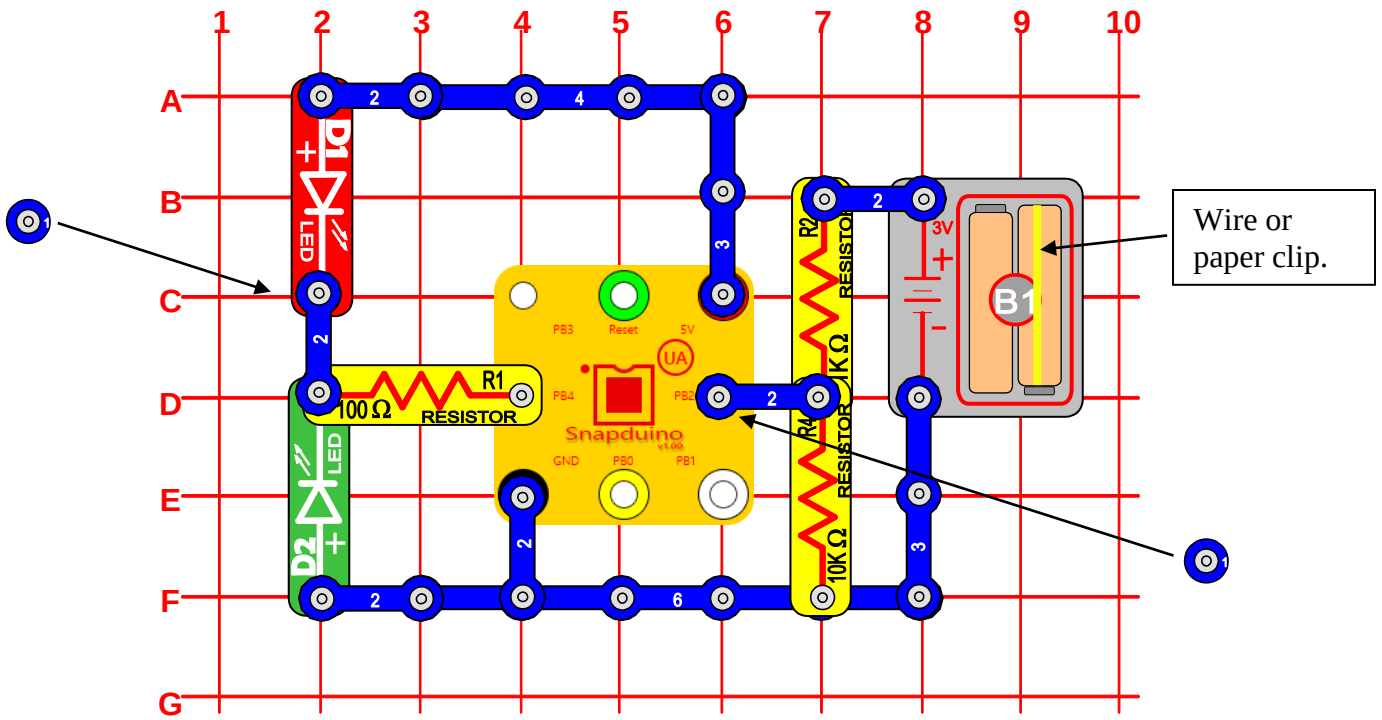

OBJECTIVE: This experiment will use the Snapduino to create device that can test the condition of a AA battery.

Parts List

Quantity	ID	Name	Part #
1		Base Grid Base Grid (11" x 7.7")	6SCBG
2	1	1-snap wire	6SC01
6	2	2-snap wire	6SC02
2	3	3-snap wire	6SC03
1	4	4-snap wire	6SC04
1	6	6-snap wire	6SC06
1	B1	Battery Holder	6SCB1
1	UA	Snapduino	
1		Snap-FTDI Cable	
1	R1	100 Ω Resistor	6SCR1
1	R2	1K Ω Resistor	6SCR2
1	R5	100K Ω Resistor	6SCR5
1	D1	Red LED	6SCD1
1	D2	Green LED	6SCD2
1		Wire or paper clip	

Step by Step Guide

1) Place the upper-left corner of the Snapduino at **C4**.
2) Snap component **D1** between position **A2** and **C2**.
3) Snap component **D2** between position **D2** and **E8**.
4) Snap component **R1** between position **B7** and **D7**.
5) Snap component **B1** between position **B8** and **D8** with the positive snap at **B8**.
6) Snap a 4-snap wire between **A3** and **A6**.
7) Snap a 6-snap wire between **F3** and **F8**.
8) Snap a 2-snap wire over the components between **A2** and **A3**.
9) Snap a 2-snap wire over the components between **C2** and **D2**.
10) Snap a 6-snap wire between **F3** and **F8**.
11) Snap a 1-snap wire on the component at **C2**.
12) Snap a 1-snap wire on the component at **D6**.
13) Snap component **R1** over the components between position **D7** and **F7**.
14) Snap a 2-snap wire over the components between **B7** and **B8**.
15) Snap a 2-snap wire over the components between **D6** and **D7**.
16) Snap a 3-snap wire over the components between **D8** and **F8**.
17) Snap a 4-snap wire over the components between **C7** and **F7**.
18) Snap a 2-snap wire over the components between **E4** and **F4**.
19) Connect a wire or paper clip between the two battery terminals on the right side of the battery holder B1.
20) Connect the **black** lead of the FTDI cable to the **GND** snap marked with a black ring on the Snapduino (*snap it over the top of any components that may already be connected to this snap*).
21) Connect the **green** lead of the FTDI cable to the **Reset** snap marked with a green ring on the Snapduino (*snap it over the top of any components that may already be connected to this snap*).
22) Connect the **yellow** lead of the FTDI cable to the **PB0** snap marked with a yellow ring on the Snapduino (*snap it over the top of any components that may already be connected to this snap*).
23) Connect the **white** lead of the FTDI cable to the **PB1** snap marked with a white ring on the Snapduino (*snap it over the top of any components that may already be connected to this snap*).
24) Connect the **red** lead of the FTDI cable to the **5V** snap marked with a red ring on the Snapduino (*snap it over the top of any components that may already be connected to this snap*).
25) Open the sketch for this project in the Arduino IDE and upload it to the board.
26) Open the Serial Port Monitor in the Arduino IDE.
27) When the upload has completed, place a AA battery in the left

position of the battery holder. If the battery is good, the green Led will turn on. If the battery is weak, the red LED will turn on. Look at the serial port output to see the battery voltage and the percent battery charge. Test several different batteries.