**Computing Subject Progression Overview**

The Computing curriculum at St Clements’s is designed to equip our pupils with the skills and knowledge required to be independent learners and to be able to transfer these skills in later life when working in an ever-increasing technological world. The curriculum is designed for all learners to gain a wealth of knowledge and skills based around technology, basic skills, computational thinking, creativity and computer science, which they can then take with them into further education, employment and life. We strive to develop their resilience and independence when working on technologies and ensure they do so safely.

Staff and pupils have an understanding of technology and are aware of dangers surrounding online safety. As a school, we drive forward a secure knowledge of online safety to the children to ensure they remain safe online as independent learners through online safety lessons and reminders which build on the teaching from year group to year group. Therefore, pupils and staff will have the knowledge to remain safe online, allowing all to become digitally literate, promote positive usage behaviours and a positive digital footprint.

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| **Year** | **AUTUMN 1** | **AUTUMN 2** | **SPRING 1** | **SPRING 2** | **SUMMER 1** | **SUMMER 2** |
| **N** | **People who help us (UW)****EYFS curriculum:*** I know how to operate simple equipment.
* I can make toys move or the sound or picture images on toys work by pressing switches or touching the screen.

**Skills:*** IWB: Nursery Rhymes,
* I can Select tools
* I mark-make on the IWB
* I can make a Bee-bot move.
 | **Dinosaurs (UW) Toys (UW) Growing and Changing (UW) Travel and Transport (UW)****EYFS curriculum:*** I know how to operate simple equipment.
* I can turns on the DVD player and use remote controls.
* I can make toys move or the sound or picture images on toys work by pressing switches or touching the screen.

**Skills:*** IWB activities and skills continued.
* I can use Moving Toys and remote controls
* I can work a CD player
* E-safety focus **(Spring 1)**
 | **Space (UW) Buildings and Materials (UW) Castles (UW, Literacy, EAD) The Seaside and Pirates (UW/ EAD,Literacy)****EYFS curriculum:** * I know that I can find out things that interest me from the computer, mobile phone or tablet.
* I can make toys move or the sound or picture images on toys work by pressing switches or touching the screen.
* I like toys with knobs and touch screens and real objects like cameras or mobile phones

**Skills:*** IWB activities and skills continued.
* I can make a Beebot go forwards and backwards
* I can select and use apps on an iPad
* I can begin to use a Digital camera
* I can use technology for a purpose
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| **R** | **Traditional Rhymes from Around the World (Literacy/EAD) People who help us (UW)****EYFS curriculum:*** I know that a computer or remote control toy may need to be plugged in or have a battery in it to make it work.
* I ask questions about how technology works.

**Skills:*** I can effectively control a moving toy using forward and back.
* I can effectively use an IPAD
* I can effectively mark-make/write on the IWB
* I will begin to learn how to use a laptop/Computer
* I will being to use Google maps
 | **Dinosaurs (UW) Toys (UW) Growing and Changing (UW) Travel and Transport (UW)****EYFS curriculum:*** I ask questions about how technology works.
* I can use different things like a digital microscope, camera or microphone with a computer.

**Skills:*** I can begin use a keyboard to type my name and words with support.
* Focus on E-safety
 | **Space (UW) Buildings and Materials (UW) Castles (UW, Literacy, EAD) The Seaside and Pirates (UW/ EAD,Literacy)****EYFS curriculum:*** I know that a computer or remote control toy may need to be plugged in or have a battery in it to make it work.
* I can use a painting program on the computer or tablet to draw a picture.
* I can ask questions about how technology works.
* **ELG:** I can use different types of technology like remote control toys, a recordable book, a CD player, a camera, a tablet or a computer.

**Skills:*** I can begin use a keyboard to type my name and words
* I can draw a picture using a paint program on the computer/ipad
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| **1** | **Getting to know I.T -** *Basic Skills: Word processing/creating pictures**National curriculum:** Recognise common uses of information technology in the home and school environment
* Use technology purposefully to create digital content

Skills:* I can turn a computer on and off.
* I can log on and off independently.
* I can select a program and open a document..
* I can use a space bar to make spaces between words.
* I can choose and use paint tools with the mouse.
* I can choose text to put into my work.
* I can enter letters or words to make a short sentence.
* I can use the print and save icons properly

Curriculum Links:Topic: All about me- name writing, Where I live. Paint a picture of myself/ my house.  | **Net I.T -** *Online safety/using the internet**National curriculum:** Understand where to go for help and support when he/she has concerns about content or contact on the internet or other online technologies

Skills:* I can type a simple keyword into a search.
* I can choose a suitable image/text/video for our topic
* I know what to do if I see something inappropriate online.

Curriculum Links:PSHE – health and relationships. | **Sort I.T. -** *Handling Data**National curriculum:** Use technology purposefully to create digital content

Skills:* I know that images give me information.
* I can say what a pictogram is showing me.
* I can put data into a program (pictogram).
* I can sort objects and pictures in lists or simple tables.

Curriculum Links:Maths – Data Handling | **Code I.T. -** *Coding and Programming* *National curriculum:** Predict the behaviour of simple programs.
* Understand what algorithms are and how they are implemented on digital devices.

Skills:* I can give and carry out instructions with a friend.
* I can use On/Off switches and control buttons.
* I can use the clear switch.
* I can show you how to remote-control a toy.
* I can use Fwd, Bk, left , right, Go, on/off to control a robot.
* I can debug errors in my instructions.

Curriculum links:Literacy- instructions |
| **2** | **Getting to Know I.T** - Basic Skills (word processing)*National curriculum*: * Recognise common uses of information technology beyond school
* Use technology purposefully to create, organise, store, manipulate and retrieve digital content

Skills:* I can use a keyboard to enter text
* I know when and how to use the RETURN/ENTER key.
* I can use SHIFT and CAPS LOCK to enter capital letters.
* Use DELETE/BACK SPACE buttons to correct text.
* I can create sentences, save and edit them later.

Curriculum links:Literacy – Writing | **Crea8 I.T** - Creating Pictures*National curriculum:** Recognise common uses of information technology beyond school
* Use technology purposefully to create, organise, store, manipulate and retrieve digital content

Skills:* I can use tools to draw symmetrical images.
* I can use the fill, shapes and text tools in my work.
* I can choose draw tools to create special effects

Curriculum links:Art - pointillism | **Net I.T -** *Online safety**National curriculum:** Use technology safely and keep personal information private.
* Recognise common uses of information technology beyond school.

Skills:* I understand that the information I put online leaves a digital footprint.
* I can use keywords in an online search to find out about a topic.
* I can recognise whether a website is appropriate for children.
* I can rate and review informative websites.
* I can identify kind and unkind behaviour online.

Curriculum Links:PSHE – health and relationships. | **Sort I.T.** Branching diagrams*National curriculum:** Use technology purposefully to create digital content comparing the benefits of different programs.

Skills:* I can place objects and pictures in a list.
* I can make a simple Y/N tree diagram to sort information.

Curriculum links:Maths – Data HandlingScience - classification | **Code I.T. -** *Coding and Programming* *National curriculum:** Use logical reasoning to predict the behaviour of simple programs.
* Create simple programs.
* Create and debug simple programs.
* Debug simple programs by using logical reasoning to predict the actions instructed by the code.
* Understand that programs execute by following precise and unambiguous instructions.

Skills:* I can link ‘Forward’, and ‘Backward’ commands with standard turns.
* I can make up a sequence of instructions.
* I can add a background
* I can add/change my sprite
* I can use a range of blocks and explain what they mean.
* I can spot and correct errors in my instructions.

Curriculum links:Maths – position and rotation |
| **3** | **Communic8 I.T.** – Basic skills (word processing)*National curriculum:** With support select and use a variety of software to accomplish goals
* Use simple search technologies

Skills:* I can alter my text to suite my style of writing (font, colour, size)
* I can use the shift key to type characters such as question marks, exclamation and speech marks.
* I can drag over text to be amended.
* I can find a picture online to copy and paste onto my document.
* I can match suitable images to my text.

Curriculum links:History - Greeks | **Present I.T. –** Power-point presentations*National curriculum:** With support select and use a variety of software to accomplish goals
* Use simple search technologies
* Use simple search technologies and recognise that some sources are more reliable than others
* Understand that the internet is a large network of computers and that information can be shared between computers

Skills: * I can add slides to my presentation
* I can change the theme on my presentation
* I can create transitions between my slides
* I can add animation and text to my slides.

Curriculum links:History - Greeks | **Net I.T -** *Online safety**National curriculum:** Understand that computer networks enable the sharing of data and information
* Use technology safely and respectfully, keeping personal information private
* Use technology safely and recognise acceptable and unacceptable behaviour
* Understand that the internet is a large network of computers and that information can be shared between computers

Skills:* I understand how websites use advertisements to promote products.
* I know what cyber bullying is and how to address it.
* I can create strong passwords and understand privacy settings.
* I know how to safely send and receive emails.
* I know the different ways that children can communicate.

Curriculum Links:PSHE – health and relationships. | **Sort I.T. -** Databases*National curriculum:** Use simple search technologies and recognise that some sources are more reliable than others
* Use simple search technologies
* Understand that the internet is a large network of computers and that information can be shared between computers
* Understand that computer networks enable the sharing of data and information
* With support select and use a variety of software to accomplish goals

Skills:* I can design a questionnaire to collect information.
* I can choose reliable information to put into a data table.
* I can present data effectively.
* I can create a graph to show my results.

Curriculum links:Maths – Data Handling | **Code I.T. -** *Coding and Programming* *National curriculum:** Design, write and debug programs that control or simulate virtual events
* Design, write and debug programs that control or simulate virtual events
* Make efficient use of familiar forms of input and output devices
* Recognise familiar forms of input and output devices and how they are used

Skills: * I can link ‘Forward’, and ‘Backward’ commands with standard turns.
* I can make up a sequence of instructions that give an outcome.
* I can explain my instructions and Spot errors (debug)

Curriculum Links:Maths – Co-ordinates, rotation, shape and space. Geography – directional language.  |
| **4** | **Activ8 I.T. –**  Monitoring Environmental Conditions*National curriculum:** Use other input devices such as cameras or sensors.
* With support select, use and combine a variety of software on a range of digital devices to accomplish given goals.

Skills:* I can use a data-logger to monitor temperature, sound or light.
* I can use a data-logger to record data in a suitable time interval.

Curriculum links:Science – sound and light.  | **Code I.T. -** *Coding and Programming* *National curriculum:** Decompose programs into smaller parts
* Use logical reasoning to detect and correct errors in algorithms and programs
* Select, use and combine a variety of software, systems and content that accomplish given goals.

Skills:* I can make up a sequence of instructions.
* I can predict and test results of a sequence of instructions.
* I can use sequences and repetition in a simple program.
* I can use logical reasoning to explain how algorithms work.
* I can test and debug my algorithm.
* I can begin to work with variables.

Curriculum Links:Maths – the four operations | **Net I.T -** *Online safety**National curriculum:* * Use technology responsibly and understand that communication online may be seen by others
* Understand where to go for help and support when he/she has concerns about content or contact on the internet or other online technologies
* Understand how results are selected and ranked by search engines

Skills:* I can identify how a message can hurt someone’s feelings.
* I can say how I should respond to a hurtful message online.
* I can use a search engine accurately.
* I understand the term ‘plagiarism’ and how to avoid it.
* I can create a safe online profile.
* I can explain how to be a responsible digital citizen.

Curriculum Links:PSHE – health and relationships. | **Communic8 I.T**. – email and blogging*National curriculum:** Use technology responsibly and understand that communication online may be seen by others
* Understand where to go for help and support when he/she has concerns about content or contact on the internet or other online technologies
* Understand what servers are and how they provide services to a network

Skills:* I can upload an image onto a trusted blog/website
* I can add images, text and multimedia to my blog/wiki/web space.
* I can open, write and send an email.
* I can send an attachment with my email
* I know which personal information I should not use online.

Curriculum links:Literacy – informal /formal writing. | **Sort I.T** – creating graphs and charts.*National curriculum:** With support select, use and combine a variety of software on a range of digital devices to accomplish given goals
* With support select and use a variety of software on a range of digital devices

Skills:* I can input data onto a spreadsheet
* I can produce a chart from a table of data.
* I can interpret data on a chart or graph.
* I can present and explain my data to others.

Curriculum links:Geography – deforestation in the Amazon.  | **Animate I.T. -**  Creating animations. *National curriculum:* * With support select, use and combine a variety of software on a range of digital devices to accomplish given goals
* With support select and use a variety of software on a range of digital devices

Skills: * I can describe early forms of animation before computers and how computers have made a difference.
* I can create a short computer animation using one or more moving stick figures.
* I can create a recorded animation involving a number of moving characters on a background.
* I can structure specific timing of animations using a time slider.
* I can use a camera to create a short stop-motion animation film.
* I can analyse and evaluate software.

Curriculum links:Literacy – Writing / Speaking / ListeningArt |
| **5** | **Code I.T. -** *Coding and Programming* *National curriculum:* * Design, input and test an increasingly complex set of instructions to a program or device
* Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems
* Design, write and test simple programs that follow a sequence of instructions or allow a set of instructions to be repeated
* Design write and test simple programs with opportunities for selection, where a particular result will happen based on actions or situations controlled by the user
* Use logical reasoning to explain how increasingly complex algorithms work to ensure a program's efficiency

Skills:* I can design, write and debug programs by breaking them into smaller parts.
* I can use sequence, selection and repetition in programmes.
* I can work with variables and various forms of input and output.
* I can use logical reasoning to explain how some simple algorithms work.
* I can detect and correct errors in algorithms and programmes.

Curriculum links:Discreet Subject | **Net I.T -** *Online safety**National curriculum:** Understand the need to only select age appropriate content
* Use filters in search technologies effectively and appreciates how results are selected and ranked

Skills:* I can identify spam emails and what to do with them.
* I can write citations for the websites I use for research.
* I can recognise when, why and how photographs we see online may have been edited
* I can identify age appropriate content and PEGI ratings.
* I can apply my online safety rules to real-life scenarios.

Curriculum Links:PSHE – health and relationships. | **Net I.T.** - Evaluating Information*National curriculum:** Use filters in search technologies effectively
* Use filters in search technologies effectively and appreciates how results are selected and ranked

Skills:* I can use more than one keyword to make searches more effective.
* I am able to select and combine information from reliable sources.
* I can investigate online databases for information in my topic.
* I can make appropriate use of online information to support my presentation.
* I know how to check for and spot inaccurate data.

Curriculum Links: E-safety/ PHSE – health and relationships | **Cre8 I.T.** Graphical Modelling*National curriculum:** Independently select and use appropriate software for a task.
* Independently select, use and combine a variety of software to design and create content for a given audience.

Skills:* I can use geometric tools to create objects which can be manipulated using an object-based graphics package.
* I can rotate, flip and crop images.
* I can use tools to draw symmetrical images

Curriculum:Geography – Map SkillsNumeracy – Shape and SpaceScience – Planets  | **Cre8 I.T.** - Photostories*National curriculum:** Independently select and use appropriate software for a task.
* Independently select, use and combine a variety of software to design and create content for a given audience.
* Understand the need to only select age appropriate content.
* Begin to use internet services to share and transfer data to a third party

Skills:* I know how to change edit and order photographs on a timeline.
* I can suggest a selection of programs that will be appropriate for the task.
* I can combine relevant text, image, and information in a project to suit the audience.

Curriculum links:PHSE – HEALTH (CONSENT)Geography - Cities  |
| **6** | **Code I.T. -** *Coding and Programming* *National curriculum:** Use logical reasoning to explain how increasingly complex algorithms work and to detect and correct errors in algorithms and programs efficiently
* Use variables, sequence, selection, and repetition in programs
* Create programs which use variables
* Solves problems by decomposing them into smaller parts
* Include use of sequences, selection and repetition with the hardware used to explore real world systems
* Design and create a range of programs, systems and content for a given audience.

Skills:* I can investigate and evaluate the features of programming software.
* I can program Kodu using “When and Do“ instructions.
* I can use tools and add features to create an original landscape in Kodu.
* I can analyse and deconstruct code to work out its purpose.
* I can program a character to be controlled around a custom track to reach a goal.
* I can program a character to follow an automatic path.

Curriculum links:Literacy – Considering character, settings and audience.  | **Net I.T -** *Online safety**National curriculum:** Identify a range of ways to report concerns about content and contact in and out of school.
* Use technology respectfully and responsibly

Skills:* I can find similarities and differences between in-person and cyberbullying.
* I can identify good strategies to deal with cyberbullying.
* I can identify secure websites by identifying privacy seals of approval.
* I understand the benefits and pitfalls of online relationships.
* I can identify information that I should never share.
* I can identify how the media play a powerful role in shaping ideas about girls and boys.
* I can apply my online safety knowledge to my online activities.

Curriculum Links:PSHE – health and relationships. | **Cre8 I.T.** - Podcasting (Internet Radio)*National curriculum:** Be discerning when evaluating digital content
* Understand how computer networks enable computers to communicate and collaborate
* Begin to use internet services within his/her own creations to share and transfer data to a third party.
* Independently select, use and combine a variety of software to design and create content for a given audience, including collecting, analysing, evaluating and presenting data and information

Skills:* I can use software to create my own sounds by recording, editing and playing.
* I can combine audio effects to create an original radio jingle.
* I can research and plan digital content for a radio podcast.
* I can use software to create and present digital content for a radio podcast.
* I can present and evaluate audio content.

Curriculum links:Geography – South America.  | **Sort I.T.** - Spreadsheets Modelling*National curriculum:** Independently select, use and combine a variety of software to design and create content for a given audience, including collecting, analysing, evaluating and presenting data and information
* Independently select, use and combine a variety of software to collect, analyse, evaluate and present data and information

Skills:I can create data collection forms and enter data from these accurately.I know how to check for and spot inaccurate data.I know which formulas to use when I want to change my spreadsheet model.I can make graphs from the calculations on my spreadsheet.I can sort and filter information.Curriculum links:Maths – data handling | **Cre8 I.T**. - Film Making*National curriculum:** Independently select, use and combine a variety of software to collect, analyse, evaluate and present data and information
* Design and create a range of programs, systems and content for a given audience
* Understand how computer networks enable computers to communicate and collaborate.

Skills:* I can use appropriate software and other tools effectively to write a film script.
* I can locate and check appropriate digital content, and provide accurate crediting of sources.
* I can use digital recording devices to film and import into video editing software.
* I can plan, conduct and import video interviews as part of a short film.
* I can use video editing software to create a short film.
* I can use video editing software to turn a film project into a finished movie and present it.

Curriculum links:Literacy – Script writing |