**Procedure for making a Dye-Sensitized Solar Cell**

1. Prepare the dye by placing 1 blackberry in a plastic bag. Gently crush the berry by squeezing the outside of the bag. Add a small squirt of water to make the dye a little juicier.
2. Take the white TiO2 coated glass and place it into the blackberry juice in the bag for ~5 minutes. Be sure that the glass is completely covered. The white TiO2 paste should turn dark purple.
3. While you wait, take the blank piece of glass and use a multimeter to find the conductive side. Set your multimeter dial to the 200 Ω setting (dial pointing straight down). Press both metal multimeter probes onto the surface of the glass, careful for the metal points not to touch. If the measurement reads 1 still, flip the glass over and test again. If the measurement is about 30, that is the conductive side.
4. Use a pencil to coat the conductive side of the blank glass with graphite (pencil lead). Set it aside with the pencil facing up.
5. Use the tweezers to remove the TiO2 coated glass from the bag of juice. Careful not to scratch it! Hold the glass over the beaker and rinse the blackberry pieces off of it with the waterbottle. Place the wet glass onto the paper towel and gently dab it dry (DO NOT wipe or all the TiO2 paste will come off!).
6. Place the TiO2 coated side of the glass directly on top of the pencil-coated glass like a sandwich (the good stuff is facing the middle). Line up the edge of the purple coating with the edge of the pencil-coated glass so that there is a strip of glass overhanging each side. Look at the picture below for help.
7. Attach the two pieces of glass together using 2 binder clips. The binder clips go on the edges that are not offset. (Look at the picture below for help).
8. Carefully add the brown iodide/triiodide (I-/I3-) electrolyte solution with a pipette to the seam of the glass on each side. The solution will be pulled toward the middle and the space between the glass should turn slightly yellow and be entirely wetted by the solution.
9. To test your solar cell, clip one end of an alligator clip to each piece of overhanging glass and the other end to the multimeter probe. Set the multimeter to 2000m to test voltage and 2000μ to test current.



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| **Measurement** | **Value** |
| *Voltage (in mV)* |  |
| *Current (in μA*) |  |

Power = Voltage x Current

DSSC Power = (\_\_\_\_\_\_\_\_\_ mV) x (\_\_\_\_\_\_\_\_\_ μA) x 10-9 Watts

DSSC power = \_\_\_\_\_\_\_\_\_\_\_\_\_\_ nanoWatts