

Programming Arduino

You should have the [Arduino IDE](#) software running at this time. Next, it's necessary to install the DHT Sensor library, which can be done through the Arduino Library Manager:

Sketch → Include Library → Manage Libraries...

Enter “**dht**” in the search field and look through the list for the “**DHT sensor library by Adafruit.**” Click the “Install” button, or “Update” from an earlier version.

IMPORTANT: As of version 1.3.0 of the DHT library you will also need to install the **Adafruit_Sensor** library, which is also available in the Arduino Library Manager.

Now load up the **Examples → DHT → DHTtester** sketch.

Code Explanation

First we have to include the "DHT.h" Library.

```
#include "DHT.h"
```

Then define the digital pin in which the DHT11 is connected to.

```
#define DHTPIN 2      // Digital pin connected to the DHT sensor
```

Now define the type of DHT Sensor. Since we're using a **DHT11** sensor, we can write like this.

```
#define DHTTYPE DHT11  // DHT 11
```

If you have a DHT22, write this.

```
#define DHTTYPE DHT22  // DHT 22  (AM2302), AM2321
```

Then define the DHT parameter to Initialize DHT sensor.

```
DHT dht(DHTPIN, DHTTYPE);
```

Note that older versions of this library took an optional third parameter to tweak the timings for faster processors. This parameter is no longer needed as the current DHT reading algorithm adjusts itself to work on faster procs.

Inside the void setup function, Initialize the Serial Communication and the DHT Sensor.

```
void setup() {  
  Serial.begin(9600);  
  Serial.println(F("DHTxx test!"));  
  dht.begin();  
}
```

Now, inside the void loop function, let's measure the readings.

Reading temperature or humidity takes about 250 milliseconds! Sensor readings may also be up to 2 seconds 'old' (its a very slow sensor).

```
float h = dht.readHumidity();      // read humidity
```

Read temperature as Celsius (the default)

```
float t = dht.readTemperature();    // read temperature
```

Read temperature as Fahrenheit (**isFahrenheit = true**)

```
float f = dht.readTemperature(true);
```

Check if any reads failed and exit early (to try again).

```
if (isnan(h) || isnan(t) || isnan(f)) {  
    Serial.println(F("Failed to read from DHT sensor!"));  
    return;  
}
```

Compute heat index in Fahrenheit (the default)

```
float hif = dht.computeHeatIndex(f, h);
```

Compute heat index in Celsius (isFahreheit = false)

```
float hic = dht.computeHeatIndex(t, h, false);
```

Print the measured readings on the Serial Monitor.

```
Serial.print(F(" Humidity: "));  
Serial.print(h);  
Serial.print(F("% Temperature: "));  
Serial.print(t);  
Serial.print(F("°C "));  
Serial.print(f);  
Serial.print(F("°F Heat index: "));  
Serial.print(hic);  
Serial.print(F("°C "));  
Serial.print(hif);  
Serial.println(F("°F"));
```

That's all. You can use this code to measure the temperature and humidity values using the DHT11 or DHT22 sensors in any of your projects.