IEEE's Hands on Practical Electronics (HOPE)

Week 1: Course Introduction, Safety, Soldering, Terminology

Objective:

Today you will be learning how to solder.

Safety:

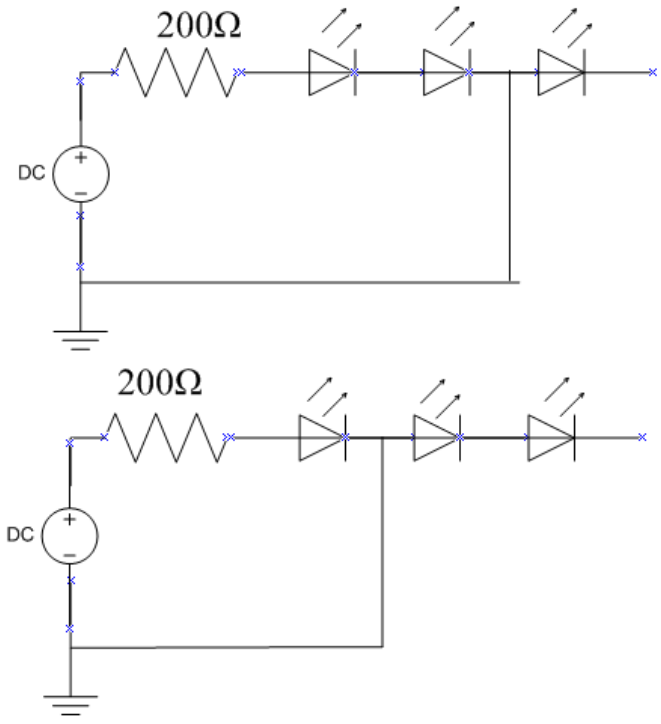
If you are using soldering irons that actually get hot, be careful not to burn yourself.

Directions:

1 board, approximately 2 in. by 2 in.
1 9V Battery
1 Battery Lead
1 200 Ω Resistor
3 LEDs

DO NOT SOLDER THE BATTERY
Choose one side as the top
Insert the components from the top so all the leads stick out from the bottom
Solder together the resistors and LEDs. Cut off any extra leads to make it cleaner.
Put the ends of the battery lead to the circuit manually (DO NOT SOLDER THEM)
Write your name on the circuit. We will use it for lab 2.

Complete this circuit:



Questions:

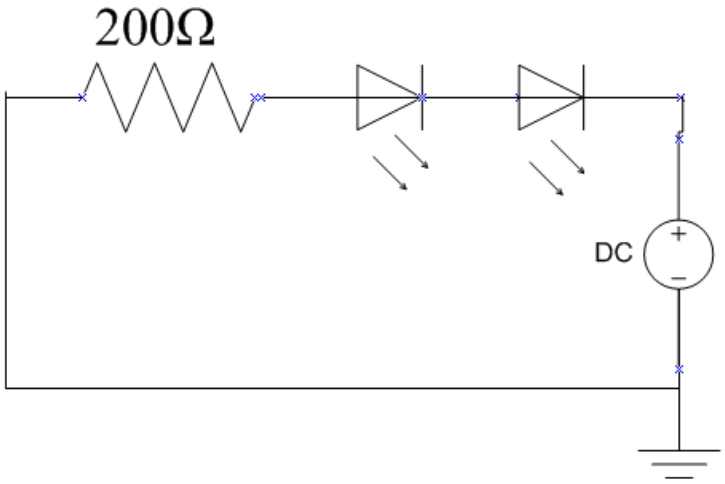
Why do LEDs not connected in a loop with the battery not emit any light?

Do you notice a difference in brightness of the LEDs as you connect more of them in series (in a line)?

How many LEDs can you add before none of them emit light? Why do you think this occurs?

Part 2:

Attach the battery to your circuit according to the following diagram.
What is different from Part 1?



Do the LEDs turn on?

Can you give a reason for this effect? (Hint: Think back to the warning on connecting LEDs)