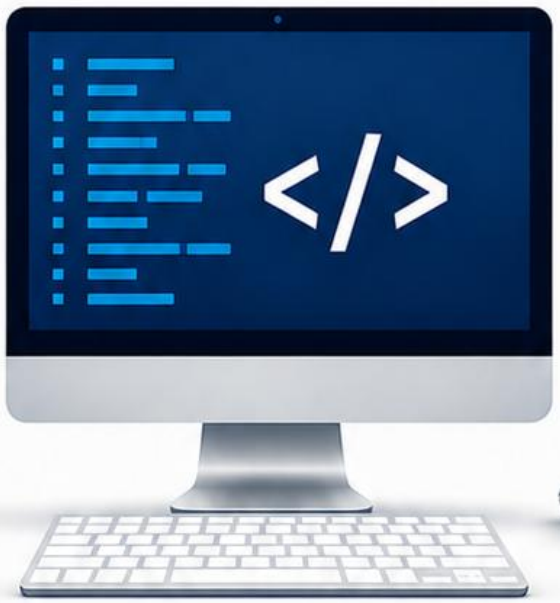
THE GRANGE SCHOOL

IT and Computing Department

YEAR 9

Key Vocabulary Booklet

2026–2027



Vocabulary Tiers

Tier 1
Everyday words

Tier 2
Academic words

Tier 3
Subject Specific words

Name: _____

Form: _____

Binary and Data Representation

Binary and Boolean Logic

Word	Tier	Definition
CPU	3	Central Processing Unit — the main chip that processes instructions in a computer.
Logic	2	Using rules and reasoning to solve problems or make decisions.
Logic Gates	3	Electronic circuits that make decisions based on binary inputs (AND, OR, NOT).

Binary and Data Representation

Word	Tier	Definition
Binary	3	A number system using only 0 and 1, used by computers to process data.
Denary/Decimal	3	The standard base-10 number system using digits 0–9.
Denary/Decimal	3	The standard base-10 number system using digits 0–9.

Binary and Images

Word	Tier	Definition
Pixels	3	Tiny dots of colour that make up a digital image.
Resolution	3	The number of pixels in an image — higher resolution means more detail.
Colour Depth	3	The number of bits used to represent the colour of each pixel.

Binary and Sound

Word	Tier	Definition
Amplitude	3	The height of a sound wave, representing its volume.
Sample rate	3	How many times per second a sound is measured when being digitised.
Bit depth	3	The number of bits used to record each sound sample.
Sample Interval	3	The time between each sound sample being taken.

Computational Thinking 2

Abstraction and Decomposition

Word	Tier	Definition
Abstraction	2	Removing unnecessary detail to focus on the important parts of a problem.
Decomposition	2	Breaking a complex problem down into smaller, manageable parts.
Algorithm	3	A step-by-step set of instructions to solve a problem or complete a task.

Algorithmic Thinking (Flowcharts) 1

Word	Tier	Definition
Algorithms	3	Step-by-step instructions for solving a problem (plural of algorithm).
Flowcharts	3	Diagrams that use shapes to represent the steps in a process (plural).
Algorithmic Thinking	3	The ability to define clear steps to solve a problem.

Pattern Recognition

Word	Tier	Definition
Pattern	1	A repeated feature or trend that helps identify solutions.
Algorithm	3	A step-by-step set of instructions to solve a problem or complete a task.

Algorithmic Thinking (Flowcharts) 2 + Subprogram

Word	Tier	Definition
Sequencing	2	Arranging instructions in the correct order.
Algorithm	3	A step-by-step set of instructions to solve a problem or complete a task.
Computational Thinking	3	A problem-solving approach using decomposition, abstraction, algorithms, and pattern recognition.
Subprogram	3	A smaller, reusable section of code within a larger program (also called a subroutine).

Searching and Sorting Algorithms

Word	Tier	Definition
Algorithm	2	A step-by-step set of instructions to solve a problem or complete a task.

Textual Programming with Python

Remembering Input, Outputs, Variables

Word	Tier	Definition
Input	1	Data or instructions entered into a computer, e.g. typing on a keyboard.
Output	1	Information produced by a computer, e.g. text on a screen or sound from speakers.
Variables	2	Named storage locations in a program that hold data which can change.

Remember IF Statements

Word	Tier	Definition
Decision	1	A diamond shape in a flowchart where a yes/no question is asked. This is used to represent an IF statement.
IF Statement	3	A selection statement that runs code only when a condition is true.

For and While Loops

Word	Tier	Definition
Iteration	2	Repeating a set of instructions.
For Loops	3	A loop that repeats a set number of times.

Word	Tier	Definition
While Loops	3	A loop that repeats as long as a condition remains true.

Sub-programs

Word	Tier	Definition
Functions	3	Named blocks of reusable code that perform a specific task and can return a value.
Procedures	3	Named blocks of reusable code that perform a task but do not return a value.
Parameters	3	Values passed into a function or procedure to customise its behaviour.

Word	Tier	Definition
Local variable	**3**	A variable that only exists inside the function or procedure where it is created.
Global variable	**3**	A variable that can be accessed from anywhere in the program.

Advanced Spreadsheets

Remembering Spreadsheets

Word	Tier	Definition
Formula	2	An instruction in a spreadsheet that performs a calculation, starting with =.
Cells	2	Individual boxes in a spreadsheet where data is stored.
Columns	2	Vertical lines of cells in a spreadsheet, labelled with letters.
Rows	2	Horizontal lines of cells in a spreadsheet, labelled with numbers.
Active cell	3	The cell currently selected and ready for data entry in a spreadsheet.

Conditional Formatting

Word	Tier	Definition
Conditional	2	Something that depends on whether a condition is true or false.
Formatting	1	Data formatting refers to the process of changing the visual representation of data in a spreadsheet without altering its actual values.

Data Validation

Word	Tier	Definition
Validation	2	An automatic check that data meets certain rules before being accepted.

Safe Use of Computers and AI

Remembering Artificial Intelligence

Word	Tier	Definition
Artificial Intelligence (AI)	3	Computer systems designed to perform tasks that normally require human intelligence.
Narrow AI	3	AI designed for one specific task, e.g. a voice assistant or chess program.
General AI	3	A theoretical form of AI that could perform any intellectual task a human can.

Remembering Machine Learning

Word	Tier	Definition
Machine Learning (ML)	3	A type of AI where computers learn from data without being explicitly programmed.
Supervised learning	3	A type of machine learning where the computer is trained using labelled examples.
Reinforcement learning	3	A type of machine learning where the computer learns by trial and error with rewards.

Neural Networks and Deep Learning

Word	Tier	Definition
Neural network	3	An AI model inspired by the human brain, made of layers of connected nodes.
Forward propagation	3	The process of passing data through a neural network from input to output.
Backward propagation	3	The process of adjusting a neural network's weights to reduce errors.

Ethical Implications of AI Part 2

Word	Tier	Definition
Bias	2	When an AI system produces unfair results due to biased training data.
Privacy	1	The right to keep personal information safe and under your control.

Word	Tier	Definition
Job Displacement	2	When jobs are lost because machines or AI take over human tasks.
Ethical	2	Relating to what is morally right or wrong.

Future of AI

Word	Tier	Definition
Advanced AI	3	More powerful forms of AI that approach or exceed human-level abilities.
Automation	2	Using technology to perform tasks with minimal human involvement.
Ethical Implications	2	The moral consequences and considerations of using technology.