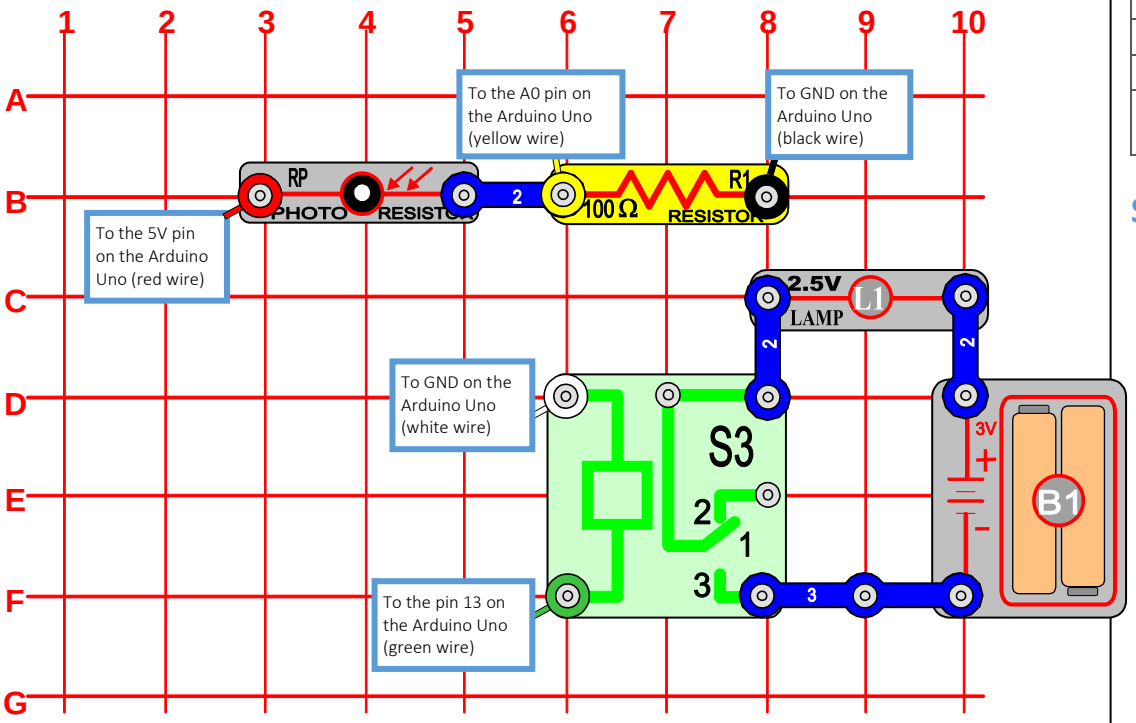
Daniel Porrey
Snap Circuits IoT
https://www.hackster.io/porrey

Night Light



OBJECTIVE: To show how to use an Arduino sketch to monitor light using a photoresistor and turn a light on when it is dark.

Parts List

Quantity	ID	Name	Part #
1		Base Grid Base Grid (11 x 7.7)	6SCBG
3		2-snap wire	6SC02
1		3-snap wire	6SC03
1	D1	Red LED	6SCD1
1	R1	100 Ω Resistor	6SCR1
1	S3	Relay	6SCS3
1	L1	2.5V Lamp	6SCL1
1	B1	Battery Holder	6SCB1
5		Snap-to-Pin wire (red, black, yellow, green and white)	SCJW10

Step by Step Guide

1) Snap component **RP** between position **B3** and **B5**
2) Snap component **R1** between **B6** and **B8**
3) Snap a 2 snap wire over the components between **B5** and **B6**
4) Connect the snap end of a **red** wire onto the component at position **B3**
5) Plug the male pin end of the **red** wire from step 4 into the **5V** pin on the Arduino Uno board
6) Connect the snap end of a **black** wire onto the component at position **B8**
7) Plug the bread board end of the **black** wire from step 6 into **GND** on the Arduino Uno board
8) Connect the snap end of a **yellow** wire onto the component at position **B6**
9) Plug the male pin end of the **yellow** wire from step 8 into pin **A0** on the Arduino Uno board
10) Snap component S1 between **D6**, **D8**, **F6** and **F8**.
11) Snap component L1 between **C8** and **C10**

Step by Step Guide (continued)

13) Snap component **B1** between position **D10** and **F10**
14) Snap a 2 snap wire over the components between **C8** and **D8**
15) Snap a 2 snap wire over the components between **C10** and **D10**
16) Snap a 3 snap wire over the components between **F8** and **F10**
17) Connect the snap end of a **white** wire onto the component at position **D6**
18) Plug the male pin end of the **white** wire from step 17 into the **GND** pin on the Arduino Uno board
19) Connect the snap end of a **green** wire onto the component at position **F6**
20) Plug the male pin end of the **green** wire from step 19 into the pin **13** on the Arduino Uno board
21) Open the sketch for Night Light in the Arduino IDE and upload it to the board. Use a flashlight to vary the light on the component RP and see what happens. Also try blocking the light completely by placing your finger over the hole.

Optional Circuit

If you want to override the Arduino and turn the light off, you can add a switch S1 to the circuit.

Parts

Quantity	ID	Name	Part #
2		2-snap wire	6SC03
1	S1	Switch	6SCS1

Step by Step Guide

1) Remove the 3 snap wire over the components between **F8** and **F10**
2) Make sure the switch **S1** is in the **off** position
3) Snap the component **S1** between **G8** and **G10**
4) Snap a 2 snap wire over the components between **F8** and **G8**
5) Snap a 2 snap wire over the components between **F10** and **G10**
6) Cover the photoresistor (RP) with your finger so the light is blocked. Now slide the switch S1 to the on position and the light will turn on. Now slide the switch back to the off position.

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Optional Circuit