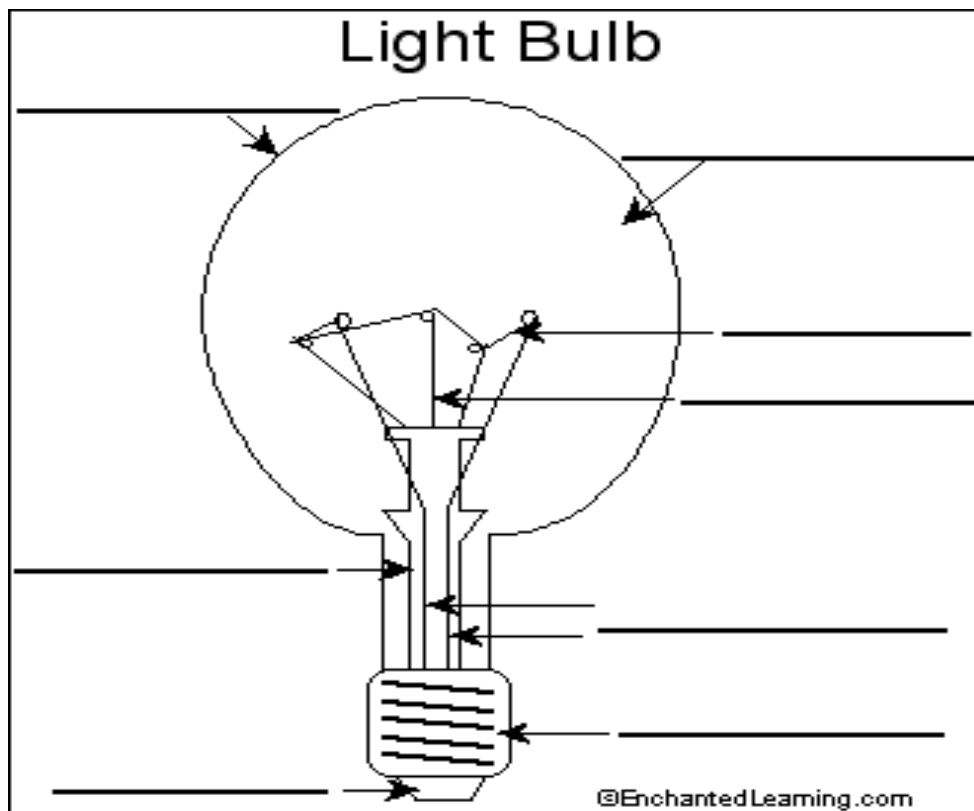


# Let there be LIGHT!

Have you ever wondered how light bulbs work? Go to the demonstration located behind the first base lawn section to find out and answer the following questions.

Refer to the Electricity Safety Rules to answer the following questions.

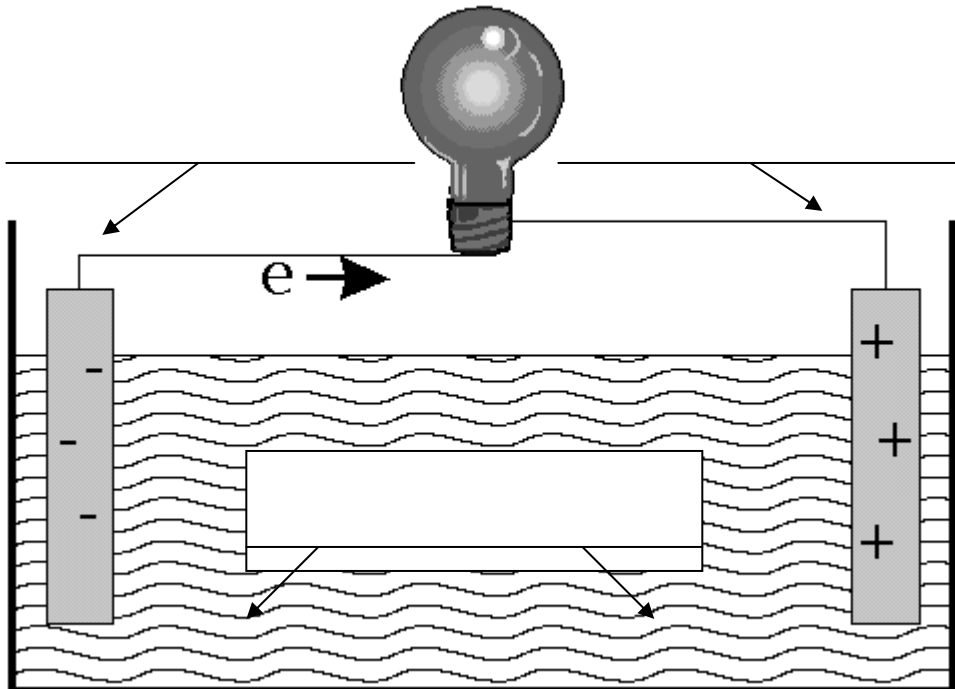
- 1) What should you do if something is marked "Danger", "High Voltage", or "Keep Out"?
- 2) While you are wet, you should not touch anything electrical. True or False
- 3) Which safety rule do you think is the most important? Why?
- 4) A household light bulb has a power of about 60 watts. How many watts do you think the stadium light bulbs are?
- 5) Label the parts of the light bulb.



# It's Electric!

Can fruit and vegetables be used to make batteries? Find out in the lawn section behind the Superior's Landing.

- 1) A battery is made up of \_\_\_\_\_ cells.
- 2) What is electricity?
- 3) 90% of all portable electronic devices require which four sizes of batteries?
- 4) Label the following cell:



<http://www.nlectc.org/txtfiles/batteryguide/images/ba-fig1.gif>

- 5) The fruit in our experimental food batteries acts as what part of a cell?

6) Fill in the following chart.

|                   | <b>Food</b> | <b>Current (in Volts)</b> |
|-------------------|-------------|---------------------------|
| <b>Fruits</b>     | Lemon       |                           |
|                   | Apple       |                           |
|                   | Banana      |                           |
| <b>Vegetables</b> | Potato      |                           |
|                   | Radish      |                           |
|                   | Carrot      |                           |

Independent Thinking: There are no right or wrong answers to the following questions.

7) Are fruits or vegetables better to use as batteries?

Why?

8) What characteristics do you think are better for the electrolytes for batteries?

9) Name some other fruits or vegetables that may be good to use in this experiment.

# Too High?

Does the angle a ball is hit affect the distance it goes? To find out, we are going to shoot off three balls at the same speed, but different angles. Go to the table behind the first base lawn section. Then answer the questions that follow.

| Angle<br>(in Degrees) | Trial #1<br>(in inches) | Trial #2<br>(in inches) | Trial #3<br>(in inches) | Avg. Distance<br>(in inches) |
|-----------------------|-------------------------|-------------------------|-------------------------|------------------------------|
| 30                    |                         |                         |                         |                              |
| 45                    |                         |                         |                         |                              |
| 60                    |                         |                         |                         |                              |

1) At which angle did the ball go the farthest?

Which Trial was it?

2) Which angle had the highest average distance?

3) Why do you think this is the case?

4) What other factors may contribute to the distance the ball goes when it is hit?

# It's Simple

What is a simple machine? Find out at the display behind the lawn area on the 1st base side.

1) Name the six types of simple machines.

2) For each of the following examples, name the type of simple machine it is:

a) Hammer: \_\_\_\_\_

b) Tent Stake: \_\_\_\_\_

c) Crane: \_\_\_\_\_

d) Bolt: \_\_\_\_\_

e) Flag Pole: \_\_\_\_\_

f) Ramp: \_\_\_\_\_

g) Light Bulb: \_\_\_\_\_

h) Baseball Bat: \_\_\_\_\_

i) Nail: \_\_\_\_\_

h) Bicycle Wheel: \_\_\_\_\_

3) Name at least one more example for each type of simple machine.