Year 3

Topic: Forces and Magnets

Strand: Physics

What I should already know.

- Magnets can come in different sizes.
- Magnets can be found in toys.
- They can be stuck together.
- They can be found at home and at school.
- You can use the word attract to describe how magnets stick.
- Magnets can be attracted to magnetic materials.

What will I know by the end of the unit?

How do **magnets** work? 	• **Magnets** produce an area of **force** around them called a **magnetic field.** • When objects enter this **magnetic field**, they will be **attracted** to or **repelled** from the **magnet** if they are **magnetic.** • When **magnets repel**, they **push** each other away When **magnets attract**, they **pull** together.
Which materials are magnetic?	• Objects that are **magnetic**, are **attracted** to **magnets.** • Iron and steel are **magnetic.** Aluminium and copper are **non-magnetic.**
How do **magnetic** poles work?	• The ends of a **magnet** are called poles. • One end is called the north pole and the other end is called the south pole. • **Opposite** poles **attract**, similar poles **repel.** • If you place two **magnets** so the south pole of one faces the north pole of the other, the **magnets** will move towards each other. This is called **attraction**. • If you place the **magnets** so that two of the same poles face each other, the magnets will move away from each other. They are **repelling** each other.

Vocabulary

Attract	**If one object attracts another object, it causes the second object to move towards it.**
Bendy	An object that bends easily into a curved shape.
Friction	The **resistance** of **motion** when there is contact between two **surfaces.**
Force	The **pulling** or **pushing** effect that something has on something else.
Gravity	The **force** which causes things to drop to the ground.
Magnet	A piece of iron or other material which attracts **magnetic** materials towards it.
Magnetic field	An area around a **magnet**, or something functioning as a magnet, in which the **magnet's** power to **attract** things is felt.
Metal	A hard substance such as iron, steel, gold, or lead.
Motion	The activity of changing position or moving from one place to another.
Non-magnetic	An object that is not **magnetic.**
Opposite	**Opposite** is used to describe things of the same kind which are completely different in a particular way. For example, north and south are **opposite** directions.
Position	The **position** of someone or something is the place where they are in relation to other things.
Pull	When you **pull** something, you hold it firmly and use **force** in order to move it towards you or away from its previous **position.**
Push	When you **push** something, you use **force** to make it move away from you or away from its previous position.
Resistance	A **force** which slows down a moving object or vehicle.
Squash	Pressed or crushed with such **force** that something loses its shape.
Stretchy	Slightly elastic.
Surface	The flat top part of something or the outside of it.
Twist	Turn something to make a spiral shape.

Investigate!

- Observe how a **magnetic field attracts** iron filings by using a bar **magnet.**
- Investigate how **magnets** are used in everyday life.
- Investigate which materials are **magnetic** and sort between objects that are **magnetic** and those that are **non-magnetic.**
- Investigate if the size of a **magnet** affects how strong it is (using chains of paper clips of varying lengths).
- Investigate if all **metals** are **magnetic.**

Observe what happens when **magnets** with similar poles are placed next to each. Repeat this for when the poles are different.