Balloon Rocket

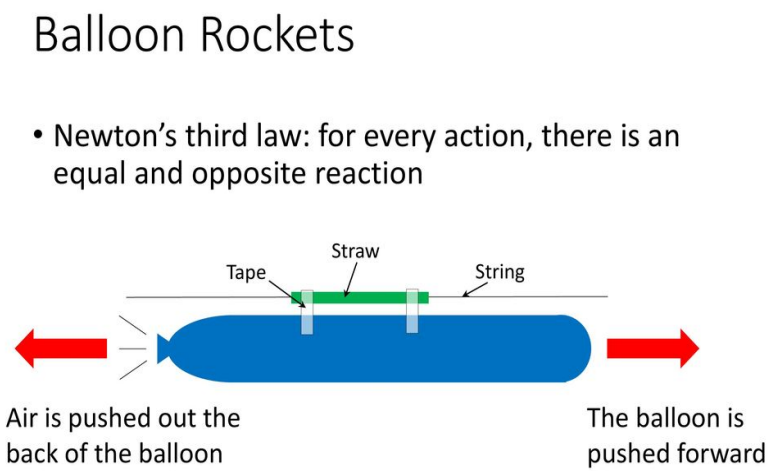
A **balloon rocket** is a rubber balloon filled with air or other gases. Besides being simple toys, balloon rockets are a widely used as a teaching device to demonstrate basic physics.

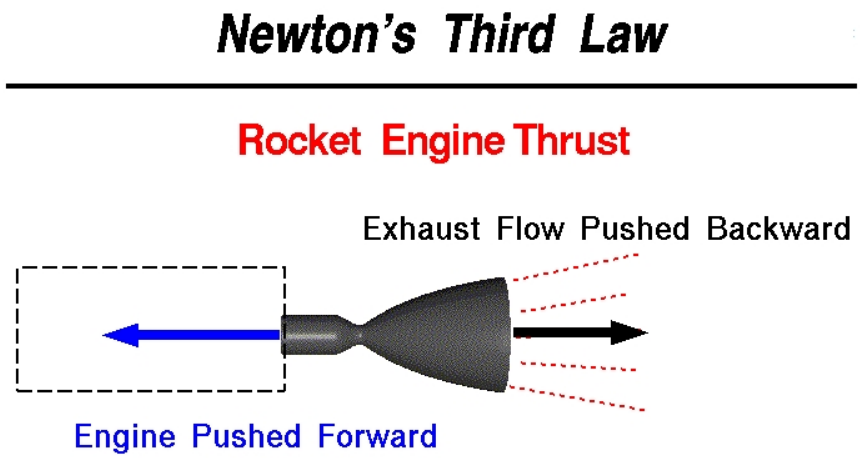
Science Behind It

The mechanical force that pushes a **rocket** or aircraft through the air is known as thrust. In this experiment, you'll make a **balloon rocket** that is propelled by pressure. ... The escaping air exerts a force on the **balloon** itself. The **balloon** pushes back in a manner described by Newton's Third Law of Motion.

Why?

• When the inflated balloon is closed, the air inside pushes equally in all directions.
• The balloon doesn't move because all the forces are balanced.
• When the balloon is open, the action-reaction pair of forces opposite the balloon's opening is unbalanced.
• One force is the walls of the balloon pushing on the gas inside the balloon. This force pushes the gas out of the balloon's opening. The other force is the gas pushing on the balloon's wall opposite the opening.
• This force pushes the balloon in the direction opposite the opening.

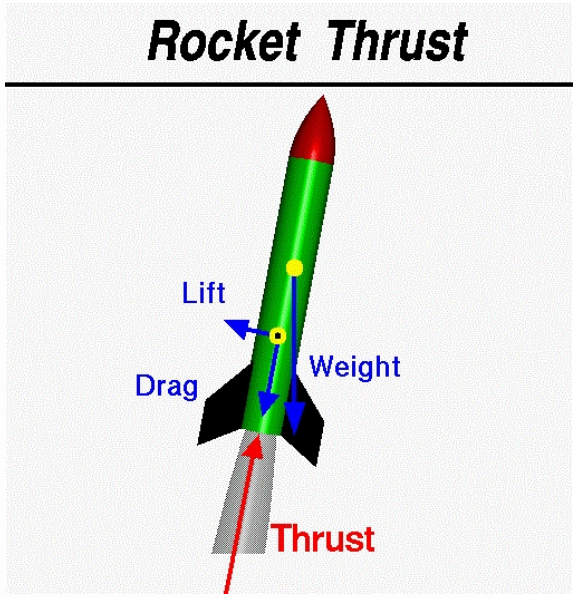




Where do we see it

Launching probes and satellites

Rockets carry crewless spacecraft called space probes on long voyages, for instant to explore the sun, the moon, and all the planets in our solar system. They carry scientific instruments that gather information about the planets and transmit data back to Earth. Rockets lift artificial satellites into orbit around Earth.



Military use

Rockets used by the military vary in size. The word missile usually now means a self-propelled guided weapon system, but it may refer to any thrown or launched object. Missiles are powered by an engine, generally either a type of rocket or jet engine.

Atmospheric Research

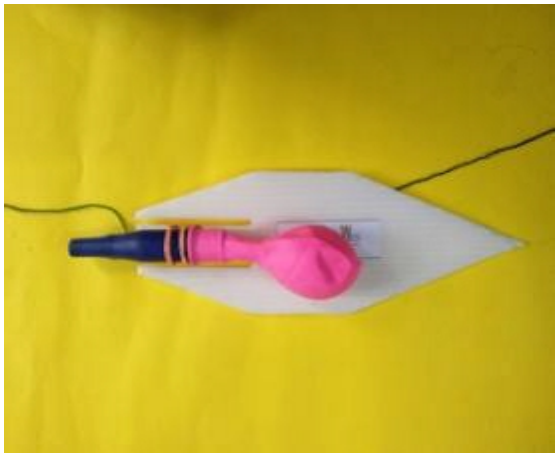
Scientists use rockets to explore Earth's atmosphere. Sounding rockets are normally used for brief, inexpensive space and microgravity experiments.

Space travel

Rockets launch spacecraft carrying astronauts that orbit Earth and travel into space. Space shuttles are reusable rockets that can fly into space and return to Earth repeatedly. Current human-rated suborbital launch vehicles include Space Ship One and the upcoming Space Ship Two, among others for space tourism program.

Activity Time

Balloon rocket model is depends on the amount of air you blow in it.



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Quiz Time

1. Once you have the balloon set, what happens when you let go of it? What causes this to happen?

2. What do you think will make the balloon move faster?

3. What happens when you add cargo to the balloon rocket?

4. What all properties of air can you explain using just a balloon?