Morton Trentside Primary School - Knowledge Organiser

Science Focus:	Forces	Year 5	Autumn 1

Key Knowledge

Forces

A force is a push or a pull. Forces can make things:	1. Speed up (or start moving) 2. Slow down (or stop) 3. Change direction 4. Change shape

Friction

What is friction?	• Friction is the force between surfaces that are touching. Friction can give us grip and also can produce heat.
Objects move differently on different surfaces	ROUGH SURFACES • Rough surfaces create lot of friction. • Moving objects slow down quickly on rough surfaces. SMOOTH SURFACES • Smooth surfaces don't create much friction. • Moving objects don't slow down much on smooth surfaces.

Air Resistance and Water Resistance

Air and water resistance slow down moving objects.

Why are cars and boats streamlined?	Air and water slow you down as you move through them. To travel faster through air or water, things need to be streamlines. To travels slower through the air or water, you need a larger surface area (like a parachute).

Gravity

Gravity pulls objects towards the centre of the Earth. Unsupported objects fall towards the Earth because the force of gravity is acting between the object and the Earth.

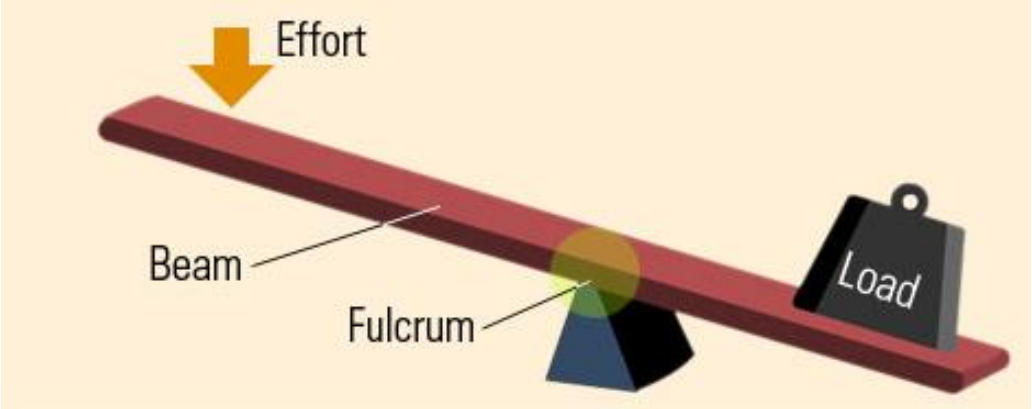
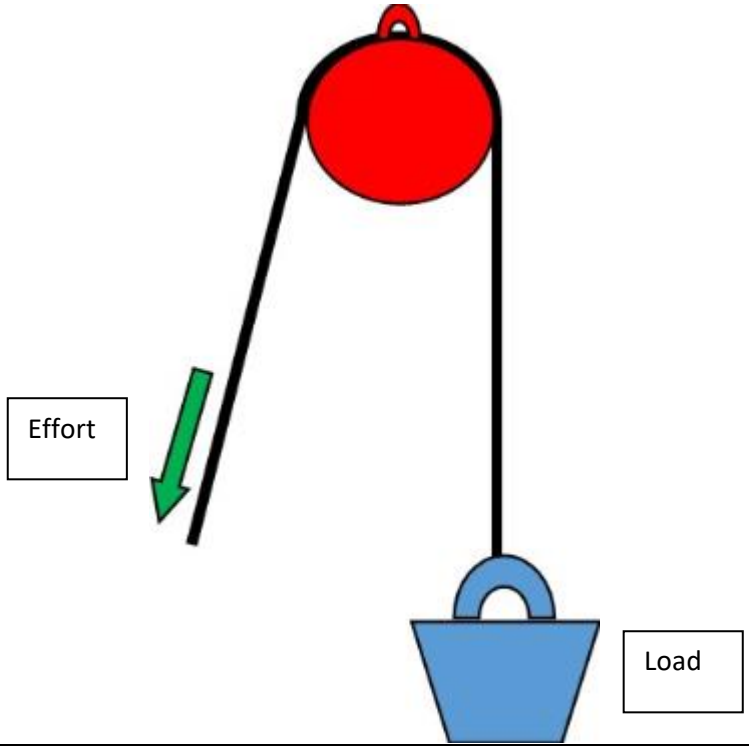
Mechanisms: Levers, Gears and Pulleys

Simple mechanisms can change small forces into a big effect.

Levers	• Made from a long pole and pivot. • If you push with a small force on the long side of the lever, you produce a bigger force on the short side.
Gears	• A rope running through a wheel is called a pulley. • Pulling on the rope lifts the heavy object on the other end – which is easier than picking the object up.
Pulleys	• Gears are wheels with teeth that fit together. • When one wheel is turned, the other wheel turns too. • The two wheels turn in opposite directions.

Key Vocabulary

Spelling	Definition/Sentence
Force	A force is a push or pull on an object.
Gravity	A force that pulls objects towards the centre of the Earth.
Air resistance	Air resistance is a type of friction between air and another material.
Water resistance	Water resistance is a force that tries to slow down things in water.
Friction	Friction is a force between two surfaces that are sliding, or trying to slide, across each other.
Surface	The outside layer of an object or thing.
Push	Exerting force to move something away.
Pull	Exerting force to move something closer.
Streamline	Design or provide with a form that presents very little resistance to a flow of air or water
Surface area	The area of an outer part or uppermost layer of something
Mechanism	A system of parts working together in a machine
Lever	A rigid bar resting on a pivot.
Pulley	A rope running through a wheel.
Gear	Gears are wheels with teeth that fit together.

Diagrams – Mechanisms	
Lever	
Pulley	
Gear