



F6.6 The IDE

Robust programs · GCSE · OCR J277 2.5.2, AQA 8525 3.4.4, Edexcel 1CP2
6.1.5 · about 12 min

What this lesson is about

Editors, error diagnostics, the run-time environment and the translator, in the cell you use.

- The editor
- Error diagnostics
- Running and debugging
- The translator
- The rest of the toolbox

Questions

4 marks in all

1. Which are IDE tools listed by OCR?

[1 mark]

Tick every answer that is true.

- ☐ A Editors
- ☐ B Error diagnostics
- ☐ C Run-time environment
- ☐ D Translators

Answer: A, B, C, D. All four are OCR's headings for IDE features.

2. How does syntax highlighting help a programmer?

[1 mark]

- ☐ A A missing quote or keyword stands out because the colours change
- ☐ B It runs the program faster
- ☐ C It fixes errors automatically
- ☐ D It translates the code

Answer: A. Colours show the parts of the code, so mistakes in structure are easy to see.

3. What does stepping through a program in a debugger do?

[1 mark]

- ☐ A Runs it one line at a time so values can be watched
- ☐ B Deletes lines with errors
- ☐ C Compiles it to machine code
- ☐ D Saves a copy

Answer: A. Stepping shows exactly what each line does to the variables.

4. Which IDE feature reports the line and type of an error?

[1 mark]

- ☐ A Error diagnostics
- ☐ B Code completion
- ☐ C Folding
- ☐ D Line numbers only

Answer: A. Error diagnostics find errors and explain them, often before the program runs.

The task: use the diagnostics

This program should flash the LED three times, beeping each time, and then print `flashed 3 times`. It has a syntax error, a runtime error and a logic error. Use the squiggle, the error message and Debug to find and fix all three.

```
# the two lines every program starts with: the commands, then the robot
from bugbot import *
connect()

flashes = 0
for i in range(3)
    led("blue")
    tone(660, 0.1)
    wait(0.2)
    led("off")
    flashes = 1
print("flashed", flashes, "times")
```

The hint students can ask for: There are three faults: one is a missing punctuation mark that ends a header line, one is a name spelled differently from where it was made, and one sets a counter instead of adding to it. The error messages point at the first two.

A solution

```
from bugbot import *
connect()
flashes = 0
for i in range(3):
    led("blue")
    tone(660, 0.1)
    wait(0.2)
    led("off")
    flashes = flashes + 1
print("flashed", flashes, "times")
```

Any program that meets the task's checks is marked correct in the simulator; this is one way, not the only way.