



F4.1 Writing functions

Functions and structured code · GCSE · OCR J277 2.2.3, AQA 8525 3.2.10,
Edexcel 1CP2 1.1.2 · about 12 min

Name _____

Class _____

Date _____

What this lesson is about

def, calling, and why subprograms help.

- Defining a function
- Define first, then call
- What happens when a function is called
- A function can call other functions
- Why write functions?

Questions

6 marks in all

1. What happens when Python reaches `def report():` and its indented body? [1 mark]

- ☐ A It defines the function, but nothing in the body runs yet
- ☐ B It runs the body once
- ☐ C It runs the body forever
- ☐ D It prints report

2. Which are good reasons to write a function? [1 mark]

Tick every answer that is true.

- ☐ A Write a piece of behaviour once and reuse it
- ☐ B A name like `is_clear(40)` explains what the code does
- ☐ C Small pieces are easier to test
- ☐ D It makes the robot faster

3. What does this program print? [1 mark]

```
def signal():  
    print("  beep")  
  
print("before")  
signal()  
print("between")  
signal()
```

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4. A program calls `signal()` on line 3 and defines `def signal():` on line 5. What happens? [1 mark]

- ☐ A `NameError`: the function is not defined yet when line 3 runs
- ☐ B It works, Python looks ahead
- ☐ C `SyntaxError`
- ☐ D Nothing is printed and there is no error

5. What is a subprogram? [1 mark]
- ☐ A A named block of code that does a task and can be called from elsewhere in the program
 - ☐ B A program that runs on another computer
 - ☐ C A comment above some code
 - ☐ D The first line of a program
6. In OCR's Exam Reference Language, which word ends a procedure? (one word) [1 mark]
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The task: signal at the corners

Write a function `signal()` that turns the LED red, plays a short note, and turns the LED off. Then drive a square of 25 cm sides, calling `signal()` at every corner. Call your function; do not repeat its lines.

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

def signal():
    led("red")

forward(60, distance=25)
turn_right(30, angle=90)
```

Plan your program here, then type it in and press Run.



Do it on the robot

www.bugbotlab.com/learn/f4-1-writing-functions/

The simulator checks it and tells you when it passes. Nothing to install, no account.

Challenges

1. Write `siren()` that alternates two notes four times, and call it at the start and the end of a drive.
2. Put the four `side()` calls inside a function `square()`, and call `square()` twice.
3. What happens if you call a function inside itself? Try it with a function that only prints, and read the error.