

## Chapter 10A & B

## Physical Science

Read pages 226 – 235 (blue book).

Read pages 205 – 214 (white book).

1. How strong is the electrostatic force compared to the force of gravity?
2. How many kinds of electrical charges are there?
3. Write the Law of Charges.
4. What would happen if you placed a positively-charged ball next to another positively-charged ball?
5. What would happen if you placed a negatively-charged ball next to a positively-charged ball?
6. What is the SI unit for measuring electrical charge?
7. Draw the electric field lines for the charged particles. Pay attention to direction and strength.

a.

b.

(+4)

(-2)

(+4)

(+4)

8. Indicate whether each material is a good electrical conductor, a good electrical insulator, or a semiconductor.
  - a. Copper
  - b. Glass
  - c. Germanium
  - d. Plastic
  - e. Silicon
  - f. Aluminum
9. Name two devices used to store electric charges.
10. Name two machines that use static electricity.

## **Chapter 10C, Assignment 1**

## **Physical Science**

Read pages 236 - 239.

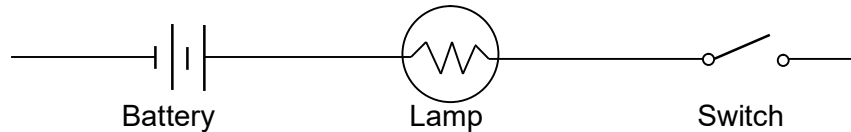
1. Describe the difference between static electricity and current electricity.
2. Do electrons flow from high potential to low potential or from low potential to high potential?
3. What is a point of low electrical potential called?
4. Compared to the flow of electrons, which way does conventional current flow?
5. What is direct current?
6. List four things that run off DC current.
7. How does a battery supply electrons for electricity?
8. What is the difference between a dry cell and a wet cell?
9. List one advantage of using batteries instead of a generator. List one disadvantage of using batteries instead of a generator.
10. What is a photovoltaic cell?

Read pages 239 - 243.

11. List the unit used to measure each of the following:
  - a. Potential difference
  - b. Current
  - c. Resistance
  - d. Power
  
12. Write the formula for Ohm's Law.
  
13. A flashlight uses one D 1.5-V battery. When it is turned on, the current in the circuit is 0.02-A. What is the resistance in the circuit?
  
14. A fan has a resistance of 22- $\Omega$  and it is connected to a 110-V power source. What is the current through the fan?
  
15. If you increase the resistance in a circuit, but keep the voltage the same, would the current increase, decrease or stay the same?
  
16. What does power measure?
  
17. Write the three DC Power Formulas.
  
18. A 60-  $\Omega$  bulb is used in a flashlight with a 6-V battery. How much power does it use?
  
19. The current through a 60-W light bulb is 0.5-A. How much voltage does it use?

Read pages 243 - 246.

Use these symbols to draw circuits.



1. Draw a diagram of a series circuit with three lamps.
2. If one lamp in your series circuit burned out, what would happen to the other two lamps?
3. Draw a diagram of a parallel circuit with three lamps.
4. If one lamp in your parallel circuit burned out, what would happen to the other two lamps?
5. Your series circuit and your parallel circuit both have three lamps. If the lamps and the voltage are all the same in both circuits, in which circuit will they burn brighter?
6. Why are short circuits dangerous?
7. What two devices are used in home, cars and appliances to prevent fires from short circuits?
8. What type of devices is now required for circuits in bedrooms? Explain why they are used there.
9. An electric circuit uses a 10 amp fuse. What happens to the metal strip in the fuse if the circuit exceeds 10 amps?
10. You find two fuses in a drawer. They aren't labeled, but you know that one is a 5 amp fuse and the other is a 25 amp fuse. Fuse A has a narrow strip of metal and Fuse B has a wider strip of metal. What is the amperage for each fuse?
11. What does GFCI stand for?
12. Why are GFCI devices used in bathrooms and kitchens?