

What do we know already:

- *I know that forces can make objects start to move, speed up, slow down or change direction.
- *I know the type of surface affects the amount of friction and how easy it is to move. Smooth surfaces have less friction and rough surfaces create more friction.
- *I know that force is measured using a force metre.
- *I know that some forces need contact between two objects, but magnetic forces can act at a distance.

What's next:

- *I will learn that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.
- *I will identify the effects of air resistance, water resistance and friction, that act between moving surfaces.
- *I will recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect.

Vocabulary:**Tier 1**

weight

Tier 2

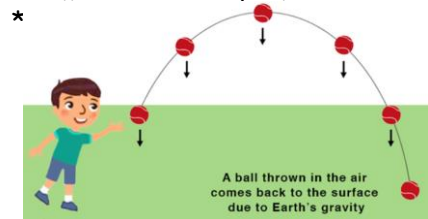
air resistance - The force acting on an object that is moving through air flowing in the opposite direction
force - A push or a pull.
friction - A force between two surfaces that are sliding or trying to slide across each other.
gears - Wheels that have teeth, or cogs, around the edges
gravity - An invisible force that pulls objects towards each other.
lever - A simple machine made of a rigid beam and a fulcrum (pivot).
mass - Amount of matter in an object.
mechanisms
pulleys - A wheel on a fixed axle
water resistance - The force acting on an object that is moving through water flowing in the opposite direction.

Tier 3

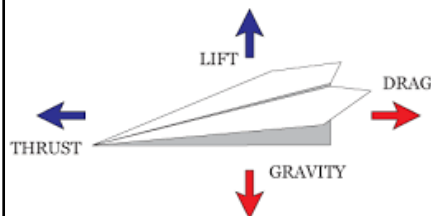
buoyancy - The ability that something has to float on a liquid or in the air.
fulcrum - The point where a lever turns (also called a pivot).
upthrust - An upward push or thrust.

Why do unsupported objects fall towards Earth?

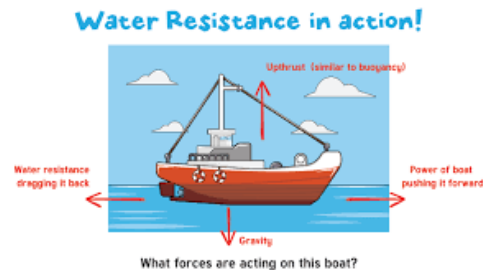
- *Gravity is the name for a force that pulls everything down toward the centre of the Earth.
- *Gravity holds things to the Earth's surface and forbids things from floating up and into the atmosphere around and above us.
- *When a person jumps, the energy they create will lift them off the ground, however, gravity is what pulls them back down again.

**What is air and water resistance?**

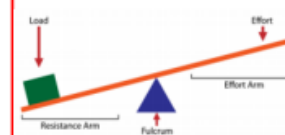
Air Resistance - the frictional push force which slows down objects as they move through the air.



Water Resistance - is a type of force that uses friction to slow things down that are moving through water. It is often called drag.

**How do smaller force mechanisms have a greater effect?****Levers**

A way to lift heavy weights using the least amount of effort. The longer it is to lift. The fulcrum is where the lever pivots in order to lift the load. The closer the fulcrum is to the load the easier it is to lift

**Pulleys**

Used like levers to lift loads with less effort. Rope is passed through a pulley and then is returned back round to be pulled.

**Gears**

Used to transmit power from one part of a machine to another. Connected gears can increase speed, increase force. When joined, the direction of rotation of the driven gear is the opposite of the drive gear.

