Electricity And Coding With Tinkercad

Build virtual circuits

Code simulated microcontrollers

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Electronics and coding for science

TinkerCAD is a free online service for creating basic 3D shapes and developing digital prototypes of electronic components. These prototypes include basic circuits with LED lights, buzzers, switches, and even light sensors.

These prototypes can include a microprocessor as part of the design. Microprocessors are the simplest form of computer that can be programmed. They can be programmed to manipulate electronic components like LED lights and buzzers. Microprocessors can be programmed to gather information from senosors and interpret that information. They are used in a variety of devices all around us. They are in microwaves, refrigerators, cars, computers and many other electronic devices.

The process used in TinkerCAD is often used for rapid prototyping. Prototyping is a process where we can develop components in a flexible manner than can be quickly updated and modified to test a variety of options when developing a project or product. We will use this process of prototyping to learn how to create basic electronic circuits.

Go over to https://tinkercad.com and create a free account. Tinkercad integrates with Social Media services like Facebook. It also Integrates with services like Microsoft and Google. Students can use their district accounts to log into Tinkercad if your
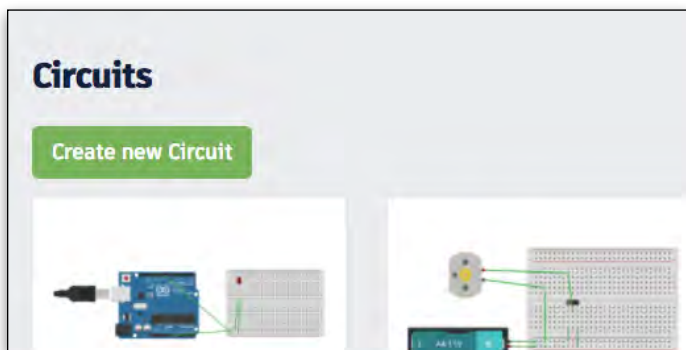
district uses active directory accounts with Google or Microsoft.
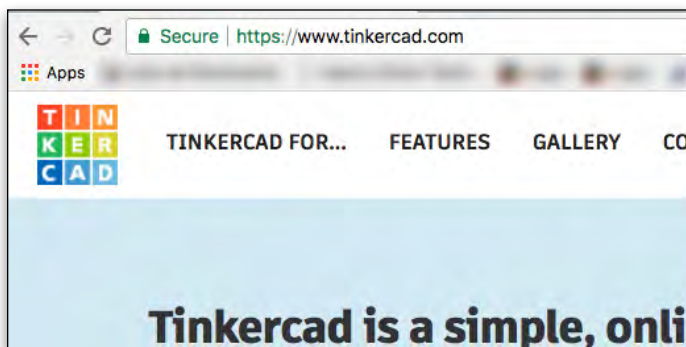
Go to the left side of the page after logging in and click the circuits menu option.
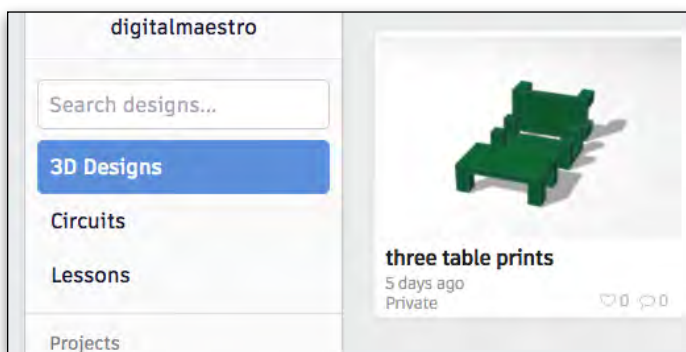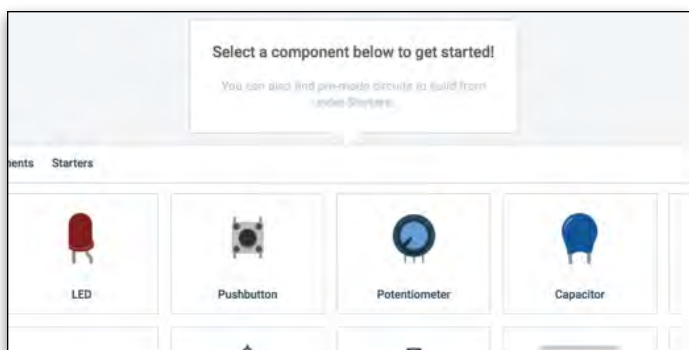

Click the create button to build a new circuit.

A circuit project is created and opened. A circuit project includes a variety of electronic components. Electronic components include LEDs, buttons, resistors, and a power source. The components we can use are displayed in a panel at the bottom of the page.


Components are commonly assembled using a Breadboard. A Breadboard is a piece of plastic that has several holes. These holes are used to hold different components. Find the Breadboard component and click on it once.
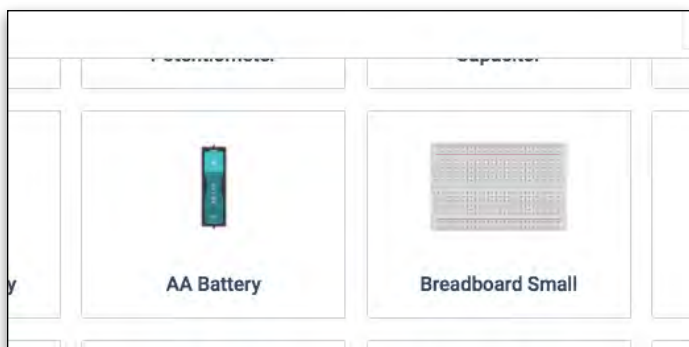

The Breadboard will be selected and temporarily attached to the mouse pointer. Move the mouse pointer onto the workspace and click the mouse button to place the Breadboard onto the workspace.
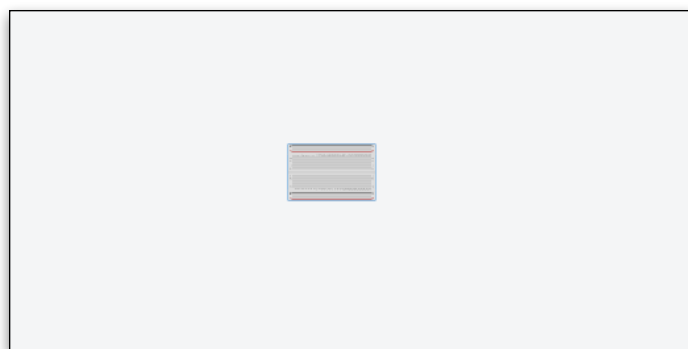

The Breadboard might appear too small or too large in the work area. Click on the zoom to fit button so the Breadboard is centered and fills the work area.
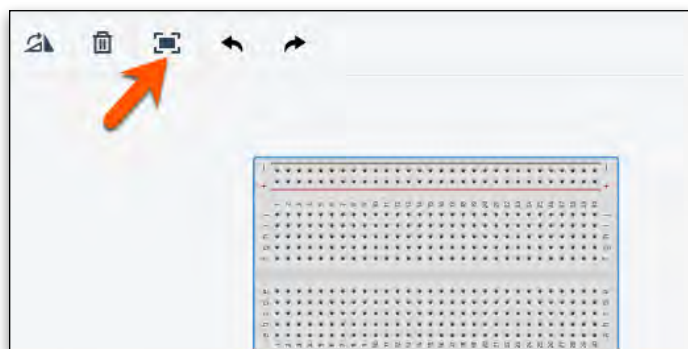
The Breadboard has a grid of thirty by ten holes in the main area. The rows are numbered 1 to 30 and the columns are labeled with the letters A through J. The columns A through E are separated from columns F through J by a piece of plastic.
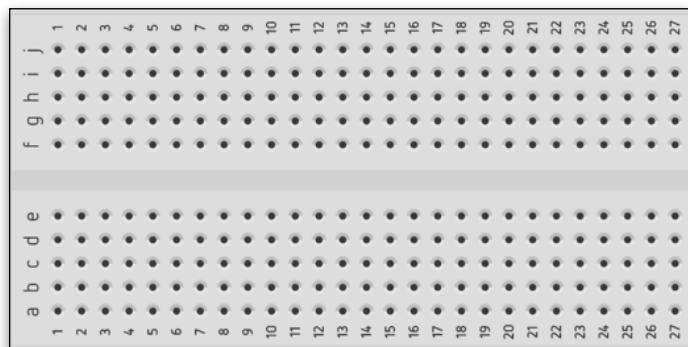
The edges of the board contain two columns with the same number of rows. These columns have negative and positive symbols. These columns and holes are used for the power supply. The components in the center part of the board will tap into these columns to draw electric current.
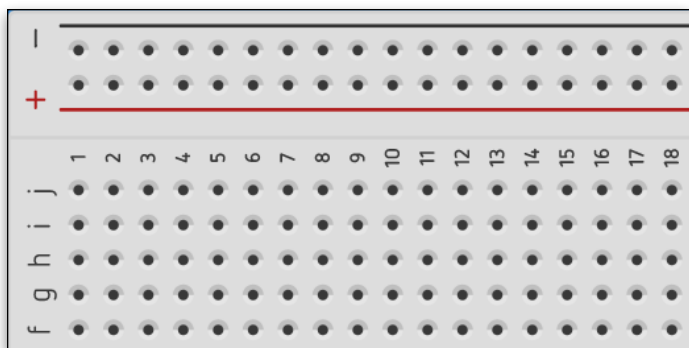
Move your mouse pointer over one of the holes in the center part of the board. The hole beneath will be identified with a red square and a black border. The other holes will be identified with green circles. These green circles indicate that each hole in the row is connected to each other hole in the row. There is a wire linking any connection within the same row. We will use this linking to help develop connect components.
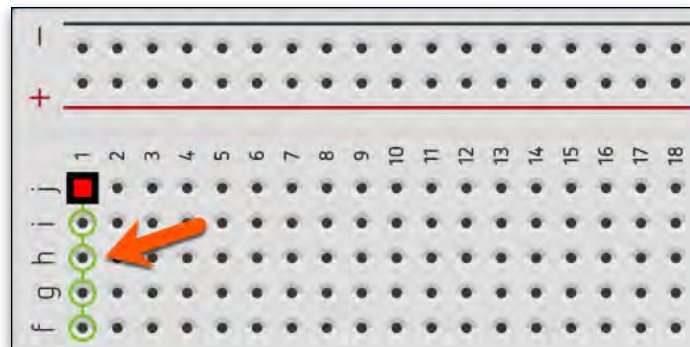
Let's jump in and build our first circuit.

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