SUBJECT: ICT/Computing

Key Stage 3: Curriculum Intent (BRIEF):

2021-2022	Year 7	Year 8	Year 9
Autumn 1	**Topic:** E-safety and Computer Security **Content covered, including knowledge and skills:** - Organising files - Preparing folders for each unit being studied - E-Safety - Staying safe online - Social networking - Cyberbullying - Cloud Storage - Emails - GDPR **Links to prior learning:** - E-safety **Links to British Values and SMSC:**	**Topic:** E-Safety and Ethics **Content covered, including knowledge and skills:** - Social Media and E-Safety - Digital Footprint - Ethical and Cultural Issues - Environmental Issues **Links to prior learning:** - E-safety **Links to British Values and SMSC:** Considering the impacts explains basic terminology about hardware and software, the history of computers, the internet and cloud computing. Having a fascination of technological events and the influences it has. Developing social skills whilst interacting and collaborating with others.	**Topic:** Websites and HTML **Content covered, including knowledge and skills:** - Website Design - Accessibility - HTML Paragraphs - HTML Styles - Using CSS - Hyperlinks and Images - Tables - Navigation **Links to prior learning:** - Python Programming - Algorithms **Links to British Values and SMSC** The unit has a strong focus on accessibility of websites to users who may have sight or hearing disabilities. Web Developers must ensure that all users are able to use a website. Students will

	Developing a sense of understanding on the significance of staying safe online. Introduces pupils to the dangers of social networking websites and cyberbullying and the dangers to their technology such as viruses, worms, and Trojans. They work in groups which will allow them to build on a range of social skills and taking into accounts the views of others. **Career opportunities:** - Programmer - Gamer - IT technician - Teacher	**Career opportunities:** - Programmer - Gamer - IT technician - Teacher **Literacy: Key words and terminology:** - Cyberbullying - Social media - Technology - GDP - Collaboration - Influences - Awareness - Trolls - Safety	consider this while creating their own websites so that it meets the needs of all users. Students may also wish to take this knowledge further and create their own websites for a business or hobby. **Career opportunities:** - Programmer - Web Developer - Web Designer - Entrepreneur **Literacy: Key words and terminology:** - Navigation - Webpage - HTML - CSS - Tag - Attribute - RGB/HSL/Hex Colour - Hyperlink - Image - Accessibility - Unordered/Ordered Lists
Autumn 2	**Literacy: Key words and terminology** - E-safety - Social awareness - Emails - Cloud Storage - GDPR	**Topic:** Spreadsheets **Content covered, including knowledge and skills:** - Entering and Formatting Data - Arithmetic Formulas - Advanced Formulas - Charts and Graphs	

Links to prior learning:

Previous knowledge using Excel including entering data and performing simple calculations.

Links to British Values and SMSC:

Spreadsheets are used extensively in Small and Medium-Sized Enterprises as well as larger corporations. Students will see multiple case studies associated with the work and apply knowledge of spreadsheets to the workings of different types of businesses.

Career opportunities:

- Data Analyst
- Accountant
- Economist
- Statistician
- Teacher
- Entrepreneur

Literacy: Key words and terminology:

- Spreadsheet
- Cell
- Reference

		- Formatting - Formula - Charts	
Spring 1	**Topic:** How computers work **Content covered, including knowledge and skills:** - Inputs and outputs - Components in a computer - Hardware - Software - RAM - CPU - User interfaces - Binary - Operating systems **Links to prior learning:** Understanding the safety of computers and how they work **Career opportunities:** - Programming - IT engineer - Gamer - Teacher	**Topic:** Algorithms **Content covered, including knowledge and skills:** - Creating Algorithms - Search Algorithms - Sorting Algorithms - Flowcharts **Links to prior learning:** - How Computers Work **Links to British Values and SMSC:** Students will be taught about how algorithms are something that we as people do every day as we all follow sets of instructions and rules in order to complete tasks. Students will know and carry out different search and sort algorithms and be able to create a flowchart which is used extensively in programming.	**Topic:** Data Representation **Content covered, including knowledge and skills:** - Hexadecimal - Image Representation - Sound Representation **Links to prior learning:** - Binary and Data Representation - Websites and HTML **Links to British Values and SMSC:** Students will be able to use mathematical skills to represent numbers in different number systems. Different number systems are used around the world other than the UK's Base 10 system. **Career opportunities:** - Programmer

Links to British Values and SMSC
Learning about how computers work and how they are a useful resource in today society. Using a range of social skills and considering the views of others.

Literacy: Key words and terminology
- Memory
- Graphics Card
- Hard drive/SSD
- Screen
- Printer
- Inputs and Outputs
- CPU
- RAM

Career opportunities:

- Programmer
- Hardware Engineer
- Software Designer
- IT Technician
- UI Designer

Literacy: Key words and terminology:

- Algorithm
- Abstraction
- Decomposition
- Method
- Linear Search
- Binary Search
- Bubble Sort
- Insertion Sort
- Merge Sort
- Flowchart
- Decision
- Iteration
- Process

- Hardware Engineer
- Software Designer
- Audio Technician
- Photographer

Literacy: Key words and terminology:

- Hexadecimal
- Decimal/Denary
- Binary
- Place Value
- Base (2/10/16)
- Quotient
- Remainder
- Pixel
- Colour Depth/Bit Depth
- Resolution
- DPI (Dots Per Inch)/PPI (Pixels Per Inch)
- Monochrome
- Palette
- Amplitude
- Frequency
- Sample Rate
- Hertz
- Bit
- Byte
- Nibble

Spring 2	**Topic:** Binary and Data Representation **Content covered, including knowledge and skills:** - Understanding Binary - Converting Binary to Decimal - Converting Decimal to Binary - ASCII Tables **Links to prior learning:** - Place Values (Hundred, Tens, Units) - Division - Addition **Career opportunities:** - Programmer - Hardware Engineer - Software Designer - IT Technician - Network Manager **Links to British Values and SMSC:**	**Topic:** Networks **Content covered, including knowledge and skills:** - Wired and Wireless Connections - The Internet - Cloud Computing **Links to prior learning:** - Computer Components - Inputs and Outputs - Hardware - Software **Career opportunities:** - Network Manager - IT Technician - Hardware Engineer - Programmer - Cyber Security Specialist - Cloud Infrastructure Specialist **Links to British Values and SMSC:**	**Topic:** Ethics and Law in Computing **Content covered, including knowledge and skills:** - Ethical Issues - Data Protection Act - Computer Misuse Act - Copyright **Links to prior learning:** - E-Safety and Ethics - Networks **Links to British Values and SMSC:** Students will understand in more detail the ethical issues in Computing and its relation to the law in the UK. Students will be aware of the Data Protection Act and how it is important to keep personal and sensitive information safe as well as the Computer Misuse Act and its relation to Cybercriminals. Students will also learn about Copyright and how it is important to ensure that things that they create are within the law. **Career opportunities:**

	- Students are able to use skills to think logically and be able to read tables of information and complete simple mental calculations.	- Students are able to understand how the Internet works on a technical level understanding how data is transferred both wireless and wired networks.	- Cybersecurity Expert - Network Manager - IT Technician - HR Manager - Data Administrator

Literacy: Key words and terminology (first column)

- Binary
- Decimal/Denary
- Place Value
- Powers of 2
- Convert
- Machine Code
- ASCII
- Extended ASCII
- ASCII Table
- Unicode

Literacy: Key words and terminology (second column)

- Router
- Broadband
- Hub
- Switch
- Ethernet
- Wifi
- Mobile Data (3G/4G/5G)
- Internet

Literacy: Key words and terminology (third column)

- Ethics
- Privacy
- Personal
- Sensitive
- Confidential
- Data Protection Act
- Computer Misuse Act
- (White/Grey/Black) Hat Hacker
- Malware
- Copyright
- Fair Use
- Public Domain

Summer 1 and 2	**Topic:** Raising awareness for charities	**Topic:** Python Programming	**Topic:** User Interfaces
	Content covered, including knowledge and skills:	**Content covered, including knowledge and skills:**	**Content covered, including knowledge and skills:**
	- Planning - Preparing multimedia - Storyboarding - Creating presentations - Testing and generating feedback - Evaluation	- What is Programming - Print and Input statements - Arithmetic - Data Types - If…Else statements - Loops - Python Turtle	- What is a User Interface? - Audience Needs - UI Design Principles - UI Efficiency
	Links to prior learning:		**Links to prior learning**
	- Decision making skills - Functional skills on computer software - Presentational skills - Social interaction - Effective communication	**Links to prior learning:** - Link to prior work on How Computers Work as well as Algorithms. - Primary School work with Scratch leading into programming with Python.	- Websites and HTML **Links to British Values and SMSC** Students will be able to learn how to recognise different types of User Interface which is how we are able to interact with computers. Students will be given context to interfaces they may see out and about like self service checkout points, ATMs and interfaces on their mobile devices. Students will also look at the needs of audiences, in terms of demographics and impairments that users may have.
	Links to British Values and SMSC: Promoting enjoyment and fascination learning about how to successfully create a charity awareness pitch. Recognising the key skills that are needed when presenting ideas. Using	**Links to British Values and SMSC:** Students will be able to further understand how to create simple computer programs being able to think logically using their knowledge of algorithms. Students will be able to think	**Career opportunities:** - Software Engineer - Web Designer

a range of social skills and considering the views of others.

Career opportunities:

- Researcher
- Marketing
- Blogger
- Environmentalist
- Setting up your own business

Literacy: Key words and terminology:

- Pitching
- Evaluating
- Researching
- Animation
- Transition
- Interactivity
- Storyboard
- Evaluate
- Communication

creatively when solving problems that are given to them.

Career opportunities:

- Development projects
- Programmer
- IT Consultant
- Teacher
- Lecturer
- Gamer
- Software Engineer

Literacy: Key words and terminology:
- Variable
- Modelling
- Simulation
- Model
- Variables
- Software
- Sequence
- Selection
- Iteration
- Loop
- Data Type

- Graphic Designer
- UI Designer
- IT Consultant

Literacy: Key words and terminology:

- User Interface
- Text Based User Interface
- Command Line
- Graphical based User Interface (GUI)
- Icon
- Window
- Menu
- Demographic
- Target Audience
- Success Criteria
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