Python Knowledge Organiser

Print
Displays content on screen

```
>>> print("Hello World")
Hello World
```

Variables
Place to store data in a program

```
>>> text = "Hello"
>>> name = "Mia"
>>> print(text, name)
Hello Mia

>>> print(text, "your name is", name)
Hello your name is Mia
```

input
Allows user to enter data

```
>>> name = input("What is your name? ")
What is your name? Daniel

>>> print(name)
Daniel
```

- Equals: `a == b`
- Not Equals: `a != b`
- Less than: `a < b`
- Less than or equal to: `a <= b`
- Greater than: `a > b`
- Greater than or equal to: `a >= b`

python™

Selection
Gives a choice in programs

```
if totalCost >= 20 :
    postage = 0
elif totalCost >= 10:
    postage = 1.5
else :
    postage = 2.95
```

CONDITION

EXECUTED WHEN CONDITION IS TRUE

2nd CONDITION (OPTIONAL)

EXECUTED WHEN ALL CONDITIONS ARE FALSE

Changing variable types (casting):
int() - integer – *whole number*
float() –floating point (real) – *decimal* point
str() - string – a series of characters (text)

Example code turns variable into integer:
age = int(age)

```
user_age = int(input("Enter your age: "))
```

\n   creates a line return in a string

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Practise creating programs
Google W3schools python

Iteration: FOR loop
Used to repeat things a certain number of times

```
for x in range(6):
    print(x)
```
```
0
1
2
3
4
5
>>>
```

```
for x in range(4):
    print("Hello")
```
```
Hello
Hello
Hello
Hello
>>>
```

Iteration: while loop
Performs a task while a certain condition is TRUE

```
while distance > 0 :
    print ("Are we there yet?")
    distance -= 1
```

CONDITION

CODE TO LOOP IS INDENTED

CODE IS REPEATED WHILE CONDITION IS TRUE

Must Know	Should know	Top of the class

Must Know

In python:

Create a simple program that outputs content onto the screen using the following skills:

- print

- Understand and use variables

- input

- Converting variables to different types (casting)

Example:

Write a program that allows a user to enter 2 numbers. The program will add the 2 numbers together and display the output.

Should know

In python:

Create a program that uses all basic skills, plus:

- Be able to identify, explain and use selection programs

- Use, change and manipulate lists

- Be able to identify, explain and use iteration in programs

Example:

Write a program that asks the user whether they want to add an item to a list. If the user types "yes", the program will add the item to the list, otherwise a "goodbye" message will display.

Program will keep asking whether user wants to add items until they choose to exit.

Top of the class

In python:

All skills from 'must' and 'should' know, plus:

- Reading from a file / writing to a file

- Create and understand the purpose of subroutines

- Identify, explain and use local and global variables

Example:

Write a program that will ask the user whether they want to add names to, or search for names in a file. If the user chooses to add names, the program will write the names to a file. If the user chooses to search names, the program will read the file and display search results.

The program will keep asking the user what they want to do until they choose to exit.