PreAP: due Thurs., Jan 5 (Assigned: Tues., Jan 3)
Reg: due Fri., Jan 6 (Assigned: Wed., Jan 4)

Electricity 1

1. The most basic electric charge is given as *e*. A positive *e* is the charge of a _____ while a negative *e* is the charge of a _____.
2. What is electricity?
3. If an object has a positive charge that means it lost:
4. Can an object have any amount of charge (explain)?
5. In chemistry if an atom loses 2 electrons we say it has a charge of: _____; If gains 3 electrons: _____.
6. Give the basic particles of matter, their location, and charge:
7. An atom with 12 protons and 10 electrons: is it neutral or an ion? What element is it: _____. What charge does it have? ____
8. What do the protons in the nucleus of the atom want to do and why?
9. Why do they remain in the nucleus and what helps them stay there?
10. An object has a charge of -4.7 coulombs. Find how many electrons this is and were electrons gained or lost?
11. An object has a charge of 2.2 μC. Find how many electrons this is and were electrons gained or lost?
12. What would happen if the objects in problems #10 and 11 were put near each other? Attract or repel?
13. A 4 μC charge is 35 mm from a 3.4 μC charge. A) is the force attractive or repulsive? B) set up force equation (VEO).
14. Calculate the strength of the electric field 4 cm from a 4 μC charge.
15. Using the electric field from #14 find the force it would exert on a –6 μC charge at that point.
16. Give the difference between an insulator and a conductor, including an example of both.
17. After being rubbed together Object 1 has a charge of 3.4 C and Object 2 has a charge of –3.4 C.
    A. Will the objects attract or repel each other?
    B. Where did Object 2 get its charge from?
    C. Tell me what each object lost or gained:

    D. If the two objects touch what will happen?
18. Define ground (electrically):
19. If I move electrons on a conductor will they be able to move back?
20. So, why do I have to use two insulators to create static electricity on one of them?

21. Negative charges move to areas of _____ charge or to ones that are less _____.

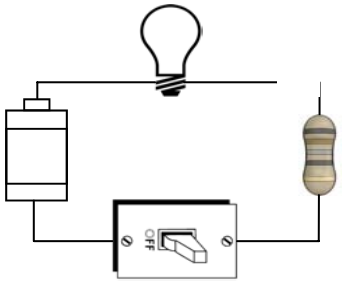
22. Why did the little metal leaves fly apart on the electroscope (inside the glass thing) and why does human hair fly outward when touching the Van de Graff machine?

23. Why did we stand on a insulating stool instead of on the floor when using the Van de Graff machine?

24. What do we call a force that does not have to be in contact with an object?

25. If air is an insulator, why is it that electricity can go through air as lightning?

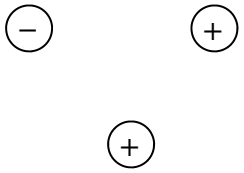
26. Will the light bulb be on or off and why?



27. If the distance between two charges decreases will the force increase or decrease?

28. A positive charge is touched to ground. What happens?

29. Using arrows show what forces the charges will feel.
(Put arrows outside for repulsion and inside for attraction and label with an R or A, just to make it clear.)



30. A charge feels two forces on it as shown below.
A) Graphically find the net force on the charge.
B) Why is F_1 smaller than F_2?