Physics - Key Stage 3
Electricity and Magnetism

Static Electricity

Miss White

OAK NATIONAL ACADEMY

Questions from video

Match- Up Task

Conductor	Substances in which electrons find it difficult to flow
Insulator	Substances which allow electrons to flow through the material

Quick Check 1

1. Static electricity is the build up of what?

1. What are conductors?

1. What are insulators?

1. State which property of insulators this is due to.

Quick check 1 - Hints

1. Static electricity is the build up of what?

   Static electricity is the build up of _____.

1. What are conductors?

   Conductors _____ the flow of electrons through the material.

1. What are insulators?

   Insulators _____ the flow of electrons through the material.

1. State which property of insulators this is due to

   This is because insulators have a low _____.

Quick Check 2

1. If we brought two rods with like charge together, what would happen?
2. Why?
3. If we brought two rods with opposite (unlike) charge together, what would happen?
4. Why?
5. What is meant by ‘neutral’?

Put them in order

Charge builds up on the insulator

There is **friction** between two surfaces (at least one is an insulator)

If the insulator is brought close to a grounded conductor a '**shock**' occurs (usually a spark)

The other material **gains electrons**, leaving it **negatively** charged

Electrons are **transferred** from the insulator, leaving it **positively** charged

Independent Task - Describe how objects can become charged

Objects become charged due to _____ (when rubbed together).

One of these materials must be an _____.

Friction causes _____ to transfer from one material to the other.

The material which **donates** electrons becomes _____ charged, and the material which _____ electrons becomes _____ charged.

Gains Insulator Positively Electrons Negatively Friction

Tasks to try at home - Write down your observations

1. Rod and a stream of water
2. Rod and pieces of paper
3. Balloon and hair
4. Balloon and a can
5. Balloon on a wall

Answers

Match- Up Task - answers

Conductor

Substances in which electrons find it difficult to flow

Insulator

Substances which allow electrons to flow through the material

Quick check 1 - Answers

1. Static electricity is the build up of what?

   Static electricity is the buildup of <u>charge</u>

1. What are conductors?

   Conductors <u>allow</u> the flow of electrons through the material.

1. What are insulators?

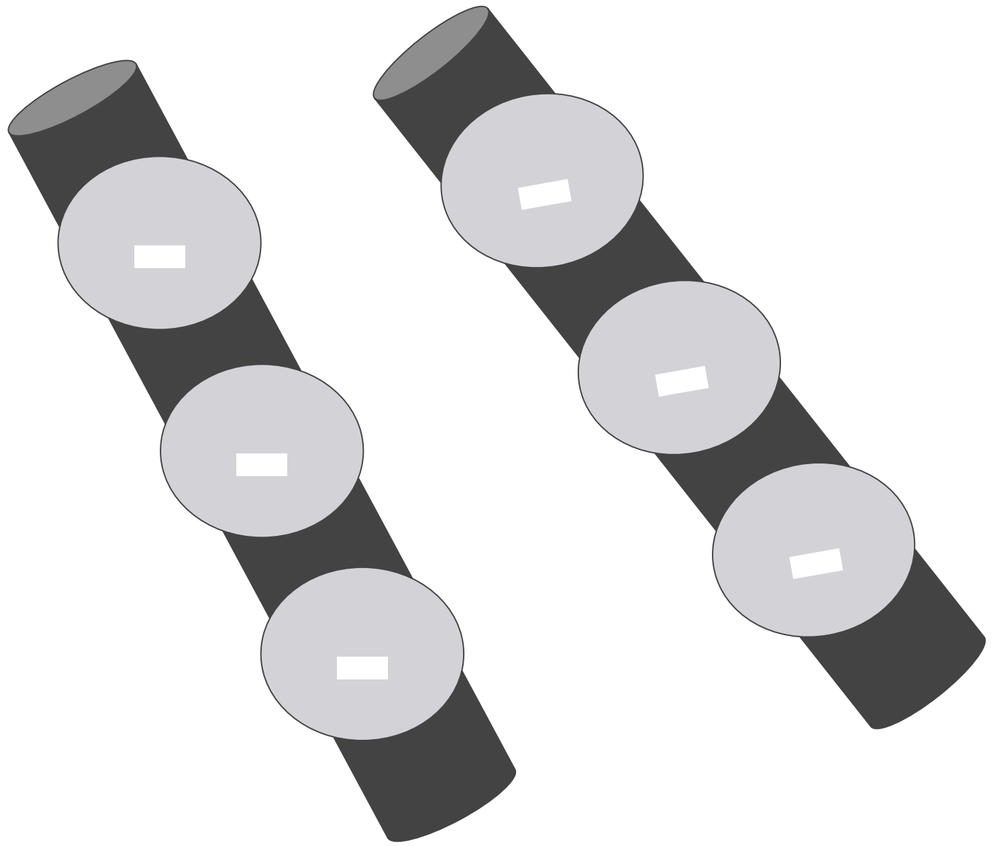
   Insulators <u>restrict</u> the flow of electrons through the material.

1. State which property of insulators this is due to

   This is because insulators have a low <u>conductivity</u>.

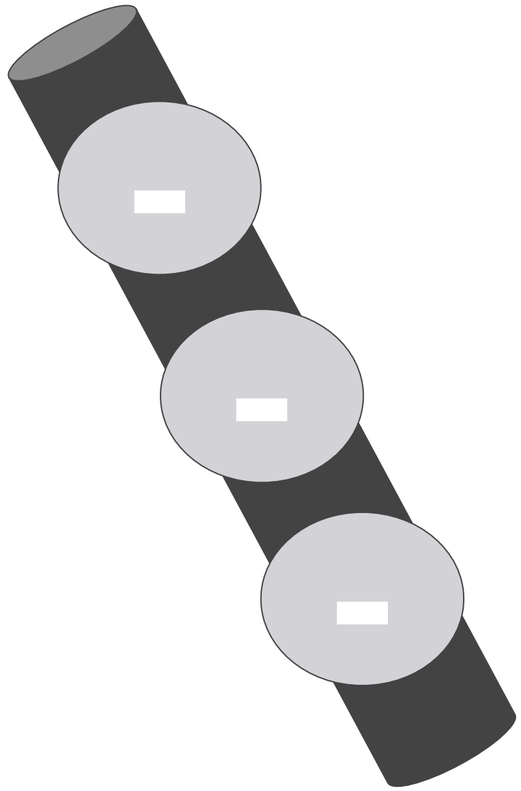
1. If we brought two rods with like charge together, what would happen?

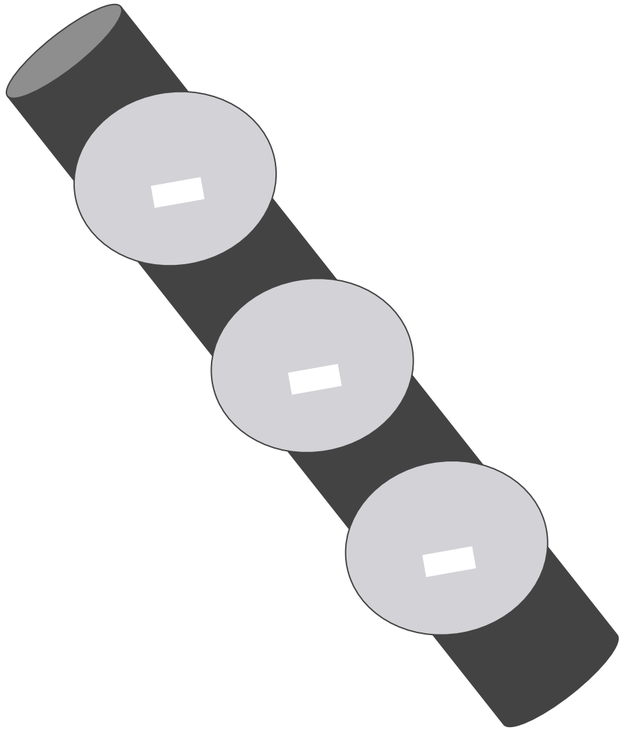
2. Why?



Credit: R White

1. **Two rods with like charge REPEL if they are brought close together**
2. **because like charges repel.**

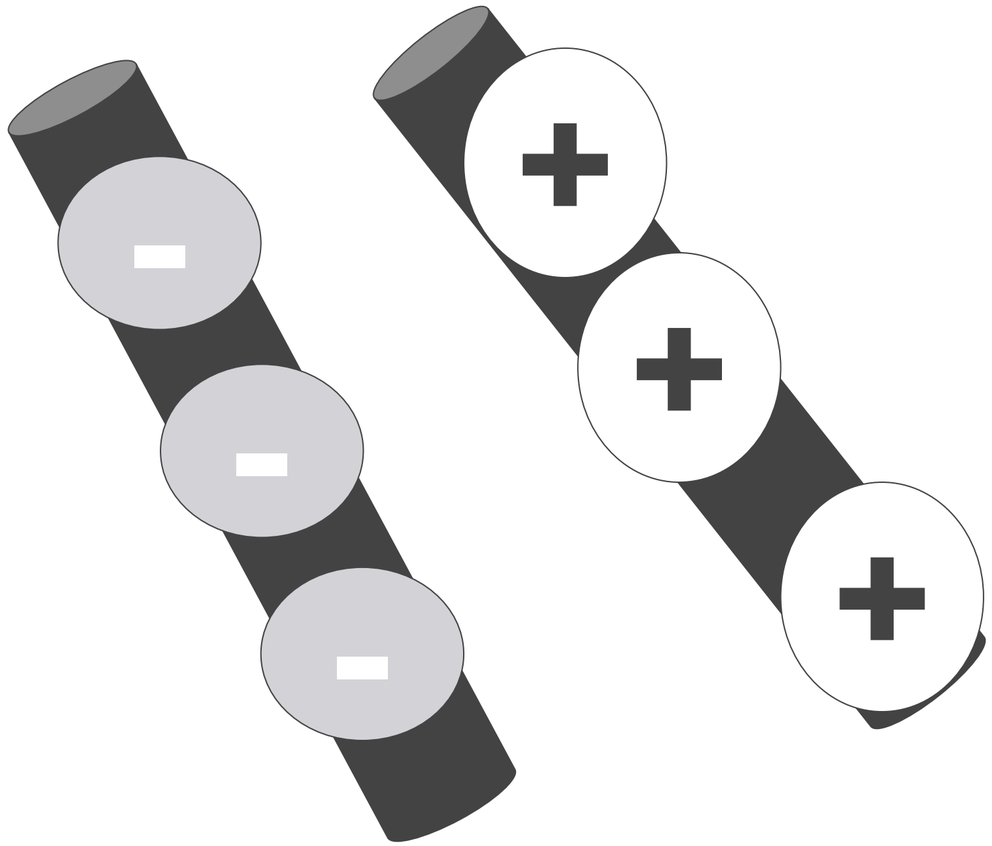




Credit: R White

3. If we brought two rods with the opposite (unlike) charge together, what would happen?

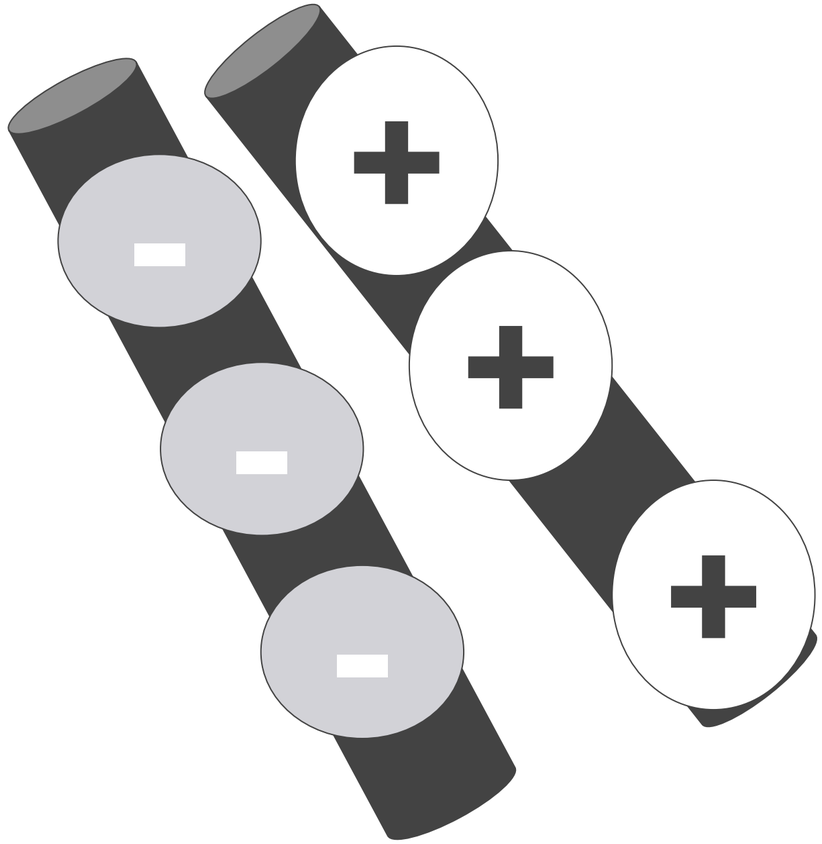
4. Why?



Credit: R White

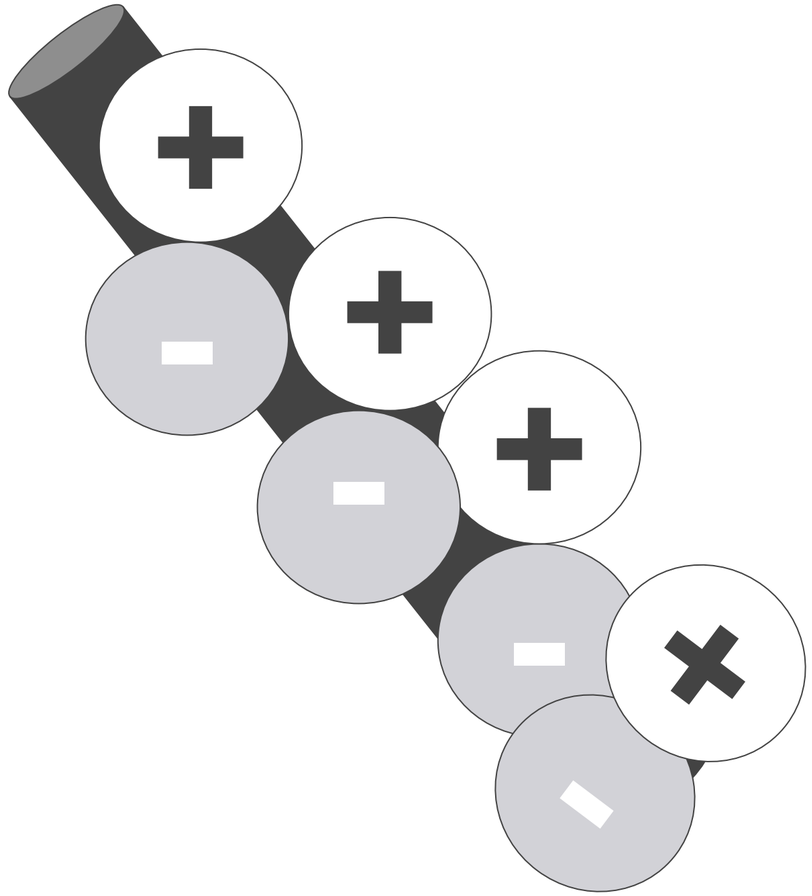
3. Two rods with the opposite (unlike) charge will ATTRACT

4. because opposite (unlike) charges attract



Credit: R White

5. What is meant by ‘neutral’? Neither positively nor negatively charged - exactly the same number of positive as negative charges.



Credit: R White

Put them in order - answers

There is **friction** between two surfaces (at least one is an insulator)

Electrons are **transferred** from the insulator, leaving it **positively** charged

The other material **gains electrons**, leaving it **negatively** charged

Charge builds up on the insulator

If the insulator is brought close to a grounded conductor a '**shock**' occurs

Independent task - answers

Objects become charged due to **friction** (when rubbed together).

One of these materials must be an **insulator.**

Friction causes **electrons** to transfer from one material to the other.

The material which **donates** electrons becomes **positively** charged, and the material which **gains** electrons becomes **negatively** charged.