Key Vocabulary…

Term	Definition
Variable	A value that can change while the program is running.
Algorithm	A step by step set of rules in order to solve a problem.
String	A data type for text e.g., hello.
Boolean	A logic system using the operators AND, OR and NOT. The Boolean data can take one of two values, either true or false.
Float	A data type for numbers with a decimal point. e.g., 23.6
Integer	A data type for whole numbers. e.g., 30
Sequencing	Instructions arranged in a specific order.
Iteration	Looping or repeating sections of a program.
Input Output	Requires the user to enter something. Prints something for the user to see.
Selection	Decisions or questions used to make algorithms more realistic.
Debugging	Identifying and fixing errors within the program.

Picture This…

```
num = input ("Please enter a number:")
answer = int (num) * 2
print ("The number entered doubled is: " + str(answer))
```

Result
Please enter a number:20
The number entered doubled is: 40

```
#Variable that stores the day of the week
firstName = input ("What is your first name?")
surName = input ("What is your surname?")
age = input ("What is your age")
id = (firstName + surName)
print ("Your full name is" , id, "\n You age is" , age)
```

Result
What is your first name?Polly
What is your surname?Turner
What is your age12
Your full name is PollyTurner
You age is 12

Always Remember…

There are four data types: Boolean, Integer, Float and String.

A float is used when a number needs a decimal point, and an integer is used when a whole number is needed.

There are three different types of loops: FOR, WHILE and INFINATE.

Variables are like boxes. They store values.

Bugs are errors in the code. There are two types of error a syntax error and a run time error.

If. Elif and Else commands are used to make decisions in a program.

Questions

1. Define the term variable.
2. What data type is the following piece of data 'hello'?
3. What data type is the following piece of data '23'?
4. Explain the purpose of commenting.
5. Define the term debugging.
6. Which command is used to create a decision?
7. Which command is used to get an output?
8. Which command is used to create a loop?

Deeper Learning…

Escape characters can be used to make an exception to a rule.
\t = Tabs items across
\n = Gets things to appear on a new line

Concatenation puts items side by side and merges them into one. For example, The words 'hot' and 'dog' are put together to make 'hotdog'.
These skills are used in code by professionals to create applications that are used in companies such as NASA.

Activity – Write a program in pseudocode that works out the circumference of any circle.

Key Vocabulary…

Term	Definition
Function	A module of code that is used for a specific task. Functions can be used over and over again in a program.
Parameter	The information required for a function to run.
Concatenation	The operation of joining two string together.
Import	Loading external functions ready to be used in a program.
Declaration	Assigning a value to a variable.
Typecasting	Casting a variable as a String, Integer, Float and Boolean.
Arrays	A data structure that stores value of the same data type.
Conditional	Branching steps that checks if something is True or False and carries out a set of instructions depending on the result.
Program Control	Selection of code to be executed based on the results of prior operations.

Picture This…

We can see the data type by using the below code.

```
num_int = 456
num_string = "456"

print("num_int is the data type:", type(num_int))
print("num_string is the data type:", type(num_string))
```

Below is the result of the above code.

```
num_int is the data type: <class 'int'>
num_string is the data type: <class 'str'>
```

Below is an example of concatenation. If the two values are a numeric value, the + symbol will add the two numbers together. If it is a string it joins the string together.

Code

```
x = "My "
y = "name "
z = "is "
a = x + y + z
print(a)

q = 10
w = 20
e = q + w
print(e)
```

Result

```
My name is
30
```

Questions

1. Define the term variable.
2. Explain the purpose of commenting.
3. Define the term debugging.
4. Which command is used to create a decision?
5. Which command is used to create a loop?
6. Explain the difference between a function and a procedure.
7. Which type of brackets are used when creating a list in Python?

Always Remember…

We use functions in a lot of programs we create in Python. len(a) and print() are functions that are used when we first start using Python.

Python allows you to put multiple functions within a file called a module. Modules can be import into scripts and programs.

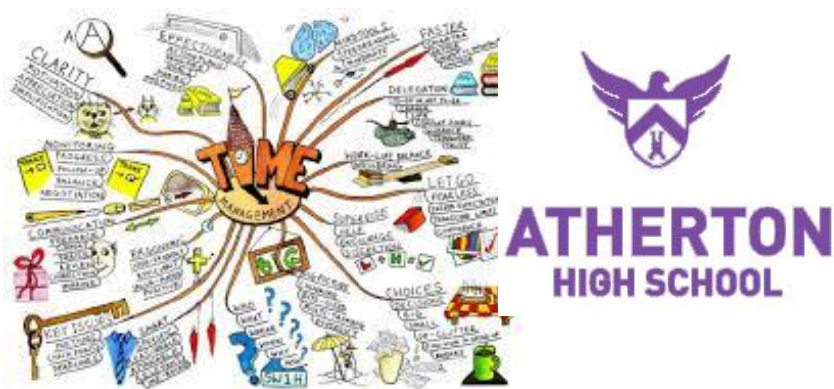If you run this code in IDLE something unusual will happen.

```
from __future__ import braces
```

Deeper Learning…

Strings and Integers in Python cannot be concatenated unless we convert the data type. This is called casting.

Python is used for Artificial Intelligence, Web Development and Game Development.

Arrays can be more than 2D lists. Programming makes use of 3D, 4D all the way up to 32 dimensional arrays.

Activity – Write a program in pseudocode that works out the area of a trapezium.

Y9 – Summer Term 2: Digital Literacy

Term	Definition
Moodboard	To generate ideas. This should contain graphics, colours and text.
Mindmap	To organise and structure ideas. This should contain a central node, sub nodes and images.
Central node	This is the central idea and should be the overall topic that the mindmap is about.
Sub node	These are the strands that come from the central node. They should show the links between ideas.
Branches	These are the connects which link ideas to the main idea and the sub nodes.
Copyright	This is the law that protects intellectual property from being copied and passed off as someone else's. When items such as book and drama are copyright protected, they need an agreement from the original owner to be used by others.
Client Brief	A document which outlines all the requirements of a project. This includes what the final product must have/ or do and when it should be completed by.
Client	The person you work for.
Digital Graphics	Any image/object that is displayed or created on a digital device such as a computer and stored as data.

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Ecologie

ECO

Hardware –Parts of the computer you can physically touch. For example, mouse, keyboard, speakers and monitor.

Software – Programs that are used to make things on the computer. For example, Photopea, Microsoft Words or Microsoft Powerpoint.

Photopea

Moodboard generates ideas for a product and a mindmap takes these ideas and organises them.

It is important to read the client brief and ensure that you have got all the requirements.

Questions

1. What is the purpose of a mindmap?
2. What is the purpose of a moodboard?
3. List 2 items a mindmap should contain.
4. List 2 items a moodboard should contain.
5. Define the term copyright.
6. Draw the copyright symbol.
7. What is a digital graphic?
8. Define the term hardware.
9. Define the term software.

Deeper Learning…

Colours have meanings and these are used within the visual identity to give hints about the company and/or product.

Purple – rich colour used to show royalty.
Yellow- Closely linked with the sun, summertime and happiness.
Red- Linked with danger and therefore more memorable.

Activity: Draw a logo for a new sports brand and then create the digital graphic into Photopea.