ANALOG: TEMPERATURE SENSOR
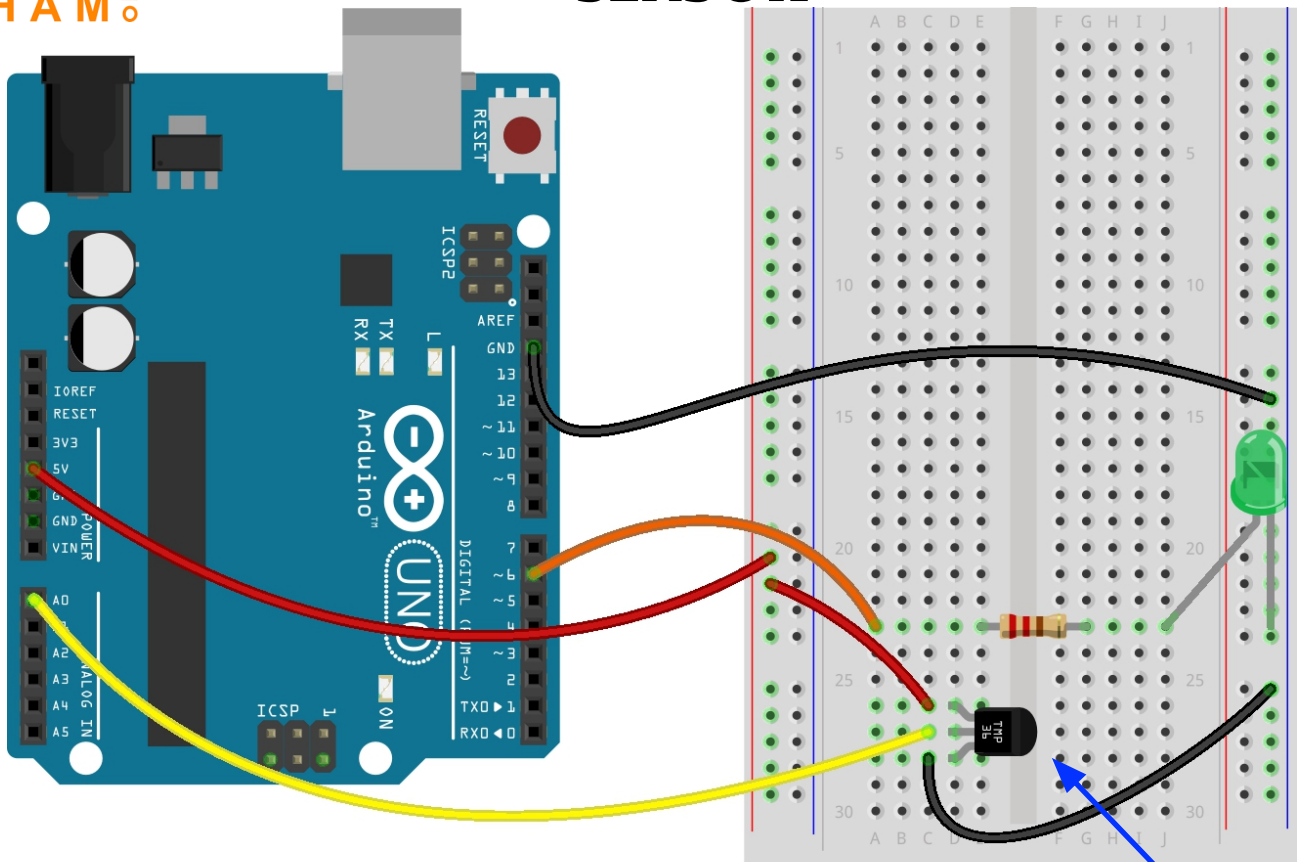
We can make the Uno print out values and view them using the Serial Monitor
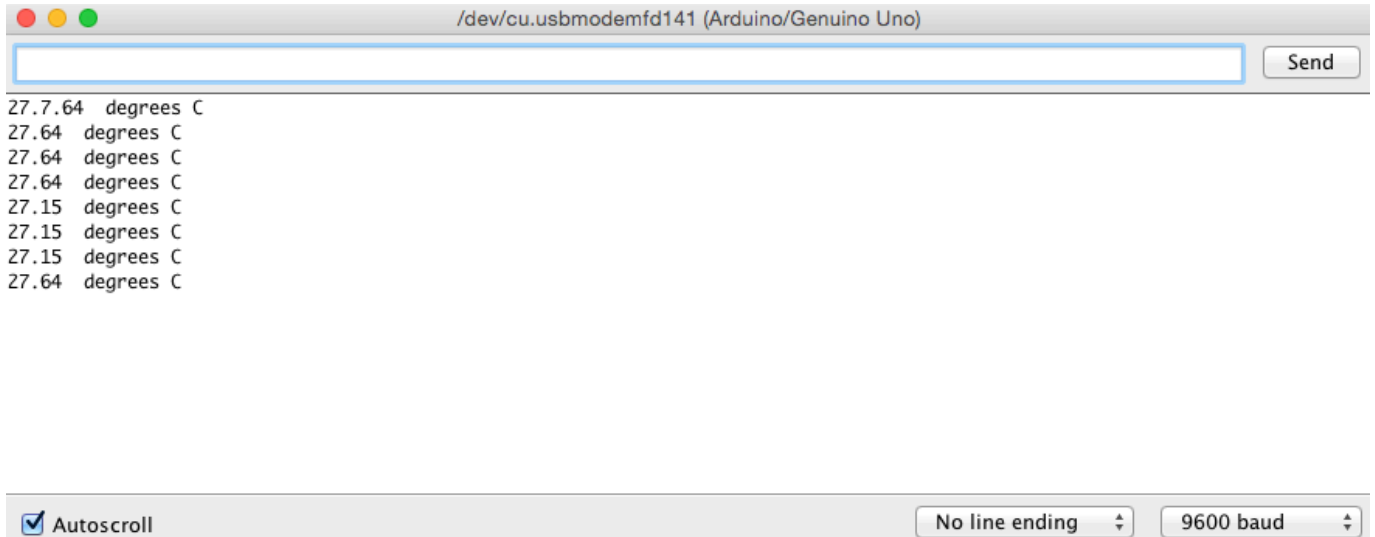
TMP36 temp sensor

```
tmp36

#define TEMP 0
#define LED 6

void setup() {
    Serial.begin(9600); // set up Serial monitor
    pinMode(LED,OUTPUT);
}

void loop() {
    digitalWrite(LED,HIGH);
    int reading = analogRead(TEMP); // read from sensor
    float voltage = reading * 5.0; // convert voltage
    voltage /= 1024.0;
    //Serial.print(voltage); // print to serial monitor
    //Serial.println(" volts");
    float celsius = (voltage - 0.5) * 100; // convert to celsius
    Serial.print(celsius); //print to serial monitor
    Serial.println("  degrees C");
    delay(100);
    digitalWrite(LED,LOW);
    delay(900);
}
```

V 1.0

Click on Tools -> Serial Monitor

```
/dev/cu.usbmodemfd141 (Arduino/Genuino Uno)                    Send

27.7.64  degrees C
27.64  degrees C
27.64  degrees C
27.64  degrees C
27.15  degrees C
27.15  degrees C
27.15  degrees C
27.64  degrees C




☑ Autoscroll                            No line ending ⬍   9600 baud ⬍
```

Can you also print out the temperature in Fahrenheit? F = (C x 9/5) + 32

We can also plot graphs. Comment out lines in the code so that it only prints the Celsius readings. Then click on Tools -> Serial Plotter

```
/dev/cu.usbmodemfd141 (Arduino/Genuino Uno)

40.0



20.0



0.0

9600 baud ⬍
```

V 1.0