

## Prep Instructions

### Part I - Preparing the Electrodes

The following items will be required for the prep of this part of the activity:

- 120 V power cord
- pair of alligator clips
- wire strippers
- non-galvanized steel nails

#### Step 1

Using the wire strippers, cut the power cord so that the wire has a disconnected end and a plug end. Take the disconnected end and strip off 1/2 in. of the plastic coating from the ends of the wire (**Figure 1**). Attach alligator clips to each end of the wire, and connect the other end of each clip to a non-galvanized steel nail. These will serve as electrodes.

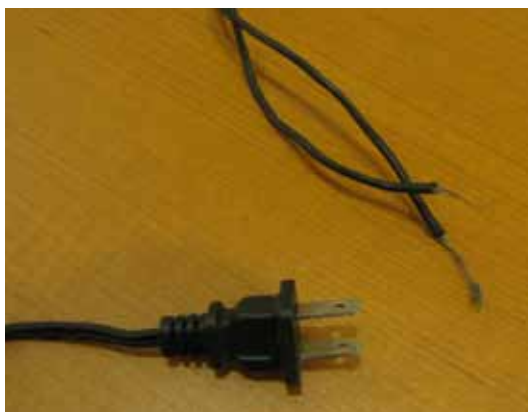
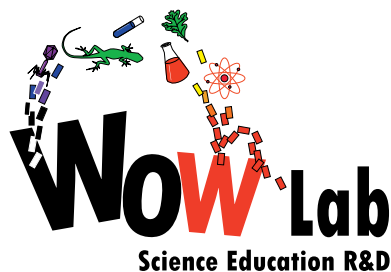


Figure 1

### Part II - Preparing the Solutions

If following Option B, this part will be performed by the students and should be considered part of the *Activity Instructions*. The following items will be required for the prep of this part of the activity:

- salts (sodium chloride, lithium chloride, etc.)
- glass or wooden stir sticks
- oven mitts
- hot plate
- scoopula
- balance precise to 0.1 g
- 500 mL beaker
- 2 beakers (100 mL) per halide
- 2 graduated cylinders (100 mL) per halide
- pens and tape or wax pencil



a WOW Lab

# BLUEPRINT

## Glowing Veggies - Prep Instructions

### Step 1

Determine the amount of each salt needed to obtain a 4 M solution using molar masses or see **Table 1** on page 3. 400 mL of solution will be needed for each salt.

### Step 2

Measure out the appropriate amount of salts using the balance. When handling salts, ensure appropriate safety equipment is worn. These salts are non-toxic, but they can stain.

### Step 3

Fill the 500 mL beaker with 400 mL of water and place it on the hot plate at medium heat under a fume hood. Ensure that the water does not boil.

### Step 4

Once the water has been brought to a warm temperature, add the salt to the 500 mL beaker. Stir occasionally. Note that the magnesium chloride and the lithium chloride will form small amounts of hydrous compounds and oxides in the water while they dissolve; the mixture may hiss and give off steam.

### Step 5

Once the salt is completely dissolved, remove the beaker from the hot plate with the oven mitts and evenly distribute the solution into the two small beakers and the two graduated cylinders. Note that the addition of the salts will bring the total volume of the fluid to just over 400 mL.

### Step 6

Label each graduated cylinder and small beaker with either a wax pencil or tape and pen indicating which salt is in each solution.

### Step 7

Wash the large beaker and repeat Steps 2-6 with each halide.

### Step 8

Once all the small beakers and graduated cylinders are filled with solution, place them aside in a fume hood.

Table 1: Quantities of Halides required					
Halide	Molar Mass (g/mol)	Desired Volume of Solution (L)	Molarity of Solution (mol/L)	Amount of Halide required (moles)	Amount of Halide required (g)
<i>Sodium Chloride</i>	58.4	0.4	4	1.6	93.4
<i>Lithium Chloride</i>	42.4	0.4	4	1.6	67.8
<i>Magnesium Chloride</i>	95.2	0.4	4	1.6	152.3
<i>Potassium Chloride</i>	74.5	0.4	4	1.6	119.2
<i>Copper (II) Chloride</i>	170.5	0.4	4	1.6	272.8

## Part III - Preparing the Vegetables

The following items will be required for the prep of this part of the activity:

- solutions from Part II
- small potatoes
- small cucumbers

### Step 1

Remove the skin from each cucumber and potato, and chop them lengthwise so that they will easily slide into the graduated cylinder.

### Step 2

Place the vegetables in the solutions and allow them to sit for a minimum of 24 hours in a fume hood. The vegetables generally glow better the longer they are left to soak, but they will start to grow mould after three or four days. The absorption is helped by heat so do not refrigerate the vegetables.