ICT

Intent

Our ICT is based around the National Curriculum. The intent is to develop technological skills that are age-appropriate and challenging, which enable children to be at the forefront of current and future developments in the ever-evolving technological world. Our curriculum will build children's skills and knowledge year-on-year so our pupils will be efficient in using a range of devices and platforms which involve coding and computational thinking, with an embedded understanding of how to problem solve and debug where appropriate. The ICT curriculum will enable them to find, explore, analyse, exchange and present information, develop skills across the wider curriculum and allow pupils to confidently use these skills in further education and throughout the rest of their lives safely. We believe that ICT is a brilliant tool for enhancing the curriculum and allowing wider opportunities for collaboration and exploration. We recognise that ICT is a tool that can enhance learning and bring subjects to life. And we will use it discerningly to both equip the children with the necessary digital literacy skills and to add wonder across the curriculum where possible. ICT is a subject that links across many other areas and we believe that a strong IT skillset is key to success in many other subjects.

Rationale

Our ICT curriculum will equip our pupils to confidently move on to high school and eventually into the rapidly changing world in which they will work. Within the ICT curriculum, we believe that high-quality computing provision will equip pupils to use computational thinking and creativity to understand and change the world. Computing has deep links with mathematics, science, and design and technology, and provides insights into both natural and artificial systems. Understanding the principles of information and computation, how digital systems work, and how to put this knowledge to use through programming is a highly valued modern life skill. Building on this knowledge and understanding, pupils are equipped to use information technology to create programs, systems and a range of content. Computational thinking skills are beneficial to careers in virtually every sector of work: business, finance, travel and tourism, healthcare, education, law and order etc. Workplaces need employees to take an active role in thinking problems through and creating solutions. Our curriculum will enable all our pupils to have strong computational thinking skills and application knowledge and to become digitally literate – able to use, and express themselves and develop their ideas through information and communication technology – to, in time, confidently enter the future workplace as active participants in a digital world.

Learning journey

Our computational thinking and teaching model follows this structure with each unit taking 6 sessions, but the length of the sessions will vary by unit and age group. Some units - for example Coding, require sticky learning to take place so need to be completed over time. Others, such as animation, can be blocked together as the learners will lose their flow if time passes. The flow of learning is as follows:

1.Unplugged - How the technology/skill works. How that technology/skill has changed over time. Why people use the technology/skill. How the technology/skill improves the quality of life. No use of technology within task. This element may be a starter rather than a full lesson in its own right.

2.Tinkering - Experimenting with a taught skill. Using prior knowledge and experimentation.

3.Creating - Use new taught skills to show progression from previous years' work.

4.Debugging - Fixing mistakes within a piece of work. Removing errors and using knowledge of new skills to improve work.

5.Persevering - Self/peer evaluate (maybe ongoing). Teacher feedback. Opportunity to enhance work/ improve/ have another go

6.Collaboration - Working together. How the skill/unit can help people collaborate better. Working together will happen throughout, but this is also an element where audience is key and where presentation may happen. This element of the learning will be the purpose, the outcome, that drives the learning.

With each session focusing on one of these computational thinking concepts:
Logic – predicting and analysing.
Algorithms – making steps and rules.
Decomposition – breaking down into small parts.
Patterns – spotting and using similarities.
Abstraction – removing unnecessary details. Evaluation – making judgements

Code.org

Code.org follows a scheme of work which shows clear and effective progression throughout all coding skills. It enables staff to build their skills until they are confident to be able to adapt learning and use a wider range of software to teach coding.

ICT Curriculum

Nursery

Knowledge	Skills taught in units	Vocabulary
I know how to open an app on a device. I know that information can be found online. I know that I have to follow instructions to make a programmable device (Beebot) move forwards and backwards.	I can use a keyboard to tap letters to type. I can use a device to take images. I can explore the commands needed to control a range of electronic toys.	Type Keyboard App Device Online Forwards/ backwards

Reception

Knowledge	Skills taught in units	Vocabulary
I know what the desktop is. I know what a keyboard is used for. I know that instructions have to be put into a moveable I know that devices have apps that I can use. I know that I have to follow instructions to make a programmable device (Beebot) move forwards, backwards, left and right, using positional language.	I can log on to the laptop. I can complete a simple task on the laptop. I can use the keyboard to type (using letter keys and spacebar). I can use the mouse pad to move the cursor and click on the selected tool/ application. I can use a device to take videos. I can input a series of commands to solve problems, e.g. get the Beebot to a selected location.	Laptop Type Space bar Mouse pad Cursor commands Forward/ backward/ left/ right

Year 1

IT - Using a computer

Knowledge	Skills taught in units	Vocabulary
To know how to open apps, folders and files To know how to stay safe online To Know what personal information is. To know how to access an eBook	I can open a document I can save a document I can access apps and ebooks. I can search for a file/app I can use personal information safely	Online, click, double-click, drag drop, save, program, search bar, search engine Introduce 'digital citizen'

Word processing - Basic typing

Knowledge	Skills taught in units	Vocabulary
To know the position of major keys on a keyboard To know how to type basic words onto a screen To know how to insert and change an image	I can change font I can find the important keys on a keyboard I can press keys accurately I can insert a picture and change its size.	keyboard, mouse, trackpad, space, caps lock, font

Presenting information - PowerPoint

Knowledge	Skills taught in units	Vocabulary
To know the basic features of PowerPoint To know there are different ways of presenting information	I can insert text I can insert a picture I can add in slides	Slide, transition,

Coding - Block Coding

Knowledge	Skills taught in units	Vocabulary
To know how to block code in sequence To know how to debug simple code To know what a loop in code does	*I can block code (Sequencing)* *I can start to debug* *I can use repeat loops*	Block, coding, repeat, loop, sequence, debugging, algorithm

Animation - Making videos

Knowledge	Skills taught in units	Vocabulary
To know how take and edit images To know how to take and save videos To know what to do if we see inappropriate content.	I can take a picture in different environments I can edit an image - changing size and colours I can record a video I can follow the correct procedure for making images/videos safely	record, save, edit, light, colour, filter, cropping

Year 2

IT - Saving and retrieving work		
Knowledge	**Skills taught in units**	**Vocabulary**
I know how to save on a computer *I know how to organise a computer/iPad* *I know how to make a safe password*	*I can save and retrieve work* *I can use features of an e-book* *I can create folders and move apps* *I can print work* I can use a range of age appropriate sites/search engines I say why having a password is important I understand the importance of being kind online	Online, Digital citizen, click, double-click, drag, drop, Cyberbullying, icon, drop down
Word Processing - Editing work		
Knowledge	**Skills taught in units**	**Vocabulary**
I know how to edit work. I know how to type basic words/sentences I know how to add external images into a document	I can use the undo button I can use the search button I can use screenshot/snipping tool I can use the Shift key/Caps lock for touch typing	home keys, undo, redo, shift, ribbon, dropdown menu, screenshot
Presenting information - Online mind maps		
Knowledge	**Skills taught in units**	**Vocabulary**
I know a variety of ways to present information online I know that you can use multiple webpages/software at once	I can use online mind map software I can use tabs for multiple webpages at one time	click, double-click, node, cell, insert
Coding - sequential code with loops and events		
Knowledge	**Skills taught in units**	**Vocabulary**
I know how to use a condition in code I know how to change integers in code	I can code with increased complexity (Using units of measurement) I can start to use conditionals within code I can start to understand events within programs	Loop, repeat, sequence, debugging, algorithm, condition, conditionals, sequencing
Animation - stop motion		
Knowledge	**Skills taught in units**	**Vocabulary**
I know how to make short movie clips. I know how to insert images into a movie making app/software	I can create short stop motion animations I can crop and resize images	sequence, record, stop-motion, scene, clip, effect, still

Year 3

IT - Using a computer		
Knowledge	**Skills taught in units**	**Vocabulary**
To know how to use advanced features of e-books. To know how to download files from the shared area to the pupil area.	I can highlight, define and search e-books. I can download files. I can delete files.	download, drag, drop, delete, Virus
Word processing - increase speed in typing and inserting tables		
Knowledge	**Skills taught in units**	**Vocabulary**
I know more advanced features of word processing programs I know the basic finger positions for touch typing.	I can copy and paste. I can insert tables. I can align text. I can begin to touch type to increase my speed when typing.	Alignment, table, border,
Presenting information - Google slides (Building on year 2 PowerPoint)		
Knowledge	**Skills taught in units**	**Vocabulary**
I know how to create a presentation using advanced features. I know some advantages of using cloud software I know different ways of transitioning between slides.	I can work online with Google tools I can use google slides to present. I can use advanced features including effects, animations and transitions.	cloud, effects, transitions, animation
Coding - conditional loops		
Knowledge	**Skills taught in units**	**Vocabulary**
I know how to write programs that accomplish a specific goal using conditionals and loops. know how to use logical reasoning to predict outputs, showing an awareness of inputs.	I can create Events, I can use nested loops I can use if/else conditionals I can create while loops I can create until loops	Events, Nested loops, If/else conditionals While loops Until loops Command
Animation - Creating a movie with music and sounds		
Knowledge	**Skills taught in units**	**Vocabulary**
I know how music and sounds can alter a movie clip. I know how to safely share and present videos through different software.	I can add music/sound to videos I can insert credits and titles I can share video through different software (Dangers of sharing - DL)	Credits, share, copyright

Year 4

IT - Coding (making things move)		
Knowledge	**Skills taught in units**	**Vocabulary**
I know how to use code to make things move I know how to use logical reasoning to detect and correct errors in programs	I can plan code to make a motor move I can use code to alter the speed something moves	Motor, connection, usb port, bluetooth
Word Processing - Merging Cells and touch typing - emails and chat rooms		
Knowledge	**Skills taught in units**	**Vocabulary**
I know how to merge cells in a document. I know the purpose of emails I know the difference between private and personal information	I can write an email. I can merge 2 cells together in a table. I can say how to use a chat room safely. I can discuss E-mails - Benefits of using them, dangers, appropriate email names, spam I can fully describe Personal/Private information – Online sites/chatrooms/forums and the dangers/benefits of using them.	Cell, email, merge, document, tracing
Presenting information - creating art online		
Knowledge	**Skills taught in units**	**Vocabulary**
I know how to use some software to create art. I know that art can be created online. I know the different features of art software.	I can insert images into art software I can use different brush types I can alter an image	Pixel, brush, fill, crop, rotate,
Coding - functions and procedures		
Knowledge	**Skills taught in units**	**Vocabulary**
I know how to use functions and procedures in code. I know how to combine functions with conditionals	I can describe the function of a sprite I can use a selection of functions/procedures I can combine functions with conditionals	Function, procedure, behaviour, sprite, conditionals
Animation - creating a movie with multiple clips		
Knowledge	**Skills taught in units**	**Vocabulary**
I know how to make a movie with multiple clips I know how to add a range of effects	I can create multiple clips I can connect clips together I can add effects to clips I can insert clips to software I can import stills and video clips to make a short movie	Audience, effect, trailer, stills, Transition, Animation, overlay

Year 5

IT - coding with motion and light sensors		
Knowledge	**Skills taught in units**	**Vocabulary**
I know that light and motion can control a model using code I know that the position of a sensor will affect the code outcome	I can set up code for a light/motion sensor I can place the correct code block into different parts of code to make a model move.	Settings, sensor,

Word Processing - Using shortcuts, bullet points and change of layout - working from 2 pages at once		
Knowledge	**Skills taught in units**	**Vocabulary**
I know how to use shortcuts when typing. I know how to arrange work in a document. I know what copyright and reliable information is.	I can use a range of shortcuts I can align text in a document/table I can work on multiple pages at once I can change the layout of my work I can use bullet points and number points	aligned, copyright, plagiarism, shortcut

Presenting information - inserting and using hyperlinks		
Knowledge	**Skills taught in units**	**Vocabulary**
I know how to insert and use a hyperlink I know understand the difference between the internet and internet services e.g world wide web	I can create a hyperlink I can create a hidden hyperlink I can link pages between documents and presentations	Hyperlink, internet, ips, url, dns, dsl, ip address

Coding - variables and what is the internet		
Knowledge	**Skills taught in units**	**Vocabulary**
I know how code is used to create games and animations.	I can use advanced coding features including: variables, loops, conditions and edit pre-existing code Introduction to creating own game/animation I can develop debugging skills through identifying issues with pre-written algorithms	Models, simulations, variable, for loop,

Animation - understanding and using transitions		
Knowledge	**Skills taught in units**	**Vocabulary**
I know how to apply and change transitions in a movie. I know how to import music, stills and video into video editing software	I can select different transitions I can say the effect transitions have on the audience I can use appropriate animations and transitions I can import music, stills and video (from an online library and self-created) into video editing software I can alter the volume of individual clips to match overall volume	Transitions, importing

Year 6

IT - Coding with tilt sensors		
Knowledge	**Skills taught in units**	**Vocabulary**
I know how tilt sensors can be used with code. I know how to use logical reasoning to detect and correct errors in more developed algorithms	I can connect and troubleshoot external devices I can link this learning and the purpose to industry and inventions	sense / sensor input display block palette lever, pulley, propeller rotation
Word Processing - advanced touch type - headers and page numbers -		
Knowledge	**Skills taught in units**	**Vocabulary**
To know how to touch type accurately and to increase speed. To know how to arrange work using headers and page numbers	I can select a variety of head/footer styles I can use the find and replace function To use collaborative tools effectively. (eg Skype / facetime across the Trust. Shared work spaces - Google Drive)	Google Docs. / Education Tools / Google Workspace Cloud based tools Interactive Collaborative Integrate Streamline
Presenting information - spreadsheets (graphs and data)		
Knowledge	**Skills taught in units**	**Vocabulary**
To know how excel can be used to present information To know how the basic features of a formula work To know the purpose of spreadsheets in the workplace	I can enter data into a cell I can use a basic formula (eg. add cells together) I can turn a selection of data into a basic graph.	cell, data, graph, excel, Formulas and functions
Coding - creating online games		
Knowledge	**Skills taught in units**	**Vocabulary**
To know how coding is used to create a game	I can write programs that change multiple elements on a single screen instead of changing screens I can choose the appropriate event for a given scenario Prototype a program that integrates software and hardware	Analog, digital, design, programming, decomposition, variables, sequence, evaluation, elements, prototype
Animation - creating a movie (consolidation of all skills)		
Knowledge	**Skills taught in units**	**Vocabulary**
I know how to use a range of techniques to make a movie	I can Import music, stills (images) and video - from online library and self created - into video editing software for a specific project. (eg iMovie) and then share using associated software.	download /upload media / multimedia platform resolution

		I can export images and movies in formats appropriate for the purpose and use them in multimedia presentation.	software editing - transitions / insertion / cropping Presentation / Slide Show / Template