

Lesson 4 Student Workbook

Hello ESP32

Today you will move from desktop C++ to a real microcontroller. Your goal is to safely upload a first ESP32 sketch and see messages from the board in the Serial Monitor.

Key Words

Word	Meaning
ESP32	A small microcontroller board that can run your code.
sketch	An Arduino program.
upload	Send your program from the laptop to the ESP32.
setup	Runs once when the board starts or resets.
loop	Runs again and again while the board has power.
Serial Monitor	A window that shows messages from the board.

Safety First

- Use only the USB cable for power in this lesson.
- Do not connect motors, batteries, sensors, or loose wires yet.
- Place the ESP32 on a clean desk, not on metal.
- Ask before pressing buttons or changing board settings if you are unsure.

Starter Sketch

```
void setup() {  
  Serial.begin(115200);  
  delay(1000);  
  
  Serial.println("Hello, ESP32!");  
  Serial.println("Setup runs once.");  
}  
  
void loop() {  
  Serial.println("Loop is running.");  
  delay(1000);  
}
```

What the Sketch Does

Code	Meaning
<code>Serial.begin(115200);</code>	Start Serial communication at 115200 baud.
<code>Serial.println(...);</code>	Print a line to the Serial Monitor.
<code>delay(1000);</code>	Wait about one second.
<code>setup()</code>	Runs once when the board starts.
<code>loop()</code>	Repeats while the board is powered.

Try It

1. Connect the ESP32 with a USB data cable.
2. Open Arduino IDE.
3. Select the ESP32 board and port.
4. Open the Lesson 4 starter sketch.
5. Click Upload.
6. Open Serial Monitor.
7. Set the Serial Monitor speed to 115200 baud.
8. Watch the messages from setup and loop.

Reflection

What message printed only once? _____

What message repeated? _____

What is one difference between desktop C++ and ESP32 code? _____