Electricity unit: Lesson 3 Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Static Electricity**

**Watch this video for a brief introduction into static electricity:** https://www.youtube.com/watch?v=yc2-363MIQs

**Visit** [**http://msharrisonweiss.weebly.com/electricity.html**](http://msharrisonweiss.weebly.com/electricity.html) **for access to the old grade 9 textbook**

**Label the following on the diagram:**

Electron

Proton

Neutron

+ (positive charge)

- (negative charge)

0 (neutral charge)

Nucleus

Atom

p. 250, 259 of the old textbook

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Proton** | **Neutron** | **Electron** |
| **Charge:** |  |  |  |
| **Location:** |  |  | -­ |
| **Attracted to:**  (\_\_\_\_\_\_\_\_\_\_\_ charges attract) | \_\_  +­  \_\_  +­ | \_\_  0­  \_\_  0 | \_\_  -­  \_\_  -­ |
| **Repelled by:**  (\_\_\_\_\_\_\_\_\_\_\_\_ charges repel) | \_\_  +­ |  | \_\_ |
| **Electric force:** | Defined as when charged objects \_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_ on one  another. The closer the two objects are the\_\_\_\_\_\_\_\_\_\_\_\_ the force. The  further they are the \_\_\_\_\_\_\_\_\_\_ the force | | |

**What is a static charge/electricity?**

Check out the PHET simulation: <https://goo.gl/WXv2it>

p. 248 of the old textbook

Static charge/electricity:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Where might I have seen/experienced static charge?**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**How is static electricity produced?**

p. 250 of the old textbook

The charge on an atom is equal to the number of \_\_\_\_\_\_\_\_\_\_\_\_ minus the number of

\_\_\_\_\_\_\_\_\_\_\_, so an atom with equal numbers of \_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_ is \_\_\_\_\_\_\_\_\_\_\_\_\_.

Because \_\_\_\_\_\_\_\_\_\_\_\_\_\_ are so large and are contained within the nucleus, they cannot be added

or removed from an atom, however, \_\_\_\_\_\_\_\_\_\_\_\_\_\_ can move easily in solid materials. This can occur

simply from \_\_\_\_\_\_\_\_\_\_ between two materials, and can create a \_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_. When

\_\_\_\_\_\_\_\_\_\_\_\_\_ are removed from a neutral atom or material the charge becomes\_\_\_\_\_\_\_\_\_\_\_\_\_. When

\_\_\_\_\_\_\_\_\_\_\_\_ are added to a neutral atom or material the charge becomes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Do all materials interact with electrons in the same way?**

p. 252 of the old textbook

|  |  |  |
| --- | --- | --- |
|  | **Insulator** | **Conductor** |
| **Definition:** |  |  |
| **Examples:** |  |  |
| **Diagram:** |  |  |

**Ouch! What shocked me?**

p. 252-254 of the old textbook

Electric shocks occur when:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Grounding: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**How can we measure charge?**

Charge is measured in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, named after \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

1 C = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ electrons

**Can static charge ever be useful?**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**TASK**

**Recall the snake charmer task from the relay race. Using what you’ve learned today, explain how it worked using the proper scientific vocabulary.**