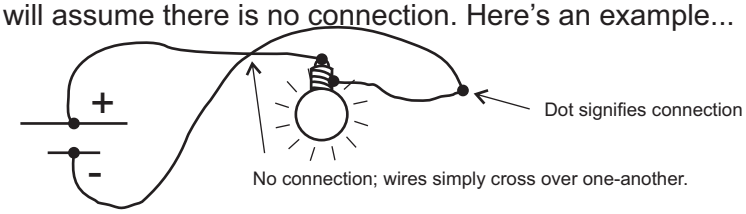
Bonus Problem: Build a "3-Way Switch." You are supplied with plenty of wire, a power source, two switches (as shown), two light bulbs, and some wire cutters. Pay close attention to how the switches work. Each switch is simply one stationary segment of wire that is attached to another segment that can rotate up or down. Show how you would meet the following requirements:

1) If one light bulb is removed, the other stays on;
2) You can control the condition of the lights using either switch. If they're off, flipping either switch turns them both on. If they're on, flipping either switch turns them both off. [*This is what a 3-way switch does.*]
3) Keep all of your wires outside the room (the box with the person). They can go above (ceiling), below (floor), or to the side (walls) of the room.

***For clarity, please add a dot to the end of each wire to signify junctions or possible junctions. This is a 2-D representation of reality, so you may need to draw some wires crossing one another. As long as there is not a dot where they cross, I will assume there is no connection. Here's an example...

Example



Materials: