Year 8 | Topic 3 | Computer Science | Python Programming

Python -> English		
<pre>print('hello!')</pre>	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 ==	f name == Decides whether the variable 'name' ha a	
"Fred":	value which is equal to 'Fred'.	
else:	The other option if the conditions for an if	
	statement are not met (eg. name = 'Bob' when	
	it should be Fred)	
elif name == "Tim"	elif (short for else if) is for when the first if	
	condition is not met, but you want to specify	
	another option.	

Print statements

In order to display text in the **shell** you need to use a **Print** statement.

print ("Hello World")
print ("I am a programmer")

This is the output: Hello World

I am a programmer

Input statements

Using var = input () we can ask a user to input some information.

We can then **print** this back to the console window.

userName = input("what is your name?")
print ("Welcome ", userName)

userName is a variable. This means we can change the information stored. We can also name it whatever we want.

Indents

When the next line of code is optional or belongs to something else. (See example in IF statements)

Data types

Different types of data are stored in variables as different data types. There are three main data types:

String, Integer & Float

String

A type of variable for storing text "strings" e.g. "Hello World"

string = str("This is a string")

Integer

A type of variable for storing whole numbers

e.g. 10, 182, -44

integer = int("This is an integer")

Float

A type of variable for storing decimal numbers. Also known as a real number

e.g. 2.5, 5.05, 3.14

decimal = float("This is a decimal")

- Commenting your code

IF statements

IF statements can be used to select different options in a program depending on a condition. Also known as selection.

question = input("Are you revising?")
if question == "yes":
 print ("Well done!")
elif question == "no":
 print("Oh dear!")
else:
 print("I don't understand")

Variables

A variable is something that can be used to store information. The information that is stored can be changed.

Comparative Operators

==	Equal to
!=	Not equal to
>	Greater than
<	Less than
>=	Greater than or equal to
<=	Less than or equal to

Arithmetic Operators

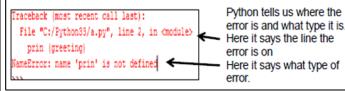
Addition/	Adds or subtracts 2	2 + 5 = 7
Subtraction	values together	6 - 4 = 2
Multiply/	Multiplies or divides	3 * 7 = 21
Division	2 values together	9 / 3 = 3
Integer	Finds the whole num-	10 % 3 = 3
division	ber of a division	
Modulus	Finds the remaining	10 % 3 = 1
	value after a division	
Exponent	Finds the power of a value	7 ** 2 = 49

Python	A high level programming language	
Sequence	Parts of the code that run in order	
	and the pathway of the program	
	reads and runs every line in order.	
Selection	Selects a pathway through the	
	code based on whether a condition	
	(if statement) is true	
Iteration	Code is repeated (looped), either	
	<i>while</i> something is true or <i>for</i> a	
	number of times.	
Algorithm	A step by step method of solving a	
	problem.	
Variable	A value that is stored with a unique	
	identifier and can change whilst	
	the program is executed.	
Comparative	When comparing data, an operator	
operator	is used to set the condition.	
	E.g. == != > <	
Arithmetic	Performing calculations on values	
operator	using the operators. E.g. + - * /	
Syntax	The set rules of the programming	
	language so that the computer can	
	understand it. Mostly this links to	
	punctuation.	
Data type	This indicates how the data will be	
	stored and processed. E.g. integer,	
	float, string, Boolean.	
Suntay		

Syntax

Syntax is what we call the format that the code needs to be in, in order to be processed correctly.

If it is not in the correct format then the code will not work.



Algorithms and programming