

Kettlethorpe HIGH SCHOOL

Year 7

Knowledge Organiser Booklet

Name:

Tutor:



THINK PINK!

If you see **PINK** in your books,
make the corrections.

Capital letters

- sentence **starts**
- proper **nouns**
- the word 'I'

Commas

- to separate three or more items in **a list**
- use a **pair of commas** when you are **inserting extra information** in the middle of the sentence
 - use **after an adverbial**

Before sunrise, Zac ate his breakfast.

Apostrophes

- to show that a letter or **letters are missing**: *I'm - haven't - don't*
- to show **something belongs to something else**: *The parents' meeting lasted an hour.*

1. Have you carefully reread your work?
2. Have you checked to see if you accidentally made any mistakes?
3. Are you proud of your work?

Common mistakes

There refers to a place or idea.
Their shows belonging.
They're is short for 'they are'.

use **should have** - not 'should of'
use **could have** - not 'could of'
use **would have** - not 'would of'

Spelling

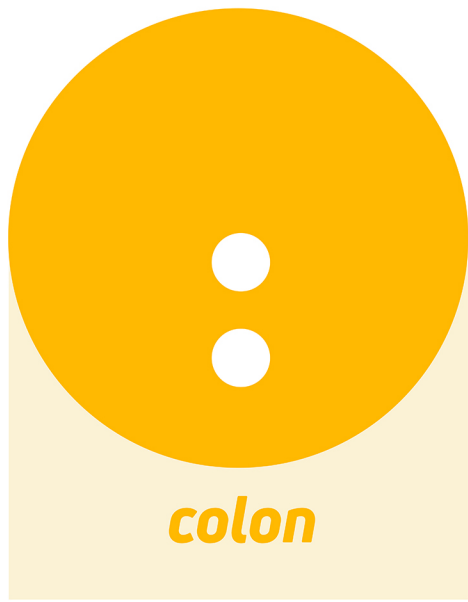
- use **the dictionary**
- make sure to use **subject specific vocabulary**

APPLY THE RULES. **B**E CONSISTENT. **C**HECK FOR ACCURACY.

WWW - Descriptive comment on what went well

EBI - Descriptive comment saying your work would be even better if

Punctuation



to introduce extra info



to link connected sentences



You only need one!



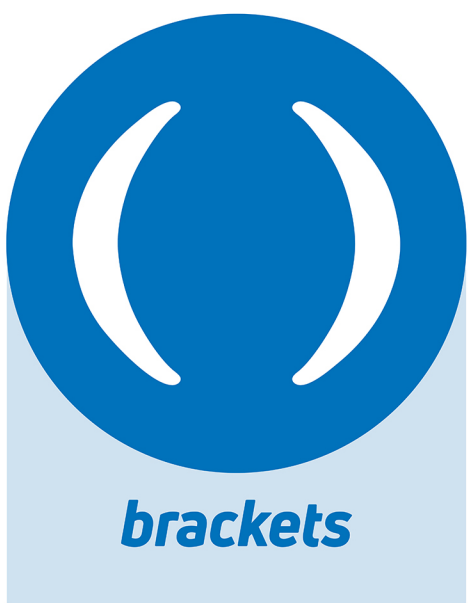
to leave a trailing thought...



to end a sentence



to add/separate information



to add extra information



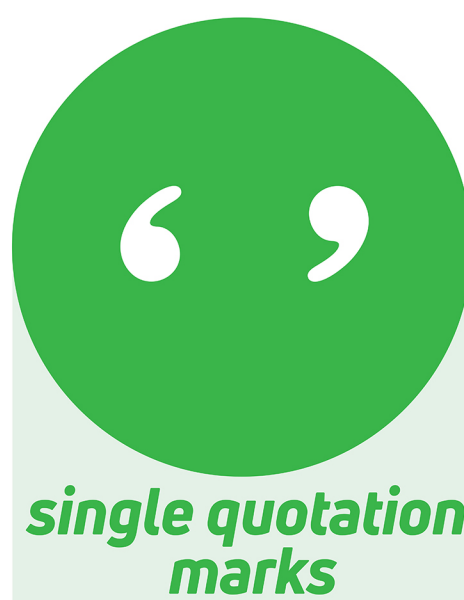
to add/separate information



for omission or possession



“Are you listening?”



to include quotes



at the end of a question

Do you know your roots?

Literacy

LASTS...

-scop-

root meaning **'to see'**

sub-

prefix meaning **'under'**

hypo-

prefix meaning **'below'**

ex-

prefix meaning **'out of'**

con-

prefix meaning **'with'**

-logy

suffix meaning **'study of'**

-graph-

root meaning **'writing'**

-bio-

root meaning **'life'**

-techn-

root meaning **'art / skill'**

micro-

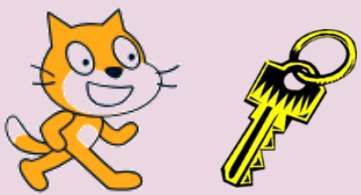
prefix meaning **'small'**

-chron-

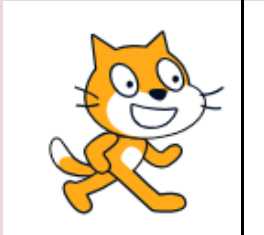
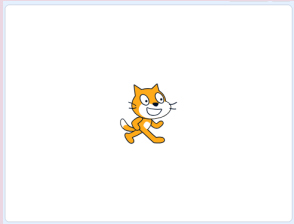
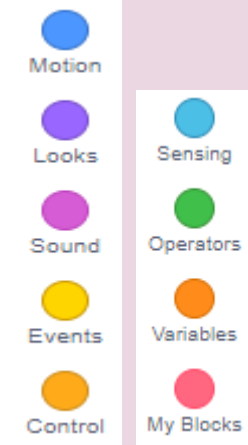
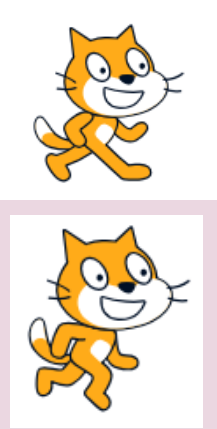
root meaning **'time'**

-phon-

root meaning **'sound'**

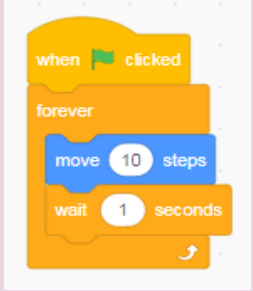
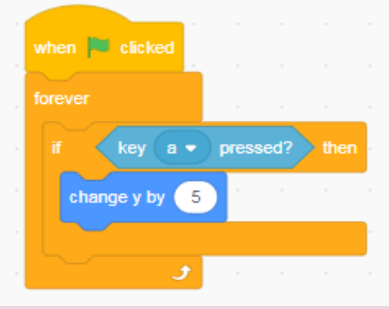


Scratch is a free visual programming language that you can use to create your own interactive games, stories and quizzes.

Sprite	Stage	Script Block	Costume
			
Character that can be coded in Scratch.	The area the sprite moves in.	A colour rectangle that is used to program the sprite.	What the sprite looks like. A sprite can have multiple costumes.

- Sprite
- Stage
- Script Block
- Costume
- Variable
- Operator
- Algorithm
- Event
- Scripts
- Loop
- Command
- If Statement
- Backdrop
- Code
- Conditional Statement
- Looks
- Motion
- Sensing
- Sound
- Control

Motion blocks are the blocks that control a sprite's movement .
Looks blocks are the blocks that control a sprite's look .
Sound blocks are the blocks that control sound .
Event blocks are blocks that control events and the starting of scripts .
Control blocks are the blocks that control scripts .
Sensing blocks are the blocks that detect things .
Operators blocks are the blocks that perform math functions and string handling.
Variables blocks are the blocks that hold values and strings .

	
This code tells a sprite to move 10 steps forever.	This code tells a sprite to change position if Y is pressed.



Scratch is a **visual programming language**—this means we don't see our code as lines of text, we see it as blocks that we connect.

- Sprite
- Stage
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Sequencing is the specific order in which instructions are performed in an algorithm.

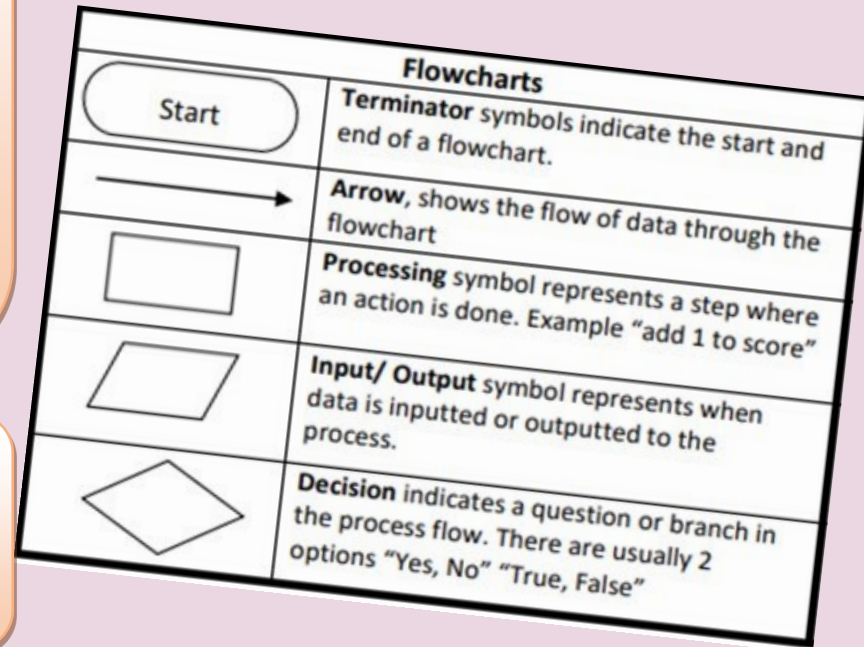
Algorithms consist of instructions that are carried out (performed) one after another.

It is crucial that the steps in an algorithm are performed in the right order, otherwise the algorithm will not work correctly.

When an algorithm has been correctly sequenced we can convert this algorithm into a computer program that will carry out the instructions in the correct order.

Programming Keywords

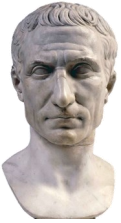
Sequence	Ordered instructions.
Selection	Choose between two options of code.
Iteration	Repeats lines of code.
Inputs	Data received from the user.
Outputs	Data displayed to the user.
String	Data type containing characters.
Integer	Data type containing whole numbers.
Float	Data type containing decimal numbers.
Boolean	Data type containing True/False values.
Variables	Locations in memory which store values.



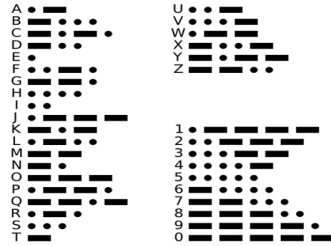


History of Coding - An Introduction

Caesar Cipher



Example of Historical Codes



Morse Code

A	B	C	D	E	F	G	H	I	J
1	2	3	4	5	6	7	8	9	10

K	L	M	N	O	P	Q	R	S	T
11	12	13	14	15	16	17	18	19	20

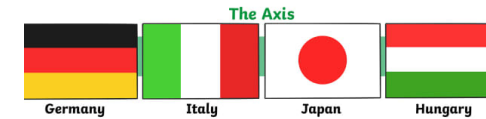
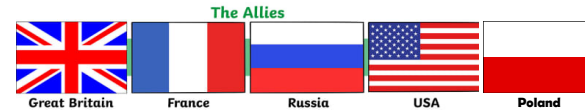
U	V	W	X	Y	Z
21	22	23	24	25	26

Letter Replacement

Phone Code



World War II involved many countries around the globe fighting against each other, including the UK. It lasted six years, from 1939-1945. The War became a global conflict after the German military, led by Adolf Hitler, invaded Poland.



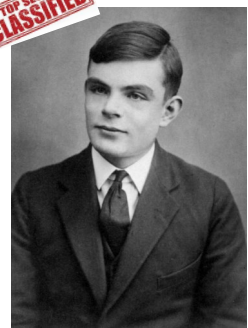
Britain declared war on Germany then Italy joined with Germany, and gradually other countries in Europe and around the world became involved with either the Allies or the Axis powers.

Alan Turing worked for the British government's top-secret code-breaking department at Bletchley Park. The Nazis had been using a system of scrambled messages called the Enigma Code to communicate military information.



Decoding these messages could give the British a huge boost in the war efforts, as they'd get to find out what their enemies were planning!

So, Alan and his team invented an incredible new machine called the Bombe and this were vital in cracking the Enigma code. This gave Britain and its allies a huge advantage! By 1945, they had won the war. It's estimated that the codebreakers' efforts saved many thousands of lives!



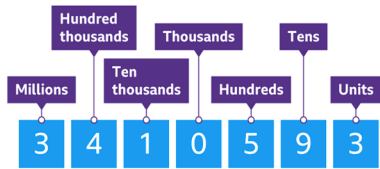


Data Representation - Advanced

How do Computers see the world?

Computers use electrical signals that are on or off, so they have to see everything as a series of **binary numbers**. This data is represented as a sequence of **1s** and **0s** - **on** or **off**. All data that we want a computer to process needs to be converted into this binary format.

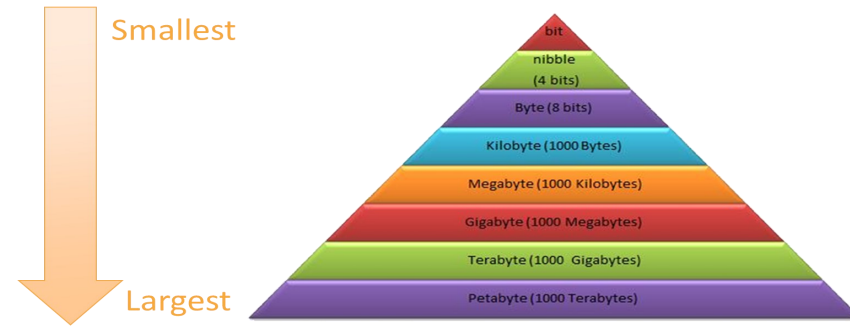
What is Denary?



People use the **denary** (or decimal) number system in their day-to-day lives. This system has 10 digits that we can use: 0, 1, 2, 3, 4, 5, 6, 7, 8 and 9.

How to Convert Denary to Binary

Units of Data Storage



What is Binary?

Binary is a number system what only uses two digits **1** and **0**. You can convert **binary** numbers into **denary** and vice versa.

Key Words and Spellings



Encrypt	Morse Code
Cipher	Decrypt
Enigma	Decipher
Cryptology	Cryptographer
Caesar Cipher	Hieroglyphics

Spreadsheets Basics



- Formula
- Spreadsheet
- Multiply
- Cell reference
- Function
- Formatting
- Conditional
- Worksheet
- Statement
- AutoSum

The screenshot shows the Microsoft Excel interface. Labels with arrows point to the following components:

- Name Box:** Located at the top left, showing the active cell address (A1).
- Formula Bar:** Located below the Name Box, used for entering data or formulas.
- Column Letter:** Located above the column headers (A, B, C, etc.).
- Number formats:** Located in the top right ribbon area, used for applying different formats to data.
- Row Number:** Located to the left of the row headers (1, 2, 3, etc.).
- Cell:** A single cell in the grid is highlighted with a blue border.

ADD	SUBTRACT	MULTIPLY	DIVIDE
=b1+b2	=b1-b2	=b1*b2	=b1/b2
SUM	AVERAGE	MIN	MAX
=SUM(A1:A4)	=AVERAGE(A1:A4)	=MIN(A1:A4)	=MAX(A1:A4)

Charts in Excel



Line graph



Bar chart

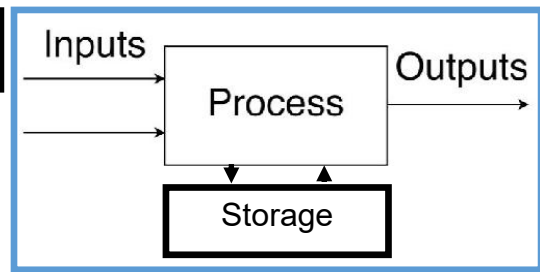


Pie chart

Sensor: A device used to detect something such as light, humidity, movement, sound etc.

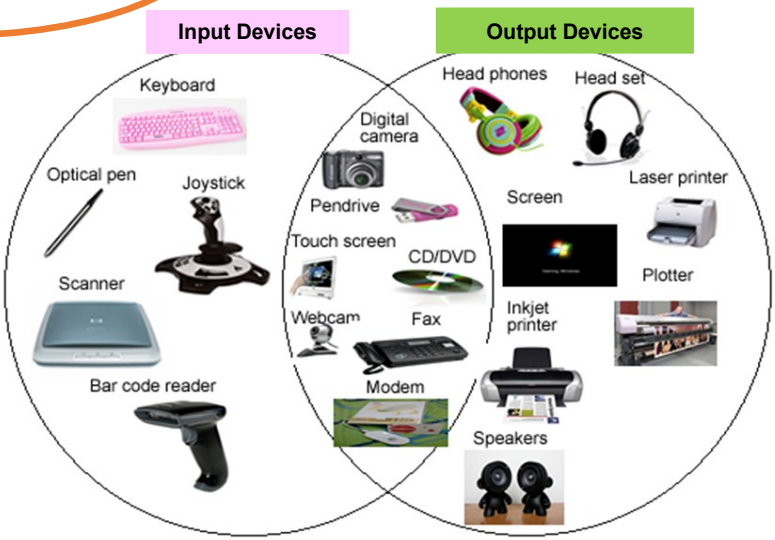
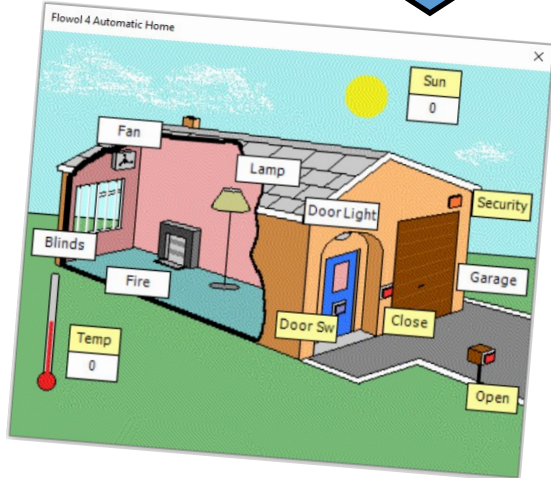
- Sensors used in the real world systems are:
- Fire Alarms—using temperature and smoke sensors
 - Automatic Doors—using motion sensors
 - Burglar Alarms—using sound, motion and light sensors
 - Streetlights—using light sensors

Use your knowledge organiser to create automatic systems for this!



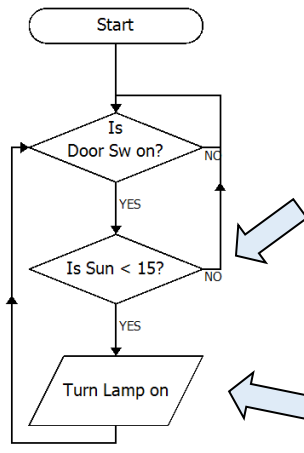
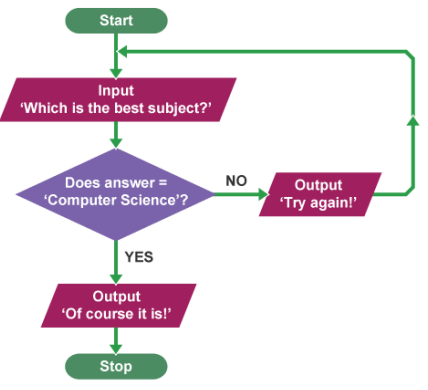
FLOWCHART BASICS:

- TERMINATOR:** Indicates the beginning or end of your Flow sequence (represented by a rounded rectangle)
- PROCESS:** Indicates a process that is applied to your sequence (e.g. a delay) (represented by a rectangle)
- DATA (INPUT/OUTPUT):** In Flowchart, this indicates an input or output, such as a motor. (represented by a parallelogram)
- DECISION:** Indicates a point in your sequence that requires a decision to proceed. (represented by a diamond)



Operator	Meaning
==	Equal to
!=	Not equal to
>	Greater than
<	Less than
>=	Greater than or equal to
<=	Less than or equal to

Keywords
Motherboard
Random Access Memory
Peripheral
Central Processing Unit
Device
Input
Output
Monitor
Keyboard
Component



If the door switch is pressed on, but the Sunlight level is GREATER THAN 15, it will go back to the start and not turn the lamp on.

This example show if the door switch is pressed on AND if the Sunlight level is LESS THAN 15, then the lamp will be turned on inside the house.