

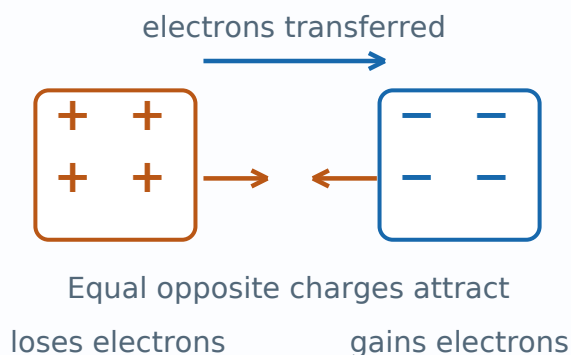
P2 Static charge and electric fields

Separate Physics extras | AQA 8463 | CORE

Use alongside the shared topic notes. Foundation + Higher content.

Charge by electron transfer

Rubbing suitable insulators transfers **electrons**. The material gaining electrons becomes negative; the other is left with an equal positive charge.

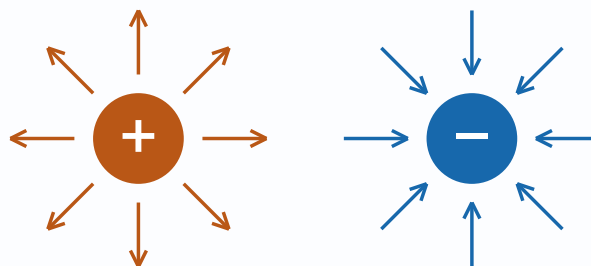


Like charges repel. Unlike charges attract. These are non-contact forces: the objects need not touch.

Protons remain within nuclei. Charge is transferred, not created. A charged insulator holds charge because electrons cannot flow freely through it.

Read an electric field

A charged object produces an electric field. A second charge in the field experiences a force.



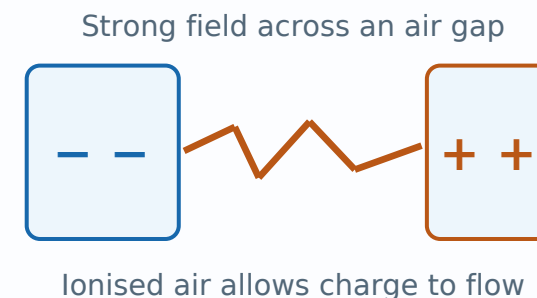
Direction: force on a positive test charge

Field arrows show the force direction on a **positive** test charge. They point away from a positive sphere and towards a negative sphere.

The field is stronger closer to the sphere. Closer field lines represent a stronger field; a negative test charge feels a force opposite the arrows.

Explain a spark

A large potential difference can produce a strong electric field across an air gap.



The strong field can ionise air. Charged particles then move through the air, briefly carrying a current: a spark.

Evidence: repulsion shows two objects carry the same type of charge. Attraction alone is less conclusive because a charged object can also attract a neutral object.

Reasoning chain: electron transfer → charge imbalance → electric field → force or discharge.