

Year 9 Cycle 1 – Revision (Python)

Variable: A location in memory that temporarily stores a value. The value may change whilst the program is running.

Creating a variable

```
celsius = 25
```

Using a variable

```
celsius*9/5 + 32
```

Output: shows information to the user. The `print()` function is used to output in python.

Print a message

```
print('Hello, world!')
```

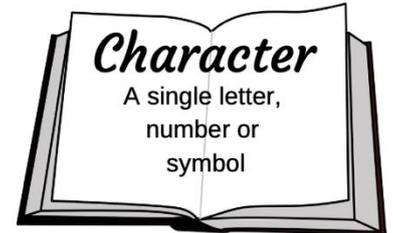
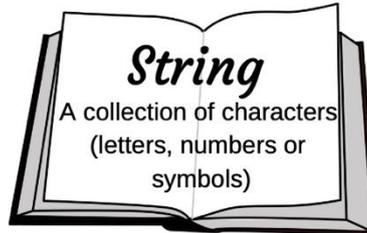
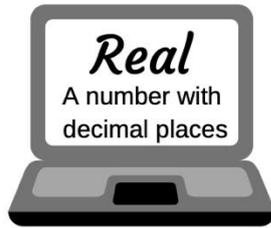
Print multiple values (of different types)

```
ndays = 365
print('There are', ndays, 'in a year')
```

Programming Constructs:

1. Sequence – instructions running in order.
2. Selection – a decision within a program when the program decides to move on based on the result of an event.
3. Iteration – repetition of a section of code.

Data Types – data types are like labels that tell the computer what kind of data is being stored.



Selection - a decision within a program when the program decides to move on based on the result of an event.

Decide to run a block (or not)

```
x = 3
if x == 3:
    print('x is 3')
```

Decide between two blocks

```
mark = 80
if mark >= 50:
    print('pass')
else:
    print('fail')
```

Decide between many blocks

```
mark = 80
if mark >= 65:
    print('credit')
elif mark >= 50:
    print('pass')
else:
    print('fail')
```

- ▶ `elif` can be used without `else`
- ▶ `elif` can be used many times

Are two values equal?

```
x == 3
```

△ two equals signs, not one

Are two values not equal?

```
x != 3
```

Less than another?

```
x < 3
```

Greater than another?

```
x > 3
```

Less than or equal to?

```
x <= 3
```

Greater than or equal to?

```
x >= 3
```

The answer is a *Boolean*:

True or **False**

Input: get information from the user. The `input()` function is used to ask the user for input (type in).

Asking the user for a string

```
name = input('What is your name? ')
```

Asking the user for a whole number (an integer)

```
num = int(input('Enter a number: '))
```

Common operators

<code>==</code>	<code>></code>	<code><</code>
Equal to	More than	Less than
<code>!=</code>	<code>>=</code>	<code><=</code>
Not equal to	More than or equal to	Less than or equal to
<code>+</code>	<code>-</code>	<code>*</code>
Addition	Subtraction	Multiplication
<code>/</code>	DIV	MOD
Division	Whole number division	Remainder

Casting – defining or changing the data types of a value that a variable holds.

Integer `num = int(input("Enter a whole number:"))`

Real `num = float(input("Enter a real number:"))`

String `name = input("Enter your name:"))`



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Iteration – a loop or section of code that is repeated. This can be condition controlled or count controlled.

Example Condition controlled:

```
num = int(input("Enter num: "))
while num <= 10:
    print(num)
    num = num + 1
print("Over 10")
```

Integers

Addition and subtraction

`365 + 1 - 2`

Multiplication and division

`25*9/5 + 32`

Powers (2 to the power of 8)

`2**8`

Convert integer to string

`str(365)`

Knowledge Retrieval Quiz:

1. Define the term variable.

2. What will be the output of the statement: `animal = "tiger" print(animal)`

3. Identify three programming constructs.

Complete the mind map:

Complete the output statement to show the user the message:

_____ ("My school is
DETA")

Complete the input statement to ask the user to enter their favourite animal and store it in a variable called *animal*.

_____ =
_____ ("enter your
favourite animal")

Complete the program below. The program asks the user to enter a number. While the number is less than 10 ask the user to enter a bigger number.

```
num = _____ ("enter a number")
while num _____ 10:
    _____ ("enter another  
number")
```

Complete the table by giving an example of each data type or the description.

Name	Description	Example
Integer		
String	Alphanumeric / text	
Float		6.9
Char		"G"
	True or False	

Python

The program below asks the user to input their age. If they are 18 or over, the program outputs "you are an adult". Else it outputs "you are a child". Complete the program below.

```
age = _____ ("enter your  
age")
```

```
if age <= _____:
    print ("you are an adult")
Else:
    print
    "
```

Quiz Answers:

1. A location in memory that temporarily stores a value. The value may change whilst the program is running.
2. Tiger
3. sequence, selection, iteration.