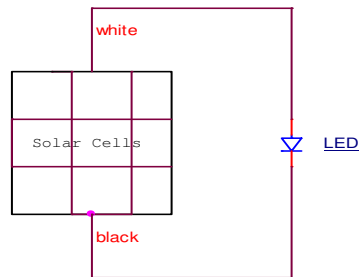


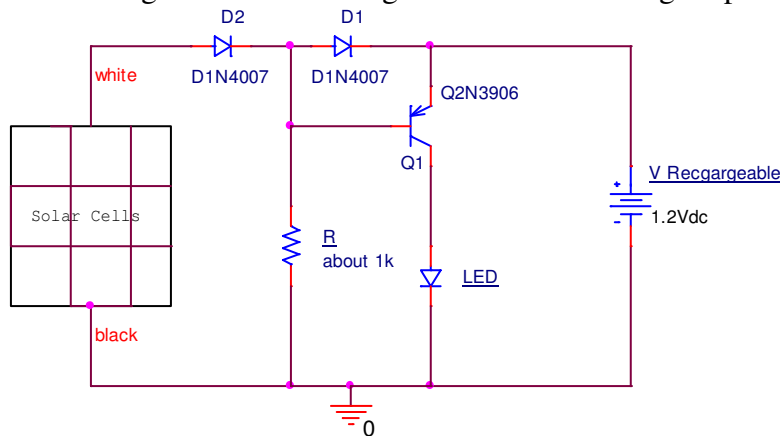
Solar Cell Night Light Week 6b Experiment Spring 2015

Available are 8 assembled solar cells from outdoor night lights. But only three dismantled solar cells, two of which are operational. The night lights charge the AAA rechargeable batteries during the presence of light and then using a transistor switch turn on their LEDs when only dim light is present. The circuit in the assembled night light is more complicated but the simple one supplied in class should work.

1. Observe the operation by shining light on the assembled system and then place your hand over the solar cell.
2. Take apart the assembled system to observe what it comprises (though don't disconnect any device).
3. Use the two separate solar cells on a breadboard and vary the amount of light. Measure voltage out of the solar cells.
4. Connect an LED across the solar cells on a breadboard and see how much light is needed to light the LED. If the sun is shining you may wish to take it out to the sunlight.



5. Design and construct the transistor switch circuit, below, for charging a battery with one or two solar cells. The design should be such that with light the battery should charge while without light the LED should light up.



6. Set up Spice to check your design. For that search the web for models for the battery, the solar cell, and the LED.