Payload and Parachute Kit

Grade Level:
Elementary School (1st -4th)

Introduction:
When spacecraft arrive at Mars, how do they slow down and safely land? When crew vehicles return to Earth from the International Space Station, how do they keep from crashing into the ground at incredible speed? Fortunately, engineers have fine-tuned parachutes so they can slow vehicles down and make sure astronauts and rovers land safely on the ground.

Lesson:
In this activity, you will create your own model parachute to safely land a **payload** on a planet. Your parachute catches tiny **air molecules** as it falls, creating a force called **drag** that slows your payload's **descent** toward the planet's surface.

Vocabulary:
Payload: A capsule or equipment carried by a rocket to carry out a space mission.

Air molecule: A tiny gas particle found in our atmosphere.

Drag: A force pushing in the opposite direction of motion, causing something to slow down.

Decelerate: To slow down.

Descent (deh-sent): A downward fall (in this case, towards the surface of a planet).

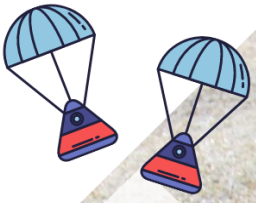
Real Life Application:
It does not take long for your model parachute to drop from your hand to the ground. Yet, imagine if a space capsule were entering the atmosphere from outer space! Space capsules travel at incredible speeds in space. Over the long fall (descent) to the ground, space capsules use parachutes to slow down so touchdown is safe for astronauts and equipment.

Supplies:
Your payload and parachute kit, and tape.

Instructions:

NORTH DAKOTA SPACE GRANT CONSORTIUM

Make Your Own Parachute



You Will Need:

Plastic Baggie

String

Tape

Clip

Payload

1 Tape each string to a corner of the plastic bag.

2 Gather all four strings together.

3 Carefully open the paperclip.

4 Tie the strings at the top of the paperclip. Stick each open end of the paperclip into the foam block.

5 Drop your parachute!

Your parachute catches tiny air molecules as it falls, creating a force called *drag* that slows your payload's descent.

NASA uses parachutes to safely land rovers on Mars and to slow the descent of crews and samples to Earth.

Extension: Try making a larger or smaller parachute with a larger or smaller plastic baggy sheet. Does your parachute fall differently? Which size of plastic causes the parachute to fall most slowly?