

Lesson 2 Complete Teaching Packet

Level 1 C++ Foundations Program Structure and Variables

Lesson 2 moves students from running a first program to reading and modifying structured C++ code. Students create a robot profile program using variables, comments, meaningful names, and labeled output.

Teacher Quick Start

Item	Details
Time	60 to 75 minutes
Student setup	Completed laptop setup and Lesson 1 workflow
Primary outcome	Students build a robot profile program with string, int, and double variables
Collect	Skill check code or terminal screenshot
Best pacing	Demo variable changes slowly, then give students time to personalize values

Learning Targets

- I can explain what a variable stores.
- I can use string, int, and double variables.
- I can print labels and variable values with cout.
- I can use comments and indentation to make code easier to read.
- I can fix common variable mistakes.

Lesson Flow

Time	Teacher Move	Student Move
0 to 8	Review Lesson 1 workflow.	Open Lesson02 folder and starter file.
8 to 18	Explain structure, comments, naming rules.	Mark examples in workbook.
18 to 30	Demo robot profile variables.	Predict what each cout line prints.
30 to 48	Guide edits and reruns.	Change values and add driverName.
48 to 65	Run exercises and skill check.	Create a five-line robot profile.

65 to 75	Exit response.	Explain one variable in their program.
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Starter Program

```
#include <iostream>
#include <string>

using namespace std;

int main() {
    string robotName = "PracticeBot";
    int teamNumber = 12345;
    double batteryVoltage = 12.6;
    int motorCount = 4;

    cout << "Robot name: " << robotName << endl;
    cout << "Team number: " << teamNumber << endl;
    cout << "Battery voltage: " << batteryVoltage << " volts" << endl;
    cout << "Motor count: " << motorCount << endl;

    return 0;
}
```

Common Problems

Problem	Fix
Spaces in variable names	Use camelCase such as robotName.
Number stored with quotes	Use quotes only for strings.
Missing semicolon	Check the end of the variable or cout statement.
Missing << in cout	Each joined piece needs << between it.
Old output appears	Save, compile again, then run again.

Assessment

A ready student can create a program with at least one string, one int, one double, a clear comment, labeled output, and successful compile/run evidence.