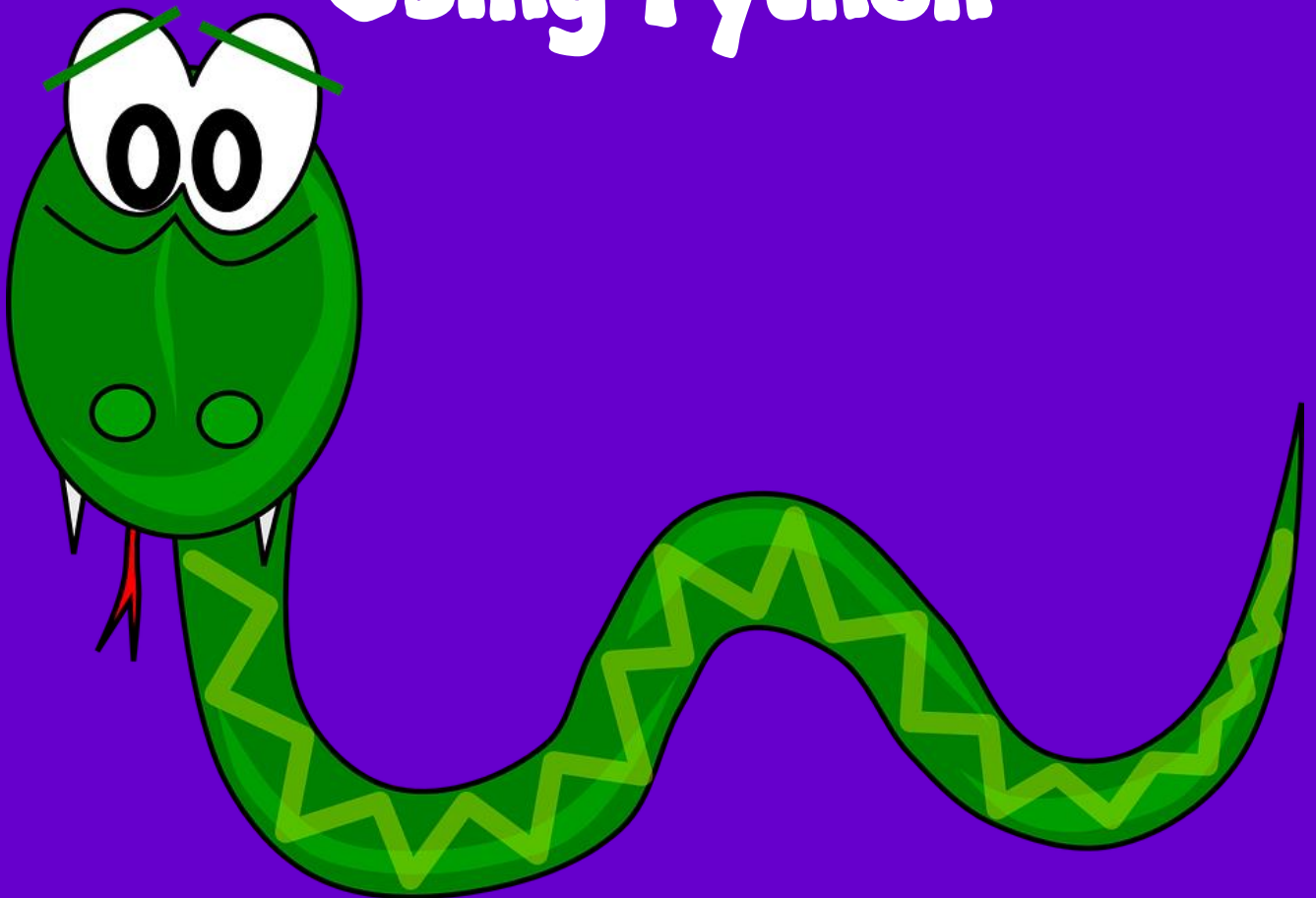


EDULiTO

**Teaching Coding Concepts
Using Python**



Photocopiable Resources

Give your students a better chance of success

Edulito is a UK based educational publishing company that has been set up to ensure that students have a real opportunity to fulfil their potential. All of the available resources have been tested in UK schools to ensure that they provide students with a meaningful experience and provide teachers, parents and students with a clear indication of progress.

This photocopiable resource has been produced to provide KS3 students with exciting and engaging opportunities to learn coding concepts using the Python programming language.

The resource covers the programming aspect of the computing national curriculum including:

- can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- Can use two or more programming languages, at least one of which is textual, to solve a variety of computational problems
- Can make appropriate use of data structures [for example, lists, tables or arrays]
- Can design and develop modular programs that use procedures or functions

Terms and Conditions of Use

Your school has permission to copy this resource as many times as you require and to use it as you wish within your school/organisation.

You do not have permission to distribute it as a paper or electronic document to other schools or organisations.

Any questions? Email: edulitolearn@gmail.com

© 2016 Edulito and its licensors. All rights reserved.

What is Python?

Python is a widely used high-level, general-purpose, programming language. It is designed to be easy to read, and it is written to allow programmers to express concepts in as fewer lines of code as possible. A set of instructions called an algorithm can be written in Python.



Python is a snake – but it's also a programming language

Sequences

What is a sequence?

Simple algorithms are often sequences of instructions. Each step happens in a sequence, one step after another. It is important that the sequence is in the correct order otherwise strange things can happen.

For example this sequence helps you to cross the road safely.

Step	Instructions for safely crossing the road
1	First find the safest place to cross
2	Stop just before you get the kerb
3	Look all around for traffic and listen
4	If traffic is coming, let it pass
5	When it is safe, go straight across the road – do not run

Now it's your turn to code!

1. Open **Python 3** – You can use this online version:

<https://repl.it/languages/python3> or you can use the version of Python that has been installed on your network or home computer.

2. Type these instructions into Python:

```
print("First find the safest place to cross")
print("Stop just before you get the kerb")
print("Look all around for traffic and listen")
print("If traffic is coming, let it pass")
print("When it is safe, go straight across the road – do not run")
```

3. Save the program and then run it.

4. What happens when you run the program?

5. Type these instructions into Python:

```
import time
print("First find the safest place to cross")
time.sleep(1)
print("Stop just before you get the kerb")
time.sleep(1)
print("Look all around for traffic and listen")
time.sleep(1)
print("If traffic is coming, let it pass")
time.sleep(1)
print("When it is safe, go straight across the road – do not run")
```

This program is a **sequence** as each instruction takes place after the instruction before.

6. Save the program and then run it.

7. What happens when you run the program?

8. This program uses a module called **Time**. What does `time.sleep(1)` do?

9. Change the `time.sleep` statements to `time.sleep(2)`. What happens when you run the program?