

What is a Rocket?

Activity Length:

15 minutes

Kit Materials:

5 laminated rocket posters
Laminated NASA logo poster

Library Materials:

Pencils
Paper

Learning Objectives:

- To gain an understanding of the shared characteristics of all rockets
- To consider the value of space travel and rockets to our world

Activity:

Explain to the group that a *rocket* is an object that has the following characteristics:

- It is usually tall, thin, and round
- It can travel very far and very fast
- It's engine doesn't need air in order to move (unlike a jet engine)
- It turns the fuel inside of it into hot gas, which then pushes out of one end of the rocket in order to make it move forward

Tell the group that later we will be doing some experiments that will show them how this works.

Ask students if they have heard of NASA (National Aeronautics and Space Administration), show them the NASA logo poster, and ask them if they know what NASA does. Explain that NASA builds many rockets, and uses them for different things. Show students the rocket posters, and give a brief explanation for what each rocket might do:

- **Sputnik 1:** This *satellite* (an object that moves around another object) was NOT built by NASA. It was the very first satellite, built in Russia, and was launched into orbit 60 years ago. This means that it left the Earth's surface and then went around and around the Earth. There were no people aboard Sputnik 1, but satellites help scientists learn about the Earth and the solar system by sending information back to Earth, including pictures.
 - Select a student to demonstrate how a satellite moves (have them "orbit" you several times in front of the class)
- **Saturn V:** This kind of rocket launched humans to the moon for the very first time! It was so big that it needed three different sections to help it leave the Earth's atmosphere and get all of the way to the moon. It was as tall as a 36-story building - look at the ceiling,

and imagine 36 more rooms on top of this one! Inside the rocket were spaces for humans to live while they travelled to the moon.

- **Space Shuttle:** NASA uses space shuttles to carry astronauts into outer space so that they can repair satellites, orbit Earth, or work on the International Space Station. We will learn more about the Space Station later! Astronauts also do science experiments on space shuttles, since it is different than doing them on Earth. Other rockets are attached to space shuttles when they launch, to help the shuttle get into space.
- **Space Launch System:** One of NASA's recent projects, the Space Launch System, is even bigger and more powerful than Saturn V. It will be able to carry astronauts very far into outer space - maybe even to Mars! The Space Launch System will be powerful enough to take very heavy loads into space.
- **Antares:** This is a small rocket, used to carry things to the International Space Station. There are no humans on board of this rocket. In 2014, this rocket had trouble launching - it fell back onto the launch pad and exploded!

Ask students to quickly sketch the rocket that they would like to own if they could have one.