**Tinkercad’s Circuit and Code Blocks**

Tinkercad is free to use and runs on your web browser. It is designed for beginners.  The electronic and code block sections allow users to build electronic modules and devices.

In Code Blocks we added, moved and rotated shapes. Rather than drawing the design, you drag a block of code for an object onto the work plane and then modify it.

In Tinkercad circuit we learned about adding, editing and wiring components. You can hook a wide selection of electrical components together, program an Arduino or breadboard and simulate analog and digital behavior. The interface is very intuitive and easy to follow. The simulations have some sounds and each component is nicely depicted. It’s easy to just dive in and start tinkering.

Electronic Components

The electronic components are divided into the different categories; general, power, breadboards, microcontrollers, instruments, integrated circuits and power control.  Even though there are many components to choose from, only a few were touched on in our assignment.

* In the **Genera**l category you’ll find resistors, [capacitors](https://www.norwegiancreations.com/2016/03/an-intro-to-capacitors/),  [diodes](https://www.norwegiancreations.com/2016/06/an-intro-to-diodes/) and an [inductor](https://www.norwegiancreations.com/2016/04/an-intro-to-inductors/). Each component is configurable.
* **Power** is a category for batteries: 9 V, 1.5 V AA/AAA and 3 V coin cell. The AA/AAA batteries allow you to decide how many **batteries you want in a series.**
* **Breadboards** come in three sizes. They are useful in simulating a real-life breadboard layout and allow you to hook wires to them.
* In the **Microcontroller** category you’ll find an Arduino Uno R3 and an ATtiny.
* **Instruments** include a multimeter, a power supply, a function generator and an oscilloscope.
  + The multimeter displays current, voltage or resistance. With the power supply you can limit current. The oscilloscope is quite simple, but does have manual x-axis and automatic y-axis zoom.
* The **Integrated circuit** category consists of different integrated circuits, such as timers, an [op-amp](https://www.norwegiancreations.com/2017/03/opamps-pt-1-the-basics/) and comparators.
* The **Power Control** category consists of many types of [transistors](https://www.norwegiancreations.com/2016/05/an-intro-to-transistors-and-relays/), [relays](https://www.norwegiancreations.com/2016/05/an-intro-to-transistors-and-relays/), voltage regulators and motor drivers.

Programming microcontrollers can be done in one of two ways (or a combination of both):

* By turning off the Code Blocks mode you can write traditional Arduino code.
* By dragging boxes and placing them in a specific order with the code being generated automatically.

 The visual approach (drag and drop) is an excellent way to learn this type of programming. Those who don’t know how to code, but just want a simple program, can actually generate code this way. It is optional to view either block view, text view or both.

The microcontroller is then simulated in real time.

Final Thoughts

Overall, Tinkercad circuit and code blocks seem like a good program for beginners, such as students, or those wanting an easy program that doesn’t require coding.