

Learning checklist Forces 1

Level 4

- I can measure the size of a force and use the right units.
- I can identify some different forces and describe how forces change movement.
- I can explain the link between the speed of an object and the forces on it.
- I can describe how forces change an object's shape, speed or direction.
- I know how to measure distance and time and what units to use.
- I know that friction is a force that opposes movement.
- I know that upthrust pushes upwards and weight pulls downwards.
- I can compare the speeds of different things and give some examples of streamlined objects.
- I know what can increase friction, air resistance and water resistance.
- I know that the Earth has a magnetic field around it.

Level 5

- I can identify the forces acting on an object and say which direction they are acting in.
- I can describe situations where forces are balanced or unbalanced.
- I know that if the forces on an object are unbalanced, it will either change shape or speed.
- I can draw and use force diagrams with arrows to show the direction a force is acting in.
- I can describe what speed means scientifically and use the correct units.
- I can describe places where friction is useful and some ways of reducing it where it resists motion.
- I know that air resistance is the force of friction of air on objects moving through it.
- I can describe how streamlining reduces air and water resistance.
- I can describe the shape and direction of a magnetic field.
- I can explain how magnetic materials can be magnetised using a simple domain model.
- I know how to increase the strength of an electromagnet.

Level 6

- I know that if an object's speed changes then the forces acting on it must be unbalanced.
- I know that if the forces on an object are balanced then it moves at a constant speed.
- I can use the relationship between speed, distance and time.
- I can describe how air and water resistance change with speed and begin to link these ideas to the particle model.
- I know about the forces on falling objects.
- I can describe some of the effects of the Earth's magnetic field.
- I can describe methods to demagnetise magnetic materials.
- I can describe the shape of the field around an electromagnet.

Level 7

- I can use the particle model to explain scientifically why air and water resistance increase with speed.
- I can suggest reasons why the Earth's magnetic field may not be constant over time.
- I know that magnetic effects are used in electric motors and generators.

Level 8

- I can explain how unbalanced forces cause an object to accelerate.
- I can calculate speed, distance or time from the other two measurements and identify the correct units.
- I can relate ideas and understanding about forces to situations in society, such as detecting drivers' braking speed limits.
- I can explain the relationship between the forces on a falling object.
- I can explain, with reference to the particle model, what causes air and water resistance.