

Electromagnets

3. Electromagnets

CONCEPT 2

LESSON GUIDE

USING ELECTROMAGNETS

PRECISE LEARNING POINTS

KNOW

I know common uses for electromagnets.

APPLY

I can apply my knowledge to describe the use of electromagnets within common devices.

EXTEND

I can extend my knowledge to explain the use of electromagnets in common devices.

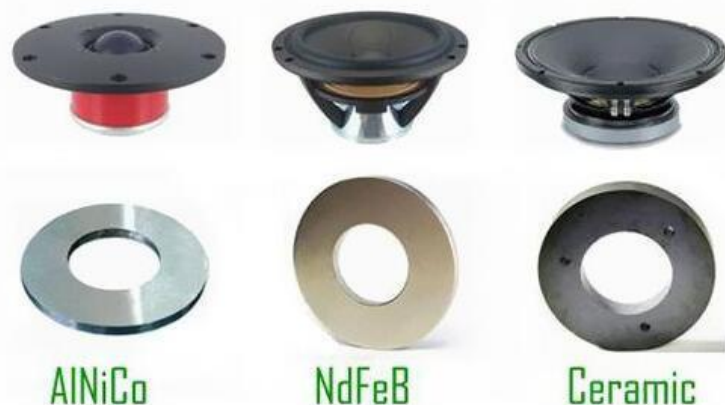
NOTES

So, they should have looked at the basics of electromagnets. The uses of this phenomenon are basic, but some are ingenious. The main thing to focus on is that an electromagnet utility comes in being able to switch it on and off. All of the uses they should know revolve around this. The following are the examples pupils should be able to recall and explain how the electromagnet allows it to work:

The scrap car magnet – The basic one at a scrap metal plant. The large disk contains a large copper coil with an iron core. It can be controlled from a control unit and is controlled by turning the current on and off.



The loud speaker – The magnet at the rear of a loud speaker changes its magnetic potential based on how much current is flowing through it. By timing these current *pulses* you can modify how much you compress the air. This is how you would hear some



tasty tunes from Mr Greer.

The electric bell – We start at point A and this allows the current to flow throughout the circuit which activates the electromagnet at point B. This diagram clearly shows the location of the electromagnet. This attracts the metal hammer at point C to the electromagnet at B. When this happens, the circuit is broken between the contact screw and the springy steel strip. Once this happens, the attractive electromagnet stops, and the iron armature springs

back into place. This completes the circuit and makes the electromagnet attract it again. This creates the back and forth motion.



The circuit breaker – This is a safety device needed in all UK households. This does its job when **too much** current is drawn into a circuit due to a fault. When this happens, the attractive pull on an electromagnet attracts a metal switch. Once this happens, you need to physically go and *flip* the switch back up into position.

