



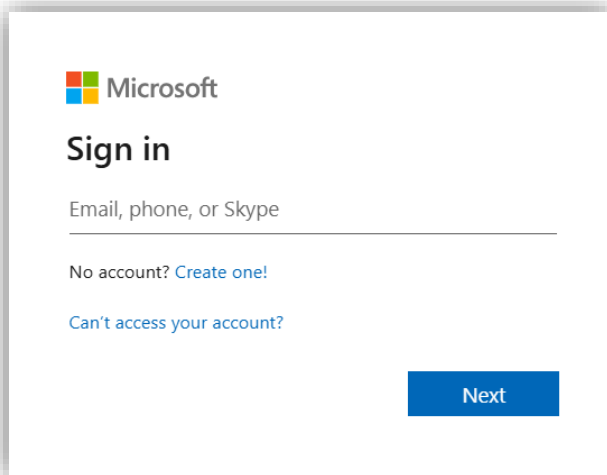
HARTFORD
CHURCH OF ENGLAND
HIGH SCHOOL

Year 7 Computing Knowledge Organiser

Year 7 Computing Half Term 1

Using Computers

Each student is given a school email address which they can use to contact teachers and access Microsoft Teams and Microsoft 365 Apps

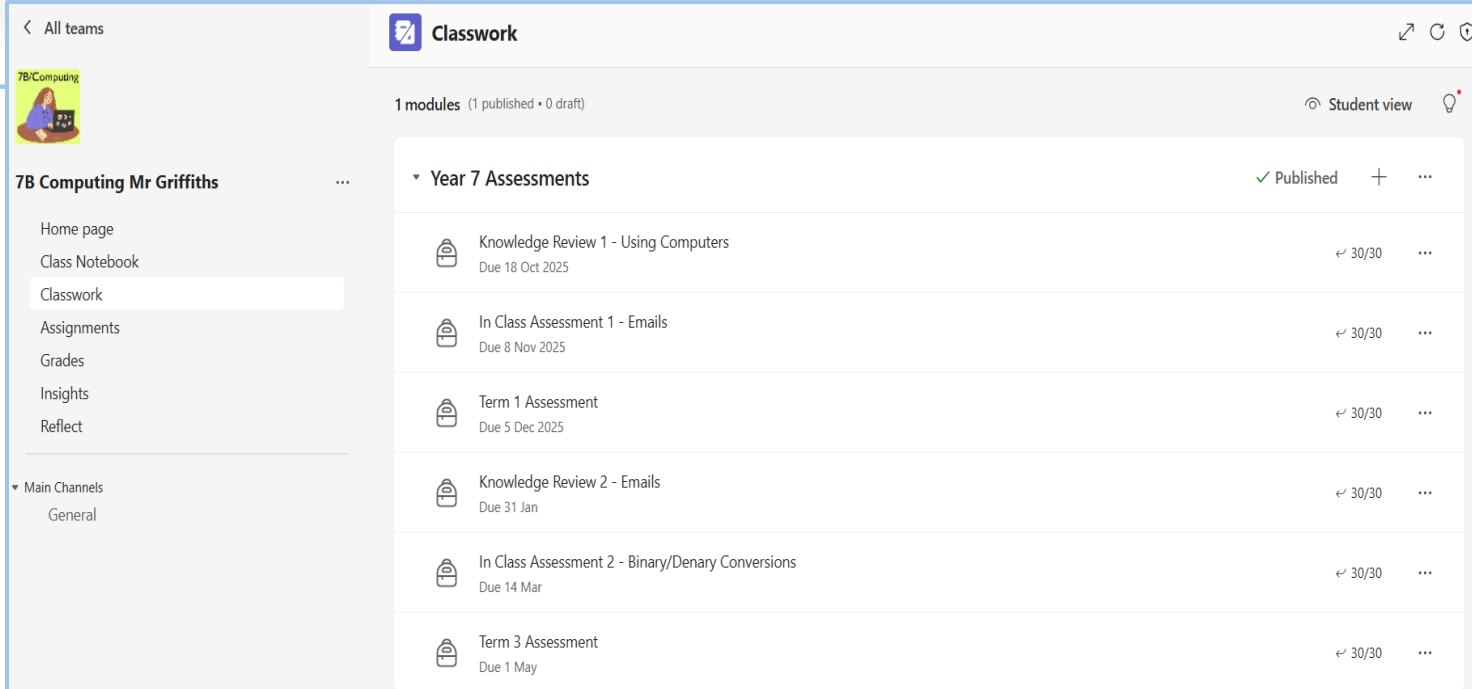


Teachers can set work on **Microsoft Teams** for you to access. Once you have signed in to your **Microsoft 365** account you will be able to load up the teams app – on here you will see all of the classes that your teachers have invited you to and will be able to see your assessments.



Key Terms

Term	Definition
Email	Electronic mail is a method of exchanging messages between people using electronic devices.
Password	A string of characters that allows access to a computer system or service.
OneDrive	A cloud storage platform where you can store files.
Word	A program to edit and manipulate text and images
PowerPoint	A program to create presentations and publications



< All teams

7B Computing Mr Griffiths

- Home page
- Class Notebook
- Classwork
- Assignments
- Grades
- Insights
- Reflect

Main Channels

- General

Classwork

1 modules (1 published • 0 draft)

Student view

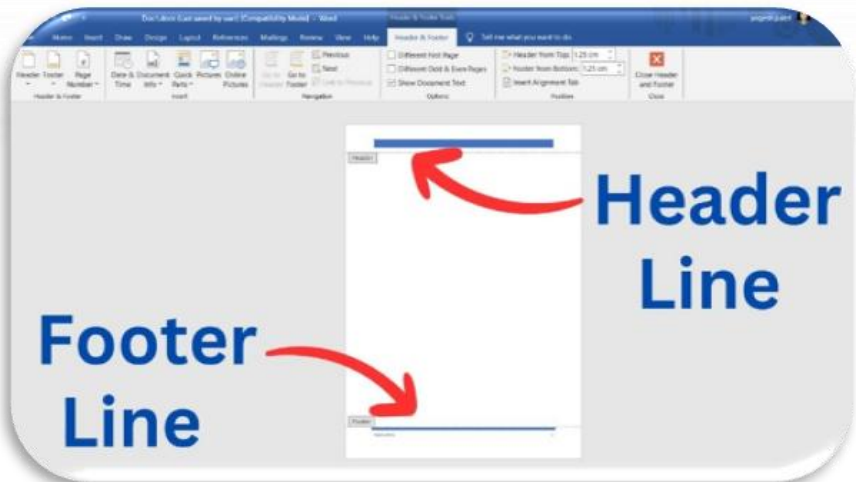
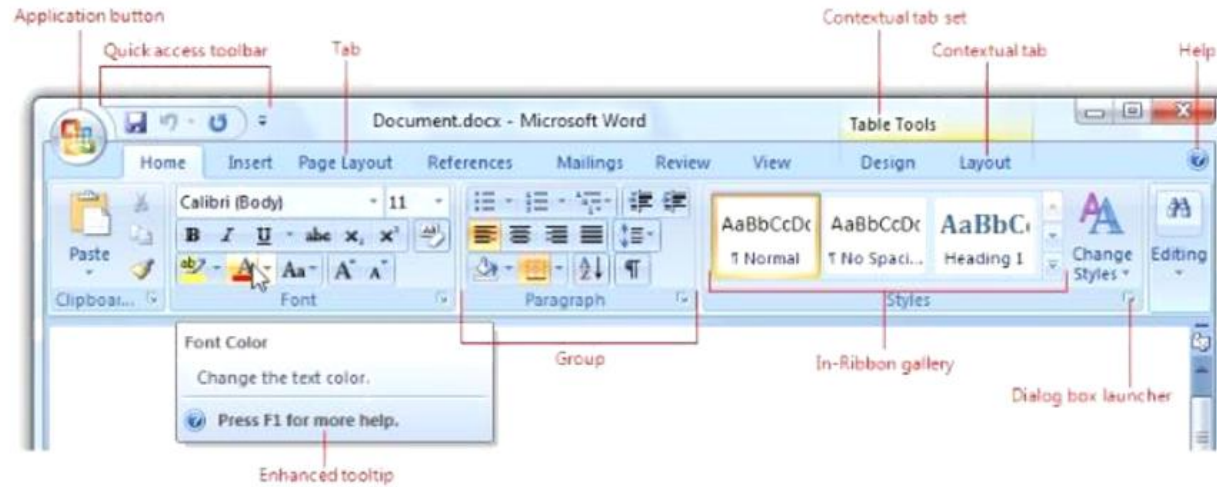
Year 7 Assessments

- Knowledge Review 1 - Using Computers
Due 18 Oct 2025
- In Class Assessment 1 - Emails
Due 8 Nov 2025
- Term 1 Assessment
Due 5 Dec 2025
- Knowledge Review 2 - Emails
Due 31 Jan
- In Class Assessment 2 - Binary/Denary Conversions
Due 14 Mar
- Term 3 Assessment
Due 1 May



Year 7 Computing Half Term 2

Word Processing



FOLLOW THE STEPS

- 1  **Ctrl + S:** save fast, save often!
- 2  **Insert tab:** add a picture in seconds
- 3  **Red squiggle:** check it before you print!
- 4  **Insert > Table:** organise info neatly
- 5  **Layout tab:** control margins & orientation
- 6  **Home tab:** turn lists into bullet points
- 7  **Insert tab:** add a header or footer

Year 7 Computing Half Term 3

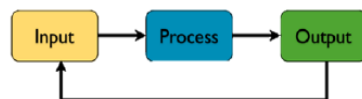
Understanding Computers - Part A

What is Binary?

Binary is a number system that only uses two digits: 1 and 0. All information that is processed by a computer is in the form of a sequence of 1s and 0s. Therefore, all data that we want a computer to process needs to be converted into binary.

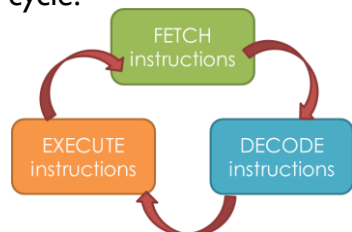
What is a computer?

A computer is any device that takes an input, processes it and then outputs information.



Fetch, Decode, Execute

The main function of the CPU is to run an endless fetch-execute cycle.



The speed of the **FDE** cycle is measured in cycles per second (**hertz**). This is known as the **clock speed**. Processors are usually measured in **gigahertz (GHz)**.

1 GHz = 1 billion instructions processed.

Input Devices

An input device is a piece of hardware that can be used to enter data into a computer.

Output Devices

An output device is a piece of hardware that can be used to represent information in a variety of ways.

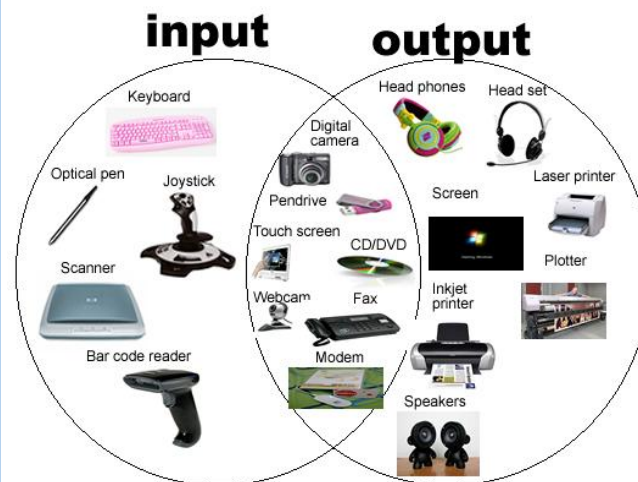
128	64	32	16	8	4	2	1	
0	0	1	1	0	1	0	1	= 53
128	64	32	16	8	4	2	1	
1	1	0	1	1	1	0	1	= 221
128	64	32	16	8	4	2	1	
1	0	1	0	0	0	1	1	= 163

Decimal	Binary
0	0000
1	0001
2	0010
3	0011
4	0100
5	0101
6	0110
7	0111
8	1000
9	1001

— 8 bit binary digit —

128	64	32	16	8	4	2	1
0	1	0	1	1	1	0	1

$$64 + 16 + 8 + 4 + 1 = 93$$



Components

Computer components are all the different internal parts of a computer system that help it to operate.

Each component has its own purpose and functions.

Central Processing Unit

The CPU is the brain of the computer. It does all the processing and calculating for the computer.

Heat sink

A heat sink is used to draw heat away from important components such as the CPU that can get quite hot. If a component gets too hot, then it will not be able to perform its job as well.

Motherboard

The motherboard is what connects all the other components. It helps keep them secure and allows the components to communicate.

Power Supply

A power supply helps to convert electricity to a suitable voltage to power the computer safely.

Hard Drive

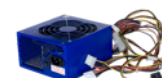
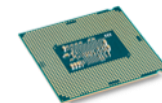
A Hard Drive is where all the computers long term data is stored i.e. data you want to keep for in the future, such as your own documents, music, films and games.

Random Access Memory

RAM is where temporary data is stored while the computer is currently being used. Once a computer is switched off this data is lost.

Network Interface Card

A network interface card (NIC) enables a computer system to connect to a network. Some allow access wirelessly.



Year 7 Computing Half Term 4

Understanding Computers - Part B

What is a storage device?

A piece of computer equipment on which information can be stored.

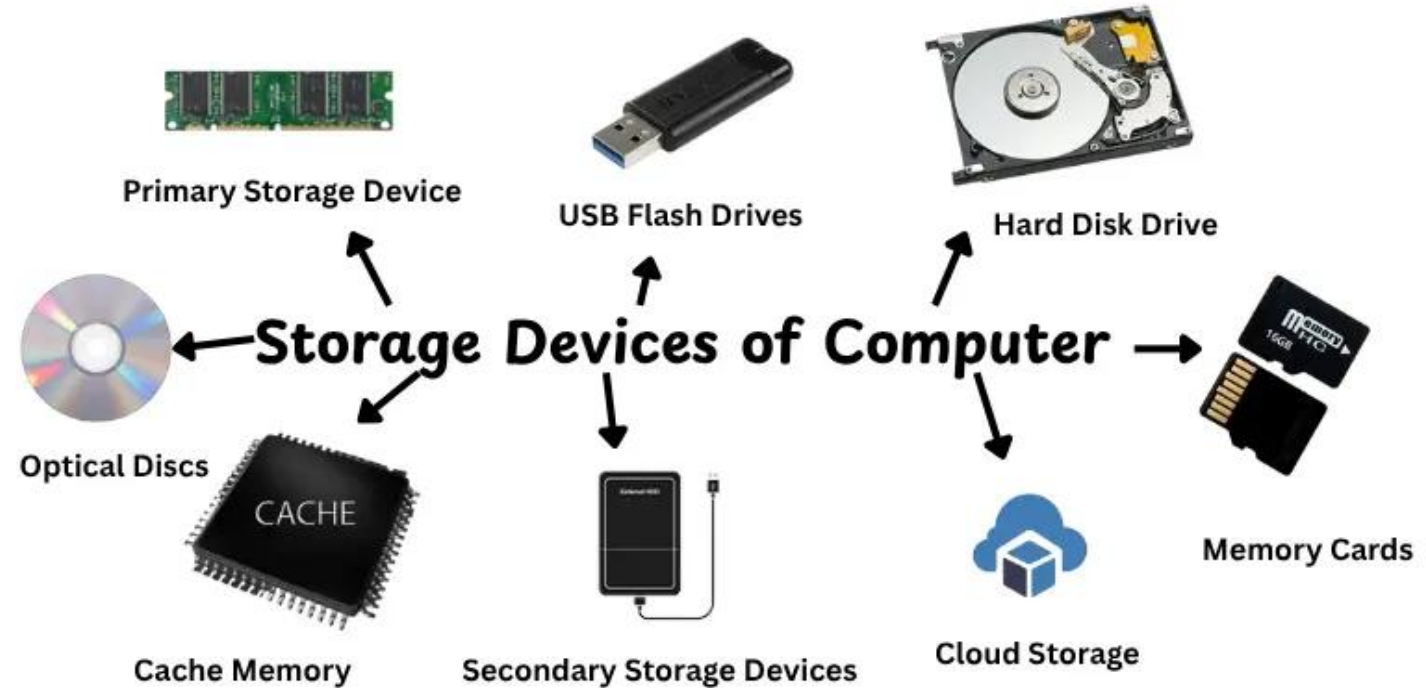
Rules of Binary Addition

$0 + 0 = 0$
$0 + 1 = 1$
$1 + 1 = 10$
$1 + 1 + 1 = 11$

Convergence



Storage Devices



New Technologies

Artificial Intelligence (AI) and Machine Learning (ML)
Quantum Computing.
Virtual Reality (VR) and Augmented Reality (AR)

Internet of Things (IoT)
Robotic Process Automation (RPA)
Blockchain

THE BEST LEARNING SITES FOR PYTHON

- 1. ACTE TECHNOLOGIES** 
- 2. EDX (WITH FREE AUDIT)** 
- 3. PYTHON.ORG (FREE DOCUMENTATION AND TUTORIALS)** 
- 4. W3SCHOOLS (FREE TUTORIALS)** 
- 5. CODECADEMY** 
- 6. COURSERA (WITH AUDIT OPTION)** 
- 7. KHAN ACADEMY (FREE COURSES)** 
- 8. GOOGLE'S PYTHON CLASS (FREE MATERIALS)** 
- 9. GITHUB (FREE LEARNING FROM PROJECTS)** 

What is a Python?

Python is a **text based programming language** that can be used to create small programs, web applications, games and even search engines like Google and YouTube!

Python is easy to learn and is a great beginner language.



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.

Syntax

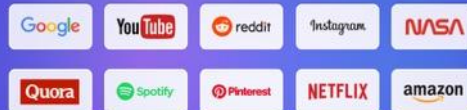
Syntax is what we call the format that the code needs to be in, in order to be processed correctly.

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

```
Traceback (most recent call last):
  File "C:/Python33/a.py", line 2, in <module>
    print (greeting)
NameError: name 'prin' is not defined
```

Python tells us where the error is and what type it is. Here it says the line the error is on
Here it says what type of error.

EXAMPLES OF PROMINENT COMPANIES USING PYTHON



Key Words

Python	Programming	Print	Input	Output
Syntax	IF/ ELIF	String	Integer	Float
			Variable	

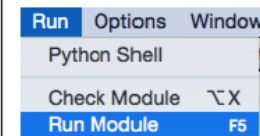
IF statements

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")
```

Executing a program

In order to run or **test** a program written in Python the user needs to go to **Run** and then **Run Module**.



Alternatively, you could press the **F5** button on the keyboard.

Variables

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

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")
```

Year 7 Computing Half Term 5

Python Key Skills

KEYWORDS

Key Term	Meaning/Description
Python	Python is a text-based programming language that allows you to create programs and applications.
Variable	Variables are containers for storing data.
Comments	Programmers used comments to help explain the code. The symbol for comments is #
For loop	A for loop is used to repeatedly execute a set of statements until the end of sequence is reached.
If statement	If statements are used for decision making programs. An if statement will run the code only when the IF condition is true.
Logic errors	Logic errors occur when the program runs without crashing but produces an incorrect result. The error is caused by a mistake in the program's logic.
Run time error	It is an error that occurs when the wrong data type is used in a program.



www.python.org

For top tips visit the Python Website.

Write your first program

- At the prompt, type in the following:

```
>>> print ("Hello")
```
- When you hit the Enter key what happens?
- What does the word **print** do?

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

Make sure you use a lower case "p" for print or it will not work.

Python Operators

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

RULES FOR VARIABLE NAMES

DO'S



Do give your variable a sensible name so it is easy to remember

Do keep your variable names short

Do use two words together with no spaces
e.g. FirstName

Do begin variable names with a letter or underscore
" "
" "

DON'TS



Don't use words that Python already uses
e.g. "print"

Don't use spaces in variable names

Don't use mathematical symbols in variable names

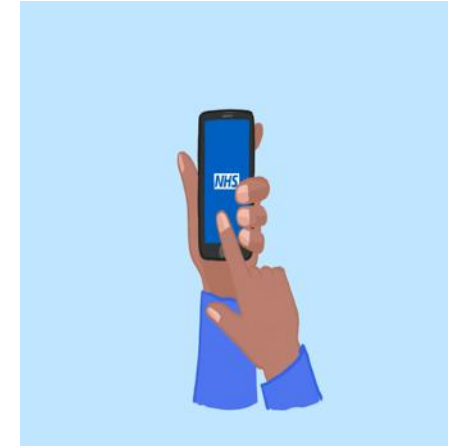
Don't use uppercases for every letter in a variable

Year 7 Computing Half Term 6

Databases

- A database contains one or more **tables**
- A database with only one table is called a flat file database
- A table has rows, each row containing one **record**
- Columns in the table each contain one **field** belonging to the records

Term	Definition
Record	All of the data in a row in a table.
Field	The identifier at the top of each column for the data below.
Table	Where multiple records are stored.
Validation	Rules which are used to check that the data entered is correct.
Form	Used to allow a person to interact with a database, usually to input or search for data.
Query	Used to search a database for a certain piece of information.
Primary Key	Each record may have a unique identifier, called the primary key.



Primary Key

Field

Record

Table

Pupil ID	FirstName	Surname	School	Town	Postcode	Gender	Age	Category
22	John	Devlin	Hillside School	Bradford	BD3 7YV	M	11	1
23	Lindsay	Green	Hillside School	Bradford	BD3 7YV	F	14	1
24	Colin	McCullough	Hillside School	Bradford	BD3 7YV	M	11	1
25	Pauline	Heron	Dayes High School	Liverpool	L16 8VC	F	12	1
26	Emily	Ellingham	Dayes High School	Liverpool	L16 8VC	M	13	1
27	Stuart	Junges-Stainthorpe	Dayes High School	Liverpool	L16 8VC	M	11	1
28	Samuel	Langridge	Dayes High School	Liverpool	L16 8VC	M	14	1
29	Anthea	Elfallah	Donnington School	Worthing	BN14 9JH	F	14	1
30	Sillian	House	Donnington School	Worthing	BN14 9JH	F	14	1

Operator	Meaning	Example
<	Less than	<1.65
<=	Less than or equal to	<=40
>	Greater than	>1.9
>=	Greater than or equal to	>=30
=	Equal to	=“M”
BETWEEN	Tests for a range of values	BETWEEN 18 AND 25
OR	At least one of the criteria must be satisfied	“medium” OR “overweight”
NOT	All criteria are satisfied except for the ones specified	NOT “bald”

