

## Conceptual

- Review the Arduino [introduction](#) and the [getting started guide](#)
  - Note: There are separate guides for [Windows](#), [Mac OS X](#) and [Linux](#)
- Find and run the program on your computer

## Basic Make

- Make a LED turn on using the Arduino microcontroller board
  - Run the example program *Blink*
- Make a wiring diagram of your breadboard and Arduino
- Make sure your LED is the right color
  - Use a resistor to limit the current to around 20 milliAmperes (0.02 A)

## Advanced/Extended Make

- Make your diagrams using Fritzing
- Change the blink rate for your LED
- Hook up multiple LEDs –
  - Determine a method to vary the blink rate of each LED
- Create a function for your Arduino program. Typically functions save you from typing a series of commands multiple times.

## Resource

[Arduino Programming Notebook](#)

## Equipment

- Computer with access to Fritzing and Arduino
- Circuit components: Arduino microcontroller, LED, various resistors

## Objective

Physics Concepts

- Problem solving
- Logical thinking

Experimental analysis

- Circuit design

Technology Concepts

- Programming Syntax