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B Magnetic and Non-magnetic Materials

In this section, I will

- find out which materials are magnetic and which are non-magnetic
- create tables and diagrams to show observations
- identify the five main types of scientific enquiry
- identify and explain patterns in results
- describe how science explains how objects work
- draw a diagram to show a scientific idea

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Thinking cap

Do magnets attract all materials? No

only magnetic material

Co	I	N	S
cobalt	Iron	Nickel	Steel

Let's Learn

What Materials Are Attracted to Magnets?

Magnets can attract some materials.

Materials that are attracted to a magnet are **magnetic materials**. Iron, steel, nickel and cobalt are some examples of magnetic materials.

M

magnetic materials
materials that are attracted by a magnet

Objects made of magnetic materials are attracted to magnets.

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What Materials Are Not Attracted to Magnets?

Some materials are not attracted by a magnet. They are called **non-magnetic materials**.

All magnetic materials are metals, but not all metals are magnetic.

Aluminium, gold, silver and copper are some non-magnetic metals.

N

non-magnetic materials
materials that are not attracted by a magnet

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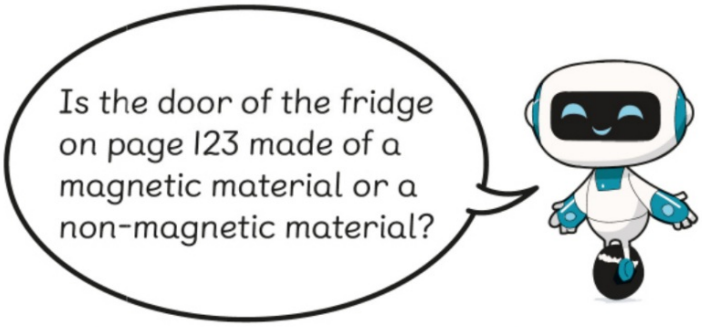
Many non-metals are not magnetic.




Plastic, glass, wood, cloth, paper and rubber are some non-magnetic materials.



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Check Your Learning

Can an object made of a non-magnetic material repel a magnet? No

explain: A magnet does not repel or attract non-magnetic material.

A magnet repels only another magnet
(like poles, South + South or North + North)

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Practice Worksheet

I. Tick (✓) the correct box beside each sentence.

	True	False
Not all magnets have two poles.	☐	☑
When two magnets are brought near each other, they will attract or repel each other.	☑	☐
All metals are magnetic materials.	☐	☑
Magnets of all shapes can attract steel objects.	☑	☐

2. The picture below shows two bar magnets. P.133

Magnet A Magnet B

What would you observe if you hold Magnet B and bring it close to Magnet A? Tick (✓) the **two** correct answers.

Magnet A will move away from Magnet B. ☐

Magnet A will move closer to Magnet B. ☑

Magnet B will not attract or repel Magnet A. ☐

The unlike poles of Magnets A and B will attract each other. ☑

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3. A group of students are talking about magnets.

Ruqaiya
Magnets can attract gold, silver and aluminium.

Tika
Magnets can attract metals that are magnetic materials.

Yang
Magnets can attract all metals.

Zen
Magnets can attract only some metals.

Which students are correct? Circle the **two** correct answers.

Ruqaiya (Tika) Yang (Zen)

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4. Class 3 has a quiz about magnets. Write the answer for each clue. Choose from the following words.

eraser	iron nail	rod magnet

Clue I: When a button magnet is brought near me, I move away. What can I be?

Answer : rod magnet

Clue 2: When a horseshoe magnet is brought near me, I am attracted to it. What can I be?

Answer : iron nail

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Clue 3: When a rod magnet is brought close to me, I do not move. What can I be?

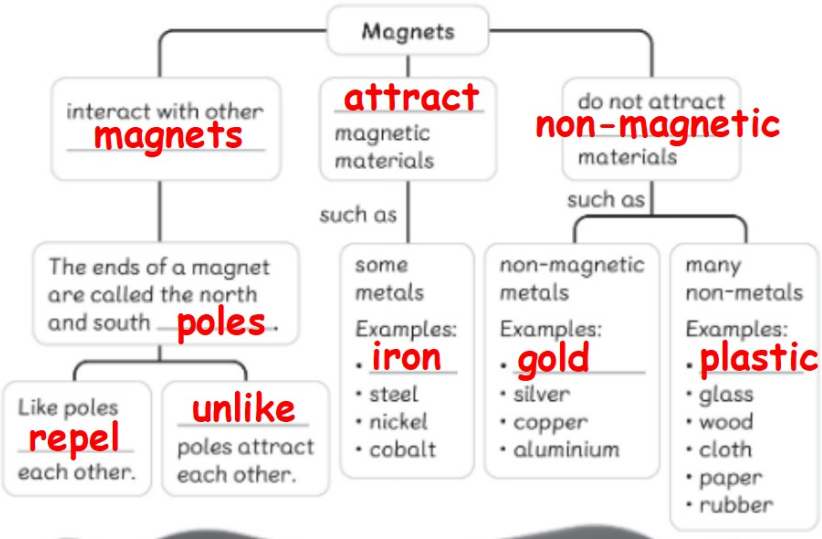
Answer : eraser

Let's Map It!

Activity book p.71

Fill in the blanks. Use the following words.

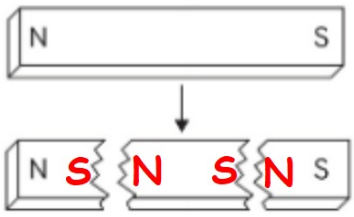
attract gold iron magnets non-magnetic plastic poles repel unlike



Let's Review

Activity book p.72

1 A magnet broke into three parts. Each part is now a magnet. Label the N and S poles on the three magnets.

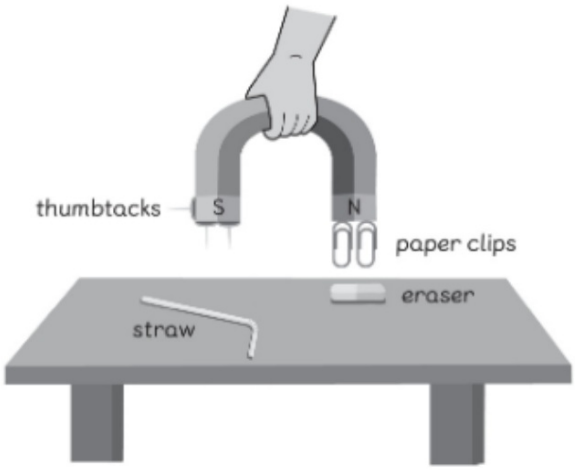


2 Amir placed two bar magnets together with their poles facing each other in different ways. He observed how the magnets interacted in each set-up and recorded his observations in the table. He forgot to fill in some parts of the table.
Fill in the blanks to complete the table.

Poles facing each other (North / South)	Observation (Attract / Repel)
North - North	Repel
North - South	Attract
South - North	Attract
South - South	Repel

Activity book p.73

3 The picture shows a magnet and some objects.



What can be concluded about the magnet and the objects?

Circle the correct answer.

only one pole of the magnet can attract objects

the magnet can attract the thumbtacks and the paper clips as they are made of magnetic materials

the magnet can attract the thumbtacks and the paper clips as they are made of non-magnetic materials

the magnet cannot attract the eraser and straw because they are not metals