Computing Curriculum: Progression Ladder (E-Safety)

Key Stage 1: National Curriculum aims:

- 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: National Curriculum aims:

- Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6

Computing	E-Safety					
	• Know what personal information is and be able to give examples. • Recognise that there may be people online who could make people feel sad, embarrassed or upset. • Know who to go to for help with problems regarding digital activity. • Describe how to behave online in ways that do not upset others and can give examples.	• Explain how other people's identity online can be different to their identity in real life. • Know what private means and which data should be kept private. • Know that we do not share personal information. • Know to ask a trusted adult before clicking 'yes' 'I agree' or 'accept'. • Identify safe and unsafe online behaviours. • Begin to know how to search the internet safely.	• Confidently know how to search the internet safely and choose age-appropriate resources and websites. • Know how to create a secure password. • Know what a digital footprint is and that any information online can be used by others. • Explain what it means to 'know someone' online and why this might be different from knowing someone in real life. • Know how to create a positive online presence.	• Know the reasons why we need to limit our technology use and explain the risks linked to it (health risks) • Know what a virus is and how we protect computers from harm. • Explain why they need to think carefully about how content they post might affect others, their feelings and how it may affect how others feel about them. • To become aware of 'fake news' and learn how to assess what they read.	• Distinguish between appropriate and inappropriate uses of technology (including excessive use)(link to mental health/social risks). • Know the risks and rewards of the internet. • Know a variety of ways to report concerns both on and offline. • Know how to use social media and online gaming apps effectively, while keeping an adult informed of their activity. • Know what copyright is and how to interpret information found online. • Know what adverts/ pop ups/ phishing emails are and how they are specifically targeted at individuals.	• Know how to protect themselves from being victims of cyberbullying and causing harm to others. • Know how to respect others online and understand their responsibility for how their information affects others. • Know what the CEOP button is and why it is important in keeping safe online. • Describe ways in which some online content targets people to gain money or information illegally and can describe strategies to help them identify such content. • Learn how to use the skills they have to respond to any challenges they might face when they leave primary school.

Computing Curriculum: Progression Ladder (Digital Fluency)

Key Stage 1: National Curriculum aims:

- 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

Key Stage 2: National Curriculum aims:

- 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

Computing	**Digital Fluency**					
	Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Save and retrieve	• Save and retrieve a programme with support.	• Save and retrieve a programme or work independently. X button. • Use save as and save coming up with own name for document. • Minimise, restore down document.	• Create folders within a folder to organise work. Move documents from folder to subfolders.	• Create own folders and sub folders and re-arrange documents. Re-name folders. Delete folders.	• Save as different programmes, i.e. save as PDF.	• How to save and retrieve data from an online platform. To password protect. Knowing that a password protected document can still be deleted without knowing the password, it just can't be accessed. (E-safety)
Logging and turning on. Accessing computer	• Turn a computer off and on independently. • Log on with support.	• Turn on and log on independently. • Minimise, maximise buttons, as well as screen splitting and restore down.	• Log on to different softwares. i.e. Accelerated reader, TT rockstars. . • Use the home button to find different programmes. • Create their own secure password referring back to the E-safety lesson on passwords.	• Log on and retrieve work for a range of different softwares. Retrieve documents and convert between. i.e. photos, videos into different softwares.	• Use task manager to solve problems.	• Confidently use computers to turn on and log in with own password, as well as ipads. Be able to search, open and use familiar programmes independently and apply what they know to open unfamilar programmes.
Mouse skills	• Left hand button to click and select and move the mouse around the screen. Aware of different types of mouse. I.e mouse, track pad and how to navigate an ipad by touch.	• Left button double click to highlight word. Hold and drag.	• Right click button: Copy and paste. • Cut and paste. • Change font.	• Use the mouse confidently with left click and right click options.	• Use the mouse confidently and independently with left click and right click options.	• Use the mouse confidently and independently with left click and right click options, for different purposes to achieve given goals.
Keypad skills	• Navigate the keypad to find letters. • Basic letters and numbers. Space bar, enter button.	• Write sentences with capitals and full stops. • Use the Caps lock button to write capital letters. Hold the shift key to for capitals. • Full stop button. • Volume buttons on software.	• Shift key • Capitals with shift key. • Use the shift key to type symbols. For example: question marks, exclamation marks, speech marks. • Start to learn to touch type. Main middle row.	• Shortcuts for copy and paste, undo, cut and paste etc. • Use Tab key for navigation!? • Shortcuts for bold, italics, underlining. • Touch typing	• Touch typing. • Become familiar with common function keys, such as brightness, airplane mode, volume, play and pause, rotating screen, etc.	• Become more confident with touch typing and use touch typing for all letters.
Words typing and formatting	• Type words, letters and numbers.	• Typing sentences with capitals and full stops. • Change the colour, font and size of the words. • Finding the home button.	• Apply the left and right hand skills to drag and drop, copy and paste words. • Change the bold, underline and italics of a word. • Inserting shapes. • Adding writing to shapes. • Right click and edit shapes. • Formatting backgrounds. • Insert borders. • Creating a poster.	• Formatting shapes and objects, bring to front move to back. (Media?) • Spell check and word count. • Using bullet points, letters and numbers for lists. • Insert and create tables.	• Change position of text. Columns, align, change direction. • Orientation of page and margins. • Find and replace words and fonts. • Hyperlinks • Add, delete columns and rows. Using the mouse and enter for a new row.	• Insert tables, draw, rub out, merge cells and edit.

Computing Curriculum: Progression Ladder (Programming)

Key Stage 1: National Curriculum aims:

- Understand what algorithms are and know how they are implemented as programs on digital devices.
- Know that programs execute by following precise and unambiguous instructions
- Create and debug simple programs
- Use logical reasoning to predict behaviour of simple programs

Key Stage 2: National Curriculum aims:

- Design, write and debug programs that accomplish specific goals.
- 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 simple algorithms work.
- Detect and correct errors in algorithms.

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Computing	**Programming**					
	• Give directional vocabulary that is clear and unambiguous such as: forwards, backwards, turn left, turn right. • Predict and explore what will happen when a sequence of instructions is given. • Create a set of instructions (algorithms) for a digital device that has a specific output. (using a Beebot and creating a map/maze) • Use a logical approach to debug simple algorithms and programs.	• Give directional vocabulary that is clear and unambiguous such as: forwards, backwards, turn left, turn right, north, south, east, west. • Predict and explore what will happen when a more complex sequence of instructions is given. (using the apps) • Create a set of more complex instructions (algorithms) for a digital device that has a specific output. (Beebot app leading towards scratch junior) • Use a logical approach to debug more complex algorithms and programs. • Algorithm – individual instructions • Program – lots of algorithms working together	• Design and write a programme to accomplish a specific goal. • Detect, correct and debug errors in algorithms. • Control/simulate physical systems with algorithms. • Settings, sprites, backgrounds, etc • Put in a background	• Design and write a more complex programme to accomplish a specific goal. • Reason and explain how simple algorithms I have designed and written work. • Detect, correct and debug errors in algorithms. • Control/simulate physical systems with algorithms. • Solve problems within a program by breaking it into smaller parts. • Multiple sprites, creating own	• Design and write an increasingly complex programme to accomplish a specific goal. • Reason and explain how more complex algorithms I have designed and written work. • Use sequence (putting algorithms in the correct order), selection (selecting the correct instructions) and repetition (selecting where coding can be copied/repeated) in programs. • Detect, correct and debug errors in algorithms. • Control/simulate physical systems with algorithms. • Solve problems within a program by breaking it into smaller parts. • Selecting different options for different sprites, costumes, loops	• Design and write an increasingly complex programme to accomplish a specific goal following a design brief. • Reason and explain how all algorithms I have designed and written work and how they fit into the design brief. • Use sequence (putting algorithms in the correct order), selection (selecting the correct instructions) and repetition (selecting where coding can be copied/repeated) in programs. • Work with variables (values that will change depending on the outcomes of situations) and various forms of input (mouse, keyboard, swiping, tilting) and outputs (sound, points, pictures, character changes, etc) • Detect, correct and debug errors in algorithms that now include variables. • Control/simulate physical systems with algorithms. • Solve problems within a program by breaking it into smaller parts. • Design and create their own game using all of the above. • Variables – lives, points

Computing Curriculum: Progression Ladder (Networking)

Key Stage 1: National Curriculum aims:

- 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

Key Stage 2: National Curriculum aims:

- 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

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Computing	**Networking**				
• Know what a computer is?	• Can access content from the internet using a web browser. • Is aware of the importance of staying safe online – the need for keeping personal data private and communicating respectfully • Navigates the web and can carry out simple web searches to collect digital content. Demonstrates use of computers safely and responsibly, knowing a range of ways to report unacceptable content and contact when online.	• Pupils know what a 'network' is and understand how different types of networks – LAN (Local Access Network), WAN (Wireless Access Network), PAN (Personal Access Network), MAN (Metropolitan Access Network) – work. • Pupils to know the difference between ethernet and wi-fi access • Pupils understand the difference between the internet and the internet service – internet is global network of networks whilst the internet service (www.) is information accessed by via the internet. • Pupils are aware of the role of routers when viewing websites • Pupils send and respond to e-mails using a variety of attachments. • Pupils can use a search engine to find a specified picture.	• Pupils send and respond to e-mails. • Pupils know the names of networking hardware (e.g. hubs, routers, switches) and the names of protocols (e.g. SMTP (Simple Mail Transfer Protocol), IMAP (Internet Message Access Protocol), POP (Post Office Protocol), FTP (File Transfer Protocol), TCP/IP (Transmission Control Protocol/Internet Protocol), associated with networking computer systems). • Pupils now use technologies and online services securely, and knows how to identify and report inappropriate conduct. • Pupils know how 'packet data' is transferred around the world and how it can be 'corrupted' • Pupils are introduced to HTML (Hypertext Markup Language) and CSS (Cascading Style Sheets) and apply this knowledge to build a static website. • Pupils can edit a website and its contents using HTML (Hypertext Markup Language) and CSS (Cascading Style Sheets)	• Pupils understand role of the networking hardware and protocols associated with networking computer systems. • Pupils understands the client-server model process and the 'why' behind it. • Pupils know that including how dynamic web pages (web pages that display different things, depending on input) use server-side scripting and that web servers process and store data entered by users. • Recognises that persistence of data on the internet requires careful protection of online identity and privacy • Pupils can use search engines effectively and understand that search engines use 'web crawler programs'. Pupils can use this process safely and behave responsibly -independently report concerns. • Pupils can explain how search engines rank the results that appear • Pupils can identify a fake e-mails (spam, junk and phishing emails)	• Pupils understand role of the networking hardware and protocols associated with networking computer systems. • Pupils understands the client-server model process and the 'why' behind it. • Pupils know that including how dynamic web pages (web pages that display different things, depending on input) use server-side scripting and that web servers process and store data entered by users. • Recognises that persistence of data on the internet requires careful protection of online identity and privacy • Pupils can use search engines effectively and understand that search engines use 'web crawler programs'. Pupils can use this process safely and behave responsibly -independently report concerns. • Pupils can explain how search engines rank the results that appear • Pupils can identify a fake e-mails (spam, junk and phishing emails)

Computing Curriculum: Progression Ladder (Multimedia)

Key Stage 1: National Curriculum aims:

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

Key Stage 2: National Curriculum aims:

- 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.

Computing	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Multimedia					
Graphics	• Use various tools such as brushes, pens, rubber, stamps, and text. (Paint)	• Use a wider variety of tools (including skills learnt in Year 1) on a computer software, inserting and manipulating shape. (Paint)	• Acquire, store, and combine images from cameras or the internet for a purpose. • Use the print screen function and snipping tool to capture and crop an image. (Microsoft Word/ PowerPoint/ publisher) • Select certain areas of an image and resize, rotate, and invert the image. (Microsoft Word/ PowerPoint/ publisher) • Edit pictures using a range of tools in a graphics program. • Plan, create and edit a stop motion and animation using sound clips. (Stop motion studio) • Insert a picture/text/ graph from the Internet or personal files.	• Be confident in creating & modifying text & presentation documents to achieve a specific purpose. • Layer graphical elements. • Use art programs & online tools to modify photos for a specific purpose using a range of effects.	• Be able to use different filming techniques and camera angles e.g. zoom, panning, wide shot etc to create different mood/ perspective. • Plan a multi-scene animation including characters, scenes, camera angles and special effects. (iMovie / Clips) • Adjust the number of photographs taken and the playback rate to improve the quality of the animation. (iMovie / Clips) • Publish their animation and use a movie editing package to edit/refine and add titles. (iMovie / Clips)	• Use internet-based software to create a 3D representation. • Collect information and media from a range of sources (considering copyright issues) into a presentation for a specific audience. • Use the tools available to design their own fit for purpose object. • Use sound, images, text, transitions, hyperlinks, and HTML code effectively in presentations. • Evaluate and present final 3D design.
Text	• Add text to a template document using an image and word bank. (Microsoft Word) • Create my own documents, adding text. (Microsoft Word)	• Add and edit text, considering style, colour, and layout of font using a document you have created. (Microsoft Word) • Insert an image to a document. (Microsoft Word)	• Experiment with bold, italics, underlining, highlighting, and using word art. (Microsoft Word)	• Align text left, right and centre.	• Know how to use text and video editing tools in programs to refine their work. (Clips) • Begin to use both hands to type. • Begin to use a range of functions to change text alignment, layout, insert tables.	• Use both hands to type. • Confidently use a range of functions to change text alignment, layout, insert tables. • Copy and paste within specific texts.
Sound Recording and Video	• Record your own voice and play back to an audience. (Voice memo app on iPad) • With support, use a digital camera / iPad to capture images. (Camera app on iPad) • Use an app to record an activity. (Camera app on iPad)	• Use video cameras on either laptop or iPad to capture still images and video footage. (Camera app on iPad) • Re-open a recorded clip they have made. • Explore sound and music in animation and video.	• Trim and arrange clips to convey meaning. • Add titles, credits, slide transitions and special effects. • Capture and use sounds with video to enhance.	• Explore the use of video, animation, & green screening for a specific audience. (Veescope Live Green Screen App) • Use ICT tools to create music phrases for a specific purpose.	• Collect sounds from a variety of sources (sound editing software, online, digital sound recorder.	• Storyboard and capture videos for a purpose. • Plan for the use of special effects and transitions. • Trim, arrange and edit audio levels and video clips to improve quality of their outcome. • Export their video. • Create and edit a presentation and add text.

Computing Curriculum: Progression Ladder (Data Processing)

Key Stage 1: National Curriculum aims:

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

Key Stage 2: National Curriculum aims:

- 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.

Computing	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Data Processing					
	• Discuss what data means. • Collect physical data. • Group data. • Input data into a premade written chart.	• Create a simple pictogram as a group. • Read information in a digital pictogram. • Read and retrieve information from a pictogram. • Collect data using a tally chart. • Present collected data using a pictogram app. • Open and edit a pictogram. • Compare two pictograms.	• Use 'Yes' and 'No' questions. • Sort muddled up data into catego-ries. • Organise data, us-ing given criteria. • Know that there can be alternative answers for a question. • Create 'Yes' and 'No' questions for given data. • Present their data using a branching database.	• Learn how to use a data logger. • Record data (from data logger) using tallies, charts and tables. • Learn what a spreadsheet is and what it is used for. • Record data (from data logger) into premade spreadsheet. • To organise data using a spreadsheet. • Save a spreadsheet. • Open a spreadsheet. • Learn how to retrieve simple information from a premade spreadsheet.	• Input data confidently into a spreadsheet. • Edit a spreadsheet. • Create and use multiple pages in Spreadsheet. • Duplicate pages. • Learn simple formulas e.g. Total number of column/ one row minus another row. • Add formulas to premade spreadsheets. • Create a spreadsheet for a purpose and include a simple formula to solve a problem.	• Read and compare spreadsheets. • Create and edit a spreadsheet. • Input more challenging formulae e.g. multiplying an amount/ dividing an amount. • Create a chart from spreadsheet they have made. • Label axes on charts.