

Knowledge Organiser: Python Programming



Python
Commands

Output = Outputs text and numbers to display window. This is usually done by using the command word 'print'

Input = allows the user to input an answer

IF = It allows the program to take a different route, depending on if it meets the criteria

ELSE = If the program does not meet the criteria's stated, it will then do what ever is in the next indent.

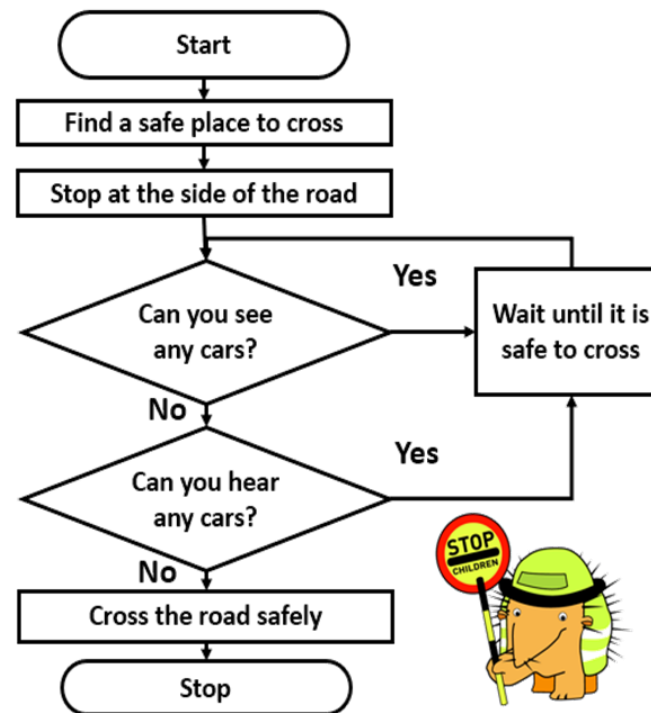
Algorithms: Algorithms are ways of breaking down (**abstraction**) and explaining solutions to problems. These can take many forms:

- **Simple sentences** to tell people what to do
- **Simplified programming language** called **Pseudo code**
- **Flow charts** to explain the steps

What is a FLOWCHART?

A flowchart is a way of **visually** displaying a set of **instructions** (or an algorithm) for any particular task.

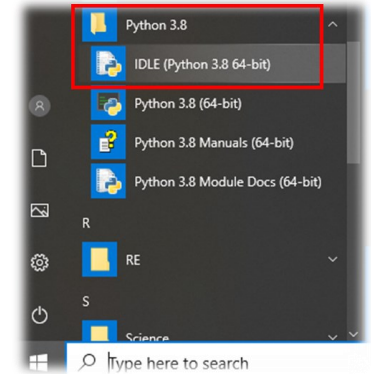
It will display how the **data flows** and any **decisions** which are made to **control** an event. This could be anything from a set of traffic lights, a central heating system on a timer or an electric kettle!



This flowchart shows a safe way of crossing a busy road.

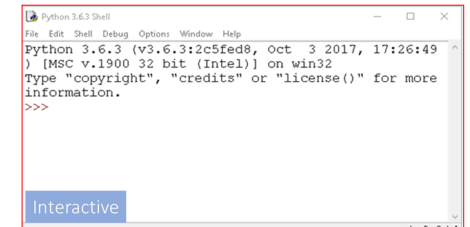
Using Python:

Python is a **text based programming language** piece of software. Scratch is a **block based** piece of software.

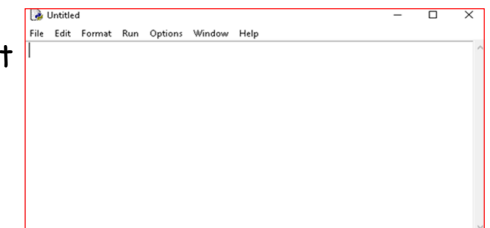


Two windows: There are two windows you will use within Python.

Interactive window: This is where your program is displayed and the **user can interact with the program** you have created.



Script window: This is where you **create** your program. Once you have created your program and you are ready to test it you can go to 'run' or press '**F5**' to run the program



Best practice: It is advised you have both windows up side by side to test your program throughout the creation process.

Home learning Task

Design your own flowchart: Think of your own sequence of instructions for a task. For example, it could be something done in the kitchen, part of playing a game or how to use an electronic device. Make **notes** in the box of the order of the instructions and then use the conventional flowchart symbols to **create** your own flowchart.

Notes:

Flowchart:

Key Words: Listen carefully throughout the lesson for the following keywords.

* Do you know what they mean? * Can you use them within an answer? * Can you spell them correctly?

Algorithm

Abstraction

Decomposition

Pseudo Code

Flowchart

Instruction

Output

Input

Variable

Selection

Decision

Home learning task: You may want to write a **definition** and provide an **example** for each of the keywords. You could bring them into lesson to help you and your peers complete the tasks set.

Useful links and videos:

Below you will find a collection of links and videos to support you with your home learning and revision:

- <https://www.bbc.co.uk/bitesize/guides/z2p9kqt/revision/1> - This will help support your understanding of algorithms and the selection process
- <https://www.bbc.co.uk/bitesize/guides/z2p9kqt/revision/2> - This will help support your understanding of using IF statements.
- <https://www.bbc.co.uk/bitesize/guides/z2p9kqt/revision/3> - This will help support your understanding of using IF ELSE statements.
- [What Is A Flowchart? - YouTube](#) - This video will explain what a flowchart is and how they are used.