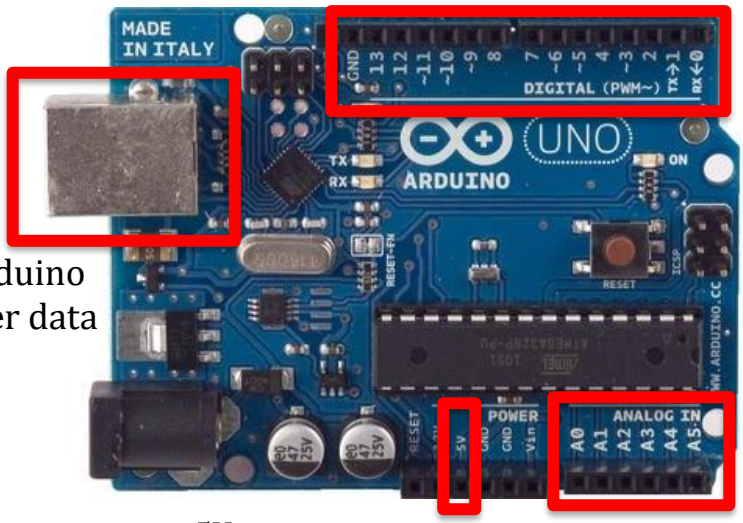
INTRODUCTION TO MICROCONTROLLER 1

Date : _____

Name: _____

CRADLE
Centre for Research and Applied Learning in Science



- Power Arduino board & Transfer data

Digital Pins:
- 5V, 40mA

Can be used as OUTPUT or INPUT
- It only has 2 states, either 0 = 0V or 1 = 5V
- Avoid using pin 0 & 1
- Pin 3, 5, 6, 9 ,10 ,11 are PWM pins

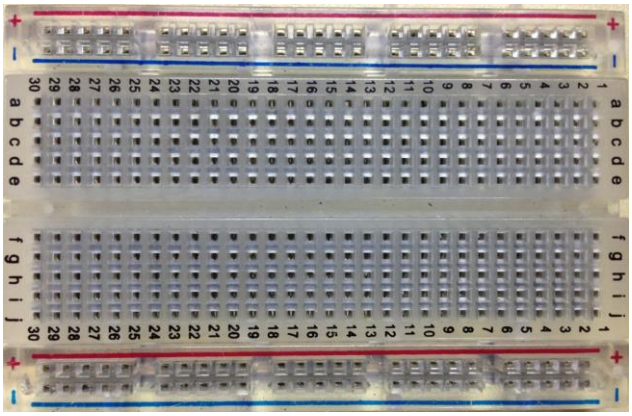
PWM has 256 states if Activated. Etc, 255 = 5V, 0 = 0V

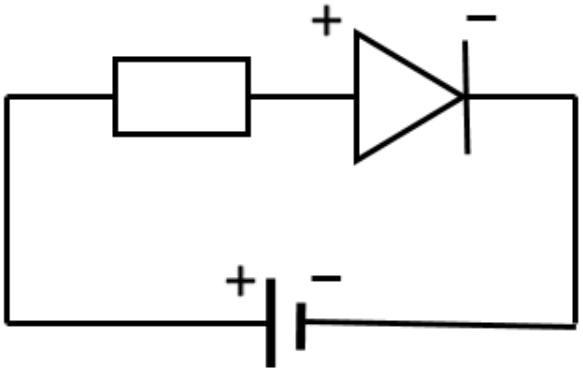
5V pin:
- Only used as OUTPUT
- 5V, 500mA

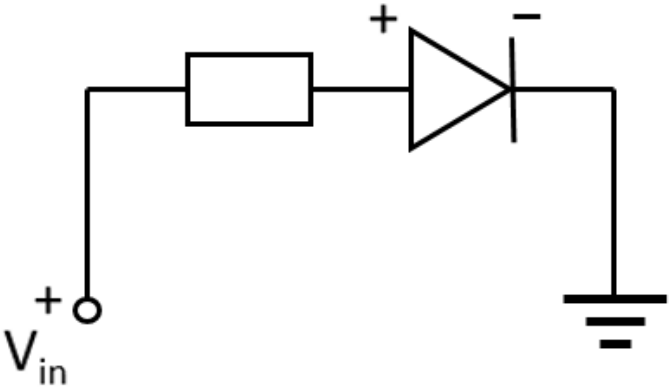
Analog Pins:
- 5V, 40mA

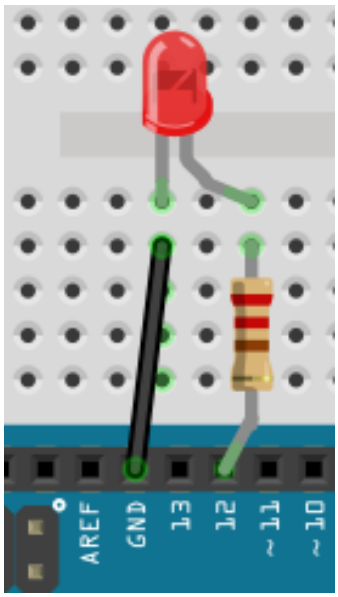
Can be used as OUTPUT or INPUT
- It has 1024 states.

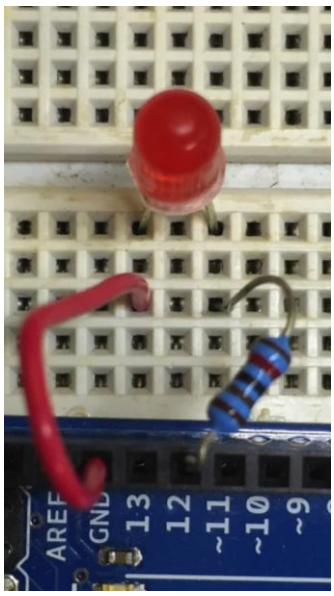
Etc, 1023 = 5V, 0 = 0V



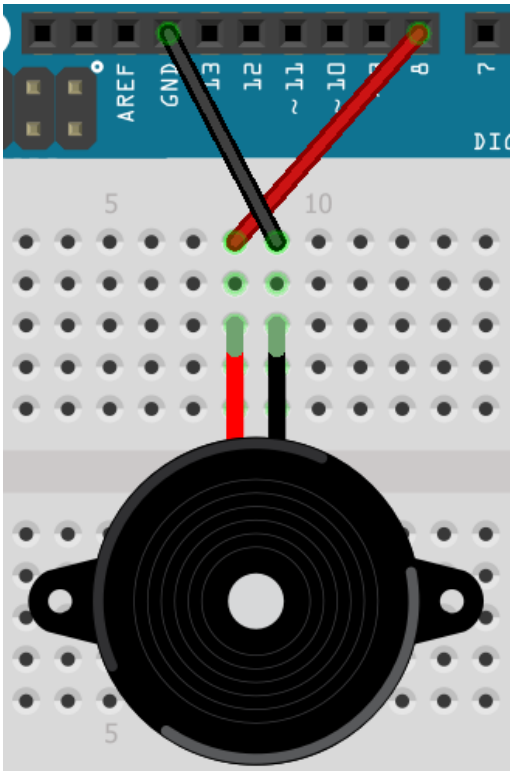






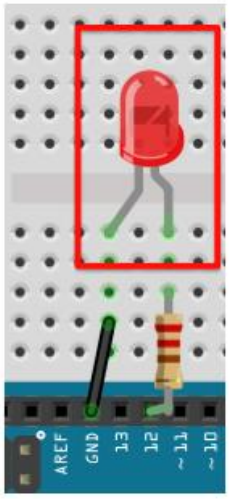


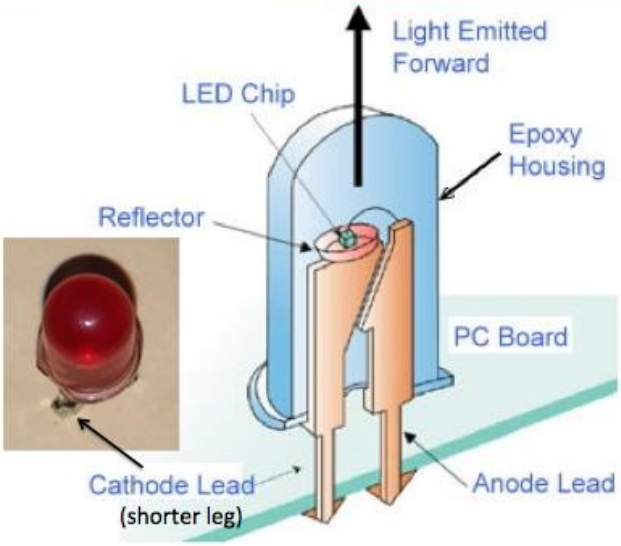
ACTIVITY 1:

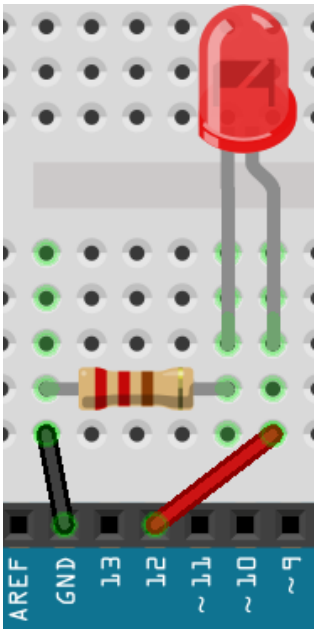



```
void setup ()
{
  pinMode (8, OUTPUT);
}

void loop ()
{
  tone (8, 200, 250);
  delay (500);
  tone (8, 600, 250);
  delay (500);
}
```

ACTIVITY 3:

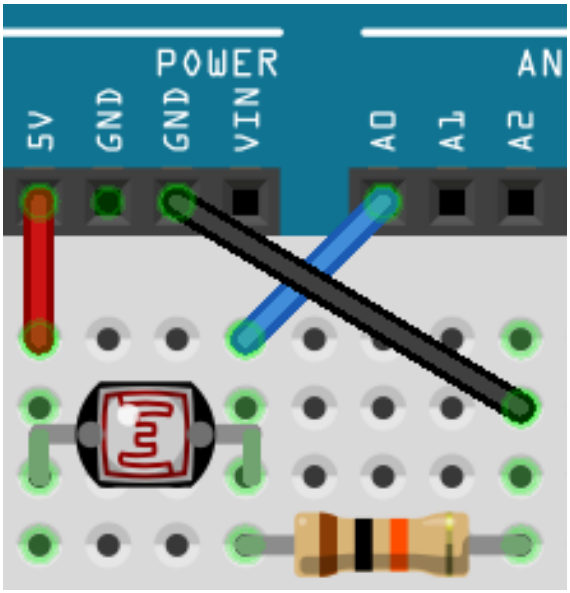




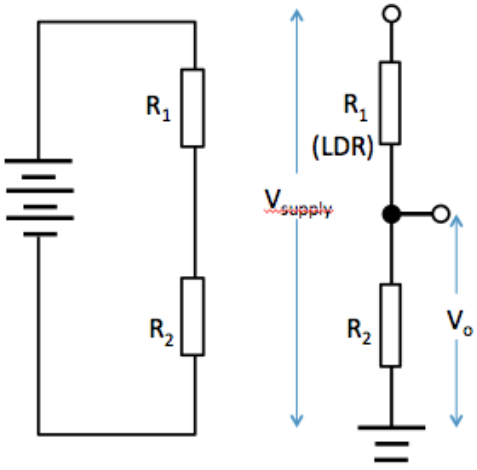



```
void setup ()
{
  pinMode (12, OUTPUT);
}

void loop ()
{
  digitalWrite (12, HIGH);
  delay (1000);
  digitalWrite (12, LOW);
  delay (1000);
}
```

ACTIVITY 5:




```
void setup()
{
  Serial.begin(115200);
  pinMode(A0,INPUT);
}

void loop()
{
  Serial.print("Light level =");
  Serial.println(analogRead(A0));
  delay(500);
}
```



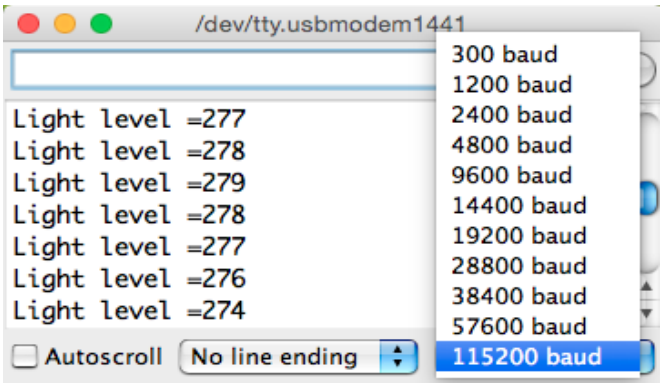
Since the components are arranged in series, current is the same throughout:

$Vo/R2 = Vcc/(R1+R2)$

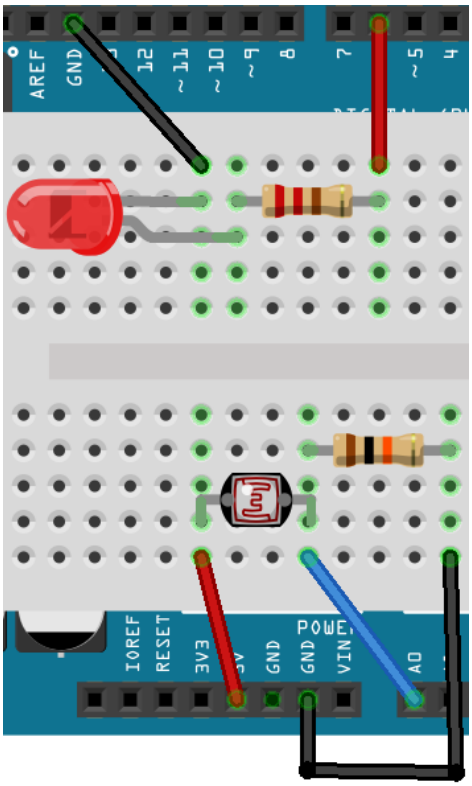
$V_o = Vcc\,R2/(R1+R2)$

dark, $R_1 >> R_2$, $V_o \rightarrow 0V$

bright, $R_2 >> R_1$, $V_o \rightarrow 5V$



ACTIVITY 6:



```
void setup() {
  Serial.begin(115200);
  pinMode(6,OUTPUT);
  pinMode(A0,INPUT);
}

void loop() {
  Serial.println(analogRead(A0));

  if(analogRead(A0)>600)
  {
    digitalWrite(6,HIGH); delay(1500);
    digitalWrite(6,LOW);  delay(1500);
  }
  else if(analogRead(A0)>400 && analogRead(A0)<600)
  {
    digitalWrite(6,HIGH); delay(700);
    digitalWrite(6,LOW);  delay(700);
  }
  else
  {
  digitalWrite(6,HIGH); delay(50);
  digitalWrite(6,LOW);  delay(50);
  }
}
```