Computer Science Roadmap

Online safety and basic use of TEAMS, email, powerpoint, word, excel intro to block based coding taught in PSE

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8

8

IT skills - how to use Excel spreadsheets

Introduction to coding using Blockly

9

Intro to Python coding

What is AI?

Physical computing

9

Binary Shifts, hexadecimals and ASCII
Assessment 4

Programming 2: strings, if else, boolean ops, while
Assessment 3

Binary Operations
Assessment 2

Programming 1: data types, sequencing, flowcharts
Assessment 1

10

Programming 3: one-dimensional lists, loops, subprograms
Assessment 5

Hardware: Von Neumann model, secondary storage
Assessment 6

Programming 4: string formatting, 2D arrays, validation, linear searches
Assessment 7

The operating system and utility Software
Assessment 8

10

end of Y10

10/11

start of Y11

Network LANs WANs speed topologies
Assessment 12

Programming 6: Python Turtle
Assessment 11

Cyber Security
Assessment 10

Programming 5: merge sort, reading and writing files
Assessment 9

Programming 7: global, local variables, libraries
Assessment 13

Internet of Things, packets, TCP/IP protocols
Assessment 14

Programming 8: trace table, errors, bubble sort, binary search
Assessment 15

Environmental issues, low and high level languages, translators IP
Assessment 16

11/12

end of GCSE

AI machines, personal data and data protection
Assessment 20

Programming 10: subprograms and problem solving
Assessment 19

Data representation: bitmaps, sound and compression
Assessment 18

Programming 9: string manipulation, problem solving skills
Assessment 17

start of A level

Software, operating systems, high and low programming languages, translators, boolean logic, system architecture, number representation, compression and encryption

Programming concepts, strings, subroutines, and using files

12

Object orientated programming

Representation of text, sound and image, memory storage, hardware, secondary storage devices

12

Databases and SQL

NEA project

12

Software projects, program design, and testing.
Continuing NEA project

Computational thinking, data structure, searching and sorting, complex algorithms, recursion

13

Communication, network fundamentals, the internet, web technologies

Legislation, impact of technology, Big Data

NEA project

13

Revision

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