

FORCES

AIR RESISTANCE & GRAVITY



Air Resistance

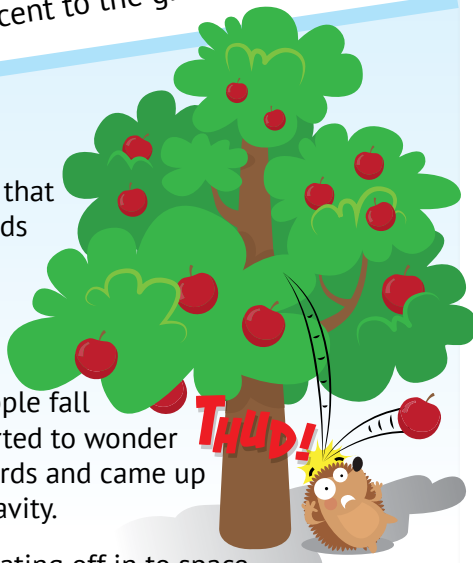
Air resistance is caused by air pushing against a moving object. The air pushes on the object and slows it down. If you've ever been on a roller coaster, or cycled fast downhill, you might have felt this air resistance as wind on your face. A parachute uses air resistance to slow down an object's descent to the ground.

Gravity

Gravity is the force that pulls objects towards the ground.

Sir Isaac Newton discovered gravity when he saw an apple fall from a tree. He started to wonder why it fell downwards and came up with the idea of gravity.

Gravity stops us floating off in to space.



Things to think about...

What will happen if you drop a cannon ball and a feather at the same time from a high building?

What forces are acting on the objects?

Aerodynamic means having a shape which reduces the drag from air moving past.

CLASSROOM ACTIVITY

Experiment with Air Resistance & Gravity

You will need:

1. A4 paper
2. Thin card
3. Scissors

Step 1 Loosely scrunch an A4 piece of paper into a ball and hold in your hand at shoulder height. In the other hand hold a flat piece of paper.



Drop both pieces of paper at the same time from shoulder height.

Which piece reaches the floor first?

Why do you think this is?

Step 2 Repeat the experiment using the scrunched up paper and a paper aeroplane pointing downwards. Remember to drop them at the same time!

Which force makes the plane fall to the ground?

What force slows the scrunched up paper down?

To make something travel faster it needs to be streamlined or more aerodynamic

Step 3 Using your car chassis as a base, experiment by adding different shapes to the car to make it a more aerodynamic shape.

Use paper or thin card to make modifications. Consider about how weight will affect the speed of the car.

Ask your teacher to assemble the race track and air launch system. You can now test your car.

Do the modifications affect how fast/far the chassis will go?

