National Curriculum Expectations

Purpose of study = A high-quality computing education equips 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. The core of computing is computer science, in which pupils are taught the principles of information and computation, how digital systems work and how to put this knowledge to use through programming. Building on this knowledge and understanding, pupils are equipped to use information technology to create programs, systems and a range of content. Computing also ensures that pupils become digitally literate – able to use, and express themselves and develop their ideas through, information and communication technology – at a level suitable for the future workplace and as active participants in a digital world.

Aims= The national curriculum for computing aims to ensure that 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 solve problems

- are responsible, competent, confident and creative users of information and communication technology

Attainment targets = By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

Key Stage 1

Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home and school, gardens and playgrounds, the local community, industry and the wider environment].
When designing and making, pupils should be taught to:

Pupils should be taught to:

- understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions

- create and debug simple programs

- use logical reasoning to predict the behaviour of simple programs

- use technology purposefully to create, organise, store, manipulate and retrieve digital content

- recognise common uses of information technology beyond school

- use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies

Key Stage 2

Pupils should be taught to:

- design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts
- use sequence, selection, and repetition in programs; work with variables and various forms of input and output
- use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
- understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for communication and collaboration
- use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content
- select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information
- use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact

Context 2018/19 (flexible each year)

Skills Progression

Reception

Learning about technology starts from birth because it's the way the world works today. Technology is an integral part of all young children's environment and world. They are surrounded by technology just as they are surrounded by language, print and numbers. In the home, technology includes remote controls for television, DVDs and sound systems, toys that have buttons and buzzers, mobile phones, washing machines, microwave ovens and other machines that require programming, and of course, computers and mobile devices such as iPads. Outside the home, children are also immersed in the technological world: they see automatic doors, cash machines, bar code scanners, digital tills and weighing machines, and security cameras. Technology is something children are going to grow up with, learn about and master, and use as a tool to increase their understanding in all areas of learning.

Many activities in the early years revolve around children developing an understanding of their environment. Settings encourage children to explore, observe, solve problems, predict, discuss and consider. ICT resources can provide tools for using these skills as well as being examined in their own right, with computers not the only resources. ICT equipment added to role-play reflects the real world, builds on children's experiences and allows them opportunities to understand how, why, when and where different forms of technology are used in everyday life.

Early experiences form a foundation upon which KS1 and KS2 can build and the current early learning goals have specific objectives relating to ICT.

By the end of the Foundation Stage most children will:

 Show an interest in ICT

 Know how to operate simple equipment

 Complete a simple program on the computer and / or perform simple functions on ICT equipment

 Find out about and identify the uses of everyday technology and use information and communication toys to support their learning.

Year 1/2

Multimedia	Programing	Online	E-Safety	Data
Graphics I can use ICT to generate ideas for their work. I can use various tools such as brushes, pens, rubber, stamps, shapes. I can save, retrieve and print work. **Text** I can use spacebar, backspace, delete, arrow keys, return. I can start to use two hands when typing. I can word process short texts to present. **Sound recording** I can record sound at and away from a computer. Use software to record sounds. I can change sounds recorded. I can save, retrieve and edit sounds. **Video** I can capture video. I can discuss which videos to keep and which to delete.	**Bee-bots** I can give commands including straight forwards / backwards / turn one at a time. I can explore what happens when a sequence of instructions is given. I can give a set of simple instructions to follow out a task. I can give a set of instructions to form simple geometric shapes. I can improve/change their sequence of commands.	**Internet research** I can talk about websites I have been on. I can explore a website by clicking on the arrows, menus and hyperlinks. **Emails** I can recognise an email address. I can find the @ key on the keyboard. I can contribute to a class email. I can open and select to reply to an email as a class.	I can make decisions about whether or not statements found on the internet are true or not. I can identify devices that can be used to search the Internet. I can identify what things count as personal information. I can identify when inappropriate content is accessed and act appropriately. I can recognise that a variety of devices can be used to connect a number of people. I can consider other people's feelings on the Internet.	I know that images give information. I can say what a pictogram is showing them. I can put data into a program. I can sort objects and pictures into lists or simple tables. I can make a simple Y/N tree diagram to sort information. I can create and search a branching database.

I can arrange clips to create a short film.

I can arrange clips to create a short film.
I can add a title and credits.
Presentation (2Connect)
I can choose a suitable subject and collect some information.
I can create a mindmap of this data.
I link appropriate bubbles.
I can present the information to a group.

Year 3/4

Multimedia	Programing	Online	E-Safety	Data
Graphics I can acquire, store and combine images from cameras or the internet for a purpose. I can use the print screen function to capture an image. I can select certain areas of an image and resize, rotate and invert the image. I can edit pictures using a range of tools in a graphics program. **2Create a story** I can create a new book aimed at a target audience. I can combine text, images and sound on each page. I can add information about the author and title for publishing. I can animate (I Can animate / 2animate) I can plan what I would like to happen in my animation. I can take a series of pictures to form an animation. I can move items within my animation to create movement on playback. I can edit and improve my animation. **Video (imovie trailer)** I can capture video for a purpose. I can choose which clips to keep and which to discard. I can trim and arrange clips to	**Scratch** Navigate the Scratch programming environment. I can create a background and a sprite for a game. I can add inputs to control my sprite. I can use conditional statements within the program to control the sprite (if…then..)	**Internet research** I can type in a URL to find a website. I can add websites to a favourites list. I can use a search engine to find a range of media, e.g. images, texts I can think of search terms to use linked with questions they wish to answer. I can talk about the reliability of information on the Internet, e.g. the difference between fact and opinion. **Emails** I can log into an email account, open, create and send an email. I can attach files to an email. I can download and save files from an email. I can email more than one person and reply to all.	I can question the 'validity' of what I see on the internet. I can use a browser address bar not just search box and shortcuts. I think before sending and comment on consequences of sending/posting. I can recognise online behaviours that would be unfair. I can recognise social networking sites and social networking features built into other things (such as online games and handheld games consoles) I can make judgments in order to stay safe, whilst communicating with others online. I can tell an adult if anything worries them online. I can identify dangers when presented with scenarios, social networking profiles etc. I can articulate examples of good and bad behavior online.	I can choose information to put into a data table. I can recognise which information is suitable for their topic. I can design a questionnaire to collect information. I can sort and organize information to use in other ways. I can create and search a branching database. I can create a database from information I have selected.

convey meaning.				
I can add titles, credits, slide transitions, special effects.				
Text				
I can get quicker at typing with both hands.				
I can use a variety of font sizes, styles and colours.				
I can align text left, right and centre.				
Presentation (Powerpoint)				
I can create a title slide and choose a style.				
I can change the layout of a slide.				
I can insert a picture/text/graph from the Internet or personal files.				
I can decide upon and use effective transitions.				

Year 5/6

Multimedia	Programing	Online	E-Safety	Data
Sound Recording (Audacity) I can collect audio from a variety of resources including own recordings and internet clips. I can create a multi-track recording using effects. I can edit and refine their work to improve outcomes. **Animation** I plan a multi-scene animation including characters, scenes, camera angles and special effects. Use stop –go animation software (I can Animate / Hue animation) with an external camera to shoot animation frames. I can adjust the number of photographs taken and the playback rate to improve the quality of the animation. I can publish their animation and use a movie editing package to edit/refine and add titles. **Graphics** I can use to create a 3D representation of an existing building. I can use the tools available to design their own fit for purpose building. I can change the style, colour and texture of the walls. I can change the viewpoint angle whilst designing the building to gain	**Scratch** I can use external triggers and infinite loops to control sprites. I can create and edit variables. I can use conditional statements. I can design their own game including sprites, backgrounds, scoring and/or timers. I can use conditional statements, loops, variables and broadcast messages in the game. The game finishes when a player wins or loses and they must know they have won or lost. I can evaluate the effectiveness of the game and debug as required.	**Internet Research** I can use advance search functions in Google (quotations). I can understand websites such as Wikipedia are made by users (link to E-Safety). I can use strategies to check the reliability of information (cross check with another source such as books). I can use their knowledge of domain names to aid their judgment of the validity of websites. **Cloud Computing** I can understand files may be saved off their device in 'clouds'. I can upload/download a file to the cloud on different devices. I can understand about syncing files using cloud computing folders. **Blogging** I can register for a blog, select a URL and navigate to their blog once it is created. I can alter the theme and appearance of my blog, adding background images etc. I can create a new post, save it as a draft and publish it. I can embed photos, hyperlinks and videos into posts. I can reorganise posts and remove posts they no longer want. I can like/follow other blogs and build up their blog content over the	I can judge what sort of privacy settings might be relevant to reducing different risks. I can judge when and when not to answer a question online. I can be a good online citizen and friend. I can articulate what constitutes good behaviour online. I can use different sources to double check information found online. I can find 'report' and 'flag' buttons in commonly used sites and name sources of help (childline, cybermentors etc) I can click-CEOP button and explain to parents what it is for. I can discuss scenarios involving online risk. I can state the source of information found on the Internet. I can act as a role model for younger pupils.	I can create data collection forms and enter data accurately from these. I can know how to check for and spot inaccurate data. I can 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. I can understand that changing the numerical data effects a calculation.

		year.		
insight to its look from a variety of angles. **Video (iMovie)** I can storyboard and capture videos for a purpose. I can plan for the use of special effects and transitions. I can trim, arrange and edit audio levels to improve quality of their outcome. I can export my video. **Presentation (Powerpoint)** I can work independently to create a multi slide presentation that includes speaker's notes. I can use transitions and animations to improve the quality of the presentation. I can include sounds and moving graphics in the slides. I can present to a large group or class using the notes made.				

Assessment

Flic to be completed in all year groups.

Evidence in books of the planning and evaluation stages

Observations during the making process

Photographs to evidence the outcomes

Monitoring

Monitor FLiC

Book scrutiny x 2 a year

Child interviews x 2 a year

Learning walk – focus on D&T displays as and when

Complete SEF for D&T as part of the Maths Team annually

Complete an Action Plan for D&T as part of the Maths Team annually and refine and evaluate throughout the year

Share SEF and Action Plan with link governors and involve governors throughout the year when implementing actions