

# STAGE 3 SCIENCE

## ACTIVITIES TO LEARN ABOUT THE PHYSICAL WORLD

**Learning intention:** Activities are designed to engage students with the outdoors, exploring the difference between contact and non-contact forces and further developing an understanding of the relationship between force and energy.

### Activity 1: Cup & card

Take a jug of water, a plastic cup and a postcard sized piece of cardboard outside. Fill the cup to the brim with water and then place the piece of cardboard on top of the cup. Carefully hold the card in place as you turn the cup upside down. Take your hand away from the cardboard – does it stay in place? That's air pressure! Air pressure is a force that pushes in all directions, even up. Repeat the experiment with different amounts of water in the cup and take note of how this effects the air pressure.

**Extension activity:** Dry your cup and place a crumpled tissue or piece of paper towel inside it. Turn your cup upside down and ensure the tissue/paper towel stays inside without falling out. Fill a bowl with water and submerge the upside-down cup completely in the water. Ta da! Air pressure in the glass keeps the water out and the tissue dry.

### Activity 2: Parachutes

Cut a piece of soft plastic (such as a plastic bag) into a 30cm x 30cm square. Tie four pieces of string (35cm long) to each corner of the plastic square and attach the other ends of the string to a spoon. Stand on a chair and drop the parachute. What happens? Experiment with different parachute materials (paper, fabric, thick/thin plastic).

**Extension activity:** The Egg Drop Challenge - Make a parachute that can protect a boiled egg or other precious cargo as you drop it to the ground. Does putting a hole in the top of the parachute help control it?



### Activity 3: Paper planes

Can you make a paper plane? Using scrap paper, work on designing planes that will

- glide the furthest through the air
- stay in the air the longest.

Take your planes outside. Use a stopwatch to time how long your planes stay in the air and measure the approximate distance they travel in metres (big steps). Can you change the designs of your planes to make them travel further or stay longer in the air?

**Extension activity:** Challenge a family member to a paper plane competition! Each player should throw their plane 10 times, measuring and recording the distance the plane travelled on each throw. Find the average distance of your throws by adding all results and dividing the total by ten. Who is the Paper Plan Champion of your household?



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