# AIR RESISTANCE

**LESSON OBJECTIVE**
Sc4: Forces and motion 2c. Pupils should be taught about friction, including air resistance, as a force that slows moving objects and may prevent objects from starting to move

**WHAT YOU NEED**
- Photocopiable page 75, 'Air resistance'
- Writing materials
- Two sheets of A4 paper; one flat, one screwed up into a ball.

## INTRODUCTION

- Explain to the class that to reach Level 4 they have to understand that air resistance is a force that slows down moving objects.

## WHOLE CLASS TEACHING

- Ask the class if they can think of some examples of air resistance and how it slows down moving objects. (The obvious example is a parachute.)
- Show the class the two pieces of paper – one piece flat and one screwed up. Ask them which one they think will hit the ground first if you drop them at the same time from the same height?
- Discuss the class responses and demonstrate by completing the investigation.
- The screwed-up ball will hit the ground first because it has a smaller surface area and so there is less air resistance. The amount of air resistance is affected by the size of the object.
- Now tear the flat piece of A4 in half and screw it up into a small tight ball. Make the other ball large and loose. Which one will you be able to throw the furthest?
- Discuss the responses. (You could demonstrate by going into the hall or playground, but it is not essential!)
- The large loose ball will have more air resistance, so the smaller ball can be thrown the furthest.
- Set the class to work on photocopiable page 75.

## REVIEW

- Go over the answers to the questions on the photocopiable page and discuss any issues that may have arisen.

DON'T PANIC!

- The children can feel air resistance by waving their hands through the air.

MAIN POINTS

- Air resistance slows objects that fall or move through the air.
- Big parachutes work better than small parachutes.
- Air resistance is a form of friction. Think of the space shuttle returning to Earth. Once it re-enters the Earth's atmosphere at great speed, the friction causes heat. The shuttle is protected by lots of heat-resistant tiles.

HOMEWORK

- Research how different sports make use of air resistance (e.g. sailing) and how others try to minimise its effects (e.g. motor racing).