

Conceptual

- Make a circuit diagram to show how you light a LED
- Draw the equivalent circuit schematic diagram.

Basic Make

- Make a LED turn on
 - Use a breadboard and appropriate connectors
- Make a drawing of how a breadboard is wired
- Make your LED 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
- Light both your LED and light bulb and make observations
 - Series
 - Parallel
- Measure voltage across and current through resistor to determine resistance –
 - Compare experimental to manufactured values

Equipment

- Computer with access to Fritzing
- Digital Multi Meter (DMM)
- Circuit components: LED, various resistors

Objective

Physics Concepts

- Diodes
- $V=IR$ (Ohm's observation)

Experimental analysis

- Current
- DMM diode check (voltage drop)

Technology Concepts

- Schematic symbols