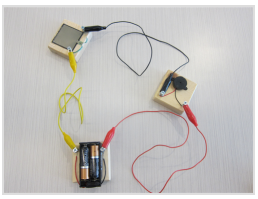
BBB Workshop: Circuit Tiles and Switches



In this project you will learn about circuits and learn how to use circuits to test different switches.

Tags: Circuits

Grades: 4 to 9 **|** **Duration**: Up To 1 Hour

Supplies: Circuit Tiles, Double sided alligator clips, Aluminum Foil, Cardboard, Copied Book Pages

Step #1: Create Circuit Tiles in steps 1-4

Experimenting with batteries, bulbs, buzzers, switches and other electrical components is a great way to learn about circuits and start to think about how to incorporate sounds into your Build a Better Book project.

Steps 1-4 of this Project will guide you though the process of making your own circuit tiles. This step is not necessary but if you want to create circuit tiles, these steps will help. You can also download the attached PDF from the Tinkereing Studio at the Exploratorium for a detailed guide on how to make these Circuit Tiles.

The first step is to make the tiles. The tiles we made are approximately 2.5 inches square with two conductive screws drilled into two of the corners.

Attachments: circuit_boards.pdf

Step #2: Assemble your electrical components

Circuit components come in a variety of shapes and sizes. Some general categories of components that you will want are as follows:

- Power - you may need a variety of power sources (solar, AA, AAA, 9V...) depending on the other circuit components you are using and their power needs.
- Siwtches - buttons, knife switches,
- Inputs - light sensors, pressusre sensors...
- Outputs - Buzzers, lights, motors, fans...

Step #3: Attach electrical components to the tiles

Using hot glue, nails, or screws, attach your electrical components to the wodden tiles. Use wire to attach the leads of the component to the screws that are attached to the tile. Solder the leads to the base of the screw.

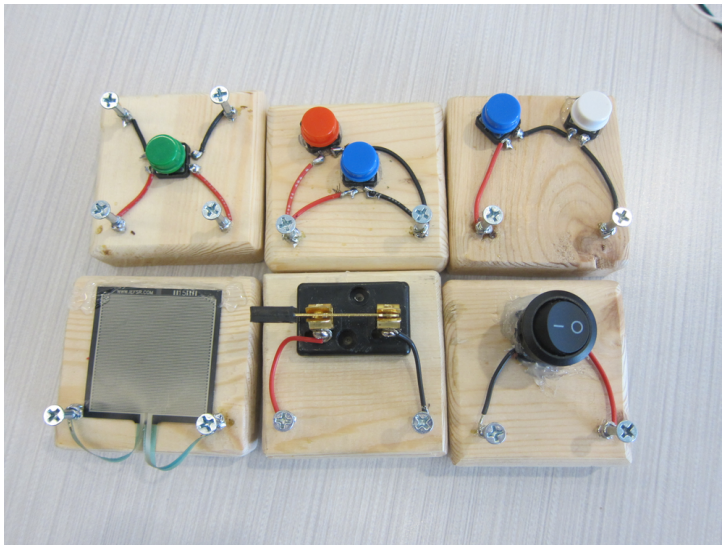
Instructor Tip:

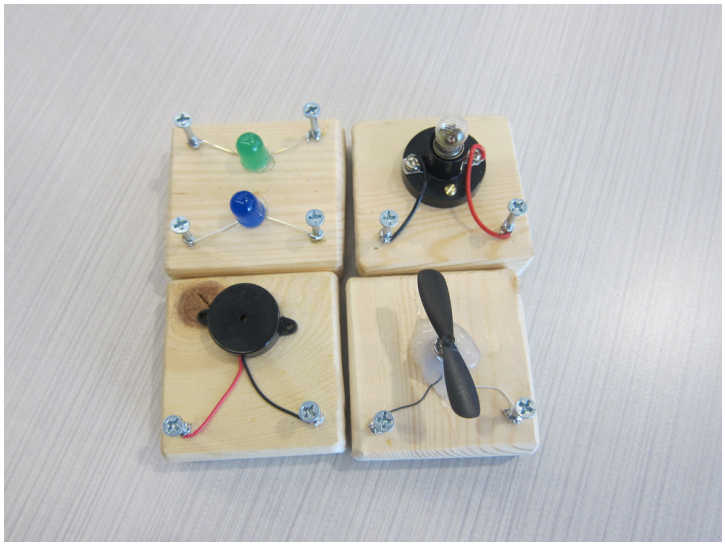
Keep a few extra wood blocks on hand to use for new or unusual components.

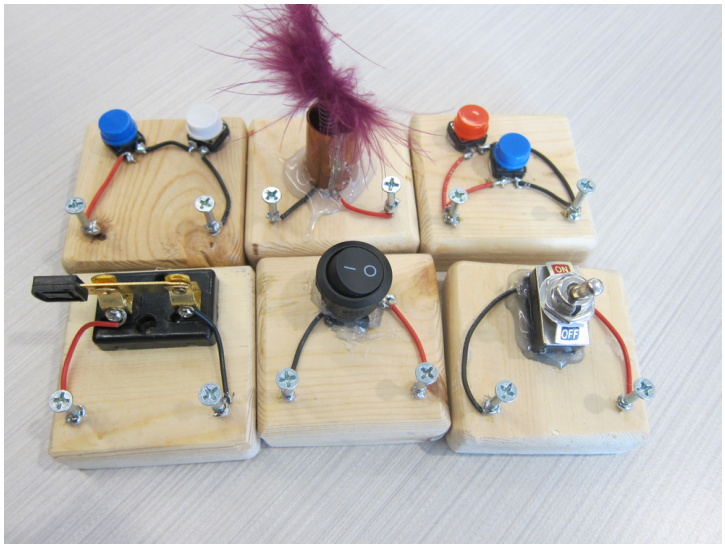
Keep a wire tester handy to see if a wire is broken and a battery tester can also come in handy to identify dead batteries.

Step #4: Complete your Circuit Tiles

Attach all your electrical components to your Tiles and start creating circuits.

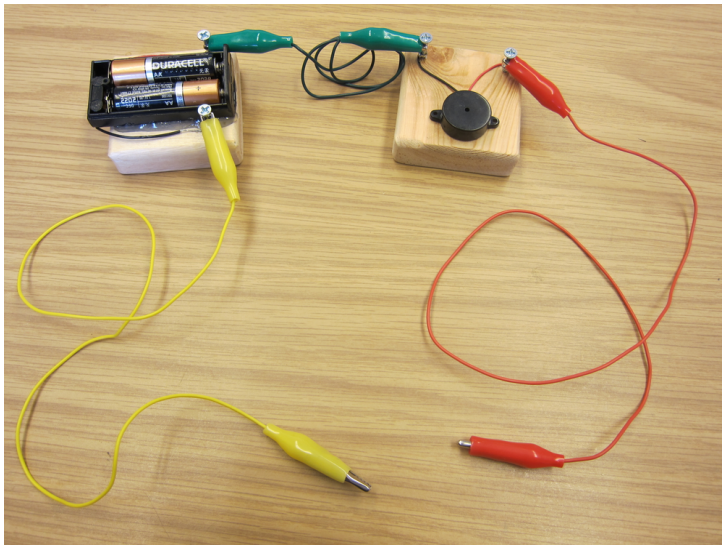


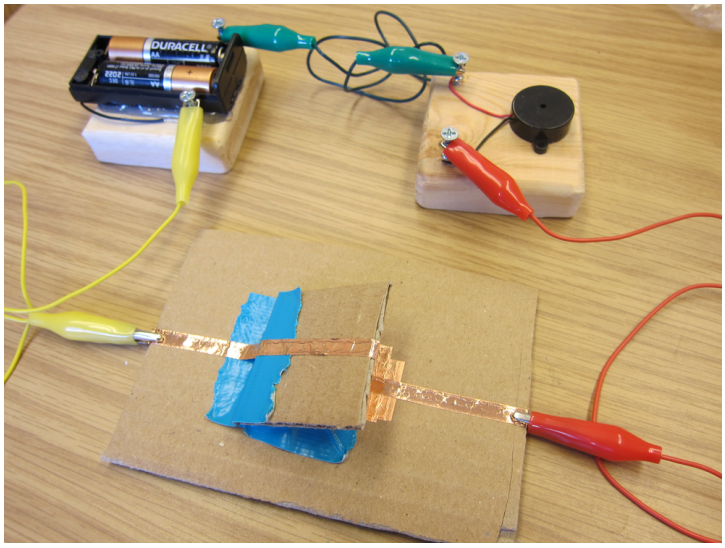


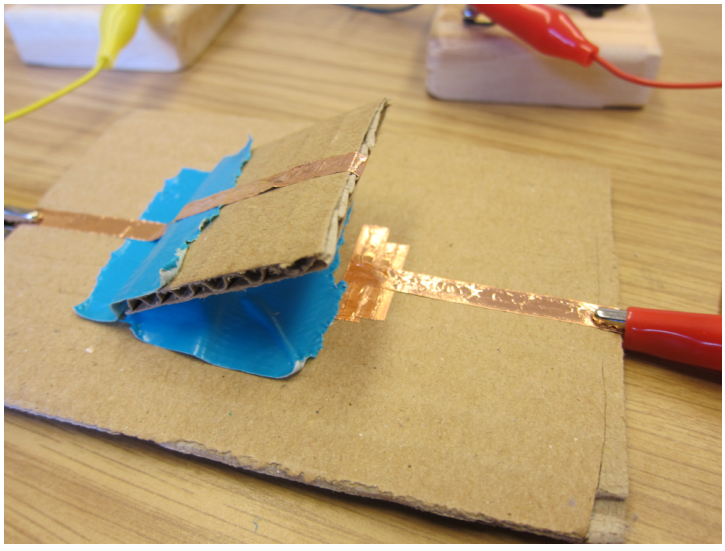


Step #5: Set up a simple circuit to test your switches

After you have played with circuits you can start creating your own switches to use in your Build a Better Book project.







Step #6: Ideas for Switches

Get creative with paper, cardboard and copper tape (or tin foil). Make and test different switches.