

Forces and magnets	Key learning	Possible evidence	Knowledge at the end of unit	Vocabulary at the end of unit
Year 3	1. compare how things move on different surfaces 2. notice that some forces need contact between two objects, but magnetic forces can act at a distance 3. observe how magnets attract or repel each other and attract some materials and not others 4. compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials 5. describe magnets as having two poles 6. predict whether two magnets will attract or repel each other, depending on which poles are facing	Can give examples of objects moving differently on different surfaces Can use their results to make predictions for further tests e.g. it will spin for longer on this surface than that, but not as long as it spun on that surface Can use their results to describe how objects move on different surfaces Can give examples of forces in everyday life can state which magnets are stronger than others, looking at the distance a magnet will attract another magnetic object Can name a range of types of magnets and show how the poles attract and repel Can draw diagrams using arrows to show the attraction and repulsion between the poles of magnets Can use classification evidence to identify that some metals but not all are magnetic Through their exploration they can show how like poles repel and unlike poles attract and name unmarked poles Can use labelled diagrams to show understanding of which poles attract or repel.	When an object moves on a surface, the texture of the surface and the object affect how it moves. It may help the object to move better or it may hinder its movement e.g. ice skater compared to walking on ice in normal shoes. For some forces to act there must be contact e.g. a hand opening a door, the wind pushing the trees. Some forces can act at a distance e.g. magnetism. The magnet does not need to touch the object that it attracts. A magnet attracts magnetic material. Iron and nickel and other materials containing these e.g. stainless steel, are magnetic. Know names of common magnets e.g. bar, horseshoe, ring, button The strongest parts of a magnet are the poles. Magnets have two poles – a north pole and a south pole. Recognise and describe how magnets are used in everyday items. If two like poles e.g. two north poles, are brought together they will push away from each other – repel. If two unlike poles e.g. a north and south, are brought together they will pull together – attract.	Force Push Pull Friction (introduce only) contact force non-contact force magnetic force magnet strength bar magnet ring magnet button magnet horseshoe magnet attract repel magnetic material non magnetic material metal iron steel poles north pole south pole

Year 5	1. explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object 2. identify the effects of air resistance, water resistance and friction, that act between moving surfaces 3. recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect	Can demonstrate the effect of gravity acting on an unsupported object Can give examples of friction, water resistance and air resistance Can give examples of when it is beneficial to have high or low friction, water resistance and air resistance Can demonstrate how pulleys, levers and gears work	A force causes an object to start moving, stop moving, speed up, slow down or change direction. State Newton's first law of motion. Gravity is a force that acts at a distance. Everything is pulled to the Earth by gravity. This causes unsupported objects to fall. Air resistance, water resistance and friction are contact forces that act between moving surfaces. Be able to state the affect friction has on movement and link to everyday objects and activities. The object may be moving through the air or water or the air and water may be moving over a stationary object. A mechanism is a device that allows a small force to be increased to a larger force. The pay back is that it requires a greater movement. The small force moves a long distance and the resulting large force moves a small distance, e.g. a crowbar or bottle top remover. Pulleys, levers and gears are all mechanisms, also known as simple machines.	Force Gravity Earth Earths Gravitational pull Weight Mass streamlined air resistance water resistance friction mechanisms simple machines levers pulleys gears
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