Enriching lives every day; enabling our school community to learn, achieve and flourish through living 'life in all its fullness'

Sustainability

Subject: Science

Year group: 3

Term: Spring 1

Unit name: Forces and magnets

Strand: Physics

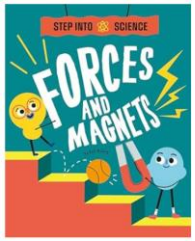
Prior Knowledge – Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. (Y2 - Uses of everyday materials)

Key Vocabulary: Force, push, pull, twist, contact force, non-contact force, magnetic force, magnet, strength, bar magnet, ring magnet, button magnet, horseshoe magnet, attract, repel. Magnetic material, metal, iron, steel, poles, north pole, south pole.

Key Scientists:

Sir Isaac Newton
John McAdam
Albert Einstein

Suggested books:



National curriculum:

- 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.

Working Scientifically:

- Ask relevant questions and use different scientific enquiries.
- Make systematic and careful observations, take accurate measurements using standard units, use a range of equipment.
- Gather, record, classify and present data in a variety of ways to help in answering questions.
- Record findings using simple scientific language, drawings, labelled diagrams, bar charts and tables.
- Report on findings from enquiries including oral and written explanations.
- Use results to draw simple conclusions, suggest improvements and raise further questions.
- Identify similarities and differences.
- Use straightforward scientific evidence to answer questions or to support their findings.

Respect	Integrity

Enriching lives every day; enabling our school community to learn, achieve and flourish through living 'life in all its fullness'

Key learning objectives- *Highlighted boxes = Learning Objective for that lesson. The other two are your Success Criteria.*		
Knowledge	**Working Scientifically**	**Scientific Enquiry**
To notice that some forces need contact between two objects.	To observe different forces.	To group and classify different forces based on observations and scientific knowledge.
To compare how things move on different surfaces.	To evaluate my choices and suggest further improvements.	To use the research and findings of John McAdam to create my own road surfaces.
To 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.	To predict whether materials are magnetic or not.	To sort and classify materials into magnetic and non-magnetic.
To notice that some forces need contact between two objects, but magnetic forces can act at a distance.	To plan a fair test.	To carry out a fair test using magnets
To describe magnets as having two poles. Predict whether two magnets will attract or repel each other, depending on which poles are facing.	To record my findings using scientific drawings.	To spot patterns in my drawings and explain what is happening in terms of magnetic fields.
To describe magnets as having two poles. Predict whether two magnets will attract or repel each other, depending on which poles are facing.	To use models to explain findings.	To use research and secondary sources to aid my explanations.

Scientific Enquiry Key

Comparative / fair testing
Changing one variable to see its effect on another, whilst keeping all others the same.

Pattern-seeking
Identifying patterns and looking for relationships in enquiries where variables are difficult to control.

Research
Using secondary sources of information to answer scientific questions.

Identifying, grouping and classifying
Making observations to name, sort and organise items.

Observation over time
Observing changes that occur over a period of time ranging from minutes to months.

Problem-solving
Applying prior scientific knowledge to find answers to problems.

Assessment- Key indicators: Give examples of forces in everyday life.
Give examples of objects moving differently on different surfaces.
Name a range of magnets and show how the poles attract and repel.
Can draw diagrams using arrows to show the attraction and repulsion between the poles of magnets.
Can use results to describe how objects move on different surfaces.
Can use results to make predictions.
Can use some classification to know some metals are not magnetic.
Use test data to rank magnets.