Science, Gr. 9

Characteristics of Electricity – Static Electricity

**Static Electricity Worksheet**

**POINT ONE: Static electricity needs an insulator**

A balloon is an *insulator*, this means that electrons are not free to move on its surface. They are stuck in one place.

Balloon and cloth **AFTER** being rubbed together

Balloon and cloth **BEFORE** being rubbed together

The build-up of negative charges in one place is called static electricity. It is called “static” because it does not move around. The negative charges do not move around because they are on a balloon which is made of rubber. Because of this rubber is known as an \_\_\_\_\_\_\_\_\_\_\_\_\_.

**POINT TWO: Conductors cannot have static electricity**

Metal rod and cloth **BEFORE** being rubbed together

Metal rod and cloth **AFTER** being rubbed together

Metal is a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, a substance which lets negative charges (also known as \_\_\_\_\_\_\_\_\_\_\_\_) move around freely. Because of this, negative charges do not build up in one place, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ electricity cannot be created.

**POINT THREE: When there is a difference in negative charges, charges will move**

The negative charges will jump from the places where there are the *most* number to where there are the *least*. **Complete the following diagrams by adding negative charges (electrons) or a static electricity spark:**

**a.**

**d.**

**c.**

**b.**

Negative charges (or electrons) will always move from where there are the (greatest/fewest) number to where there are the (greatest/fewest) number. If there is a big enough difference and the two objects are close enough together, this jumping may cause a \_\_\_\_\_\_\_\_\_\_\_\_.

**POINT FOUR: Static electricity can “induce” a charge in neutral object and cause the**

 **object to move**

Draw the build-up of negative charges on this balloon, AFTER it has been rubbed with a cloth

**1.**

**2.**

Draw the normal spread of negative charges on this piece of tissue (a neutral object)

Draw the same balloon as in stage 1. Draw the charges in the tissue paper so that all the negative charges are far away from the negative charges on the balloon. As they get closer together the tissue is attracted to the balloon

**3.**

**4.**

The tissue is now stuck to the balloon. Draw the charges as they now appear.