

Temperature Monitoring

Picobricks

Beginner

15 Mins

1 Overview

Within this PicoBricks tutorial we're going to use the temperature sensor to sense the temperature of the room you're in. The temperature is then outputted to the OLED screen.



What you'll learn

- How to sense the temperature of a room through code
- How to output the temperature to the OLED screen

2 What you'll need



What you'll need

- PicoBricks Kit
- PicoBricks Brick IDE
- MicroUSB to USB cable
- Laptop or tablet for coding

3 Key words



Key words

Temperature sensor

A temperature sensor is a little part that measures how warm or cold it is around it, then turns that into a number your code can read. As the room heats up or cools down, the number changes too.

Like the thermometer that tells you if you've got a temperature when you're poorly, a temperature sensor measures the warmth around it and gives your code a number to work with.

OLED screen

An OLED screen is a small display that shows words, numbers and pictures from your code. On some kits it's labelled the "LED display", but it's the same little screen.

Like the small screen on a fitness watch showing your steps, an OLED screen can show a score or a countdown.

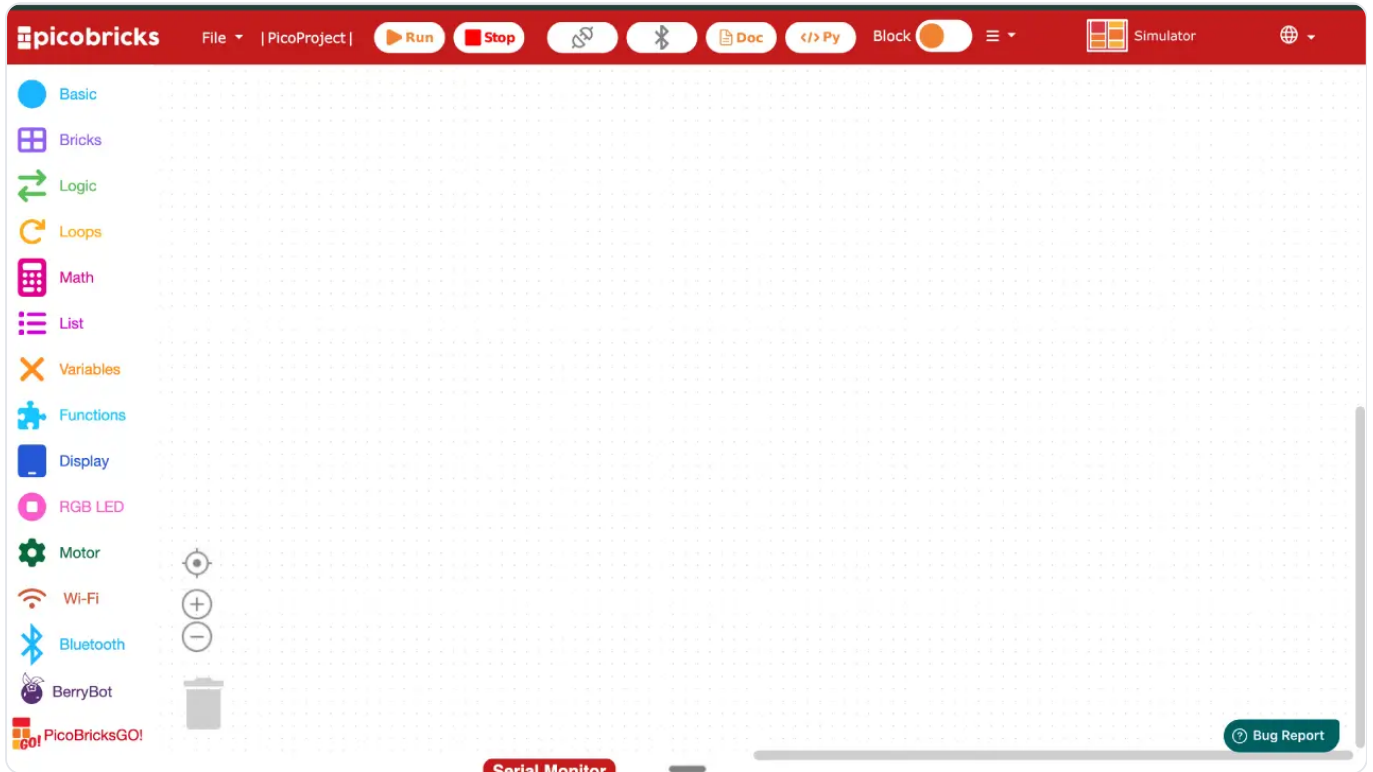
Forever loop

A forever loop repeats its instructions again and again without ever stopping (until you switch off or reset). It's perfect for anything you want to keep happening over and over.

Like a clock's second hand that keeps ticking round and round, a forever loop keeps running the same steps over and over.

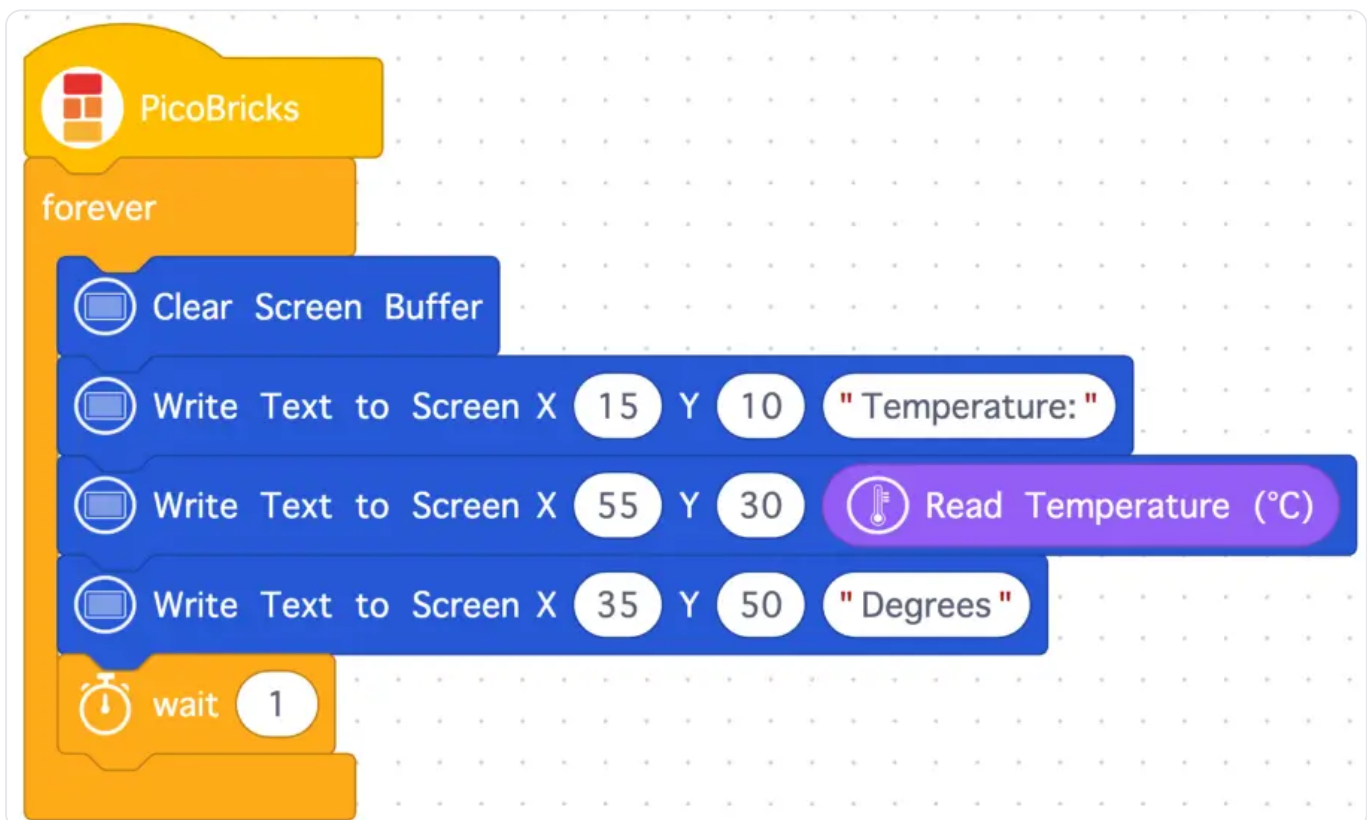
4 Set up your PicoBricks

1. Open your favourite web browser. We recommend either Google Chrome or Microsoft Edge. Type ide.picobricks.com into the address bar.
2. Connect the PicoBricks board to your computer using the USB cable.
3. Connect the PicoBricks board to the Brick IDE by selecting the **Connection** button at the top of the code area.



5 Build the code

1. Select **Basic**. Select a **PicoBricks** block and drop it in the code area.
2. Select **Loops**. Select a **forever** block and snap it to the **PicoBricks** block.
3. Select **Display**. Select a **Clear Screen Buffer** block and snap it within the **forever** block.
4. Select **Display**. Select a **Write Text to Screen** block and snap it to the **Clear Screen Buffer** block. Change the **X** value to **15**, the **Y** value to **10** and **PicoBricks** to **Temperature:**.
5. Select **Display**. Select a **Write Text to Screen** block and snap it to the **Write Text to Screen X 15 Y 10 "Temperature:"** block. Change the **X** value to **55** and the **Y** value to **30**.
6. Select **Bricks**. Select a **Read Temperature** block and snap it onto the **Write Text to Screen** block where it says **PicoBricks**.
7. Select **Display**. Select a **Write Text to Screen** block and snap it to the **Write Text to Screen X 55 Y 30 Read Temperature** block. Change the **X** value to **35**, the **Y** value to **50** and **PicoBricks** to **Degrees**.
8. Select **Display**. Select a **Show Screen Buffer** block and snap it to the **Write Text to Screen X 35 Y 50 "Degrees"** block.
9. Select **Loops**. Select a **wait** block and snap it to the **Show Screen Buffer** block.

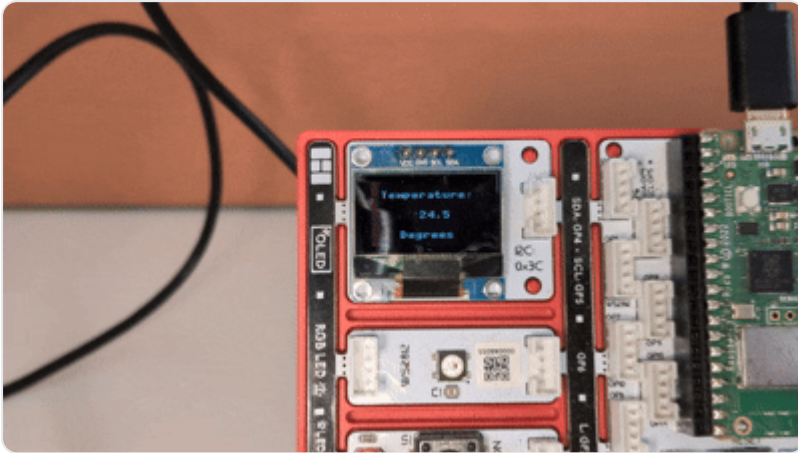


We've now completed the code for our temperature monitor.

6 Run it and watch

1. Select the **run** button at the top of the code window.

You should now see the live temperature displayed on the OLED screen. 🎉



7 Try it yourself

🚀 Try it yourself

Challenge: Can you make your project react to the temperature? Try adding an **if statement** so the screen shows a message like `Too hot!` when the temperature climbs above a number you choose (your **threshold**). For an extra challenge, light up an **LED** whenever the room gets warm.

8 Stuck? Quick fixes

Problem	Try this
PicoBricks won't connect, or the connect button stays greyed out	Check the USB cable is pushed in at both ends, click the Connection button at the top of the code area, and use Google Chrome or Microsoft Edge.
Nothing appears on the OLED screen	Make sure your <code>Clear Screen Buffer</code> and <code>Show Screen Buffer</code> blocks are in place, and that all your blocks are snapped inside the <code>forever</code> loop.
The temperature shows once but never changes	Check the <code>Read Temperature</code> block is snapped into the <code>Write Text to Screen</code> block, and that a <code>wait</code> block sits inside the <code>forever</code> loop so it keeps refreshing.
The words overlap or sit in the wrong place	Have a look at your X and Y values, they set where each piece of text sits on the screen.