*Strands of ICT National Curriculum*

Information TechnologyDigital Literacy

**All resources can be found in the shared area.**

Computer Science – ProgrammingComputer Science – Theory

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|  | Autumn 1 | Autumn 2 | | Spring 1 | Spring 2 | | Summer 1 | | Summer 2 | |
| Year 1 | **Logging on/off**  **Mouse Control**  **Typing Skills**  **How to access the internet.** | **Digital Painting**  **Basic Word Processing** | | Components of a computer  E-safety: basic rules | Technology uses beyond school  E-safety: basic rules  Internet searching skills – presenting their findings (power point) | | What is an algorithm?  Following a pattern/instructions (unplugged)  Programming Robots | | Programming sequences of commands to animate pictures  E-safety: media players | |
| Year 2 | **Typing Skills**  **Basic Word Processing** | **Digital Painting**  QR Codes- research | | E-safety: media players  Components of a computer | Creating a Multimedia e-book  Technology uses beyond school | | Programming Robots | | Basic photo editing skills | |
| Year 3 | Word processor text formatting tools | Powerpoints – transitions, animations, snipping tools, photo filters and frames | | Photo collages  Creating posters using text boxes | Programming commands to run at different times  Draw shapes **(Turtle Academy & Scratch)**  Animate a Name **(Scratch)**  Make it Fly **(Scratch)** | | E-safety: gaming safely  E-safety: passwords  Uses of technology and their impact  Digital communication methods (blogs, e-penpals) | | Exploring digital maps  Digital painting  Creating an e-book | |
| Year 4 | URLS and the topology of the Internet E-safety: child-friendly websites Internet searching skills  Posters | Photo editing  Online quiz making | | **Race to the Finish (Scratch)**  **Hide and Seek (Scratch**) | Microbits | | Movie making and editing  Green Screen | | Trifold leaflet design  Board game design  Internet terminology  E-safety: Message sharing consequences | |
| Year 5 | Powerpoints linking to Vikings  Internet searching skills  E-safety: Zip it Block it Flag it | Programming Microbits  Drawing tools – shape pictures | Spreadsheets (mountains and volcanoes) | | | Poster design  Programming Games | | History of technology  Impact of technology on society  E-safety: messaging safely, digital footprints, sharing safely and vlogging rules | | Photo editing | |
| Year 6 | Internet searching skills  App design  Photo editing  Animation presentation  E-safety: sharing photos safely  Programming **games**  Digital maps – route finding Spreadsheet maths programs  E-safety: digital citizen behaviours  E-safety: concept cartoons  Stop motion animations  Binary numbers |  | |  | VIRGIN £5 CHALLENGE | |  | |  | |

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| Year Group | Computers - Information Technology | Using Computer - Digital Literacy | Coding - Computer Science – Programming | Computer Science – Theory  (e-safety, networks) |
| Year 1 and 2 | **Recognising Common uses of IT in the home and school environment**  **Recognise common uses of IT beyond school**  To learn how to type words quickly and correctly using a keyboard.  Make simple word processed documents and change the appearance of text.  To use and combine a variety of painting tools to create a picture.  To create simple interactive games to play.  To create a multimedia e-book combining: text, painted pictures and recorded sound.  To compose music using ICT.  To compare tools for editing images saved from the web. | **Use technology purposefully to create digital content**  **Use technology to create, organise, store, manipulate and retrieve digital content**  **Use technology purposely to create digital content, comparing benefits of different programs**  To learn how to communicate sensibly using.  To know how to use a web browser to navigate a website when doing Internet research.    To search for images online and insert them into a document.  To scan and create QR codes. | **Predict the behaviour of simple programs**  **Understand what algorithms are and how they are implemented on digital devices**  **Use logical reasoning to predict behaviour of simple programs**  **Create simple programs**  **Create and de-bug simple programs**  **Understand that programs follow instructions.**  Move real and on-screen robots along a pre-determined path  Design computer programs in which pictures animate around a scene based on different events – at the start, when they are clicked on and when you swipe the screen | **Understand where to go for help or support when you have concerns about concerns about content or contact online.**  **Use technology safely and keep personal information private**  How to safely use online media players  Identify the main internal components of a computer  Name and compare common input and output devices of computer systems. |
| Relevant Software | Programs  Microsoft Word  Painting App iPads  BeeBots  StoryBook  Power Points provided  Scratch  Camera iPads | | | |
| Year 3 | **Recognise familiar forms of input and output devices and how they are used**  **Make efficient use of familiar forms of input and output devices**  Type text into different programs and change its style by applying a range of font effects.  Create documents and posters by combining text boxes with inserted images.  Create a photo collage.  Create a multimedia e-book combining: text, images voice recordings and shapes.  Paint a picture by combining different brush styles.  Take a digital photo and explore tools to edit it. | **With support, select and use a variety of software**  **Use simple search technologies and recognise that some sources are more reliable than others**  Compare digital communication methods, including when they are appropriate to use.  Explain the features of a strong password.  Know what electronic mail is and the services offered by an email client.  Explore a virtual map and compare different viewing options on it. | **Design, write and debug programs that control or simulate virtual events**  Use logical reasoning to explain how simple algorithms work.  Program a sequence of actions using timings to create a simple animation.  Test, debug and improve programs.    Write code that includes conditional events (e.g. run commands when objects hit). | **Understand that computer networks enable sharing of data**  **Understand that the internet is a large network of computers that shares information**  **Use technology safely and respectfully, keeping personal information private**  **Use technology safely, recognising acceptable and unacceptable behaviour**  Identify uses of technology beyond school and discuss reasons why they are helpful (e.g. robots and simulations).  Understand how a computer stores data.  Understand the main hardware components of a computer system, including the functions of different input and output devices.  Understand how to stay safe when playing computer games. |
| Relevant Software | Word  Camera/Powerpoint  Publisher  Scratch  Turtle Academy App  Powerpoints Provided | | | |
| Year 4 | **Use other input devices such as cameras, QR codes and sensors**  Type and design a variety of documents, posters and leaflets using ICT.  Learn rules for creating neat word processed work.  Produce a multimedia video topic about topic with music and narration.  Create online multiple-choice quizzes.  Shoot and edit digital photos effectively.  Create a word collage. | **With support, select and use a variety of software on a range of devices**  **With support, select, use and combine a variety of software on a range of devices**  Learn how to search the web effectively.  Learn how to interpret URLs. | **Decompose programs into smaller parts**  **Use logical reasoning to correct errors in programming**  **Select use and combine a variety of software systems and content that accomplish given goals**  **E**nter and repeat LOGO commands to program an on-screen turtle so it draws shapes, patterns and pictures.  Create games and apps that include variables in them (e.g. as a score counter).  Test, debug and improve programs. | **Understand what ‘servers’ are and how they provide services**  **Use technology responsibly and understand that communication online may be seen by others**  **Understand where to go for help and support when they have concerns**  Learn how the Internet works, including how it is structured and how data travels along it.  Understand how search engines operate, including how they rank results.  Learn about the importance of only joining and using child-friendly websites.  Understand that there are consequences for making bad decisions online. |
| Relevant Software | Publisher  Excel  Internet Access  Paint App on iPads | | | |
| Year 5 | **Independently select, use and combine digital content for a given audience**  Type and design an information booklet.  Enter formulae into a spreadsheet to solve calculations and model scenarios, including using =SUM() and statistical functions.    Change the format of cells of cells using: text alignment, borders and data types.  Create pictures using drawing tools.  Create an animated GIF image.  Create a multimedia on-screen presentation over several slides, adding animation and transition effects to enhance it.  Compare ways for manipulating digital images to enhance them. | **Use filters in search technology effectively**  **Independently select, use and combine digital content for a given audience**  Compare online encyclopaedias for doing Internet research on.  Cross-reference search results to help validate information on them.  Understand what is meant by the term ‘digital footprint’ and describe strategies for reducing it. | **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 programs efficiency**  Design and program games that include variables (e.g. for a score counter) and changing object properties (e.g. the speed and direction of a moving car).  Use generate random numbers in code.  Detect and correct errors in programs (syntax and logical bugs). | **Begin to use internet services to share and transfer data to a third party**  **Understand the need to only select age appropriate content**  Describe online hazards and how to respond to them safely.  Explain the ‘Zip it, Block it, Flag it’ slogan.  Stay safe when watching and recording vlogs.  Compare techniques used for manipulating and putting pressure on people online.  Understand how to safely send text messages.  Understand how digital images are stored and displayed on a computer.  Describe the impact of technology on society, including on people’s: spiritual, moral, social and cultural development.  Understand what e-commerce is and what its impact is.  Find out about the history of computing.  Describe uses of GPS. |
| Relevant Software | Publisher  Excel  Internet Access  Paint App on iPads  Scratch  Turtle Academy | | | |
| Year 6 | **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**  Design an information app that contains multimedia pages linked together using hyperlinks.  Create an on-screen presentation with slide transitions, advanced animation effects and action buttons.  Develop spreadsheets skills, writing formulae to solves mathematical problems.  Edit images using layering techniques.  Create and edit a stop motion animation. | **Design and create a range of programs, systems and content for a given audience**  **Independently select, use and combine a variety of software to collect, analyse, evaluate and present data and information**  **Be discerning when evaluating digital content**  **Use filters effectively and is discerning when evaluating digital content**  Revise strategies for doing effective Internet research and learn how to evaluate the usefulness of a website.  Research localities using a digital map and use advanced tools like route finders. | **Include use of sequences, selection and repetition with the hardware used to explore real world systems**  **Solve problems by decomposing them into smaller parts**  **Create programs that use variables**  **Use logical reasoning to explain how increasingly complex algorithms work and to detect and correct errors in algorithms and programs efficiently**  To create flowcharts showing how steps of algorithms are linked together.  Design and program games that include conditional events, score variables, random number generators and time limits.  Detect and correct errors in programs (syntax and logical bugs).programming language.  Learn how to write code using a text-based language (e.g. Python and/or HTML). | **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**  **Use technology respectfully and responsibly**  **Identify a range of ways to report concerns about content and contact in and out of school**  Describe the services offered by the Internet.  Understand the history of WWII computer code breaking.  Understand how binary numbers work.  Discuss reasons for and against sharing material publicly online.  Learn how to safely share images online.  Describe the safest response to possibly dangerous online scenarios (concept cartoons). |
| Relevant Software | Publisher  Excel  Internet Access  Paint App on iPads  Scratch  Do ink  iMovie | | | |