

d. A positively charged pop can is touched by a person standing on the ground. The pop can subsequently becomes neutral. The pop can becomes neutral during this process because

- a. electrons pass from the pop can to the person (ground)
- b. electrons pass from the person (ground) to the pop can
- c. protons pass from the pop can to the person (ground)
- d. protons pass from the person (ground) to the pop can

10a. A neutral metal sphere, A, is brought close but does not touch a positively charged rod. Does the metal sphere become positively charged, negatively charged or neutral? Explain what happens using a diagram of what happens with the charges.



b. Metal spheres A and B are neutral and touching. A positive rod is brought close to but doesn't touch sphere A. Does sphere A become positive negative or neutral? Explain what happens using a diagram of what happens with the charges.



All (-) charges want to get close!

Induction

In the laboratory, a student was given the following substances :

1. ebonite
2. cotton
3. silk
4. glass

The student was told that when two substances from the above list are rubbed together, the one higher up in the list becomes negatively charged and the other becomes positively charged.

The student did the following :

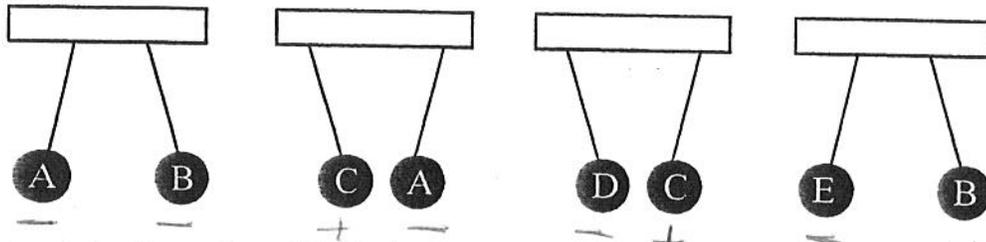
- Rubbed the ebonite and the silk together. (-) (+)
- Rubbed the glass and the cotton together. (+)
- Brought the cotton close to the ebonite. neutral (partial charge)
- Brought the cotton close to the silk. neutral (partial charge)

Which one of the following statements is TRUE?

- A) Ebonite and cotton repel each other; silk and cotton repel each other.
- B) Ebonite and cotton repel each other; silk and cotton attract each other.
- C) Ebonite and cotton attract each other; silk and cotton repel each other.
- D) Ebonite and cotton attract each other; silk and cotton attract each other.

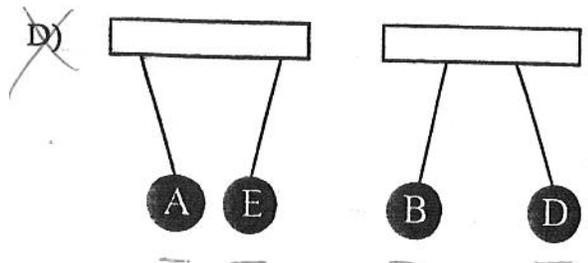
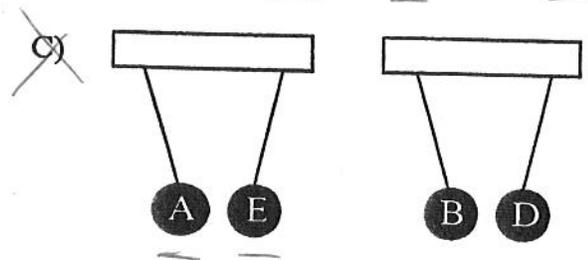
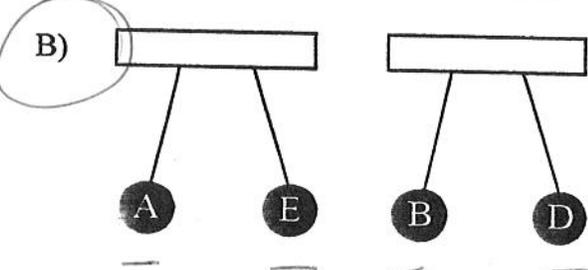
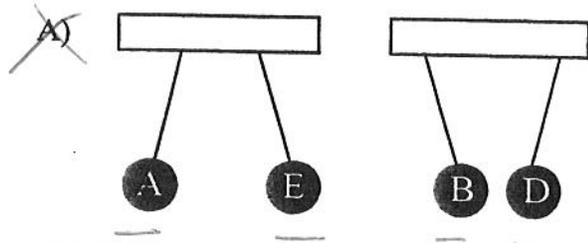
Five electrically charged spheres (A, B, C, D and E) are suspended from wires.

The following diagrams show what happens when these spheres are suspended in pairs close to one another.



A student suspended spheres A and E side by side as well as spheres B and D.

Which one of the following pairs of diagrams correctly shows what will happen to these spheres?



Name: _____

Science and Technology –Charging By Friction, Conduction, and Induction Worksheet

Multiply choice:

1. _____ are the **charged** parts of an atom.

A. Protons and electrons

C. Electrons and neutrons

B. Protons and neutrons

D. Electrons, protons, and neutrons

2. _____ are parts of the atom found **inside** the nucleus.

A. Protons and electrons

C. Electrons and neutrons

B. Protons and neutrons

D. Electrons, protons, and neutrons

3. An object is considered to be **neutral** when _____.

A. the object contains the same number of protons and neutrons

B. . the object contains only electrons.

C. . the object contains the same number of protons and electrons.

D. . the object contains only protons and neutrons.

4. In order for an object to become **positively** charged, _____ the object.

A. protons are added

C. protons are removed from

B. electrons are added

D. electrons are removed from

5. Substances in which charges have **difficulty moving** are called _____.

A. brittle

C. inelastic

B. insulators

D. Conductors

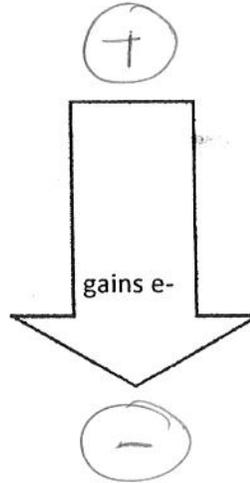
5. Given the following electrostatic series, complete the drawing of the objects after they have been rubbed together. Indicate the correct number of protons and electrons and indicate under each object whether it is overall positively charged or negatively charged or neutral.

*During rubbing, a total of 2 electrons are transferred.

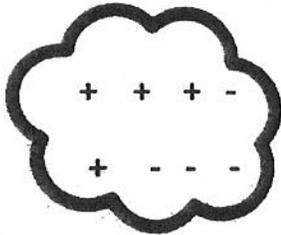
This is the reverse from our notes!

ELECTROSTATIC SERIES

- Fur
- Acetate
- Glass
- Wool
- Silk
- Cotton
- Vinyl
- Rubber

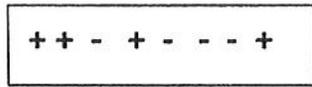


BEFORE RUBBING



Wool cloth

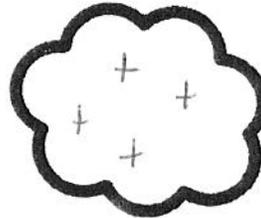
Neutral



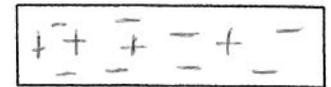
Vinyl ruler

Neutral

AFTER RUBBING



Wool cloth



Vinyl ruler

