Crosby on Eden Computing Progression of Skills

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Computer Science NC	Explore how things work – (this can be toys and equipment not directly linked to technology)	Understand what algorithms are; how they are implemented as programs on digital devices; and those programs execute by following precise and unambiguous instructions. Create and debug simple programs. Use logical reasoning to predict the behaviour of simple programs	Understand what algorithms are; how they are implemented as programs on digital devices; and those programs execute by following precise and unambiguous instructions. Create and debug simple programs. Use logical reasoning to predict the behaviour of simple programs	Design, write and debug programs that accomplish specific goal, including simulating physical systems. Use sequence and repetition in programs; work with various forms of input.	Design, write and debug programs that accomplish specific goal, including simulating physical systems. Use sequence and repetition in programs; work with various forms of input.	Design, write and debug programs that accomplish specific goals; 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.	Design, write and debug programs that accomplish specific goals; 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.

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		Introduce Programming	Develop Programming	Programming in Scratch	Programming in Scratch	Programming in Scratch	Programming in Scratch
	Create a simple sequence – Linked to either programming (code a pillar/Beebots) or in Maths and PE	1. Understand sequence and algorithms. 2. Sequence instructions (commands) to achieve an objective. 3. Use distances in commands. 4. Predict, write, execute and debug a simple program.	1. Create and debug simple programs by selecting code blocks, placing them in the correct sequence and executing a program. 2. Use logical reasoning to predict the behaviour of simple programs. 3. Simplify a program by using a loop. **Introduction to Scratch Jr** 1. Program movements. 2. Program outputs for audio or text. 3. Find errors in a program. 4. Program inputs. 5. Program selection/conditions (if one sprite hits another).	1. Design, write and debug programs that accomplish specific goals. (Including outputs) 2. Use repetition in programs. 3. Work with various form of inputs; keyboard, mouse and touch screen. 4. Write programs to simulate physical systems. **Programming in Kodu** 1. Create a 3D place using various design tools. 2. Write a program to control using keyboard inputs. 3. Write a program with conditions (selection). 4. Write a program with variables	1. Use sequence, selection, and repetition in programs. 2. Work with variables and various forms of input and output. 3. Debug programs that accomplish goals. 4. Work with variables and conditions.	1. Program inputs, conditions and sensing for interaction, data variables for scoring and a game timer. 2. Program distance sensing and movement. 3. Program Inputs, outputs, loops, conditions, sensing and variables. 4. Program list variables that chooses randomly. **Text based Programming (Turtle)** 1. Change the variables of text-based commands. 2. Write text-based commands accurately and use fill effects, stamps and functions. 3. Write text-based commands to program digital art. 4. Write text	1. Program keyboard/touch screen inputs, selection (conditions), loops and random variables for unpredictability (operators). 2. Program inputs, conditions, sensing, random variables, operators for direction and data variables for scoring. 3. Use inputs, conditions, loops, sensing, costume changes and broadcasts. 4. Work with multiple sprites to send broadcast messages between them. **HTML** 1. Add and align text and change colour. 2. Program background colour.

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						commands/functions to program keyboard inputs in a game. (Not compatible with iPad/tablet unless using physical keyboard) 5. Programming a Logo turtle to move and use pen. 6. Use co-ordinates in with a Logo turtle. 7. Print labels in Logo. 8. Program a loop (repetition) and shapes in Logo Turtle. 9. Program colours in Logo turtle. 10. Program variables in Logo turtle. **Programming with Sphero** 1. Understanding Bluetooth Technology as Input Device 2. Write programs for the Sphero using movement and repetition (loops). 3. Write a program to trace a maze/route with	3. Add and align images. 4. Add hyperlinks to other websites. 5. Add an iframe (such as a Google Map) and adjust the height and width. **Machine Learning and AI** 1. Understand how computers use information to learn by solving new problems and following new instructions. 2. Understand and use examples of machine learning. 3. Understand how artificial intelligence is used to perform tasks often only performed by humans. 4. Discuss and show awareness of potential dangers of AI.

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						Sphero and De-bug. 4. Write a program with outputs. 5. Write a program with random variables **Physical Devices** (Microbit) 1. Understand that computers use physical inputs and outputs and give examples. 2. Program physical inputs and outputs (e.g program LED lights). 3. Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems.	

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Units	Early programming	Introduce Programming	Develop Programming / Introduction to Scratch Jr	Programming in Scratch / Programming in Kodu	Programming in Scratch	Programming in Scratch / Text based Programming / Programming with Sphero / Physical Devices	Programming in Scratch / HTML / Machine Learning and AI

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	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Information Technology	There are no specific ELGs but we would expect the children to be engaged in a range of activities: Using an interactive whiteboard to play a game, listening to music – using a CD player, camera for example.	Use technology purposefully to create digital content. Use technology purposefully to create, organise, store, manipulate and retrieve digital content.	Use technology purposefully to create, organise, store, manipulate and retrieve 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.	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.	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.	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. Use search technologies effectively and be discerning in evaluating digital content. (Computers P,P and F Unit)
Animation Music D	Create a simple sequence – Linked to either programming (code a pillar/Beebots) or in Maths and PE	**Mouse and keyboard skills** 1. Move cursor and left click to select. 2. Click and drag to move items. 3. Find letters on a keyboard and begin touch typing. **Digital Art** 1. Change the colour of individual pixels to	**Digital Art** 1. Use lines and fill tools to make interesting patterns. 2. Add a variety of shapes (outlines and fill) and label them with text. 3. Re-create graphics using pixels with different colours.	**Comic Creation** 1. Add, resize and organise colour or picture backgrounds. 2. Add, resize, organise characters/object to different panels. 3. Add narration using text and direct speech using speech bubbles.	**Animation** 1. Create a stop-motion video by duplicating slides that include backgrounds and shapes. 2. Create animation using transition and animation effects (morph, motion paths, pulse etc), including taking and editing a	**APP Design** 1. Adjust slide size to mimic a phone/tablet size. 2. Add text and images to a slide. 3. Add icons and text to use as navigation. 4. Duplicate slides to create multiple pages of the app. 5. Create hyperlinks to create navigation.	**Graphic Design** . Add, adjust and fill shapes. 2. Group shapes to improve accuracy and speed. 3. Add and customise gradient effects. 4. Adjust transparency/opacity for a purpose. 5. Use a colour picker correctly.

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accurately re-create basic artwork.
2. Make changes where required.
3. Change the colour of individual pixels to accurately re-create detailed artwork.

Design
1. Change the colour and pattern of elements.
2. Position and rotate objects on a design.
3. Position objects in relation to each other.
4. Resize, rotate, flip and arrange objects behind/in front of each other.

Text and Images
1. Add, move and resize images. Add text and adjust size and placement.
2. Add, resize and place images on a page then add and position text to label and describe images.

Introduction to Animation
1. Add a background and objects to a frame, including text.
2. Copy/clone a frame and move objects to create an animation. Plus flip an object.
3. Create screen-recording animation (optional, requires iPad).
4. Create stop-motion animation with photos (optional, requires iPad).

Introduce Data Handling
1. Understand what data is and collect it as a tally.
2. Use software to label a pictogram and add data to each column.
3. Edit a table with correct titles and numbers.
4. Use software to create a bar chart/pie chart/line chart

Storyboards
1. Add and edit backgrounds.
2. Add and edit characters, including changing posture, expression and clothing.
3. Add narration and speech bubbles, including formatting text.
4. Duplicate objects to match scenes.
5. Search for objects to use.

Digital Art
1. Use various lines and fill tools plus copy/paste and rotation to create pattern effects.
2. Use shapes, fill, copy/paste, zoom and flip to create reflective symmetry effects.
3. Use stamps, copy/paste, layers and multiple frames to create animated GIF computer graphics.

Music Creation

screenshot.
3. Animate individual elements of objects.
4. Create animated GIF files by animating pixels.

Data Handling
1. Change appearance of cells in a spreadsheet (fill colour and border) then add and align text.
2. Find and add data to a spreadsheet, resize cells and use the software to create a suitable chart with a title.

3D Design (3D Village and Lego modelling activities)
1. Understand 3D spatial awareness.
2. Add 3D shapes, resize, adjust height, duplicate and use the different

Data Handling
1. Select and use non-adjacent cells plus resize multiple cell widths and copy/paste cells.
2. Use formulae to find totals, averages and maximum/minimum numbers.
3. Find data and create a spreadsheet to suit it.
4. Search a database for specific information.

Ebook Creation
1. Add page colour and style.
2. Add, position and format text on different pages.
3. Add and position images.
4. Add audio, including hiding it behind an object.
5. Add hyperlinks to text and images.
6. Search for shapes.
7. Lock and

6. Accurately rotate shapes.

Computers: Past, Present and Future
11. Understand how technology has changed over time. Combine text and images to present ideas.
2. Understand the impact (positive/negative) technological changes have on society.
3. Predict how technology will change in the future.

Image Editing
1. Take and crop a screenshot and understand ratios.
2. Adjust the colours, brightness, contrast and filters.
3. Add drawing and text layers.
4. Import new images as layers and resize/add effects.
5. Save finished

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3. Use word banks <mark>EBook Creation</mark> to write sentences about images. <mark>Comic Creation</mark> 1. Add, resize and organise colour or picture backgrounds. 2. Add, resize, organise characters/object to different panels. 3. Add narration using text and direct speech using speech bubbles. <mark>Music Creation</mark> 1. Create a rhythm using a pattern of beats. 2. Create digital sounds using patterns and shapes. 3.Create a simple melody using patterns and adjust tempo.	suitable for the data. 5. Interpret a pictogram/bar chart/line chart. <mark>Ebook Creation</mark> 1. Add a book cover with title, author, colour and image. 2. Add multiple pages based on a theme. 3. Add text on different pages. 4. Add images on different pages to match the theme/text. 5. Add voice recordings to match the text and theme.	<mark>Music Creation</mark> 1. Create ascending and descending scales. 2. Add chords evenly across the scales. 3. Add arpeggios and melodies. 4. Add a steady and even rhythm. 5. Use sampled sounds to create an effective mix. 6. Build beats, melody (tones) and effects. <mark>Document Editing and Creation</mark> 1. Copy and Paste text and images. 2. Find and replace words. 3. Format text for a purpose. 4. Add bullet points to make lists. 5. Experiment with keyboard shortcuts. <mark>3D Design</mark> 1. Understand and use 3D space on a grid. 2. Re-create or design familiar 3D models using

perspective. 3. Re-create different types of buildings using 3D shapes. 4. Create roads/paths by adjusting the height of 3D shapes. 5. Add windows and door shapes. 1. Add, move, change colour and duplicate a brick. 2. Rotate bricks. 3. Use sloping bricks and special bricks for a purpose. 4. Change the transparency of bricks. <mark>Video Editing</mark> 1. Add scene images. 2. Add scripted voiceover audio, adjust the volume and crop clips (including splitting a clip). 3. Add more clips and use transition effects. 4. Add titles.	arrange shapes (extension task). <mark>Music Creation</mark> 1. Layer tracks using sounds and effects. 2. Create effective instrument tracks. 3. Edit tracks and effectively adjust volume and add effects.	image to use in other projects. <mark>Web Design</mark> 1. Add and format text within a website. 2. Organise sections of web-pages and multiple page with relevant titles. 3. Add and edit images. 4. Include other features such as hyperlinks, buttons and files. 5. Evaluate other websites and provide constructive feedback. 6. Make necessary changes to the website based on feedback.

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cubes, such as tables and chairs.
3. Use chisel tool to improve and adapt models.
4. Colour individual blocks or whole models.

1. Understand what an infographic is and why we use them.
2. Search for and add suitable graphic elements.
3. Add and format suitable titles and text.
4. Label an image with arrows and text.

1. Add and label objects within a branching database.
2. Ask questions to sort (classify) objects.

5. Use elements such as shapes.
6. Add music background music and adjust the volume.
7. Export a project.

1. Add page colour and style then position and format text.
2. Add and position images from camera/internet.
3. Add audio, including hiding it behind an object.
4. Add hyperlinks to text and images.
5. Add and format shapes.
6. Use hyperlinks for navigation.

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Units							
	Early Music Skills Digital Art and Design Digital Photos and Videos	Mouse and keyboard skills Digital Art Design Text and Images Comic Creation Music Creation	Digital Art Introduction to Animation Introduce Data Handling Ebook Creation	Comic Creation Storyboards Digital Art Music Creation Document Editing and Creation 3D Design Infographics Branching Database	Animation Data Handling 3D Design (3D Village and Lego modelling activities) Video Editing Ebook Creation	APP Design Data Handling EBook Creation Music Creation	Graphic Design Computers: Past, Present and Future Image Editing Web Design

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	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Online Safety	Project Evolve and Scarf planning	Project Evolve and Scarf planning	Project Evolve and Scarf planning	Project Evolve and Scarf planning	Project Evolve and Scarf planning	Project Evolve and Scarf planning	Project Evolve and Scarf planning
Me and My Relationships - Online Bullying Online Relationships	Me and My Relationships - Online Bullying Online Relationships	Me and My Relationships - Online Bullying Online Relationships	Me and My Relationships - Online Bullying Online Relationships	Me and My Relationships - Online Bullying Online Relationships	Me and My Relationships - Online Bullying Online Relationships	Me and My Relationships - Online Bullying Online Relationships	Me and My Relationships - Online Bullying Online Relationships
Valuing differences – Managing information online	Valuing differences – Managing information online	Valuing differences – Managing information online	Valuing differences – Managing information online	Valuing differences – Managing information online	Valuing differences – Managing information online	Valuing differences – Managing information online	Valuing differences – Managing information online
Keeping myself safe – Privacy and Security	Keeping myself safe – Privacy and Security	Keeping myself safe – Privacy and Security	Keeping myself safe – Privacy and Security	Keeping myself safe – Privacy and Security	Keeping myself safe – Privacy and Security	Keeping myself safe – Privacy and Security	Keeping myself safe – Privacy and Security

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Rights and Responsibilities - Copyright and Ownership Online reputation	Rights and Responsibilities - Copyright and Ownership Online reputation	Rights and Responsibilities - Copyright and Ownership Online reputation	Rights and Responsibilities - Copyright and Ownership Online reputation	Rights and Responsibilities - Copyright and Ownership Online reputation	Rights and Responsibilities - Copyright and Ownership Online reputation	Rights and Responsibilities - Copyright and Ownership Online reputation	Rights and Responsibilities - Copyright and Ownership Online reputation
Being my Best – Health, Wellbeing and lifestyle	Being my Best – Health, Wellbeing and lifestyle	Being my Best – Health, Wellbeing and lifestyle	Being my Best – Health, Wellbeing and lifestyle	Being my Best – Health, Wellbeing and lifestyle	Being my Best – Health, Wellbeing and lifestyle	Being my Best – Health, Wellbeing and lifestyle	Being my Best – Health, Wellbeing and lifestyle
Growing and Changing – Self image and identity	Growing and Changing – Self image and identity	Growing and Changing – Self image and identity	Growing and Changing – Self image and identity	Growing and Changing – Self image and identity	Growing and Changing – Self image and identity	Growing and Changing – Self image and identity	Growing and Changing – Self image and identity
Units	Units	Units	Units	Units	Units	Units	Units

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