Year 3 Science

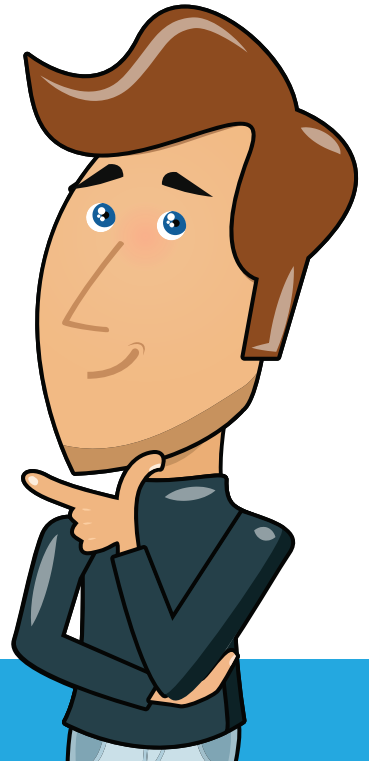
Forces and Magnets

I can compare and group together a variety of everyday materials on the basis of whether thy are attracted to a magnet.

Thinking Time...

Think of one fact about magnet from last lesson.

Discuss with your partner ready to feed back to the class.



Magnets

Magnetic forces also act at a distance. A magnet does not need to be in contact with another object for the magnetic forces to act.

- Magnets are usually made from iron.

- The two ends of a magnet are called the Magnetic Poles. There is a north magnetic pole and a south magnetic pole.

- Magnets can **attract** and **repel** other objects with their magnetic forces.

- Magnets can be lots of different shapes, sizes and colours, but they will always have a north and south magnetic pole.

New Word Alert!

Attract – pull towards

New Word Alert!

Repel – push away

Uses of Magnets

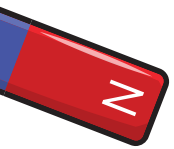
Magnets are used all around us. We use them to keep things closed like bags and doors. They are in most **electronic devices**. In fact, **anything that has a motor uses a magnet**.

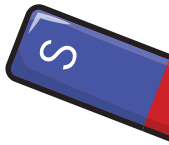
Televisions, computers and microwave ovens all operate with magnets.

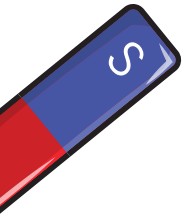
Magnets are used to keep **refrigerator doors** closed and are even mounted on trucks that clean roads. You'll also find magnets in **medical devices** to create a magnetic picture, in trains, and in the systems used to slow down roller coasters. More uses for magnets are found every day.

Can you think of any other uses of magnets?

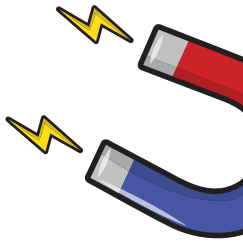
Magnet Facts



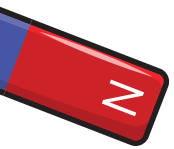


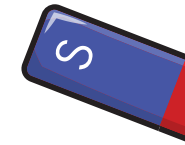


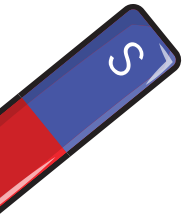
1. Most of the magnets you see around you are **man-made**.
2. **The Earth is a giant magnet**. Its magnetic field is like a bar magnet at its centre.
3. Magnets are usually made from iron or **steel**, but **aluminium, steel-iron, copper, nickel** and **cobalt** can also be made into powerful magnets.
4. Many scientists believe that **birds** are able to find their way home by using the **Earth's magnetic field** to guide them on long distance flights.
5. Some vets use magnets to pick up pieces of wire or other metal from inside the stomachs of large farm animals.
6. If you attach a bar magnet to a piece of wood and float it in a bowl of water, it will slowly turn and the magnet's north pole will point towards the **Earth's North Pole**.
7. A **compass** has a tiny bar magnet in it and works the same way as a bar magnet in water, helping explorers find their way.



Magnet Facts







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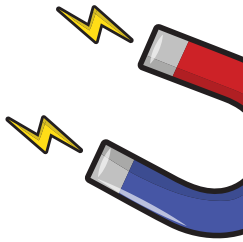
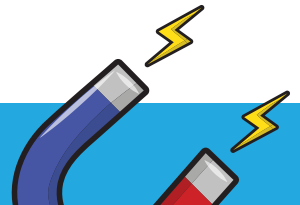
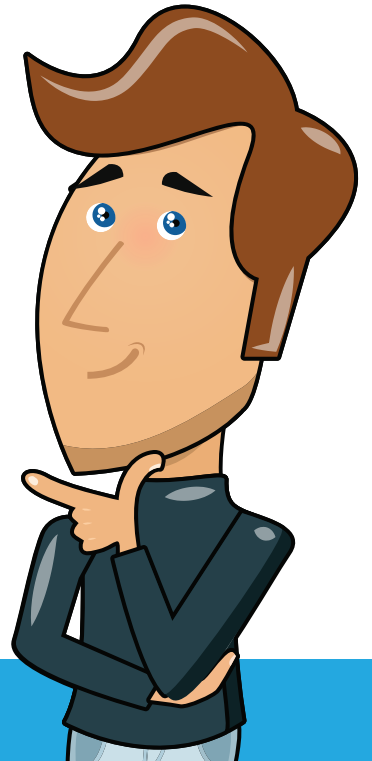




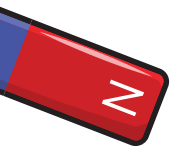
Thinking Time...

What materials do you think a magnet will attract?

Discuss with your partner ready to feed back to the class.

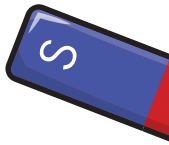


Group Activity



You are now going to see what types of materials are attracted to a magnet or not.

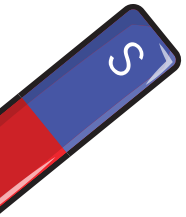
You will each have a magnet and you will place the magnet close to the different materials. You will record if the material is magnetic or not.

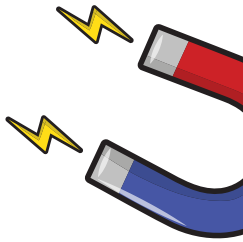


Important!

If the material is **pulled towards** the magnet,
it is a magnetic material.

If the material is **NOT pulled towards** the magnet,
it is NOT a magnetic material.





Magnetic Materials

Magnets can attract other magnets but they can also **attract magnetic materials**.

Magnetic materials are always metals but **only a few metals are magnetic**.

Iron is magnetic, so any metal with iron in it will be attracted to a magnet.

Steel contains iron, so a **steel paperclip**, for example, **will be attracted to a magnet**.

Most other metals, for example **aluminium, copper and gold**, are **NOT magnetic**.

An **aluminium drinks can**, for example, **will not be attracted to a magnet.**

Does this match your results?

What did we find out?

Think about these questions and discuss with your partner before feeding back to the class.

1. What did you most enjoy about this lesson?
2. Tell me one thing you have learnt.
3. Did you find anything difficult?