Electrostatics Review:

Use your notes and textbook to complete the following.

All matter is made of atoms, and all atoms are made of three subatomic particles:

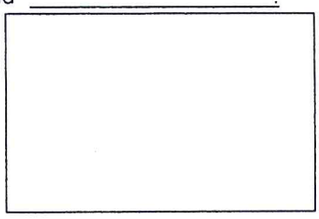
_____, _____, and _____.

Draw a diagram of an atom to show the subatomic particles

_____ are negative

_____ are positive

_____ are neutral



When atoms gain electrons they become _____ ions, when they lose electrons they become _____ ions.

Electrostatics is the study of _____

_____

When a static charge is created by rubbing two objects together _____ are not created, rather they are _____ from one object to another. The object with the stronger ability to attract electrons becomes _____ and the object with the weaker ability to attract electrons becomes _____. To help predict the charge that will be created by rubbing two objects together we can use the _____ series.

State the law of electric charges: _____

_____

If we have charged objects and we want to determine if they are positively or negatively charged we can use the attraction test. With the attraction test there are **two** ways to see an attraction: _____

_____

_____

But there is only one way that there will be a repulsion: _____

_____.

When an object is neutral it has an _____ number of positive and negative charges.
When an object has been charged, electrons have been transferred, so now there is an _____ number of positive and negative charges.

Draw a neutral ebonite rod

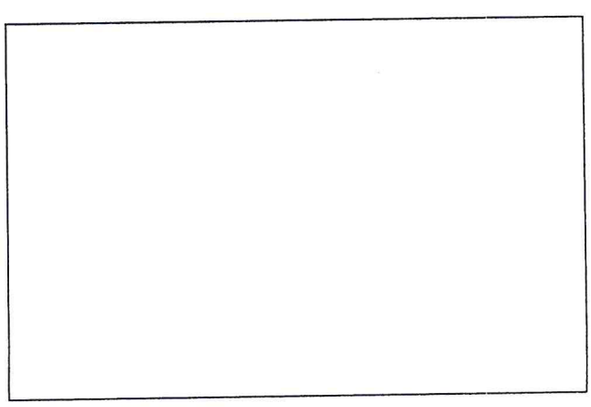
Draw an ebonite rod that has been charged by rubbing with a wool cloth

When a balloon is charged by rubbing it against your hair it becomes _____ charged.

Because the balloon is made out of a material that is a _____ the charge stays in one place. A charge that does not move is called a _____ charge. This way is an example of charging by _____.

Charges can also be transferred by contact. When a charge is transferred by contact, the charge transferred will be the _____ (same/opposite).

Draw a diagram to show the negative charge on a polyethylene strip being transferred to a pith-ball electroscope.



Sometimes a charge can "jump" from one object to another. When this happens we often see a _____. The charge always jumps from an area with a _____amount of negative charge to an area with a _____. amount of negative charge.

This can be dangerous because sometime there is heat created as the _____ moves through the air.

One potential danger is that when at a gas pump:

_____

_____

_____

_____

Draw a diagram to show the charge jumping from a negatively charged piece if metal (like a car) to your hand

For safety reasons we often want to remove built-up negative charges. The process of removing the negative charges to return the object to neutral is called _____. To remove the build-up of negative charges there are two main methods, explain how each works:

An electrical charge can also be created without the two objects coming into contact.

This is known as charging by _____. When a charge is created this way it is the _____ (same / opposite) of that on the object used to create the charge. If there is a ground attached to the object being charged, then a permanent charge can be created.

Draw a diagram to show a pith-ball electroscope being induced to have a positive charge.

Electric charges can also be built up on conductors. A conduct is a material that allows the _____ _____. This means that on a charged conductor the charge is _____ distributed over the surface of the object. As an example draw the charge on the Van de Graaff generator (label the parts and explain how it works):

Explanation:

Diagram: