



Virtual Learning

# Aerospace Engineering

**Space Shuttles**

April 13, 2020



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## Lesson: April 13, 2020

### **Objective/Learning Target:**

Students will learn about space shuttles and their uses.



## **Bell Work:**

How many different space missions do you think have been made using space shuttles?



## Let's Get Started:

### Watch Videos:

- [The Space Shuttle](#) (Shortened Version)
- [The Space Shuttle](#) (Full Version)



## What Did the Space Shuttle Do?

The space shuttle was a great achievement in engineering and it did many things. A space shuttle could carry up to seven astronauts at once. It took satellites to space so they could orbit Earth. Space shuttles also carried large parts into space to build the International Space Station.

The space shuttle was also a science lab. Astronauts would do experiments while aboard it.

When a space shuttle would launch, it was called a mission. The space shuttle launched for 135 missions. Each mission would last for one or two weeks. The first mission was in 1981. The last mission was in 2011.

## What Were the Parts of the Space Shuttle?

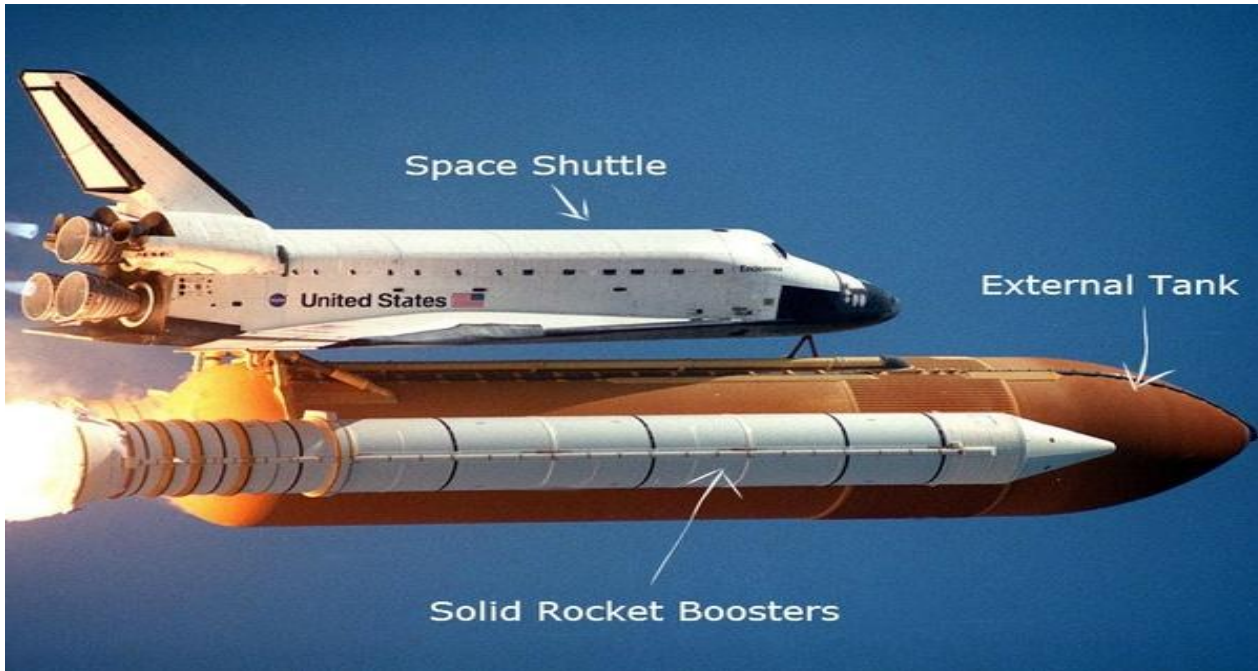
The space shuttle was made of three main parts: the orbiter, the external tank and the solid rocket boosters.

The orbiter was the part that looked similar to an airplane. The orbiter flew around Earth. This is the part that housed the astronauts. NASA had five orbiters. The names of the orbiters were Atlantis, Challenger, Columbia, Discovery and Endeavour.



## What Were the Parts of the Space Shuttle?

The external tank was a large orange fuel tank.



## What Were the Parts of the Space Shuttle?

The solid rocket boosters looked liked two thin rockets. These give the rocket the lift to leave Earth's gravity.







## How Did the Space Shuttle Launch and Land?

The space shuttle launched like a rocket, but it landed like an airplane.

The solid rocket boosters helped the shuttle blast off from Earth like a rocket. The two boosters dropped off the shuttle two minutes after launch. The goal was for the solid rocket boosters to fall off into the ocean. They would be picked up by a boat. These could be used again for another flight. The external tank would fall off the orbiter after it had used all the fuel in the tank. The external tank would burn up in the atmosphere, so it could not be used again.

When the shuttle orbiter returned to Earth, it came down from the sky like an airplane. Wheels came out from underneath the orbiter just like an airplane. Then NASA would prepare it to fly on another mission.



## Where Are the Orbiters Now?

NASA used space shuttles for 30 years. Now, three orbiters are in museums so that people can go to see them. Atlantis is at a museum in Florida. Discovery is at a museum in Virginia. And Endeavour is at a museum in California. Enterprise never flew into space. It was built to test how the orbiters would work and is on display in New York City. Orbiters Challenger and Columbia were lost during mission accidents.



## Space Shuttle Understanding

Create a timeline using the orbiters Atlantis, Challenger, Columbia, Discovery and Endeavour. Include missions that each orbiter went on and when each orbiter was retired.