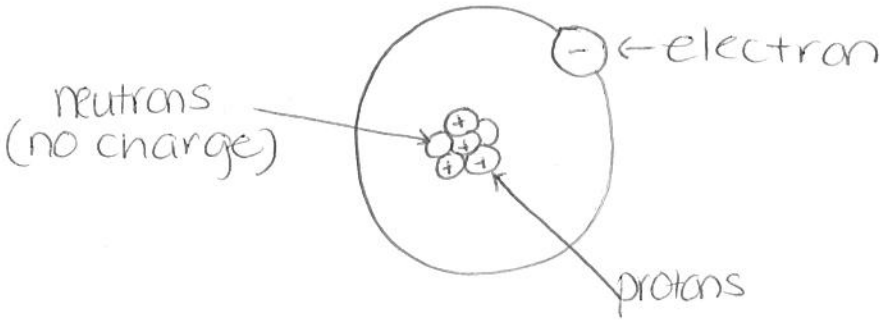
Name: _____

Science and Technology – Static Electricity Worksheet

1. Name the three ways neutral objects can become **charged.**

Friction Conduction Induction

2. **Draw** an atom. **Label** the nucleus and the 3 particles that make up the atom. Also, **state the charge** of each particle.



3.In order for an object to become **negatively** charged, _____ the object.

A. protons are added to

B. electrons are added to

C. protons are removed from

D. electrons are removed from

4. Two neutral objects are rubbed together. Electrons are transferred from object A to object B. This would cause object A to acquire a _____ charge and object B to acquire a _____ charge.

A. positive, positive

B. negative, negative

C. positive, neutral

D. positive, negative

E. negative, positive

9a. A neutral metal sphere is touched by a negatively charged metal rod. As a result, the sphere will be ____ and the metal rod will be ____. Select the two answers in their respective order.

a. positively charged, negatively charged

b. negatively charged, positively

c. neutral, positively

d. ... not enough information to tell

None of these make sense!

e.) negatively charge, negatively charged

b. A neutral metal sphere is touched by a negatively charged metal rod. During the process, electrons are transferred from the _____ to the _____ and the sphere acquires a _____ charge.

a. neutral sphere, charged rod, negative

b. neutral sphere, charged rod, positive

c. charged rod, neutral sphere, negative

d. charged rod, neutral sphere, positive

e. ... nonsense! None of these describe what occurs.

c. A neutral metal sphere is touched by a positively charged metal rod. During the process, protons are transferred from the _____ to the _____ and the sphere acquires a _____ charge.

a. charged rod, neutral sphere, negative

b. charged rod, neutral sphere, positive

c. neutral sphere, charged rod, negative

d. neutral sphere, charged rod, positive

e. ... nonsense! None of these describe what occurs.

Protons never leave!

6. Which object is considered **neutral**?

A. +-++++--+--

B. +-++++--+

C. +++++--+--

D. ---+++--+--

7. Two neutral objects are rubbed together. Electrons are transferred from object A to object B. This would cause object A to acquire a _____ charge and object B to acquire a _____ charge.

A. positive, positive

B. negative, negative

C. positive, neutral

D. positive, negative

E. negative, positive

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8. Material X has greater **electron affinity** than material Y. When two neutral samples of these materials are rubbed together _____.

A. X becomes negative and Y becomes positive.

B. X becomes negative and Y becomes negative

C. X becomes positive and Y becomes positive.

D. X becomes positive and Y becomes negative.

Don't do this one!

9. A rubber balloon is rubbed on a piece of fur. In the process, electrons are transferred from the fur to the balloon. As a result, the fur acquires a _____ charge.

A. negative

B. neutral

C. Positive

D. None of the above

10. Which atomic particle is negatively charged?

A. Positron

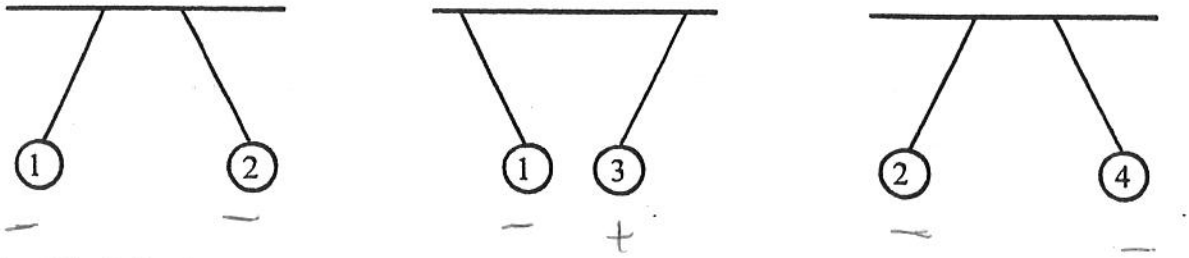
B. Electron

C. Neutron

D. Proton

A student was given four electrically charged spheres.

The following diagrams show what happened when these spheres were suspended in pairs close to each other.



Which of the following statements is true?

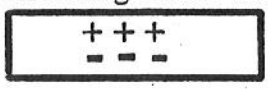
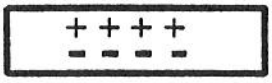
A) Spheres 1, 2, 3 and 4 have the same charge.

B) Spheres 1, 2 and 4 have the same charge.

C) Spheres 2, 3 and 4 have the same charge.

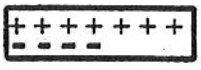
D) Spheres 1 and 3 have the same charge.

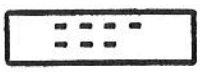
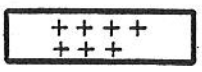
3

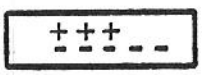
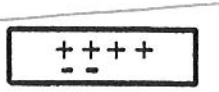
Silk and glass are two electrically neutral materials. Silk can be represented by  and glass by  .

After these materials are rubbed together, silk becomes negatively charged and glass becomes positively charged.

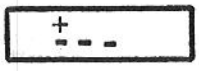
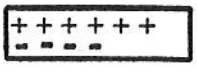
Which of the following models may represent silk and glass after these materials have been rubbed together?

A) silk  glass 

B) silk  glass 

C) silk  glass 

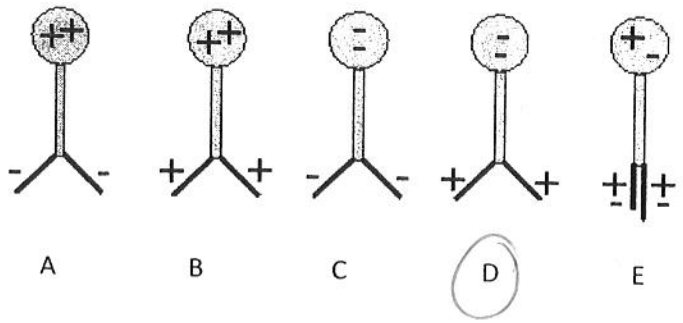
It can never lose its protons

D) silk  glass 

8. A positively charged rod is brought near but is not touching an uncharged electroscope.

Choose the photo that best describes what will happen.

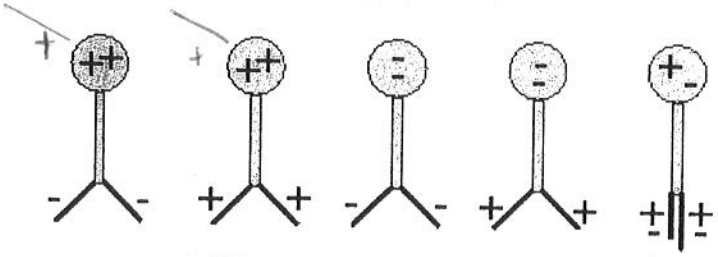
* Treat this as one atom!



A B C D E

b. A positively charged rod is brought into contact with a neutral electroscope.

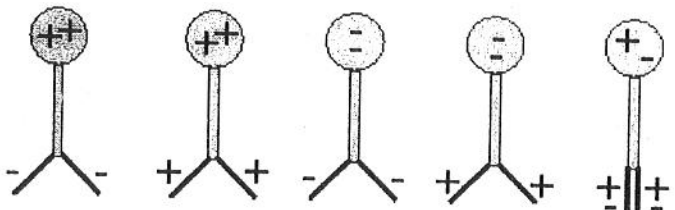
Choose the photo that best describes what will happen.



A B C D E

c. A negatively charged rod is brought near but is not touching an uncharged electroscope.

Choose the photo that best describes what will happen.



A B C D E

c. A metal sphere, A, is connected to a ground wire when a positively charged rod is brought close to it. While the rod is close to sphere A, the ground wire is cut. What now is the charge of sphere A when the rod is removed? Explain what happens with the charges using a diagram.