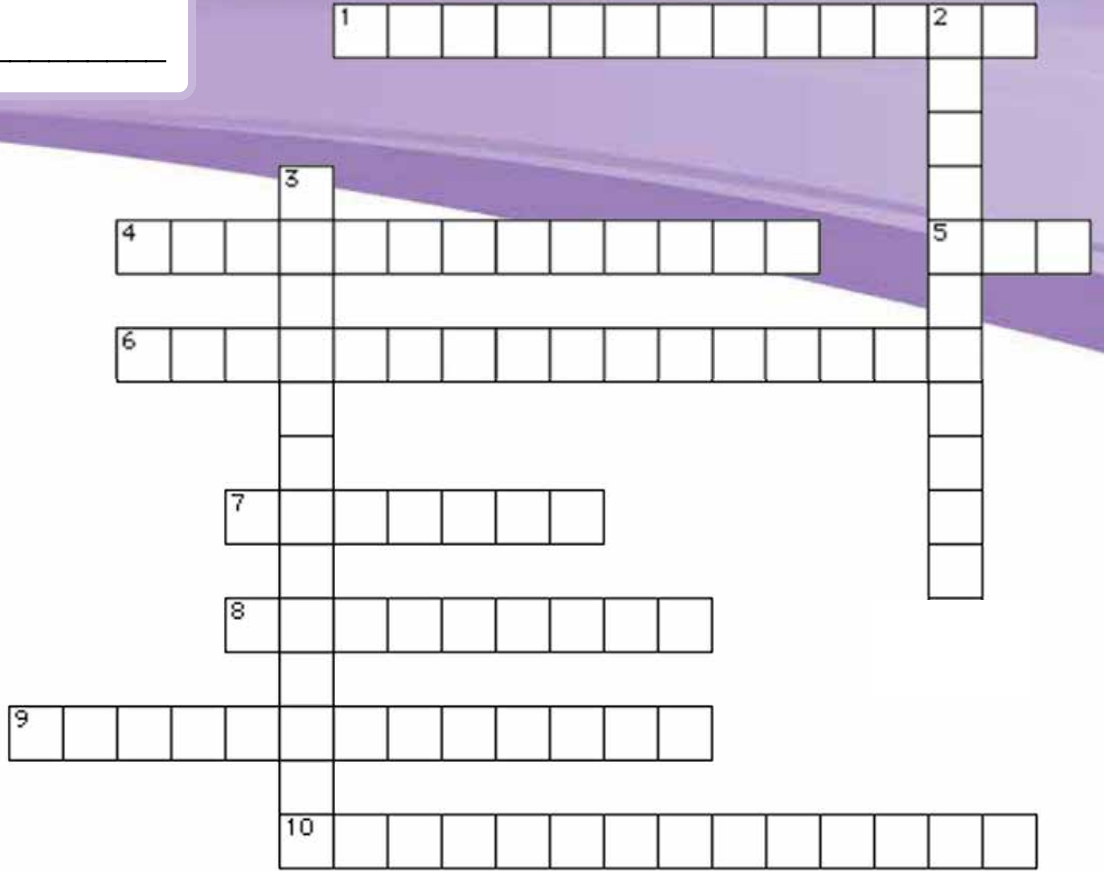
Name _____

ACROSS

1. U.S. space program that sent men to the moon (two words)
4. city that is our country's spaceport (two words)
5. abbreviation for the official name of the shuttle program
6. schoolteacher who trained to go on a shuttle mission and died with the Challenger crew
7. first man-made object in space
8. first American to orbit Earth
9. first man to walk on the moon
10. first American space program to send people into space

DOWN

2. the first American in space
3. space program that first sent two people into orbit



1. Name the five main phases of the space program.
2. What was the main goal of the Mercury program?
3. Who was the first American man to orbit the Earth?
4. Who was the first American man in space?
5. What were two of the important things we learned from the Gemini program?
6. On what day and year did the first man walk on the moon? Who was that man? What were his famous words as he stepped on the moon's surface?
7. What happened to bring the Skylab project to an end?
8. What major event occurred in the Soviet Union to start the era of space travel?
9. Who was the first teacher chosen to take part in an American space shuttle flight?
10. How do businesses make money?

Think & Review

The Space Missions

Activity

Read each of the sentences below. Draw a line that connects each sentence to the NASA space mission that it best describes.

This mission sent astronauts into space for months at a time.	Mercury
Millions of people around the world watched as astronauts from this mission landed on the moon.	Gemini
The space shuttles were a part of this mission, which were used almost 130 times to bring people and supplies into space.	Apollo
Astronauts from this mission were some of the first people to go to outer space and come back.	Skylab
This mission tested whether NASA could get a spacecraft into orbit around the Earth.	STS

Retiring the Shuttle Discovery

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in a museum, most likely the Smithsonian Institution. Transporting the shuttle to a museum will cost \$28 million!

The United States has moved its space exploration responsibility to private businesses like SpaceX, which has been designing and testing rockets for some time. The SpaceX Falcon 9 rocket may replace the space shuttles. NASA and others may be sad to see the shuttles go, but think of it like this: Getting a new car is always fun!

Imagine you are at the Space Center in 1986. Some bad people chase you until you hide in a small container with many buttons. Before long, you realize you are hiding inside the Voyager I space probe. Everything starts to rumble ... Suddenly, you blast off! The vapors in the probe make you sleep for 20 years. At last, you awaken and realize you are not on Earth. You hear strange sounds outside the probe. As you open the door, you meet strange-looking aliens. Before you begin to write, think about your reaction and what you'll do. Now write to tell about your adventure.

Let's Write

If you'd like to make any editorial comments about our paper, please write to us at support@studiesweekly.com.