Science – Forces Year 5/6 Autumn Term

Prior Learning:

- Compare how things move on different surfaces.
- Notice that some forces need contact between two objects, but magnetic forces can act at a distance.
- Observe how magnets attract or repel each other and attract some materials and not others.
- 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.
- Describe magnets as having two poles.
- Predict whether two magnets will attract or repel each other, depending on which poles are facing.

Real life examples of forces in action



A skydiver falls fast until they open their parachute.



Dolphins have a streamlined shape.



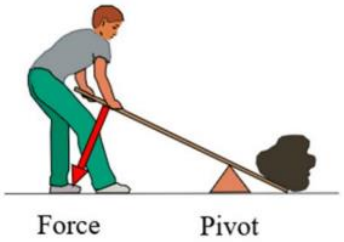
A non-slip mat uses friction.



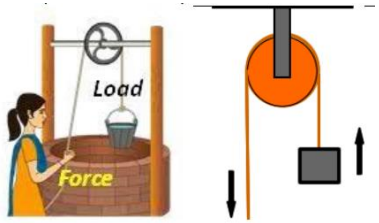
Seeds fall to the ground because of gravity.

Key Vocabulary	
force	A force is a push or a pull. Forces make objects start moving, stop moving, speed up, slow down or change direction.
gravity	A force which pulls things down towards the centre of the Earth.
forcemeter	Piece of equipment used to measure the size of a force.
Newton (N)	The unit for measuring force.
air resistance	The force that slows down objects that move through air.
water resistance	A force that slows down objects moving through water.
friction	When one surface moves against another, the rubbing force that tries to stop them is called friction. It gives us grip.
mechanisms	A device that allows a small force to be increased to a larger force.
simple machines	Levers, pulleys and gears are all types of simple machines.

Simple machines are used to make tasks easier. This means you need to use less force.



A lever tilts on a pivot which is nearer to the end of the pivot with a heavy load.



Pulleys have a rope or cable which goes over a wheel. This is pulled to lift, lower or move heavy objects.



Gears are toothed wheels which lock together and turn each other to form simple machines.

Significant Scientists

Galileo Galilei (1564-1642)



Sir Isaac Newton (1642-1726)



Can I answer:

- Why do things fall to the ground? Can you explain with a diagram?
- Why would a ball or paper fall more quickly than a flat sheet? Tell me about the forces involved. What are the effects of air resistance, water resistance and friction?
- What kind of mechanisms can be used to lift heavy loads more easily? How do they work?