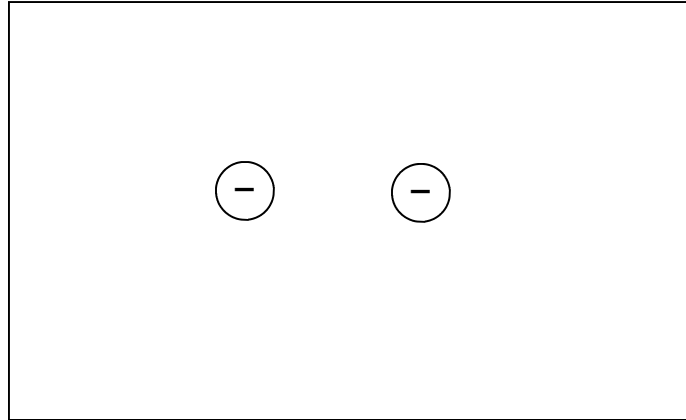
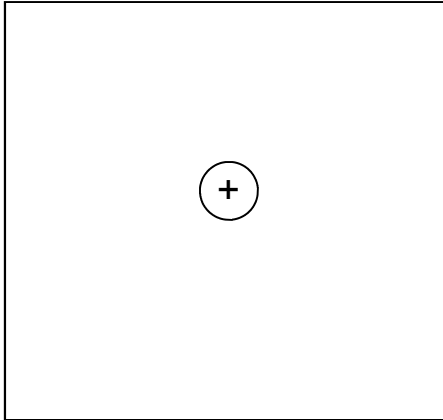


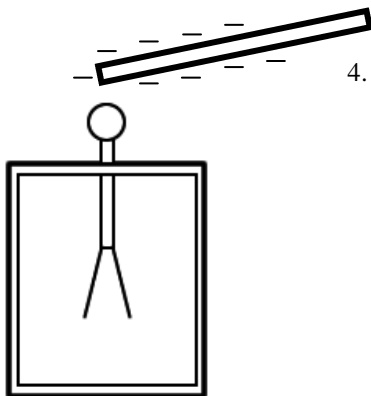
Use your "Electric Field" notes to answer the following:

- Label the two charges correctly.
 - Which point has a stronger electric field?
 - Why?
 - In which of the two points will a third charge feel the stronger force?
- Draw the electric fields for the following two examples.

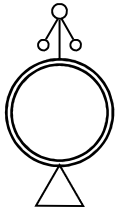


From our electrostatic demos. (Notes: "Separating Charge")

- A piece of plastic pipe was rubbed with a piece of fur.
 - Is the plastic positive or negative?
 - When the plastic is suspended and another charged piece of plastic is brought close, does the suspended plastic pipe move away or come towards the second pipe?
 - What will the suspended pipe do when the fur is brought close?
 - Then a piece of glass is rubbed with silk. Is the suspended plastic pipe attracted to or repelled by the glass rod?
 - So is the glass rod positive or negative?



- Electroscope questions: When a negatively charged rod is brought near the top of the electroscope, the leaves fly apart.
 - The ball, rod, and leaves are made of metal. Is it a conductor or insulator?
 - While the negative rod is near, is the ball positive or negative?
 - Why, exactly, do the leaves fly apart?
 - The electroscope is charged by _____.
 - If I rub the electroscope with the charged rod, the leaves stay out.
 - Why?
 - This is called charging by _____.
 - How do I get the leaves back together?
 - The electroscope is neutralized. The negative rod is brought back close to the electroscope. This time I put my finger on the electroscope. What happens?
 - Why?



5. A negative rod is rubbed against the top of the metal apparatus. The pith balls attached to the metal ball fly out.
 A. Draw what happens to the pith balls inside.
 B. What does this prove for us about safety and lightening?



6. A. Is a balloon a conductor or an insulator?
 B. If the left side of the balloon is rubbed with fur, does it become positive or negative?
 C. Can electrons move across the balloon?
 D. What is the charge of the right side of the balloon?

7. This time two balloons are rubbed with fur on all sides.
 A. What happens when the two balloons hang next to each other?

B. The balloons are charged by _____.



8. One of the charged balloons is then moved next to a stream of water coming out from a water faucet.
 A. What happens?

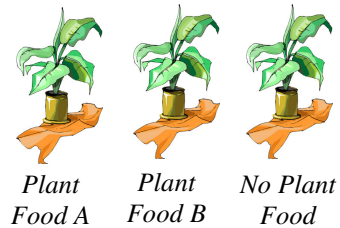
B. Why? (*Be sure to talk about the properties of water*)

9. An object has a charge of $+1.35\mu\text{C}$.
 A. Did the object gain or lose electrons?
 B. How many electrons were gained or lost?

Notes for "How to Setup Good Experiments" liked up on the website.

10. Control, Experimental, or Responsive Variable?
 A. ___ What you are studying in the experiment.
 B. ___ There are many of these in a good experiment.
 C. ___ What happens in the experiment.
 D. ___ There is only one of these in a good experiment.
 E. ___ What you record in an experiment.

11. Why do good experiments have control setups? (*Explain completely.*)



	Plant Food A	Plant Food B	No Plant Food
Start	10 cm	10.1 cm	9.8 cm
week 1	11.1 cm	12.2 cm	11.8 cm
week 2	12.7 cm	14.5 cm	13.2 cm

12. A) What is the control setup for this experiment?
 B) What is the experimental variable for this experiment?
 C) Give two possible control variables for this experiment.

D) Which plant food is better?

E) What does the "No plant food" setup tell you about plant food A?

13. A pharmaceutical company has developed a new acne drug. To get this new drug approved, they need to do scientific trials to prove effectiveness. What would be the control setup for this drug?

14. Which of the following statements could be supported by the scientific method and why?

- A) "Come to Willarby Auto Store—the best car dealership in town."
 B) "Try Dry-Toes Powder. A recent independent research company proved Dry-Toes Powder kept feet dry up to 30% longer than any other foot powder."
 C) "Acorn Powder helps you live longer and stronger. 89 year old Ethyl Krumke swears by Acorn Powder. 'I take my Acorn Powder every day, just like my mother!'"