

# ❖ Bismillaahirrohmaanirrohiim ❖

Read the text below.



### Separating Paperclips

Last night, Anya accidentally pushed his dad's working desk while running. It made all the things on the desk fall to the floor. Papers, pencils, pens and paperclips are spread around the floor. Alex ran there after he heard the loud sound made by the falling things.

Anya, then, started to tidy the falling things on the floor. Alex helped her. First, they tidied the papers and then the pencils and pens. The last, they had to take the paperclips that spread around the floor. There were hundreds of them. And there were two kinds: aluminum paperclips and iron paperclips. They had to separate them. It would take a long time to separate the paperclips.

Alex had an idea. He went to his room and returned again with something that Anya never saw before. They were heavy and made of metal. The small one had cuboid shape. The bigger one had 'U' shape. "They are magnets," Alex explained to Anya. "Magnets can attract things made of iron. Just hold the magnet near the paperclips and the iron paperclips will stick to the magnets."

"Alex, why didn't the magnet attract the paperclips?" asked Anya. "You need to hold it closer to the paperclips again. Around the magnet, there is a magnetic field. Inside the magnetic field, there is magnetic force that pulls the paperclips to the magnet. The iron paperclips can be attracted to the magnet if they are inside the magnetic field of the magnet." After finishing collecting the paperclips, Anya asked permission to Alex to play with the magnets.

"The magnets can attract metal, right? And the magnets are also made of metal, right? But why this horseshoe magnet repels the cuboid magnet?" Anya was still curious about magnets. Alex explained, "Only certain metal can be attracted by magnet. All the things that can be attracted by magnets are called magnetic materials. The magnets have two poles: north and south. When the like poles are placed near each other, they will repel, or push each other away. That's what happened to your horseshoe and cuboid magnet. Try to switch one of the magnets and I'm sure they will attract each other because you place unlike poles to each other."

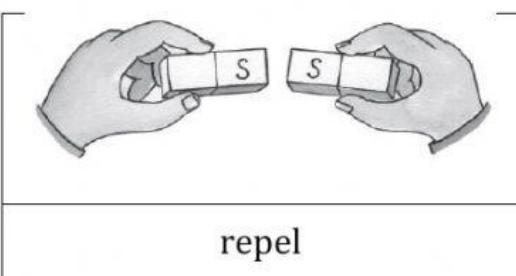
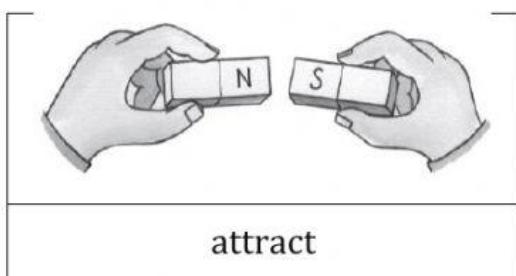
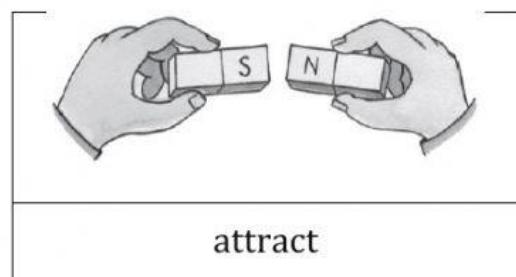
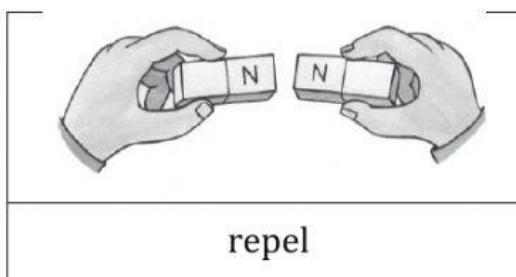
## SOME FACTS ABOUT MAGNETS

## Science\_Magnet

- ✓ Magnets are objects that produce an area of magnetic force called a magnetic field that is invisible.
- ✓ Magnetic materials must be inside the magnetic field to be attracted by the magnets.
- ✓ Magnets only attract certain types of metals, **such as: iron, steel (mostly made of iron), nickel and cobalt.**
- ✓ Other metals, such as: **copper, silver, gold, magnesium, platinum, aluminium and more and also other materials such as glass, plastic and wood are not included in magnetic materials.**
- ✓ Magnets have a magnetic north pole and a magnetic south pole. If the same pole of two magnets are placed near each other they will push away (repel), while if different poles are placed near each other they will pull together (attract).

### The Law of Poles

Like poles repel. Unlike poles attract.



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