St Thomas More RC College Curriculum Topic Overview commencing September 2021

Subject: Computer Science Year Group 10

Week	**Autumn**
1	3.4 Computer Systems – Hardware and Software – Input/ Outputs and Processes
2	3.4.5 Major CPU components, FDE Cycle and Main Memory
3	3.2.1 Data Types 3.2.7 Basic Programming Concepts 3.2.3 Arithmetic,relational and Boolean Operati
4	3.2.2 Develop Sequencing and Selection
5	3.2.2 Development of iteration Concepts
6	3.4.5 CPU memory and Secondary Memory – operation advantages and disadvantages of SSD, optical and magnetic
7	Cloud Storage and Embedded Systems
8	3.4.2 Boolean Logic and Truth TAbles
9	3.4.2 Logic Circuit diagrams and Expressions
10	3.4.3 Software Classification – system and application software – functions of OS system
11	3.1 algorithms, decomposition and abstraction. Basic skills in creating pseudocode
12	3.1.2 Efficiency of algorithms
13	3.2 Programming – Exam Board Tasks to develop skills - BAsic
14	3.2 Programming – Exam Board Tasks to develop skills – definite and indefinite iteration
15	3.2 Programming – Exam Board Tasks to develop skills – nested selection

Week	**Spring**
16	3.2 Programming – Exam Board Tasks to develop skills – Data structures - Arrays
17	Data Strcuture Records 3.2.8 String Handling Operations
18	3.2.9 Random number generation using examboard tasks
19	3.2.10 Structured Programming using Subroutines
20	Using parameters, local and global variables
21	Explain advantages of using subroutines and structured programming
22	3.2.11 Simple validation programs using iteration techniques
23	3.2.11 Authentication routines
24	Testing Programs and identifying errors in Algorithms. Use of normal, boundary and erroneous data. Difference in syntax and logical errors
25	3.3. Number Bases
26	3.3.2 Converting between Number Bases
27	3.3.3 Converting units of information

Week	**Summer**
28	3.3.4 Binary Addition, Multiplication, Division
29	3.3.5 Character Encoding and sequencing. 7-bit ASCII and Unicode
30	3.3.6 Representing Images – what is a pixel, image size, colour depth
31	Image file size and calculations, convert binary data into bitmap images and vice-versa
32	3.3.7 Representing Sound – difference between analogue and digital data. Understand how analogue sound is digitised
33	Describe sampling rate and resolution and calculate sound file size.

34	3.3.8 Data Compression understanding and Huffman coding, develop huffmann trees
35	Data Compression Calculations and comparisons with uncompressed ASCII data
36	RLE encoding and representation
37	3.4.4 low-level and high-level languages Machine code, Assembly Language and Source Code
38	Program Translators – interpreter, compilers and assembler.
39	Program Translators – interpreter, compilers and assembler.

St Thomas More RC College Curriculum Topic Overview commencing September 2021

Subject: Computer Science Year Group 11

Week	**Autumn**
1	3.6 Cyber Security – Social Engineering
2	Malware
3	Methods to detect and prevent cyber security threats
4	Penetration Testing
5	Assessment
6	3.5 Fundamental of Computer Networks – What is a computer network?
7	Types of Computer Network
8	Wired Wireless Networks and Hardware
9	LAN topologies – network protocols
10	Common Protocols and where they are used
11	Network Security and Common security methods
12	TCP/ IP layer model
13	3.7 Relational databases and concepts
14	Create a simple database
15	Create and develop relational database using dabase concepts

Week	**Spring**
16	SQL basic commands
17	SQL insert, edit and delete data
18	3.8 Ethical Legal and Environmental Impacts
19	3.8 Ethical Legal and Environmental Impacts
20	3.8 Ethical Legal and Environmental Impacts
21	3.8 Ethical Legal and Environmental Impacts
22	REVISIT AND REVISE 3.1
23	REVISIT AND REVISE 3.4
24	REVISIT AND REVISE 3.3
25	REVISIT AND REVISE 3.5
26	REVISIT AND REVISE 3.6
27	REVISIT AND REVISE 3.1/3.2 TRACE TABLES

Week	**Summer**
28	Revision – Exam Papers/ Pseudocode/ Seneca Assignments
29	Revision – Exam Papers/ Pseudocode/ Seneca Assignments
30	Revision – Exam Papers/ Pseudocode/ Seneca Assignments
31	Revision – Exam Papers/ Pseudocode/ Seneca Assignments

32	Paper 1 – 24th May
33	Paper 2 – 6th June
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