

Appendix X. Pasco Breadboard

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We will use *Pasco* circuit boards in several experiments. You should examine the board carefully and understand how to connect resistors and other components to the board and its battery. The board includes 8 pads, each with two electrically-joined spring connectors mounted at right angles to each other.

Figure 1 illustrates four of these pads with resistors R_1 , R_2 and R_3 mounted in the springs. The tops of R_1 and R_2 are electrically connected to each other and to the left side of R_3 . Likewise the bottoms of R_1 and R_2 are connected to each other. Wire a is connected to the bottom of R_1 and R_2 while wire b is connected to the right side of R_3 .

This circuit has R_1 and R_2 connected *in parallel* and the combination is *in series* with R_3 . Figure 2 is a diagram of the same circuit with wires b and a connected to the positive and negative terminals of a battery respectively.

Pushbutton switches have been installed on both sides of the Pasco board, between the rows of pads. When pressed, these switches will make an electrical contact between the pad directly above and directly below the switch. This connection is only made while the button is held down;

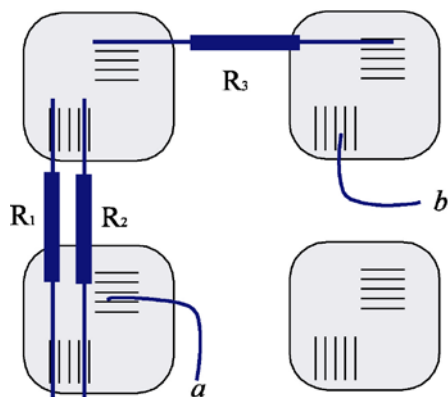


Figure 1: Pasco Board pads.

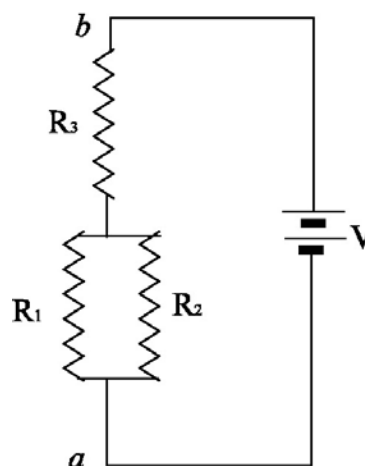


Figure 2: Diagram of circuit in Fig. 1.

when released, the connection is lost. Note the battery connectors on the board, indicated by the cell symbols. For some experiments, we may wish to connect the two cells in series to form a 3 V battery. Figure 3 shows such a connection with the two cells in series providing a potential difference across a resistor chain.

To conserve the batteries, disconnect one lead (*for example, lead a in Figure 3*) from your circuit when you are not making measurements.

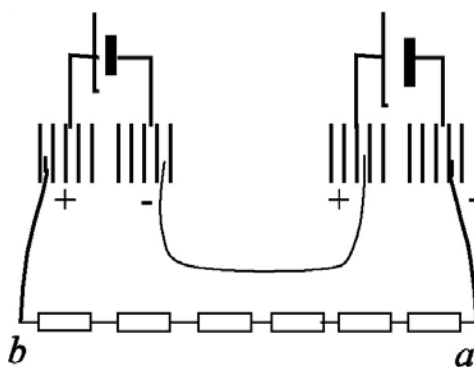


Figure 3: Two batteries connected in series with a resistor chain.

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