

Year 9 Python Adventure Game Knowledge Organiser

KEYWORDS

Syntax	Program	Sequence
Variable	Instructions	Selection
Iteration	Modules	Random

Python's Development Environment

Called **IDLE** – Integrated Development Environment

Two Modes:

Interactive Mode lets you see your results as you type them.

Script Mode lets you save your program and run it again later.

Writing error-free code

When writing programs, code should be as legible and error free as possible. **Debugging** helps keep code free of errors and documenting helps keep code clear enough to read.

Syntax errors

Syntax is the spelling and grammar of a programming language. In programming, a **syntax error** occurs when:

- there is a spelling mistake.
- there is a grammatical mistake.

Data Types

String - holds alphanumeric data as text

Integer - holds whole numbers

Float - holds numbers with a decimal point

Boolean - holds either 'True' or 'False'

Defining Variable Data Types

Python automatically assigns a data type to a variable. You can override this to manually define or change the data type using:

`str()` , `int()` or `float()`

Selection

When designing programs, there are often points where a **decision** must be made. This **decision** is known as **selection** and is implemented in programming using **IF statements**.

Operator	Meaning	Example	Evaluates to
==	equal to	7==7	True
!=	not equal to	6!=7	True
>	Greater than	7>6	True
<	Less than	5<8	True
>=	Greater than or equal to	6>=8	False
<=	Less than or equal to	7<=7	True

Iteration

Algorithms consist of steps that are carried out (performed) one after another. Sometimes an **algorithm** needs to **repeat** certain steps until told to stop or until a particular condition has been met.

Iteration is the process of repeating steps.

Variables

A **variable** is a location in **memory** in which you can temporarily store text or numbers. It is used like an empty box or the Memory function on a calculator. You can choose a name for the box (the "**variable name**") and change its contents in your program.

Using a Variable (`firstname`)

```
print ("What is your name?")
firstname = input()
print ("Hello," firstname)
```



Functions

Functions are special keywords that do a specific job. **Functions** appear in purple.

`print()` and `input()` are examples of functions

```
print ("What is your name?")
firstname = input()
print ("Hello," firstname)
```

Adding Comments

Comments are useful to help understand your code. They will not affect the way a program runs. **Comments** appear in red and have a preceding **#** symbol.

```
#firstname is a variable
print ("What is your name?")
firstname = input()
print ("Hello," firstname)
```

Questions

What are the 3 key concepts?	Why do we use <code>time.sleep(2)</code> in our code?	What is the data type for a number?
What is a variable?	What does selection mean?	What is the data type for text?