Edexcel IGCSE Physics

Chapter 2 - Electricity

Practical Flashcards

1. The Gold Leaf Electroscope

What equipment is required for this procedure?

What equipment is required for this procedure?

- Polythene/perspex rod
- Cloth
- Gold leaf electroscope

What must you do before you start the experiment?

What must you do before you start the experiment?

Ensure that the plate of the electroscope is uncharged, by touching it with your finger.

How is the rod charged?

How is the rod charged?

By rubbing it with a cloth.

What is the name for this charge?

What is the name for this charge?

This is a form of static charge.

Why does the rod become charged?

Why does the rod become charged?

The rod and cloth are both insulating materials; when they are rubbed together, electrons rub off one and onto the other, causing the rod and the cloth to develop opposite charges.

What happens if the rod is polythene? Why?

What happens if the rod is polythene? Why?

The rod will become negative, as the cloth deposits electrons onto it.

What happens if the rod is perspex? Why?

What happens if the rod is perspex? Why?

The rod will become positively charged, as the cloth removes electrons from it.

How is the charge of the rod demonstrated?

How is the charge of the rod demonstrated?

The rod should be held near the metal plate. If it is charged, the leaf should be repelled from the stem, moving the plate away.

Why is the plate always repelled?

Why is the plate always repelled?

The charge from the rod is transferred to the metal plate, and travels down the stem into the leaf and stem, so they carry the same charge and repel each other.

Method 2: Sticking a Balloon to a Wall

What equipment is required?

What equipment is required?

- Inflated balloon
- Cloth
- Flat surface eg. wall

Outline the method

Outline the method

1. Hold the balloon against the wall for a few seconds, then let go
2. Rub the balloon vigorously against clothes/hair for 10 seconds.
3. Hold it against the wall again and let go

What should happen the first time you release the balloon? Why?

What should happen the first time you release the balloon? Why?

It should fall, as it is uncharged.

What should happen when you release the balloon after rubbing it?

What should happen when you release the balloon after rubbing it?

It should stick to the wall.

What has changed about the balloon?

What has changed about the balloon?

It has become charged.

Explain why being positively charged enables the balloon to stick to the wall

Explain why being positively charged enables the balloon to stick to the wall

The balloon will attract electrons in the wall, causing the wall near the balloon to become negatively charged. Opposite charges attract, so the balloon sticks.

Explain why being negatively charged enables the balloon to stick to the wall

Explain why being negatively charged enables the balloon to stick to the wall

The balloon will repel electrons in the wall, causing the wall near the balloon to become positively charged. Opposite charges attract, so the balloon sticks.

Method 3: Deflecting a Stream of Water

What equipment is needed?

What equipment is needed?

- Polythene rod
- Water tap
- Cloth

Outline the method

Outline the method

1. Rub the rod with the cloth to charge it
2. Run the tap to produce a strong stream of water and hold the charged rod alongside the stream
3. Observe the water's behaviour

What should you observe?

What should you observe?

The water should be deflected away from the rod.

Why is the water deflected?

Why is the water deflected?

The charged molecules in water are repelled according to the charge of the rod.