



# Computing GCSE – Python 2.2

J276/02 – Programming Techniques

## KEY VOCABULARY

Variable	A piece of stored data, used in a computer program, which can be changed or altered by the program
Constant	A piece of stored data which cannot be changed by the program or user
Operator	An operator is a mathematical symbol, used to work with data in a program
Input	Data, entered into a program, by the user
Output	The returned result of an algorithm
Algorithm	A set of instructions to carry out a process or problem-solving operation, especially by a computer
program control	Selection of code to be executed, based on the results of prior operations in a program, or user input
Loop	A piece of repeating code
Iteration	A type of <b>LOOP</b> which repeats a series of steps with a finite number of variable changes
Sentinel	A type of <b>LOOP</b> that watches a variable for a logical (T to F, or F to T) and repeats until that change occurs
Conditional	A method of controlling the information flow through branching steps – the code checks if something is True, then carries out one set of instructions if it is, and a different set of instructions if it is False.
Sequence	A series of coded instructions for a computer to follow, step by step
String	A character, or characters, stored as a list, within “ ”.
Integer	A whole numbers, stored as its value
Real	A decimal number, stored as its value
Boolean	True or False. Stored as 1 or 0.

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Declaration	Assigning a value to a variable																				
Typecasting	Casting a variable as and integer, Bool, Float or String																				
Data Arrays	<p>‘Lists’ of data, stored in an indexable table format</p> <p><u>1 D ARRAY:</u></p> <table border="1" style="display: inline-table; margin-right: 10px;"> <tr><td>C</td><td>O</td><td>D</td><td>I</td><td>N</td><td>G</td><td>E</td><td>E</td><td>K</td></tr> <tr><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td></tr> </table> <p>← single row of elements</p>	C	O	D	I	N	G	E	E	K	0	1	2	3	4	5	6	7	8		
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2D Arrays	<p>A data structure which has more than 1 ‘row’ of data. 2D arrays use 2 indexes to identify data</p> <p><b>IMPORTANT!!!</b></p> <p>2D arrays use the Y axis first in the co-ordinates, then the X axis. This is the opposite way around to most other co-ordinates!</p> <table border="1" style="margin: 10px auto; text-align: center;"> <thead> <tr style="background-color: #4682B4; color: white;"> <th></th> <th>Column 1</th> <th>Column 2</th> <th>Column 3</th> <th>Column 4</th> </tr> </thead> <tbody> <tr> <th style="background-color: #4682B4; color: white;">Row 1</th> <td>a[0][0]</td> <td>a[0][1]</td> <td>a[0][2]</td> <td>a[0][3]</td> </tr> <tr> <th style="background-color: #4682B4; color: white;">Row 2</th> <td>a[1][0]</td> <td>a[1][1]</td> <td>a[1][2]</td> <td>a[1][3]</td> </tr> <tr> <th style="background-color: #4682B4; color: white;">Row 3</th> <td>a[2][0]</td> <td>a[2][1]</td> <td>a[2][2]</td> <td>a[2][3]</td> </tr> </tbody> </table>		Column 1	Column 2	Column 3	Column 4	Row 1	a[0][0]	a[0][1]	a[0][2]	a[0][3]	Row 2	a[1][0]	a[1][1]	a[1][2]	a[1][3]	Row 3	a[2][0]	a[2][1]	a[2][2]	a[2][3]
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