Computing & Computer Science learning Journey

Priestnall
educating for life

YEAR 11

Programming Theory

Issues and impacts Networks

ISSUES & IMPACTS Cyber security

ISSUES & IMPACTS environment

ISSUES & IMPACTS Ethical & Legal

DEVELOP Identify, locate, detect errors

DEVELOP Logical reasoning Fitness for purpose

NETWORKS Security

NETWORKS Networks

COMPUTERS Software

COMPUTERS Programming languages

COMPUTERS Hardware

DATA Storage & compression

DATA representation

DATA Binary

Constructs Types Develop Algorithms Decomposition Abstraction Data Computers

CONSTRUCTS **Variable, constant,** sequence, selection, iteration

TYPES Integer, Boolean, string, float

TYPES **Variables, constants**

TYPES String manipulation

DEVELOP Read, write, analyse, refine

DEVELOP *Flowchart, program*

DEVELOP Techniques, comments, layout, whitespace

ALGORITHMS *Flowchart* Pseudocode *Program*

ALGORITHMS Sequence, selection, iteration

ALGORITHMS **Variables, constants,** 1 & 2D Arrays

ALGORITHMS Sort, search

ALGORITHMS Arithmetic, relational & logic operators

ALGORITHMS Syntax, runtime, logic errors

DECOMPOSITION Model real world

ABSTRACTION Analyse, understand problems

YEAR 10

Programming Theory

9.2 Data Science

9.3 Media Animations

Visualisation

Use visualisation software

Large Data sets

Solve a problem

Correlation & Outliers

Investigative cycle

3D modelling animation

Scale, rotate, move

Play, pause, timeline

Proportion, lighting

9.5 Python programming with sequences of data

Iteration for

Iteration while

Functions, operations

Iteration

List methods

Lists and indices

Selection (if)

Branches and loops

Syntax errors

Using IDE

9.6 Business Studies taster

Product life cycle

What is a business?

Spotting a business opportunity

Marketing mix

Entrepreneur

Brand/logo

9.6 Representations – going audio-visual

Sound

Colour

Digital images

Representation conversion

Convert decimal to binary and vice versa

9.1 Cybersecurity

Difference between data and information

Social engineering

Malware

Brute force

DDoS

Hackers

Data Protection

Security risks to data

Legal, ethical, and social

Threats

YEAR 9

8.4 Media – vector graphics

Evaluate vector graphics

Explain & identify appropriate vector graphics

Combine multiple tools to create a vector graphic design

Edit path nodes

Draw paths

Combine paths

Convert object to paths

Manipulate groups of objects

Manipulate individual objects

Basic shapes

8.5 Mobile app development

Block based programming

Variables

Event-driven programming

Selection

Sequencing

Implement & customize GUI

User input

Identify & fix common errors

8.6 Representations from clay to silicon

List examples of representations

Measure representations

Binary digits

abstraction

Character coding

Representation conversion

Convert decimal to binary and vice versa

8.3 Introduction to Python programming

iteration

Strings

Using IDE

Input, process, output

Selection If, else

Iterative programs

Arithmetic operators and expressions

randint

Syntax errors

Translators

Algorithms

Variables

Boolean variables

8.2 Developing for the web

Search technologies

Display images within a web page

Html tags

Navigation

Search Engines

CSS

8.1 Computing systems

Hardware Components High level building blocks

Logic Boolean operators

Logic gates

Sequence of instructions

General purpose v Purpose built computer systems

Logic Low level Building blocks

Binary

YEAR 8

7.3 Networks

Internet

Hardware and software

Sequencing

Variables

Selection/ Operators

Formatting techniques

Image

Software

7.4 Programming 1

7.5 Using Media – gaining support for a cause

Copyright & Plagiarism

Subroutines

Iteration

Tracing Variables

7.6 Programming 2

Exploring sequences

Humans and computers

Predicting Outcomes

YEAR 7

Protocol

Collecting data

Graphs

Formulas

Adding/subtracting /divide/multiply

Presenting in groups

Planning Presentations

Cyber security

Collaborating online

7.2 Modelling data: Spreadsheet

7.1 Collaborating online

Welcome!

Log on: Network, Frog & MS Teams

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