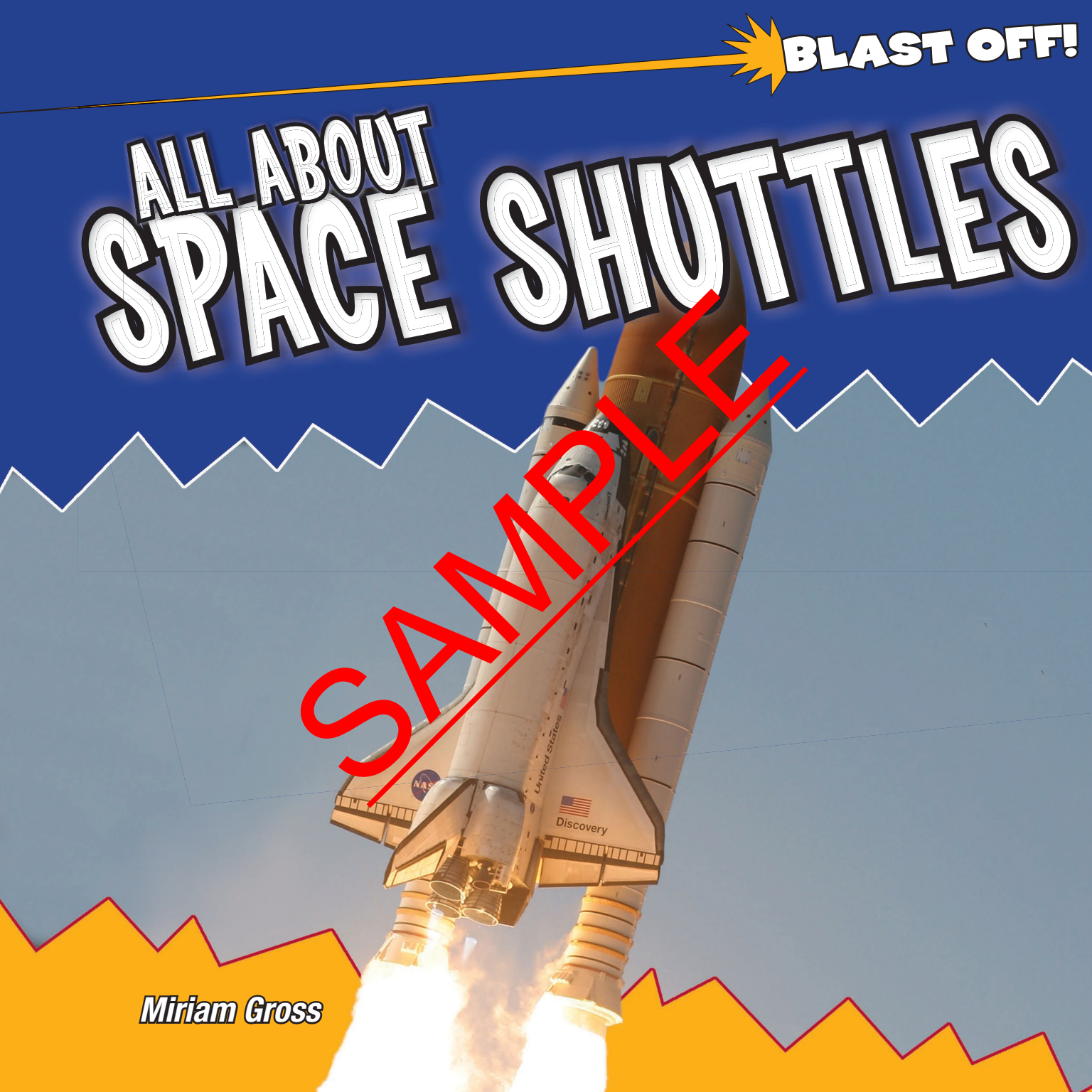
BLAST OFF!

ALL ABOUT SPACE SHUTTLES



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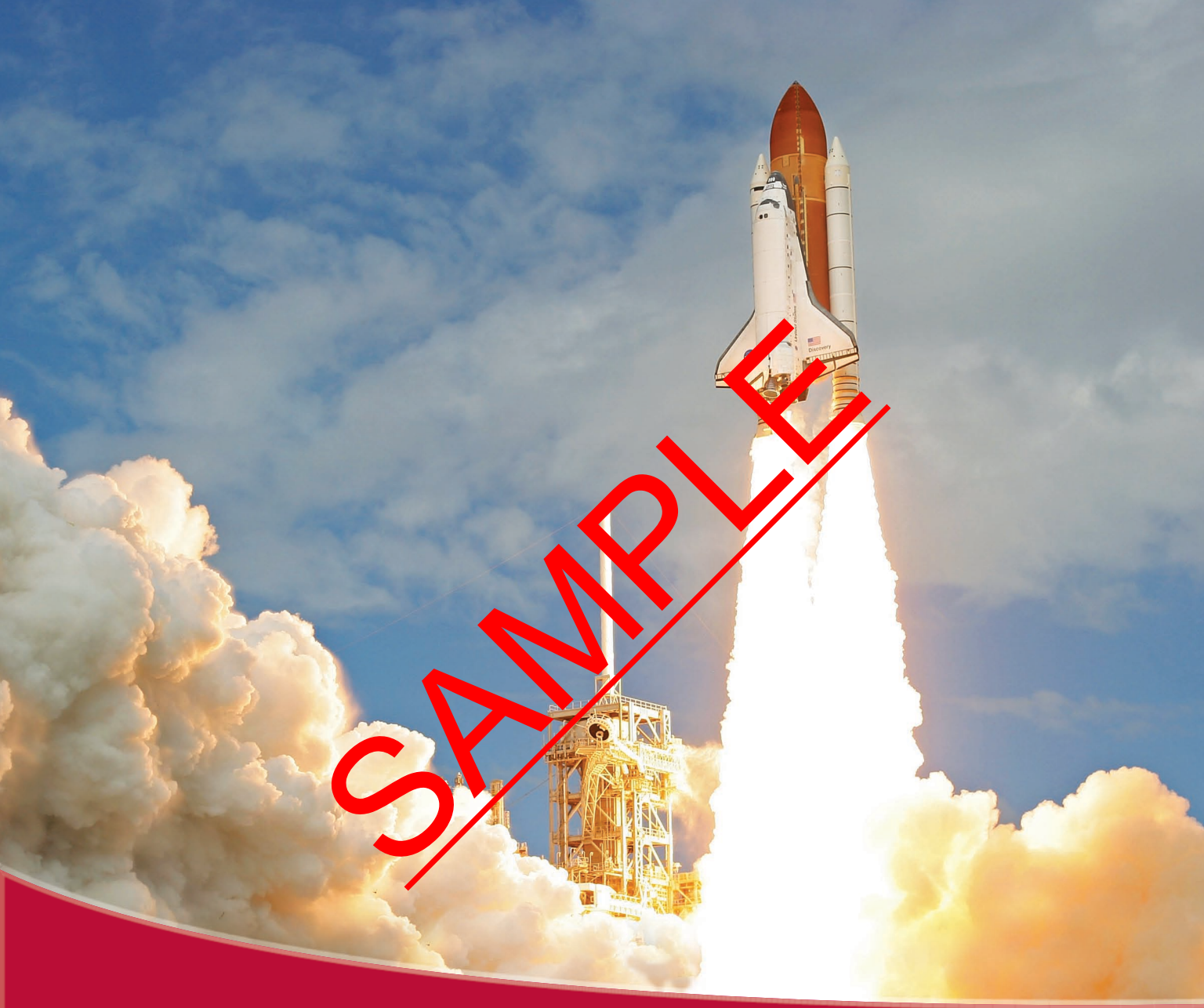
Look up in the sky! Is that a bird? Is that a plane? No, it is the space shuttle! Space shuttles roar into space like rockets and fly back down to Earth like airplanes. When they get to space, space shuttles orbit Earth, or fly around it in a circle. They can stay in space for weeks at a time. The same shuttle can fly to space and back to Earth many times.

People call the space shuttle a workhorse because it does so many jobs in space. Space shuttles make it easier for **astronauts** to explore, or visit and learn more about, space.

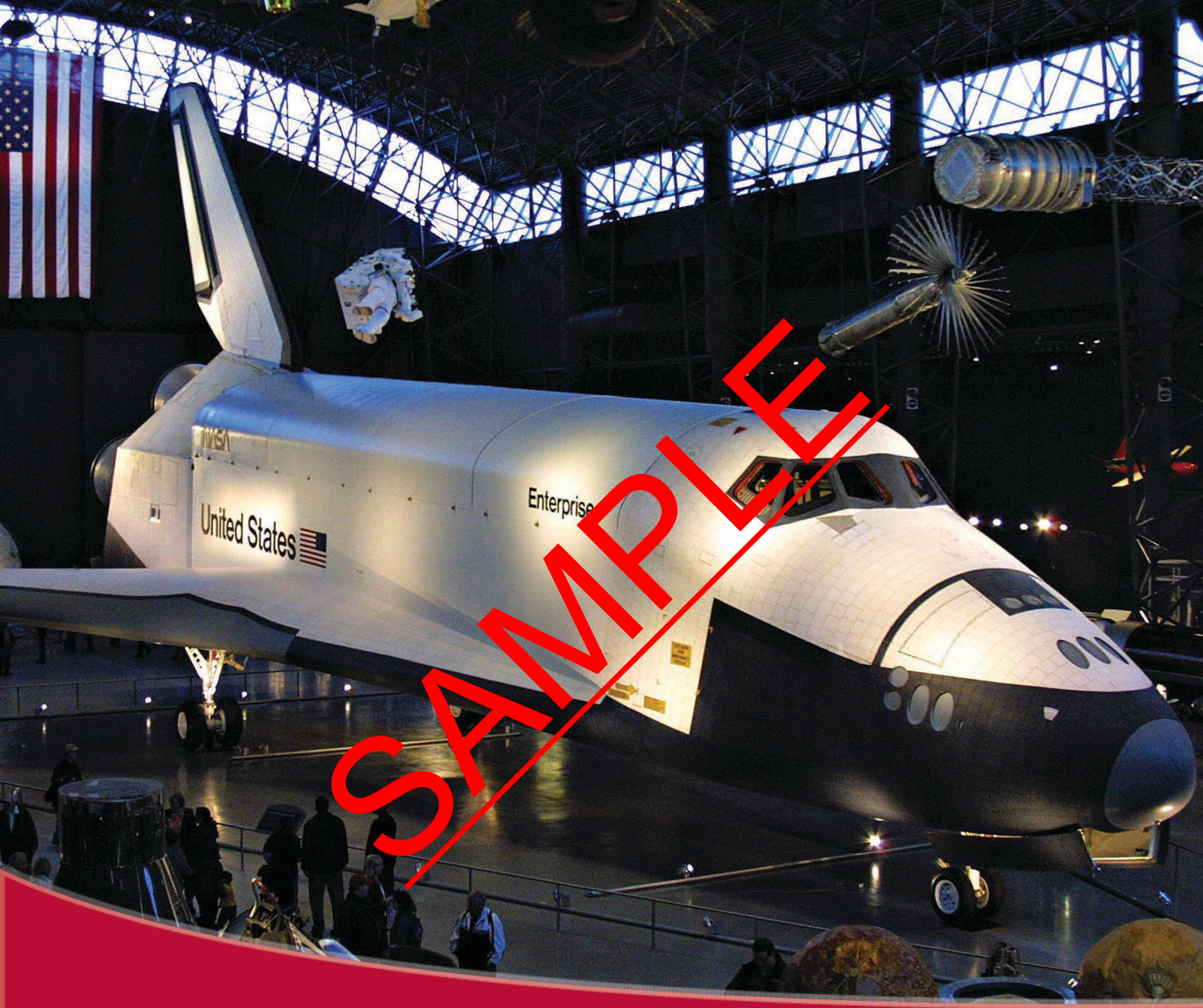


Here the space shuttle *Discovery* takes off from Cape Canaveral, Florida. The shuttle was carrying a part for the International Space Station, which is a satellite, or spacecraft orbiting Earth.

HISTORY OF SPACE SHUTTLES

A government organization called the National Aeronautics and Space Administration (NASA) began sending people into space on rockets in 1961. Launching, or pushing off, into space destroyed these early rockets. Each rocket could be used only once.

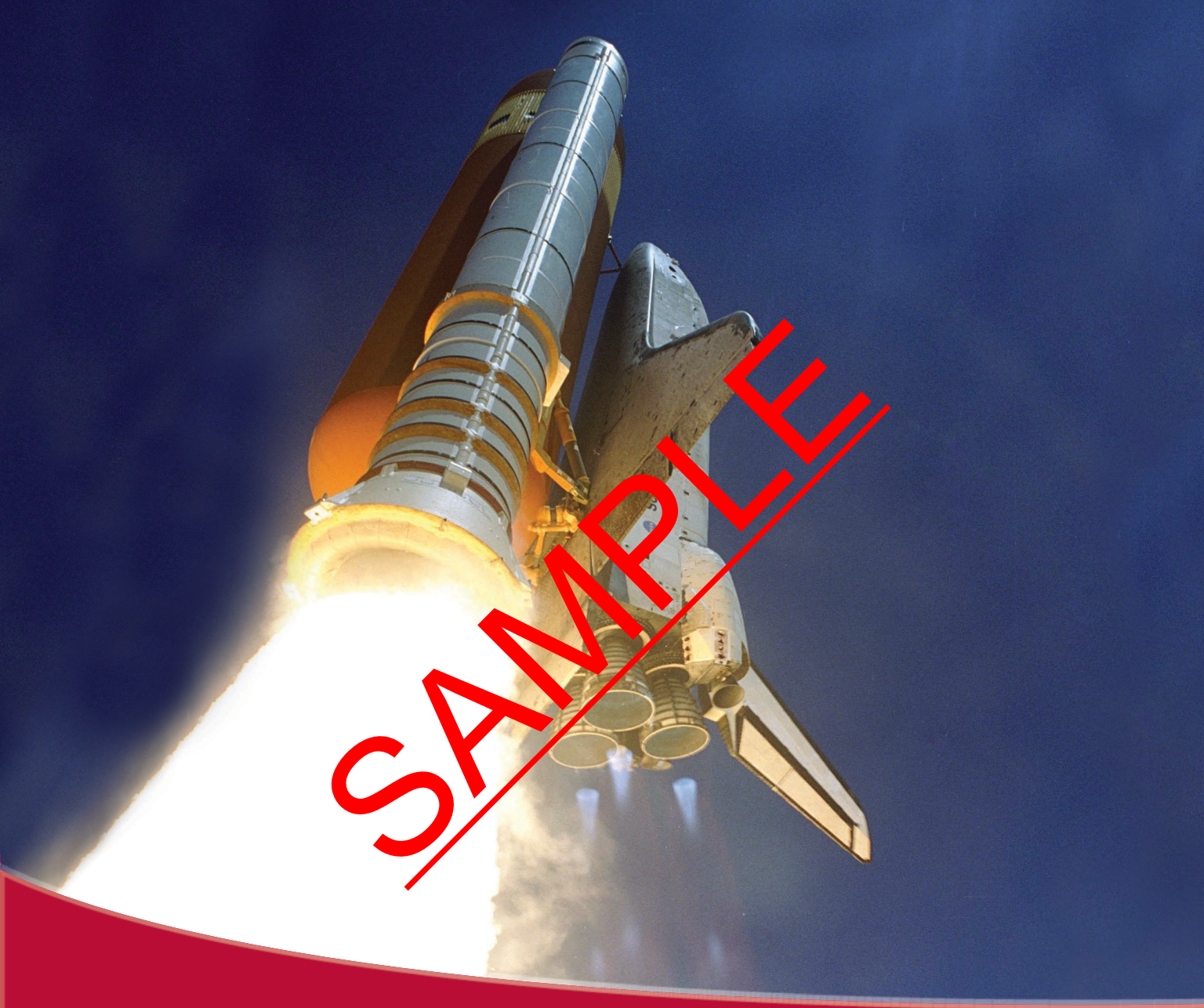
NASA wanted to send people into space more often, but it cost too much money and was wasteful. In 1972, NASA began working on a new kind of spacecraft that could be reused. The first space shuttle ever built was called *Enterprise*. It was built in 1977 but was used only for testing.



People are shown here visiting the *Enterprise* at the Smithsonian's Steven F. Udvar-Hazy Center, in Virginia. The *Enterprise* was flown in 16 test flights.

A shuttle weighs 4.5 million pounds (2 million kg) when it is ready to launch. Rocket boosters push the heavy shuttle off the ground with great force.

Two minutes after the shuttle has taken off, the rocket boosters drop off from the orbiter and land in the ocean. Ships find them and take them back to land to use again. After nine minutes, the external fuel tank also drops off. It burns up on its way back to Earth. **Engines** on the orbiter then fire to put the shuttle on the right path to orbit Earth.



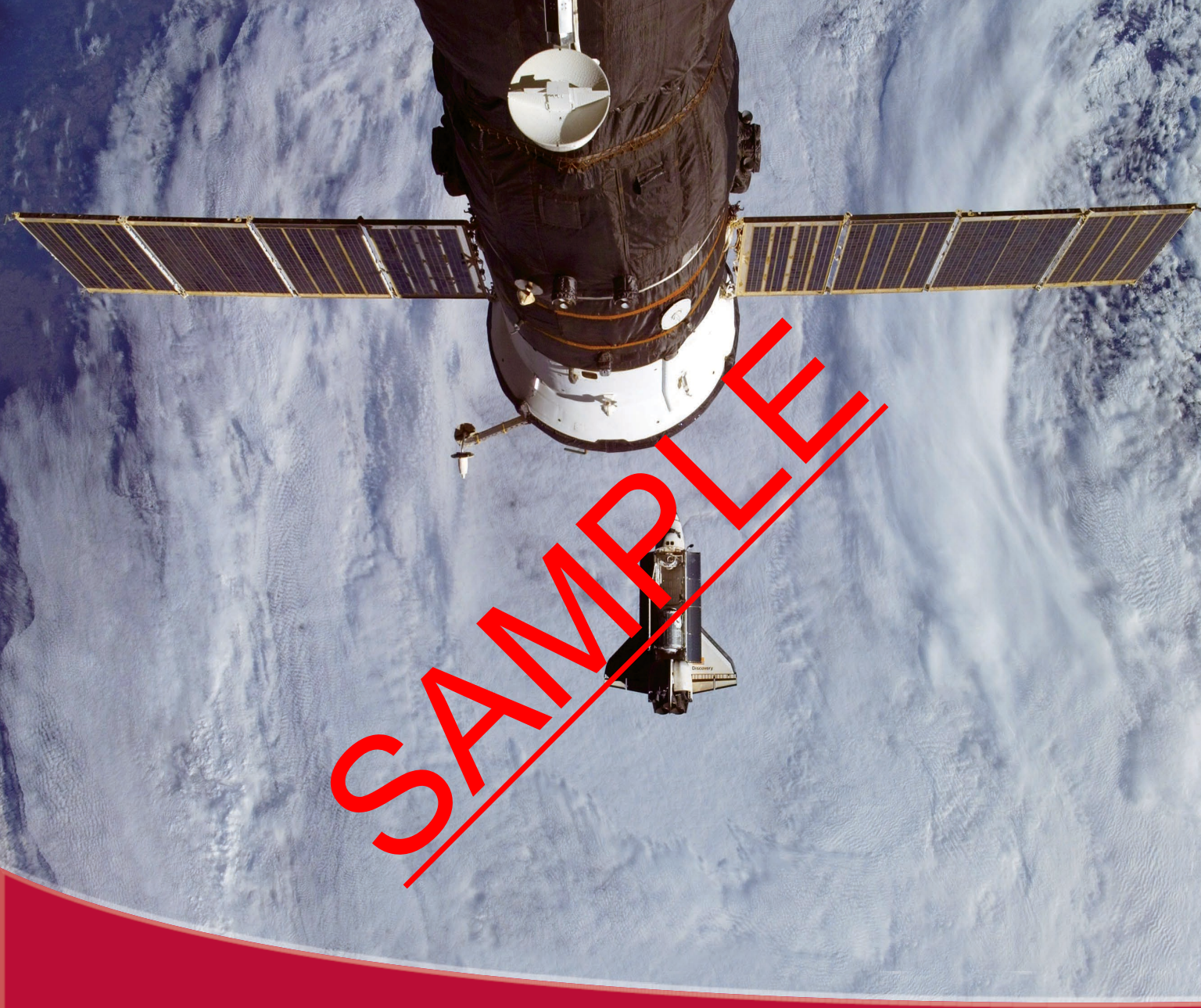
The part that is shooting out fire here is one of the rocket boosters. Heat and gas combine to create a huge amount of force, which lets the shuttle blast into space.

USES FOR THE SPACE SHUTTLE

A space shuttle can do many jobs. Space shuttles carry astronauts to and from **space stations**, such as *Mir* and the International Space Station. They can help carry up supplies and parts to build the space stations.

Space shuttles can be used to launch **satellites** into orbit. They can also bring astronauts out to fix satellites that have broken in space.

Space shuttles can also carry special labs where astronauts can run **experiments**. In the labs, they can test how things work in space, where there is no **gravity**.



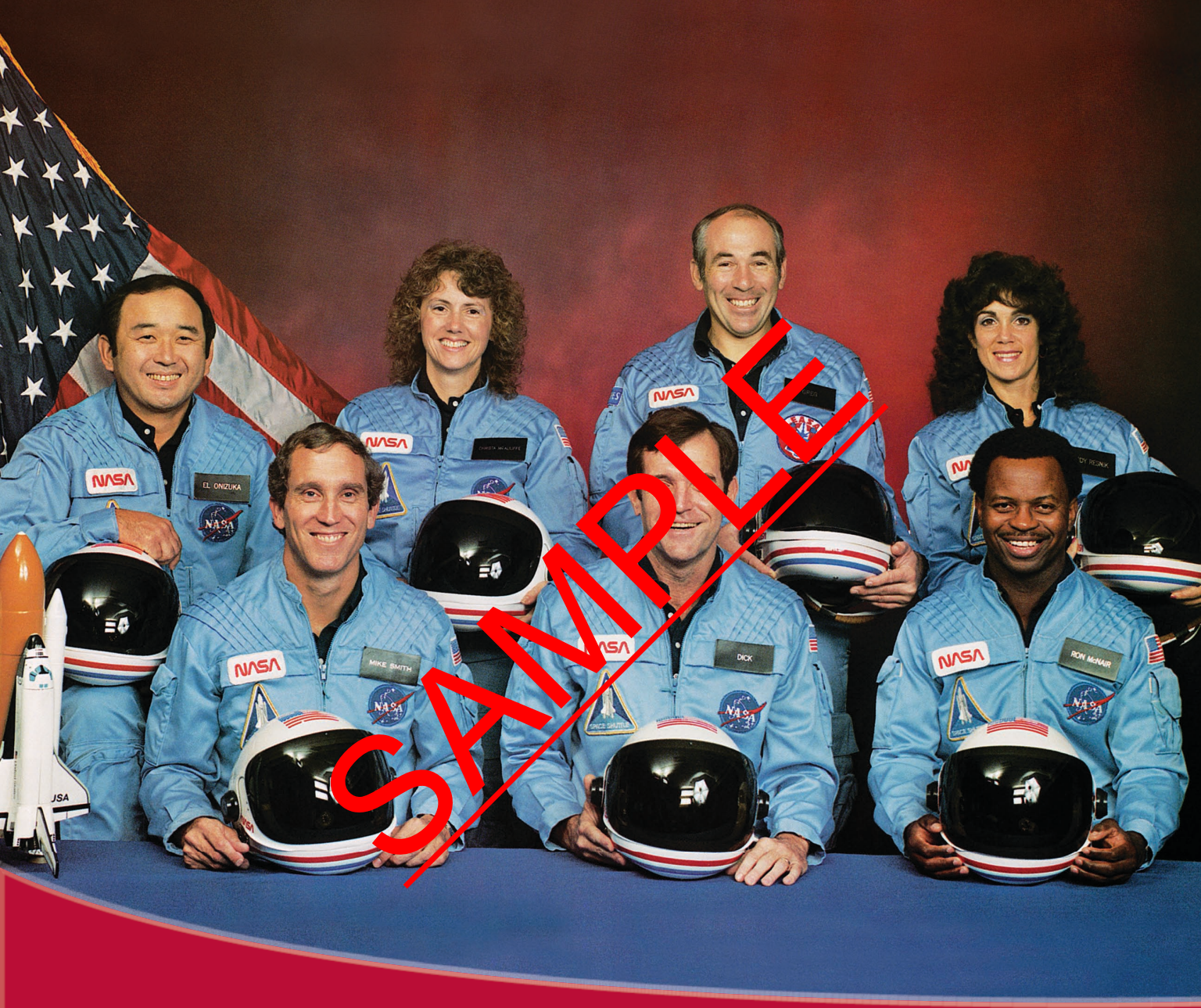
The space shuttle *Discovery* is shown here as it gets ready to dock with the ISS. *Discovery* was bringing a piece to add to the space station.

THE SPACE SHUTTLE *CHALLENGER*

Challenger was the second space shuttle launched into orbit. It made its first flight in 1983.

On January 28, 1986, *Challenger* lifted off for its tenth mission. Among the astronauts on board was a teacher named Christa McAuliffe.

Just after take-off, the *Challenger* blew up in the air. All seven astronauts died in this **accident**. Many people had watched the launch on TV. The whole country felt very sad about the astronauts. NASA did not fly any more space shuttles for the next two years.



This is the crew of the 1986 *Challenger* flight, who were lost just 73 seconds after launch. Christa McAuliffe is the second person from the left in the back row.

WHAT IS NEXT?

Space shuttles have flown more than 120 missions. They have helped us explore space more than we ever could before.

NASA will **retire** the space shuttles when it has finished building the International Space Station. A new kind of spacecraft will take the space shuttle's place. It will also bring people into space, but it will travel even farther. By 2020, NASA hopes to send people back to the Moon. After that, they hope to send people to Mars and maybe even to other planets.

GLOSSARY

ACCIDENT (AK-sih-dent) An unexpected and sometimes bad thing that happens.

ASTRONAUTS (AS-truh-nots) People who are trained to travel in outer space.

ATMOSPHERE (AT-muh-sfeer) The gases around an object in space. On Earth, this is air.

ENGINES (EN-jinz) Machines that use fuel to move an object.

EXPERIMENTS (ik-SPER-uh-ments) Sets of actions or steps taken to learn more about something.

FUEL (FYOOL) Something used to make warmth or power.

GRAVITY (GRA-vih-tee) The natural force that causes objects to move toward the center of Earth.

MISSION (MIH-shun) A special job.

PARACHUTE (PAR-uh-shoot) A large piece of cloth shaped like an umbrella that is used to slow down a falling or moving object.

RETIRE (rih-TY-ur) To decide not to use anymore.

SATELLITES (SA-tih-lyts) Natural or manmade objects that circle a planet in space.

SPACE STATIONS (SPAYS STAY-shunz) Large satellites where humans can work and live for long periods of time in space and that can also be a base for sending other spacecraft farther into space.

TRAGEDY (TRA-jeh-dee) A very sad event.

INDEX

WEB SITES

Due to the changing nature of Internet links, PowerKids Press has developed an online list of Web sites related to the subject of this book. This site is updated regularly. Please use this link to access the list:
www.powerkidslinks.com/blastoff/shuttles/