Hyde Park Junior School - Science

Topic: Forces and Magnets | **Year: 3** | **Strand: Physics**

Enquiry Question: Are magnets useful in our lives?

Key Vocabulary

force: a push, pull, twist or turn.

magnet: material or object that produces a magnetic field, it attracts or repels magnetic objects.

gravity: a pushing force exerted by the Earth, it attracts objects towards the centre of the Earth.

attract: to pull towards (the opposite of repel).

repel: to push away (the opposite of attract).

friction: the force that can make it difficult for things to move when they touch each other.

push: to move something away.

pull: to move something towards.

poles: two sides of a magnet where the magnetism is the strongest (North and South).

What should I already know?

- I am able to identify different types of materials.
- I know that the shape of some materials can be changed when they are stretched, twisted, bent and squashed.
- I understand that materials can be used for more than one thing.
- I understand the basics of magnets.
- I know what happens with a push and pull.

Facts

- **Magnets always have two poles – even if you cut them in half.**
- **North and South poles (opposite) attract.**
- **The most powerful magnet in the universe is actually a star called a magenta.**
- **Forces are balanced when the forces acting on an object are the same.**
- **Unbalanced forces result in a change in motion.**
- **Any metal that contains iron is magnetic (including steel).**
- **Other metals are not magnetic, including copper, gold and aluminium.**

Isaac Newton

Born: December 25th 1642

Died: March 20th 1727

Key findings: Newton discovered that gravity pulls objects towards the ground. At the end of his life, Newton told a story which has become one of the most enduring legends in history of science.

The story goes that he discovered gravity while sitting under an apple tree. A falling apple had prompted him to think about gravity.

Forces can make things …

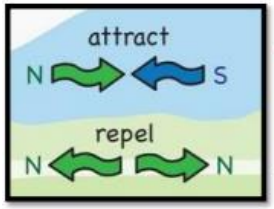
Change shape

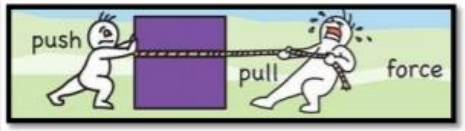
Change speed

Change direction

Friction

It is easier to pull or push things along smooth surfaces than rough ones



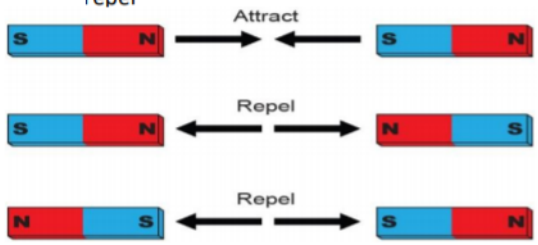


MAGNETS - are objects or materials that produce a magnetic field and attract or repel magnetic objects.

Magnets have 2 poles: north and south.

If you put magnets towards each other:

- 1 south pole and 1 north pole will attract
- 1 south pole and another south pole will repel
- 1 north pole and another north pole will repel



Scientific Enquiry

Questions:

- **How do things move on different surfaces?**
- **How does repel and attract work in magnets?**
- **Which materials do magnets attract?**
- **What is friction?**
- **How do forces change shape, speed and direction?**
- **Are all materials magnetic?**

Skills:

- **Investigate**
- **Observe**
- **Questioning and analysing**
- **Making connections**
- **Compare**
- **Evaluate their findings**
- **Presenting information to a group.**

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Question 1: **What objects are magnetic? (Tick all that apply)**	**Start of unit:**	**End of unit:**
A. Paper		
B. Paperclip		
C. Gold		
D. Silver spoon		

Question 2: **A magnet is made of?**	**Start of unit:**	**End of unit:**
A. Gold		
B. Iron		
C. Copper		

Question 3: **The two opposite poles of a magnet repel each other.**	**Start of unit:**	**End of unit:**
True		
False		

Question 4: **Friction causes heat.**	**Start of unit:**	**End of unit:**
True		
False		

Question 5: **What is a force?**	**Start of unit:**	**End of unit:**

Question 6: **When do we use magnets in our daily life?**	**Start of unit:**	**End of unit:**