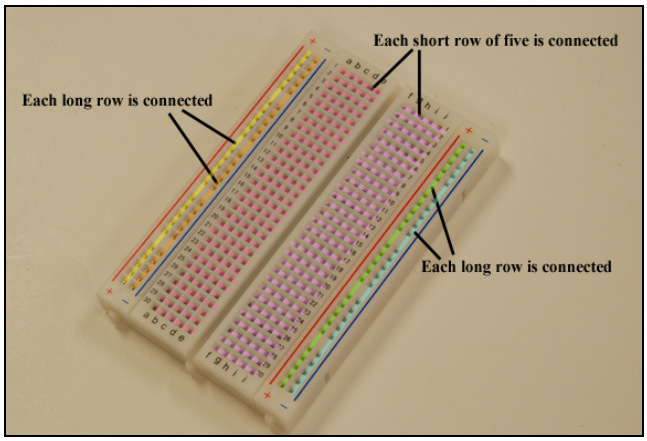
Reference Sheet

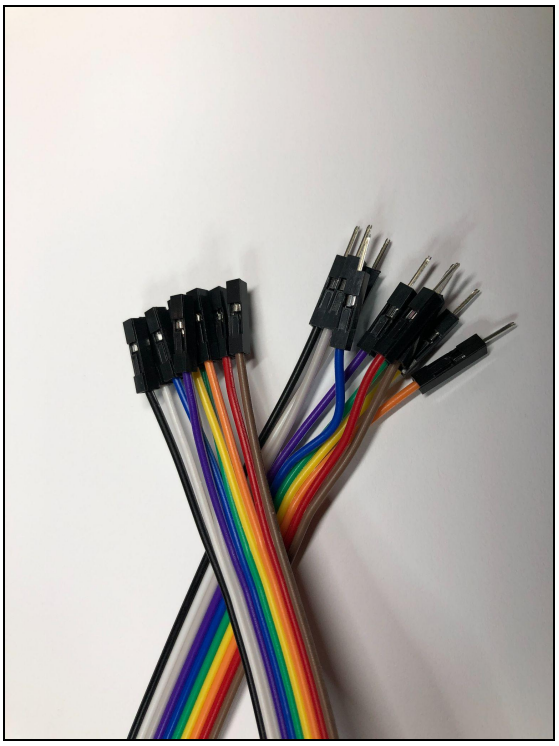
Terminology

- ***Science Question*** - a question to define a problem or issue you wish to solve
- ***Sensor*** - a device that detects or measures a physical property like temperature, light, or pressure
- ***Diorama*** - a model representing a scene with three-dimensional figures, either in miniature or as a large-scale museum exhibit.
- ***Circuit*** - a closed loop of some type of conductive material (wire,cable copper tape), including components that provide a path for electrical current.
- ***Breadboard*** - a board for making an experimental model of an electric circuit

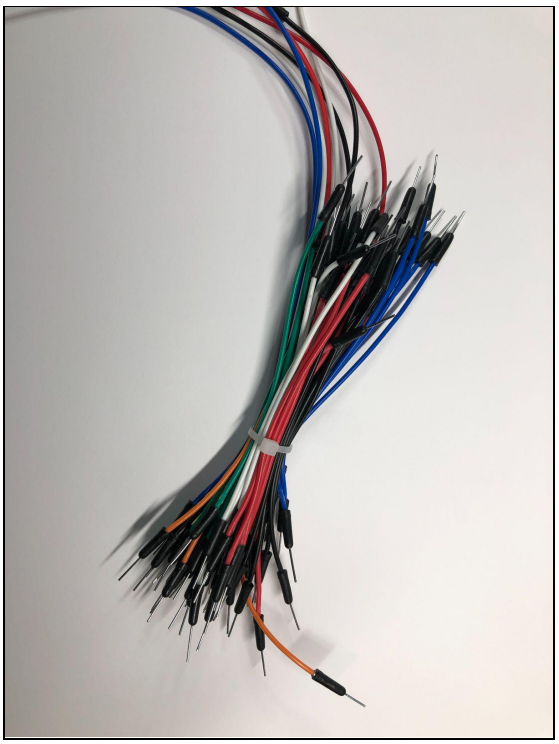


- ***Alligator Clips*** - a sprung metal clip with long, serrated jaws, used attached to an electric cable for making a temporary connection to a battery or other component.

- ***Dupont Connectors (male/female) -*** Dupont is also called **Jumper Wire cables**. They are low-cost and used to connect hardware such as sensors, Arduino boards and breadboards together. The connectors are available in male and female with a 2.54mm (100mill) pitch.



Male and Female Dupont Cables



Male-Male Jumper Wire Cables

- ***VCC = Positive = + = (This could also be your GPIO pin on the Raspberry PI)***
- ***GND (Ground) = Negative = -***
- ***Jupyter Notebooks*** - A software package that allows you to program through a webpage. This is also known as a type of “Science Gateway”.

Project Outline

Outputs

- Diorama
    - Graphs of related sensor data
    - Suggested Images
        - Sensor in field
        - Area sensor located
        - Team flag
    - Pop-Ups (at least 1 item of interest)
- Diorama Circuit
    - LEDs
    - Copper tape layout
- Code to used to control LEDs
    - Jupyter Notebook
    - Python code to operate the LEDs

Presentation /Science Story

- Question(s) that your pair is trying to answer
- Steps used to answer the question
- Sensors and data used to answer the question
- Surprises/Challenges/Solutions
- How did you design your diorama to tell the science story about answering your question?

RapberryPi (RPi) 400 Ports