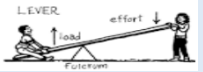
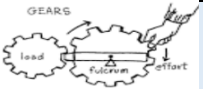
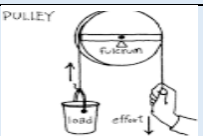



Year 5 / Forces / Autumn 1

Key Vocabulary

attract	If one object attracts another object, it causes the second object to move towards it.
mass	The measure of how much matter is inside an object, can be measured in g/kg etc.
weight	The measure of the force of gravity on an object, measured in Newtons (N).
motion	The activity of changing position or moving from one place to another.
streamlined	A streamlined vehicle, animal, or object has a shape that allows it to move quickly or efficiently through air or water.
opposite	Opposite is used to describe things of the same kind which are completely different in a particular way.
repel	When a magnetic pole repels another magnetic pole, it gives out a force that pushes the other pole away.

Types of mechanisms

 <p>LEVER</p>	Levers – can be used to make a small force lift a lighter load. A lever always rests on a pivot or fulcrum.
 <p>GEARS</p>	Gears or cogs – are used to change speed, direction or force of a motion. When 2 gears are connected they always turn in the opposite direction to one another.
 <p>PULLEY</p>	Pulleys – they are used to reduce the amount of force needed to lift a load. The more wheels in a pulley the less force is needed to lift the weight.
 <p>spring</p>	Springs can be stretched by pulling them or squashed by pushing them. The greater the force pulling or pushing the spring, the greater the force the spring uses to move back to its normal shape.

Key Concepts

What is gravity and air resistance?	<ul style="list-style-type: none"> • Gravity is the force that pulls objects to the centre of the Earth. • Air resistance pushes up on the parachute, opposing the force of gravity. This makes the parachute land more slowly.
What is water resistance?	<ul style="list-style-type: none"> • Water resistance is the friction that is created between water and an object that is moving through it. • Some objects can move through water with less resistance if they are streamlined.
What are forces?	<ul style="list-style-type: none"> • Forces are pushes and pulls. • These forces change the motion of an object. • They will make it start to move or speed up, slow it down or even make it stop. • For example, when a cyclist pushes down on the pedals of a bike, it begins to move. The harder the cyclist pedals, the faster the bike moves. • When the cyclist pulls the brakes, the bike slows down and eventually stops. • Friction is a force - it is the resistance of motion when one object rubs against another.

Planet	Force of gravity compared with Earth
Mercury	About 60% less than Earth
Venus	About 10% less than Earth
Earth	
Mars	About 60% less than Earth
Jupiter	About 150% more than Earth
Saturn	About 9% less than Earth
Uranus	About 11% less than Earth
Neptune	About 14% more than Earth

What should I already know?

- Know what a force is and be able to explain that a push and pull are types of forces.
- That when forces are applied to an object they allow them to move or stop moving.
- The strength of the force determines how far and fast an object moves.
- Friction is the resistance of motion when there is contact between two surfaces
- The force that causes objects to move downwards towards the ground is gravity.
- That magnets have poles, and that opposite poles attract, while similar poles repel.

Gravity

Gravity attracts all matter towards each other. -It has been around since the beginning of the Universe and applies to all matter in the Universe.

-The bigger an object's mass, the more gravity it will have. The smaller the mass of an object, the less gravity it will be subject to.

-Without gravity we would fly right off the planet! The moon's gravity causes our ocean tides on Earth. The Sun's gravity keeps Earth in orbit around the Sun.

-We don't actually "feel" gravity. We only feel the effects of trying to overcome it by jumping or when we fall.

-Sir Isaac Newton discovered gravity around 300 years ago. The tale is that he saw an apple fall from a tree, and wondered what force made it fall to the ground.