ST CLEMENT'S HIGH SCHOOL

Curriculum Intent: Computing

We are using an inspiring curriculum which has been collaboratively designed to prepare learners to be keen problem solvers. In order to achieve this we are delivering skills within logic and computational techniques such as decomposition, algorithms and abstraction. We are also demonstrating how data is processed through an introduction to binary and the use of logic gates.

Within the current lifestyle, learners need to be proficient, efficient and safe users of technology. Similarly, they need to be aware of the uses of technology within the world of work and its impact on society. Through an understanding of target audiences and purpose, learners will apply skills and become good digital citizens recognising the importance legislation has whilst trying to enforce these British values.

Within topics such as hard coding there will be a progression between applications e.g. HTML within a website developer such as Serif WebPlus to block coding in Scratch leading to command line in Python and finally using a GUI in KS% within Python.

There will also be progression across years e.g. in year 7 visual outputs will be used for example the turtle in Python to Year 8 where command line is dominating. As learners are taught in mixed ability sets by tutor groups their diversity of interests, abilities and aspirations will be addressed through the interspersal of digital literacy, ICT and Computer Science units to maintain enthusiasm and prepare learners for informed options choices. There will be a constant recap and embedding of core knowledge expanding as the year progresses using knowledge rich techniques.

The curriculum has been shaped to embed skills, cover the breadth of the national curriculum and over time narrowing the content to allow for depth of knowledge. Skill building has been designed to be cumulative building on previous skills and developing acute decisions of choice in problem solving situations.

We believe no learners will be excluded from choice due to the variety of units studied. All case studies are gender neutral and tasks utilise open source software wherever possible so all students are able to access our curriculum.

We signpost appropriate pathways and career routes within our subject for all of our learners.

The curriculum supports some aspects of RSE (Relationships, sex and health education) such as sexting and the use of social media during the e safety unit. British values are addressed through the ethos of becoming good digital citizens and PSHE is evidenced throughout the curriculum whist addressing the varied skill base and problem solving opportunities.

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KS3 Intent:

The National Curriculum for Computing aims to ensure all pupils:

- Can understand and apply the fundamental principles and concepts of computer science including abstraction, logic, algorithms and data representation.
- Can analyse problems in computational terms and have repeated practical experience of writing computer programs in order to solve such problems
- Can evaluate and apply information technology, including new or unfamiliar technologies analytically to problem solve.
- Are responsible, competent and creative users of information and communication technology.

Enrichment:

Studies are enriched with opportunities to attend a weekly coding club organised by Year 12 Computer Science specialists. This leads into the opportunity to participate in competitions such as Scratchoff organised at UEA, inter Trust competitions and hopefully Bebras competitions.

KS4 Intent:

The National Curriculum for Computing aims to ensure all pupils have the opportunity to study aspects of information technology and computer science at sufficient depth to allow them to progress to higher levels of study or to a professional career:

- Develop their capability and knowledge in computer science, digital media and information technology
- Develop and apply their analytic, problem solving, design and computational thinking skills
- Understand how changes in technology affect safety, including new ways to protect their online privacy and identity and how to report a range of concern

St Clement's High School Computing Curriculum Plan 2020-21

	Half Term	Year 7	Year 8	Year 9	Year 10 *(GCSE)*	Year 11 *(GCSE)*
Autumn Term 2020	**1**	**7.1 Intro:** This unit prepares pupils to use the technology that will support their learning in Year 7 and beyond. We look at password security, email, show my homework, google drive, input and output devices, how to print in school, how to search the internet and then an introduction to copyright and plagiarism	**8.1 HTML (notepad)** Pupils learn to program for the web by using HTML to create a website. They learn about tags and how to structure a webpage. Skills learn include formatting text, use of colour (including RGB colour chart) tables and hyperlinks	**9.1 Photo editing, vector and bitmap and file types.** In this unit the focus is on how to edit images for a particular audience. Pupils learn that images that they see are not necessarily real as they may have been edited. There is also a focus on the types of files that can be used for images and the differences between them including file compression.	**iMedia Creating Digital Graphics:** Students will start the current iMedia exam board set assignment on the mandatory unit R082 Creating Digital Graphics, they will use graphics software. During this project they will; Research designs, create an image, using advanced ICT Skills and evaluate their work. . This unit aims to give students the skills to use the tools and techniques provided by artwork and imaging software to design and create effective graphic products for specified purposes and audiences. Students will demonstrate their ability to create effective images and graphic products through their work on a major project set by OCR. **Preparation for examination** May 26th(subject to change) Students will need to understand the purpose and content of pre-production, be able to plan pre- production, be able to produce pre- production documents, be able to review pre-production documents **2nd Optional Unit of choice:** Students can select an Optional Unit from the examination board list this can either be: R083 Creating 2D and 3D digital Graphics R084 Story Telling with Comic Strip R085 Creating a website R086 Creating an Animation R087 Creating an IMP	**Continue with 2nd optional unit** Students will continue with their 2nd Optional Unit from the examination board list this can either be: R083 Creating 2D and 3D digital Graphics R084 Story Telling with Comic Strip R085 Creating a website R086 Creating an Animation R087 Creating an IMP **Preparaton for exam** on the 11th of January. Students will need to understand the purpose and content of pre-production, be able to plan pre- production, be able to produce pre-production documents, be able to review pre-production documents
	2	**7.2 E safety:** Within this unit pupils are taught how to keep themselves safe online and when using a computer. We look at how cyberbullying affects an individual and what to do if someone is being cyberbullied. We look at social media and discuss the advantages and disadvantages of such technologies. Pupils look at netiquette and how they are leaving a digital footprint	**8.2 Web Authoring** Pupils move from text based programming of a website to using an editor to develop a webpage. They learn more advanced features and focus on audience needs and purpose alongside accessibility features to make the website more usable. Students will create web pages which cover the following topics: E-Safety, information, reliability, bias, legislation, plagiarism, ethical issues. Topic History and the Future of Computing	**9.2 Coding and Data Representation** This unit looks at how a computer stores text, images and sound as binary values. It looks at how data is stored (compressed) using different methods. Pupils look at how analogue sound files are sampled into digital sound files.		
Spring Term 2021	**3**	**7.3 Spreadsheets:** Pupils learn the basics of spreadsheets in order to analyse data. They look at basic formulas and functions and learn how to display information in graphs.	**8.3 Python Chatbot** Within this unit pupils develop their understanding of Python to further understand variables and data types. Pupils build upon knowledge of iteration (loops) to make more efficient programs.	**9.4: Python; Searching and Sorting** Pupils' knowledge of python is further developed by learning how to read and write to txt files. They develop skills in handling data in Python and being able to question the data to find answers. Additionally pupils learn how to search and sort data effectively using Linear and Binary searches and bubble and merge sorts. Pupils also learn about how computers hold data in arrays.		
	4	**7.4 Cryptology, Flowol** Sequence/shapes/Boolean operators. This unit looks at how data is secured on a computer using cryptography.	**8.4 Animation and Video Editing** Pupils look at how animations are created using frames and layers. They learn about frame rate. This develops into using transitions to create a video for a target audience			
Summer Term 2021	**5**	**7.5 Scratch** Within this unit pupils look at computational thinking and learn block programming to create a game. Pupils learn about Cartesian coordinates, IF statements, Forever loops and then move onto variables. Pupils learn about sequence, selection and iteration.	**8.5 Spreadsheets:** This unit looks at developing spreadsheet skills to enable pupils to ask 'what if' questions to a model. Work develops to look at naming cell ranges, sorting data, lookups and other more advanced skills such as writing macros and protecting the cells	**9.5 and 9.6:** The final double unit brings together many aspects of computing where pupils develop an understanding of the system life cycle by planning, Researching, Designing, Implementing and Reviewing a large project. They use tools learnt throughout KS3 to help them undertake this task such as the use of spreadsheets and databases to create financial models and store information.		**Exam dates:**
	6	**7.6: Introduction to text based programming** (logo, turtle, Python)This is pupils' first introduction to text based programming. In this unit pupils learn the syntax of python and develop programming skills that require accuracy and problem solving.	**8.6 Database Flat file:** It is important that pupils understand how data is stored. This unit explains this and teachers pupils how to create and use a database that they can search to find the information that they require.			