Knowledge Organiser :: Programming

Sequence	Parts of the code that run in order and the pathway of the program reads and runs very line in order
Selection	Selects a pathways through the code based on whether a condition is true
Iteration	Code is repeated (looped), either ***while*** something is true or ***for*** a number of times
Algorithm	A set of rules/instructions to be followed by a computer system
Variable	A value that will change whilst the program is executed. (eg. temperature, speed)
Function	A collection of code that works outside the main program. These are created to speed up programming They can be called from a single line of code at any time
Comparative Operator	When comparing data, an operator is used to solve the equality such as <>, != or ==
Syntax	The punctuation/way that code has to be written so that the computer can understand it Each programming language has its own syntax
Data Type	This indicates how the data will be stored The most common data types are integer, string, and float/real
String	A collection of letters, numbers or characters. (eg, Hello, WR10 1XA)
Integer	A whole number. (eg. 1, 189)
Float/Real	A decimal number, not a whole number. (eg. 3.14, -26.9)
Boolean	1 of 2 values. (eg. True, False, Yes, No)
Variable.write	File.write("VariableName")
Open	Open a text file
List	MyList = ["Apple","Fruit","Bannana","Parsnip"]

a	Append	**a**	Write	**r**	read

`print('hello!')`	Prints a value on screen (in this case, hello!)
`input('')`	Inputs a value into the computer.
`x=input('')`	Inputs a value and stores it into the variable x.
`x=int(input(''))`	Inputs a value into x, whilst also making it into an integer.
`print(str(x))`	Prints the variable x, but converts it into a string first.

`if name == "Fred":`
`  do this`
`else:`
`  do this`
	Decides whether the variable name has a value which is equal to Fred
	If it is, this line will be executed
	If the value is not Fred …
	This line will be executed

`if name == "Fred":`
`  do this`
`elif name == "Tim"`
`  do this`
`else:`
`  do this`
	Decides if the variable name has a value which is equal to Fred
	If it does, this line will be executed
	If the value is not Fred it will device if the value is equal to Tim
	If it is, this line will be executed
	If the value is not Fred or Tim …
	This line will be executed

`for i in range(0,10):` `while x < 10:`	Loops any code indented after this line a certain number of times, in this case, 10. Loops any code indented after this line until the condition is met, in this case x becoming equal to or greater than 10
`list = ['','']`	Creates a variable and makes it an array – a list which can store many values
`# Comments`	#' allow you to add comments to your code for code maintainability Comments are ignored when the code is executed

==	The Same As	/	Divide
!=	Not Equals To	+	Add
>	Greater Than	*	Multiple
<	Less Than	-	Subtract
>=	Greater Than or Equals To	mod or %	Remainder Division
<=	Less Than or Equals To	div	Integer Division
		** or ^	Power Of