



Unlike poles (N-S) attract

Like poles (N-N or S-S) repel

Used in Maglev train, compass, door stopper, electric bell, credit cards

Cannot pass through magnetic materials but can pass through non-magnetic materials

Pull: attract

Push: repel

A force that can act from a distance

Attracts magnetic materials: Steel, Iron, Nickel, **Cobalt** (Superman is not cool)

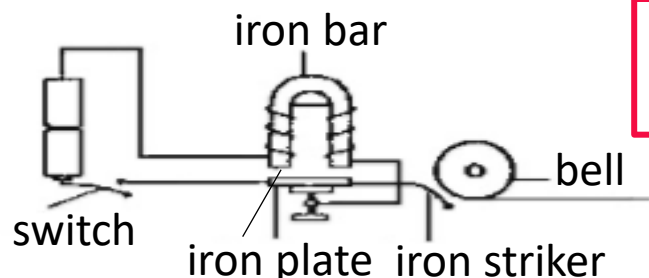
Does not attract non-magnetic materials like **copper**, plastic, wood

Magnetic force

Only magnets will repel each other

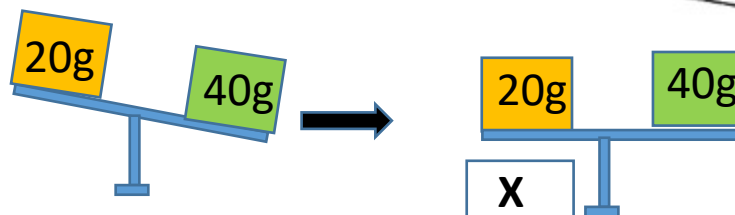
Is strongest at its poles

The strength of a magnet is not dependent on its size.

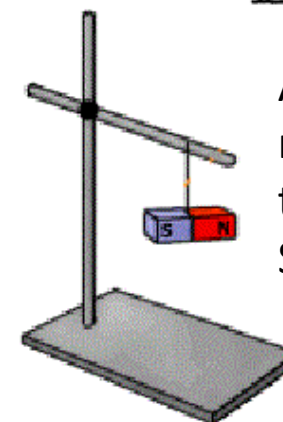
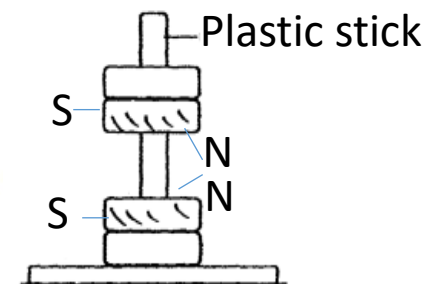
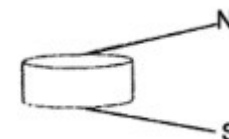


How does an electric bell work?

When the switch is closed, electric current passed through and made the iron bar become an electromagnet. The electromagnet then attracted the iron plate which in turn caused the iron striker to move up and hit the bell.



X is a magnet. The 20g object is made of magnetic material. The magnetic force pulls the 20g object downwards, making the balance balanced.



A freely suspended magnet will come to rest in the North-South direction

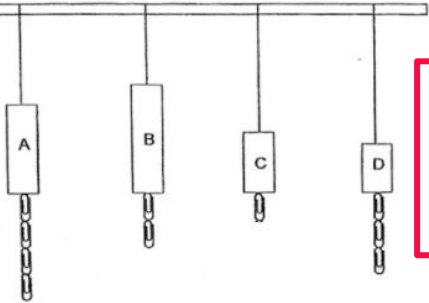
What happens when an unknown object is brought close to a magnet?



If Object A is...	Stroking Method
a magnet	Both Object A and Magnet may attract or repel each other. Only magnets will repel each other. Use both poles of the magnet to interact with Object A. Check for repulsion to confirm that Object A is a magnet.
made of magnetic material	Magnet will attract Object A with both its pole.
made of non-magnetic material	There will be no interaction between Object A and the magnet.

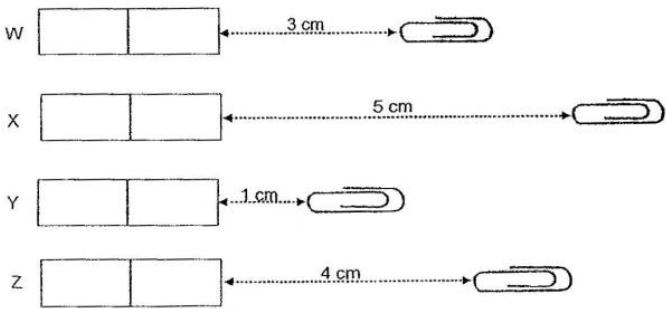
What does the experiment show?

The strength of a magnet is not dependent on its size.

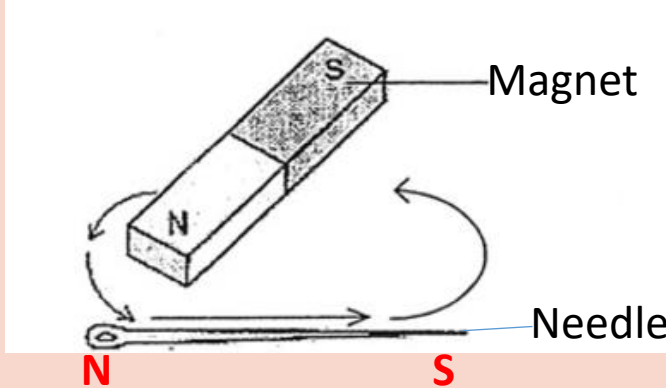


Which magnet is the strongest?

Magnet X, it could attract the paper clip from the **furthest** distance.



2 ways to make a temporary magnet

Method	Stroking Method	Electrical Method
How?		
How to make the temporary magnet stronger?	Stroke the needle with a magnet using the same pole in the same direction for more than 30 times .	1. Use more batteries. 2. Use higher voltage battery. 3. Turn more coils round the nail.
Points to watch out:	The needle to be made into temporary magnet has to be made of magnetic material .	The nail to be made into temporary magnet has to be made of magnetic material .

3 ways to demagnetise a magnet

- ✓ Drop it on the floor repeatedly
- ✓ Hit it with a hammer several times
- ✓ Heat it over a flame for a period of time