

## CONNECTING A CIRCUIT

On a breadboard there are many tiny holes. Each hole will hold a wire or component lead. The board is divided into four sections; two sets of two rows and two sets of five rows. The five rows in each vertical group are connected together (top to bottom), while each horizontal group at both ends is connected together (side by side) as shown in Figure 1.

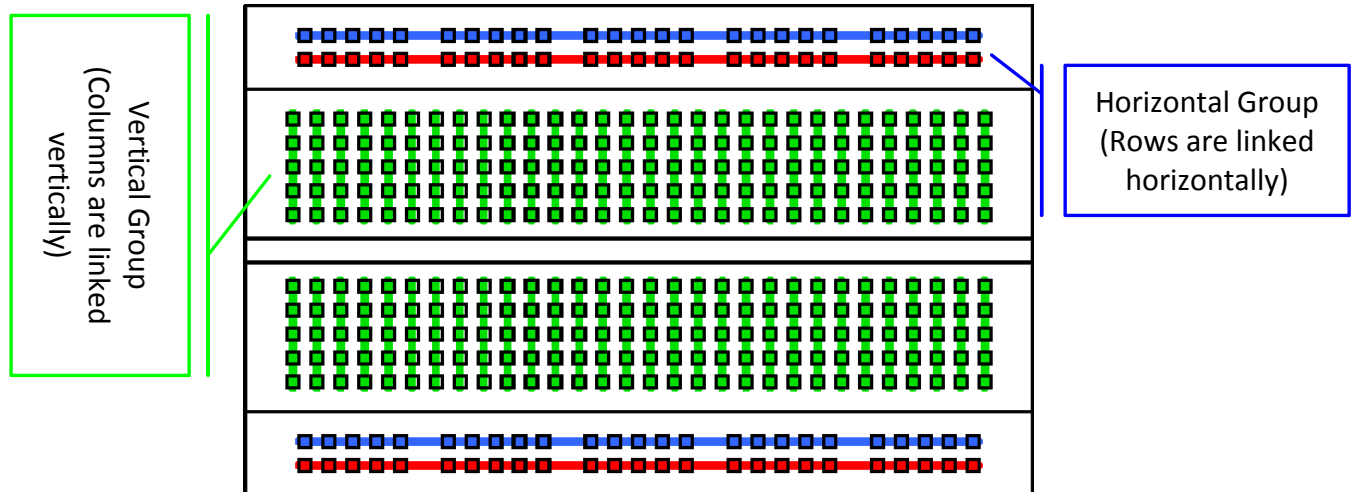


FIGURE 1 SECTIONS IN A BREADBOARD

There are two color Lines that represent the two sets of two rows at opposite ends of the board (as shown in Figure 1). The **Blue** lines are for the **GND (-)** connection and the **Red** lines are for the **Voltage (+)** connection. Rows A-E represent the first section of five rows, while rows F-G represent the second section (*These rows are not connected together horizontally*). The numbers on the board represent the columns. *Each end of the components that are being connected together must be placed in the same.*

When inserting components, bend both ends of the protruding wire on the component and gently push them into the hole. The components can be placed either in the same row (e.g., 10b and 15b) or in different columns, with each end across the groove in the center of the board (e.g., 5c and 5g) as shown in Figure 2.

## How to Connect a Circuit on a Breadboard

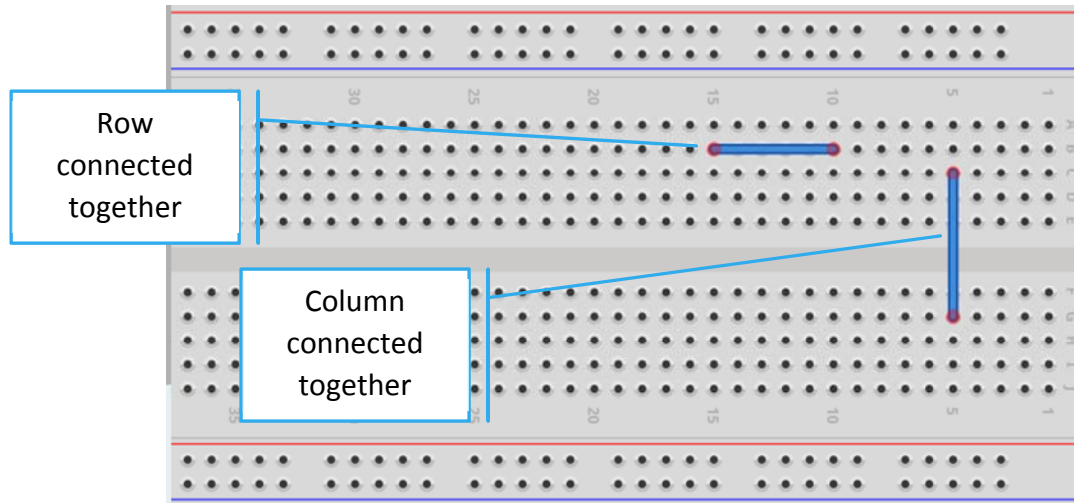


FIGURE 2 CONNECTING ROW AND COLUMNS

One of the ways you can place components on the breadboard is in series. Figure 3 is an example of how to place components in series.

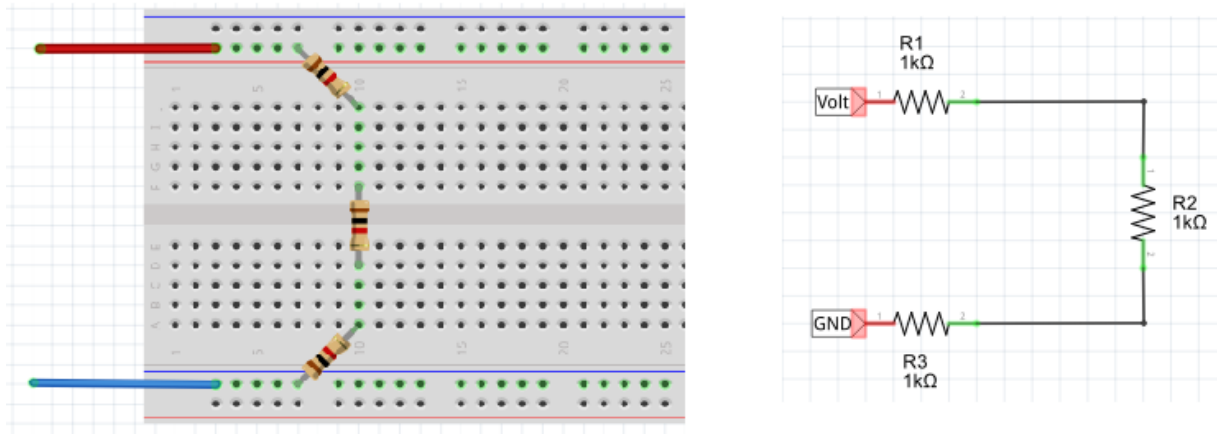


FIGURE 3 CONNECTING COMPONENTS IN SERIES

Components can be also connected in parallel. Here in Figure 4, two resistors are connected in parallel.

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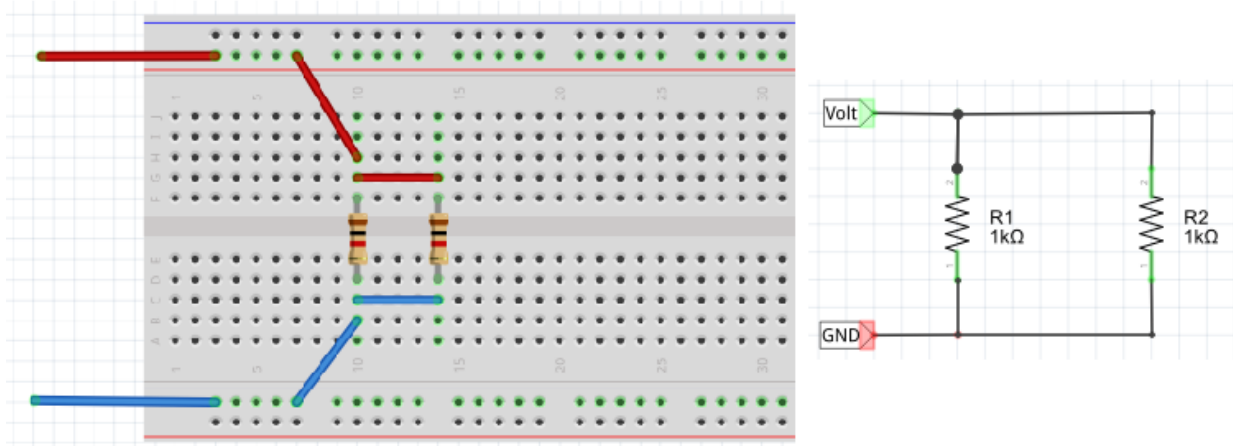


FIGURE 4 CONNECTING COMPONENTS IN PARALLEL