Goals & Success Factors

Lesson Goal

- To understand the question “What is Electricity?”
- To have an awareness of different electronic components.
- To understand the question “What is Electricity?”
- To be aware of the necessity of safety when dealing with electricity.

Lesson Success Factor(s)

- Play the component game
- Watch videos on electricity
- Know what voltage, current and resistance is
- Understand safety aspects of electricity

Skills Learnt (Arduino Module – Term 1)

Soft Skills

Listening to and following instructions
Typing accurately on the keyboard
Working together in pairs and teams
Asking relevant questions

'Technical' Skills

Understand electricity and the terms: Voltage, Current & Resistance
Understand the basic difference between digital and analogue
Understand what an Arduino is and what you can use it for
Understand the meaning of a circuit and how it- works
eg. A Single bulb connected to the +ve and -ve terminals of a battery by wires
Understand basic components by recognition and their purpose

- Resistor
- LED (Light Emitting Diode)
- Jumper wire
- Button
- Battery

Understand what a breadboard is, how it works and why we use it
Understand how to build a basic circuit with a breadboard
Understand how to setup a button as an INPUT pin
Understand how to pulldown a pin to 0 volts
Understand how to pullup a pin to 5 volts
Understand how to use the Arduino Application

- How to connect the Arduino to your computer with a USB cable
- How to check the Arduino board
- How to check the port
- How to verify/compile the code
- How to upload the code to your Arduino
- How to create a new application
- What the setup() function does
- What the loop() function does
- How to create a simple variable and set it to a value eg.

```
// Create an integer variable called myPin and set the
   value 2 to it.
int myPin = 2;
```

- How to set an Arduino pin to either an input OR and output pin

```
pinMode(2, INPUT);
pinMode(3, OUTPUT);
```

- How to read a digital pin

```
digitalRead(2);
```

- How to write to a digital pin

```
digitalWrite(2, HIGH)
digitalWrite(2, LOW)
```

- How to make a decision in code with an 'if' statement

Runsheet (Guideline)

00:00 Introduction
00:05 Goals & Success Factors
00:10 Ask class about favorite bit of tech
00:15 Play the Component Game
00:30 What is Electricity
00:45 Resistance Demonstration
00:55 Electrical Safety
01:00 Finish

Extension(s)
See Student Homework below

Students Pre-work

N/A

Teachers Pre-work

N/A

Student Homework

Watch the following video:
Voltage, Current and Resistance: https://learn.sparkfun.com/tutorials/voltage-current-resistance-and-ohms-law

Handouts (optional)

N/A