

Static Charge *(Physics only)*

AQA GCSE Physics · Electricity

Static Electricity

Some insulators become electrically charged when they are rubbed together. If enough charge builds up, a spark can form.

How does an object become charged?

Key words: rub friction electrons move negatively positively

DRAW A PICTURE



EXPLAIN HOW AN OBJECT BECOMES CHARGED — use the key words

How does a spark form?

Key words: potential difference electric field electrons move earth spark

DRAW A PICTURE



EXPLAIN HOW A SPARK FORMS — use the key words

Exam-style question [5 marks]

As a car is driven, its rubber tyres rub against the road. The car can become electrically charged.

(a) Explain how the car becomes charged as it is driven. [2 marks]

(b) When the driver gets out and touches the metal car door, they sometimes feel an electric shock as a spark jumps. Explain why a spark jumps between the car and the driver. [3 marks]

ANSWER

Electric Fields *(Physics only)*

AQA GCSE Physics · Electricity

Electric Fields

An electric field is an area where a _____ object experiences a _____.

Word bank: **charged** · **force**

Draw the electric field lines — remember the arrows

Positive isolated sphere



Negative isolated sphere



MEMORISE

The **arrows** on the field lines point the way a **positive charge** would move — **away from** a positive charge and **towards** a negative charge.

Explain

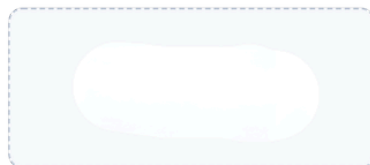
$$F = m a$$

Explain the motion of a charged object as it moves through the field, closer to the charge.

closer / further

resultant force bigger / smaller

acceleration bigger / smaller



Exam-style question [6 marks]

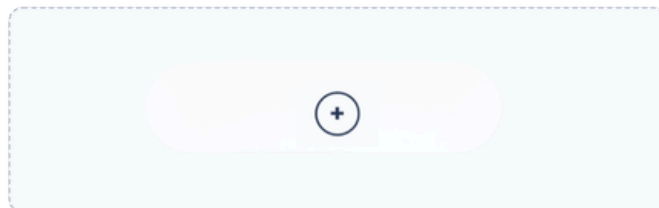
A small sphere carries a positive charge and sets up an electric field around it.

(a) What is meant by an **electric field**? [1 mark]

(b) On the diagram, draw the electric field around the positively charged sphere. Include arrows to show the direction. [2 marks]

(c) A tiny negatively charged particle is attracted towards the sphere. Explain why the particle accelerates more as it gets closer to the sphere. Use **$F = m a$** in your answer. [3 marks]

DIAGRAM



WORKING
