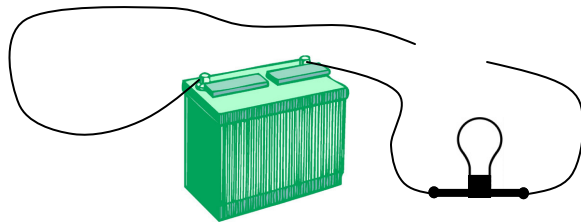
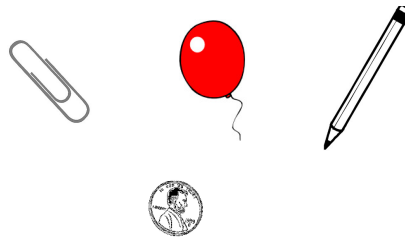


Quiz next time in class over the information on the first 3 homeworks, especially electric force and charge due to electrons.



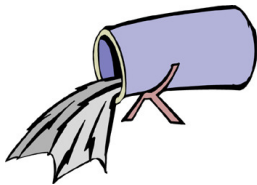
Car battery



1. A. Will the light bulb light up or not (as it is right now)?  
 B. Why or why not?  
 C. Is it an open or closed circuit?  
 D. Which of the objects would complete the circuit?  
 E. Will the light come on if you touch the two pieces of wire together?

*Electricity is like water. Voltage is the push from a pump. Current is how much water flows. Resistance is a restriction in the pipe (like kinking a water hose) or like a dam holding back water.*

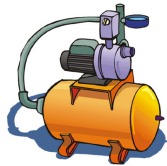
2. Imagine a large flexible bag filled with water. When would it give more voltage if you pushed on it with your hands or if you sat on it?
3. Which has more voltage: a water hose with a nozzle on it, or without?
4. Compare the slow moving Mississippi river and a fire hose.  
 A. Which one has more voltage (push)?  
 B. Which one has more current (water flowing)?
5. Which would have more resistance for water: a large water hose (big opening) or a small water hose?



M



N



O



P



Q



R

6. Use the pictures above to answer the following:

- A. \_\_\_ Which has more voltage, the water from the large bucket (M) or the hose (N)?
- B. \_\_\_ Which would fill a container first: M or N?
- C. \_\_\_ Which has more current: M or N?
- D. \_\_\_ Which would have more voltage: the air compressor (O) or the bike pump (P)?
- E. \_\_\_ If they were both hooked up to the same size hose, which would give more current: O or P?
- F. \_\_\_ Which has more resistance: Q or R?
- G. How could you get the same current thru Q as thru R?

7. How much voltage is necessary to push 4 A thru 6  $\Omega$ ?

8. 0.73 amps flow thru a 15 $\Omega$  resistor. How much voltage does the resistor use?

$$\text{Current (in amps [A])} \rightarrow I = \frac{V}{R}$$

$$\leftarrow \text{Voltage (in volts [V])}$$

$$\leftarrow \text{Resistance (in ohms [\Omega])}$$

*Current equals the voltage divided by the resistance.*

About the labs in class.

9. In Task I you were asked to learn how the number of batteries affects the brightness of a light bulb.
  - A. Experimental variable:
  - B. Control variables:
  - C. Manipulated variable:
  - D. Responsive variable:
  - E. x-axis variable:
  - F. y-axis variable:
  - G. What is your conclusion from the lab? Be sure to give evidence to support your conclusion.
  
10. In Task II you were asked to learn how the number of light bulbs affects the brightness of the light bulbs.
  - A. Experimental variable:
  - B. Control variables:
  - C. Manipulated variable:
  - D. Responsive variable:
  - E. x-axis variable:
  - F. y-axis variable:
  - G. What is your conclusion from the lab? Be sure to give evidence to support your conclusion.



**TAKS: Lab Safety—**

11. A. Give five of the six lab safety rules the person is following.
  - B. If the person had long hair what else should they do?
  - C. What should the person do to protect their feet?
  - D. If there is an emergency in the lab, who is the first person that should be told?

12. How should we smell a chemical in the lab (*use the correct word*)?

13. In the lab, where do we store very dangerous gases or substances that give off fumes?

14. You mix chemicals together in the lab. Why should you not put the extra chemicals back in the original container?

15. A. When diluting an acid, do we add acid to water or water to acid?  
 B. Why?

16. Give two rules for safety when cutting with a sharp instrument.

17. Corrosive (I) (caustic), combustible (II), or carcinogen (III)?

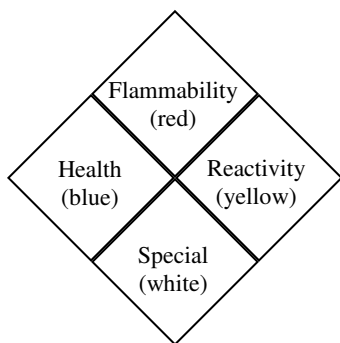
- A.  Flammable.
- B.  Eats away at something.
- C.  Causes cancer.
- D.  Would burn your skin if it touched you.
- E.  Wood or gasoline.
- F.  A strong acid or base if it touched your skin.

**Diluting Acids**

***Never add water to a concentrated acid!***

When acid compounds are dissolved in water, heat is produced (sometimes a lot of heat). Acids are more dense than water, so if you add water to a concentrated acid, water sits on top and can flash boil (quickly boil). The boiled water can splash up burning you with hot water and acid. If the acid is added to water it sinks thru the water and is diluted safely.

***Always add acids to water!***



Numbers on the safety diamonds range from 0 (safe) to 5 (most dangerous).

18. Give the number and color for the following:
- A. \_\_\_\_\_ Water is safe to drink.
  - B. \_\_\_\_\_ Gasoline burns very quickly.
  - C. \_\_\_\_\_ Sodium will react very quickly in water.
  - D. \_\_\_\_\_ Hydrochloric acid is poisonous.
19. What do we call the curved at the top of the liquid in #7 below?
20. Measure the liquid in #7 below.

21. Use the pictures below to answer the following. (Can be more than one.)

- |  |                               |
|--|-------------------------------|
| A. _____ Used to measure mass.                       | J. _____ A burette            |
| B. _____ Used to measure temperature.                | K. _____ A graduated cylinder |
| C. _____ Used to measure volume.                     | L. _____ Electronic scale     |
| D. _____ Used to add very small amounts of a liquid. | M. _____ Beam balance         |
| E. _____ Used to carry liquids.                      | N. _____ Thermometer          |
| F. _____ Very accurate for measuring liquids.        | O. _____ Scalpel              |
| G. _____ Used to make fine cuts in specimen.         | P. _____ Erlenmeyer Flask     |
| H. _____ Which is more precise 6 or 7?               | Q. _____ Beaker               |
| I. _____ Used to mix liquids by swirling.            |                               |

