To build circuits, we'll use a solderless breadboard, also referred to as a protoboard. The holes in the protoboard are internally connected in a systematic manner, as shown in Figure 8.1. The long rows of holes along the outer sides of the protoboard are electrically connected. Some protoboards like the one in Figure 8.1 have four long rows (two on each side), while others have just two long rows (one on each side). We refer to the long rows as power buses. If your protoboard has only two long rows (one on each side, we will connect one row to +3.3V and another row to ground. If your protoboard has two long rows on each side, then two rows will be ground, one row will be +3.3V. Use a black marker and label the voltage on each row. In the middle of the protoboard, you'll find two groups of holes placed in a 0.1 inch grid. Each adjacent row of five holes is electrically connected. We usually insert components into these holes. If integrated circuits (IC) are to be placed on the protoboard, it is done such that the two rows of pins straddle the center valley.

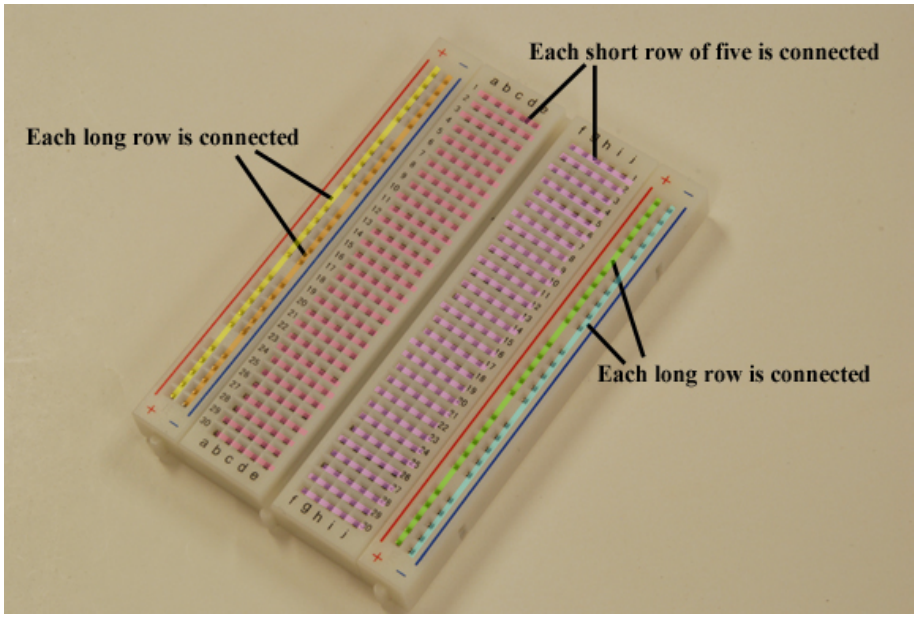

Figure 8.1. The holes on each of the four long rows are connected. The 5 holes in each short row are connected. Place a +3.3V wire to one long row. Place a ground wire from the LaunchPad to another long row.