

Answer the following questions using this sheet or on a separate page. Print responses for your notes and class discussions. You will need to access additional websites.

- What is the difference between Static Electricity and Current Electricity?

Static Electricity is when there is an imbalance of +/- charged atoms built up in an area on an object or surface of a insulating material vs Current Electricity is the constant flow of electrons through a conducting material.

Refer to the following website to answer the following questions:

[http://www.school-for-champions.com/science/static\\_electricity.htm](http://www.school-for-champions.com/science/static_electricity.htm)

- What is static electricity? The electrons produced by friction that causes sparks or crackling .... The buildup of electrical charges on an object or a surface.

- How is static electricity created? From friction... When two objects are rubbed together or pulled apart

Refer to other websites to answer these questions: Use diagrams in explanations!

- How does an object gain a positive charge vs a negative charge?

An object gains a positive charge if the object loses electrons due to the transfer of electrons away from object to another object

An object gains a negative charge by gaining electrons due to the transfer of electrons from another object

- What are the three electrostatic Laws?

1) Opposite charges attract to one and another ( + vs - )

2) Same charges on two objects will repel one and other (push apart from one and another)

(- vs -) or (+ vs +)

3) The charged object will attract the neutrally charged object ( + vs 0) (- vs 0)

Lightning: Refer to the following webpage to answer the following questions on lightning?  
[http://www.school-for-champions.com/science/static\\_lightning.htm](http://www.school-for-champions.com/science/static_lightning.htm)

- What causes the buildup of electrical charges during a thunderstorm?

The turbulence in the storm (air currents) causes the build up of static charge. Frozen water drops/dust particles in the clouds rub/collide into each other resulting in charge build up.

- How does the lightning bolt occur? The built up electrical charges are released in a stream of electrons... flow from negative to positive surfaces. - → +

The thunder sound results as the lightning rapidly heats the air and ionizes the atoms.

- What are the problems caused by lightning?

Can cause damage to trees, houses and other structures. Can lead to forest or house fires. Can damage internal organs resulting in death or severe injuries. Can cause electrical surges if power lines hit... Blow up electronics.

- Describe two benefits of lightning to the health of ecosystems?
  - Causes forest fires removing older trees and allowing the forest to rejuvenate and be healthier.
  - Separates the nitrogen from the air providing a natural fertilizer