

Ideas Organiser: Forces

Knowledge:

- That some materials can dissolve into liquids.
- That some changes are permanent (irreversible) and some aren't permanent (reversible).
- That there are different states of matter: solid, liquid and gas.
- That when some materials are mixed together, there is a permanent change where a new material is made.
- There are different forces acting upon us all of the time.
- Unsupported objects will fall down to Earth due to the effect of gravity acting upon it.
- The use of a pulley, lever or gear allow a smaller force to have a larger impact e.g.:



- Magnets have North and South Poles. N/N and S/S repel each other but North and South attract.

Vocabulary and background knowledge:

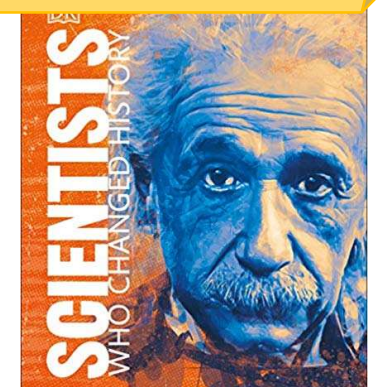
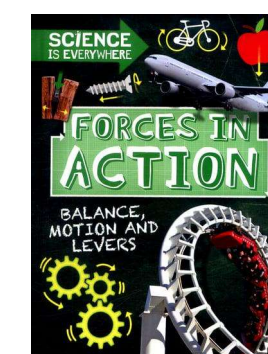
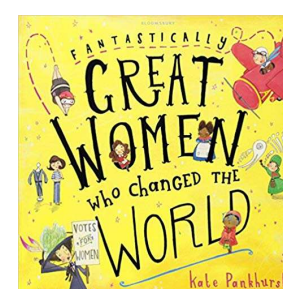
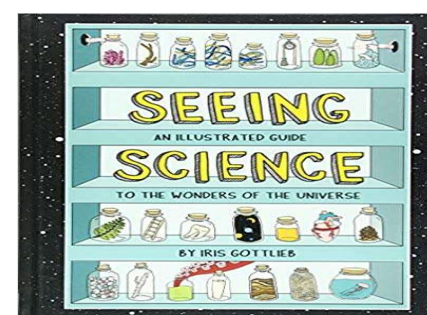
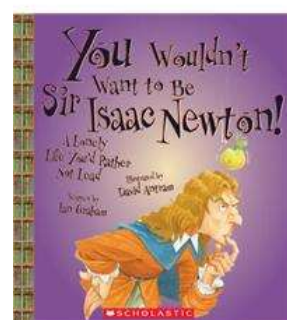
Force	A push or pull on an object which can cause it to change speed, direction or shape.
Mass	The amount of matter contained within an object (measured in g/Kg)
Balanced Force	Two forces of equal size acting in opposite directions on an object so it will stay still or continue to move in the same way.
Unbalanced Force	Two forces of unequal size acting in opposite directions causing an object to move, change direction or shape
Gravity	The area around a large object when a weight can be felt
Air resistance	The frictional force moving against air
Friction	The resistance of motion when one object moves against another



Skills:

Planning our fair tests, research, data collection/input.

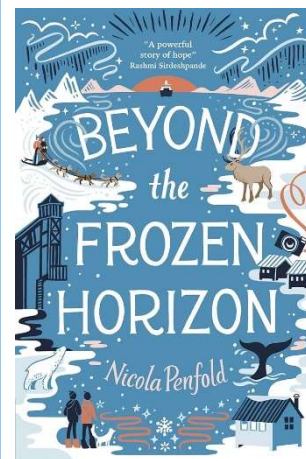
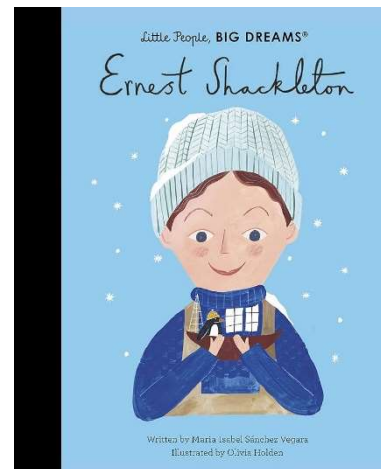
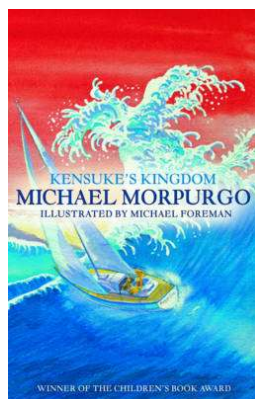
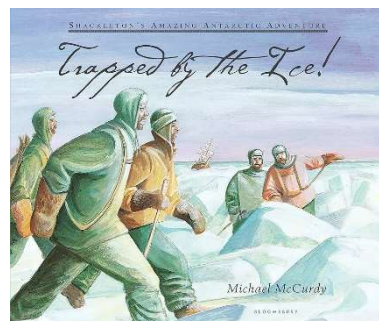
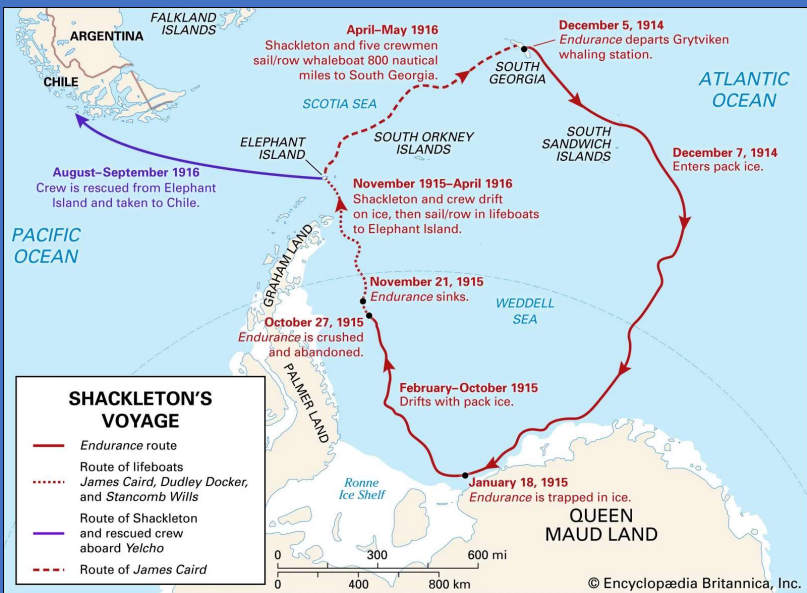
Recommended Reads:



Ideas Organiser: All Around the World

Knowledge:

- Antarctica is located in the South Pole
- Shackleton and his crew journeyed to the Antarctic and survived deadly weather conditions because of their resilience and problem solving.
- The name of Shackleton's ship was The Endurance and it has been recently discovered in the Weddel Sea, preserved in the icy waters.
- Antarctica has no population. Only a few animals can survive in its icy conditions.



Vocabulary and background knowledge:

expedition	A journey undertaken by a group of people with a particular purpose, especially that of exploration or research
voyage	A long journey involving travel by sea.
Ice floe	A sheet of floating ice.
Pack ice	A mass of ice floating in the sea, formed by similar pieces freezing together.
blubber	The fat of sea mammals, especially whales and seals.
crew	A group of people that work together to operate a ship.
South Pole	The southern most point of the earth.
inhabitants	A person or animal that lives in or occupies a place.
population	All of the inhabitants of a particular place.
Ernest Shackleton	An Antarctic explorer who led three British expeditions to the Antarctic. He was one of the principal figures of the period known as the Heroic Age of Antarctic Exploration.

Recommended Reads:

Making Links:

Mathematical:

Weights and measures- converting and using scales.

Area and perimeter work

Calculating and converting lengths

PSHE: Be able to explain how the lives of people in one country or group are affected by the activities of countries or other groups.

Identify ways people can work together for mutual benefit.

Quality Outcomes & Experiences:

- D&T project designing, building, testing and evaluating a draw bridge using knowledge of: forces, pulleys, materials and levers.
- Cookery sessions exploring reversible and irreversible changes.
- Experiment to see the best material for helping ice to melt quickly. Blubber glove experiment.
- Residential Trip
- Bikeability

British Values

Individual Liberty- making our own decisions and respecting decisions

Tolerance- showing an understanding of how different countries work



Values & attitudes we can always show in this project:



The World beyond our doorstep...

Local

- What do we have in our area to help solve the energy problems?

National

- What is our country doing to help solve the problem with global warming using forces?

International

- How do poorer countries use forces to help solve problems which they have with energy and money?