

Computer Science

EYFS and Key Stage One

Year R

Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes.

Computational Thinking

- I can follow simple oral algorithms
- I can spot simple patterns
- I can sequence simple familiar tasks

Coding and Programming

- I can use a mouse, touch screen or appropriate access device to target and select options on screen
- I can input a simple sequence of commands to control a digital device with support (Bee Bot)

Year 1

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.

Computational Thinking

- I understand what algorithms are
- I can write simple algorithms
- I understand the sequence of algorithms is important
- I can debug simple algorithms
- I understand that algorithms are implemented as programs on digital devices

Coding and Programming

- I can create a simple program on a digital device e.g. Bee Bot
- I can use sequence in programs
- I can locate and fix bugs in my program

Year 2

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.

Computational Thinking

- I can write algorithms for everyday tasks
- I can use logical reasoning to predict the outcome of algorithms
- I understand decomposition is breaking objects/processes down
- I can implement simple algorithms on digital devices (Bee Bots, Apps: Daisy the Dino)
- I can debug algorithms

Coding and Programming

- I understand programs execute by following precise and unambiguous instructions
- I can create programs on a variety of digital devices
- I can debug programs of increasing complexity
- I can use logical reasoning to predict the outcome of simple programs

Daisy the Dinosaur

Beebots

Beebots – Introduction to Programming

Techbot activities – How to make a jam sandwich
<http://code-it.co.uk/unplugged/jamsandwich>

Human Crane (unplugged) <http://code-it.co.uk/ks1/crane/humancrane>

Robot Maze (ICT Mr P)

Beebots Year 2 Planning

My Robot Helper Scratch Junior (ICT Mr P)

Knock Knock Joke Scratch Junior (ICT Mr P)

Lower Key Stage Two	Year 3 <i>Design, write and debug programs that accomplish specific goals, including controlling or stimulating physical systems; solve problems by decomposing them into smaller parts.</i> <i>Use sequence, selection and repetition in programs; work with variables and various forms of input and output.</i> <i>Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs</i> <i>Understand computer networks including the internet; how they can provide multiple services, such as world-wide web; and the opportunities they offer for communication and collaboration.</i> <i>Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.</i> <u>Computational Thinking</u> • I can create algorithms for my programming projects • I can decompose projects (such as an animation) into steps to create an algorithm • I understand abstraction is focusing on important information <u>Coding and Programming</u> • I can design a program • I can create a program using a design • I can create a sequence of code • I can work with a variety of inputs and outputs • I can evaluate my program	Year 4 <i>Design, write and debug programs that accomplish specific goals, including controlling or stimulating physical systems; solve problems by decomposing them into smaller parts.</i> <i>Use sequence, selection and repetition in programs; work with variables and various forms of input and output.</i> <i>Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs</i> <i>Understand computer networks including the internet; how they can provide multiple services, such as world-wide web; and the opportunities they offer for communication and collaboration.</i> <i>Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.</i> <u>Computational Thinking</u> • I can use abstraction to focus on what's important in my design • I can write more precise algorithms for use when programming • I can use simple selection and repetition in algorithms • I can use logical reasoning to detect and correct errors in programs <u>Coding and Programming</u> • I can use repetition in programs • I can work with a variety of outputs • I can use logical reasoning to systematically detect and correct errors in programs
	Scratch – Animations (ICT Mr P) Physical Computing – Crumble (ICT Mr P)	Scratch – Crab Maze http://code-it.co.uk/scratch/crabmaze Physical Computing – Crumble (ICT Mr P)

Upper Key Stage Two	Year 5 <i>Design, write and debug programs that accomplish specific goals, including controlling or stimulating physical systems; solve problems by decomposing them into smaller parts.</i> <i>Use sequence, selection and repetition in programs; work with variables and various forms of input and output.</i> <i>Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs</i> <i>Understand computer networks including the internet; how they can provide multiple services, such as world-wide web; and the opportunities they offer for communication and collaboration.</i> <i>Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.</i> <u>Computational Thinking</u> • I can solve problems by decomposing them into smaller parts • I can use selection in algorithms • I can use logical reasoning to explain how a variety of algorithms work • I can evaluate the effectiveness of algorithms <u>Coding and Programming</u> • I can create programs by decomposing them into smaller parts • I can use a variety of selection commands in programs • I can use conditions in repetition commands • I can work with variables • I can evaluate my work and identify errors	Year 6 <i>Design, write and debug programs that accomplish specific goals, including controlling or stimulating physical systems; solve problems by decomposing them into smaller parts.</i> <i>Use sequence, selection and repetition in programs; work with variables and various forms of input and output.</i> <i>Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs</i> <i>Understand computer networks including the internet; how they can provide multiple services, such as world-wide web; and the opportunities they offer for communication and collaboration.</i> <i>Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.</i> <u>Computational Thinking</u> • I can decompose a design or code to focus on specific parts • I can use abstraction to hide complexity in my design or code • I can recognise and make use of patterns in my design and code <u>Coding and Programming</u> • I can identify the need for, and work with, variables • I can create procedures to hide complexity in programs • I can use a range of sequence, selection and repetition commands to implement my design
	Scratch – Quizzes (ICT Mr P) Scratch – Year 5 Scratch Platform Game (ICT Mr P)	Beetle Blocks – 3D Letters (ICT Mr P) Scratch Game (ICT Mr P)

EYFS and Key Stage One	<u>Information Technology</u>		
	Year R <i>Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes.</i>	Year 1 <i>Use technology purposefully to create, organise, store, manipulate and retrieve digital content.</i> <u>Animation – Bringing a Character to Life</u> - I can animate a simple image to speak in role - I can add filters and stickers to enhance an animation of a character. <u>Animation – Creating a Cartoon</u> - I can create a simple animation to tell a story including more than one character. - I can create an animation to tell a story with more than one scene. - I can add my own pictures to my story animation. <u>Data Handling – Digital Pictograms</u> - I can sort images or text into two or more categories on a digital device. - I can collect data on a topic. - I can create a tally chart and pictogram. - I can record myself explaining what I have done and what it shows me.	Year 2 <i>Use technology purposefully to create, organise, store, manipulate and retrieve digital content.</i> <u>Data Handling – Venn Diagrams</u> - I can use the space bar only once between words and use touch to navigate to words letter to edit - I can use caps locks for capital letters. - I can sort digital objects into a range of charts such as Venn diagrams, carroll diagrams and bar charts using different apps and software. - I can orally record myself explaining what the data shows me. <u>Presentations - EBook Creation</u> - I can use the space bar only once between words - I can copy and paste images and text - I can use caps lock for capital letters - I can add voice labels to an image - I can add speech bubbles to an image - I can import images to a project from the web or camera roll <u>Video Creation – Masking Story Time</u> - I can use tools to add effects to a video - I can begin to use green screen techniques and masking with support
		Chatterpix Puppet Pals Seesaw	Seesaw Book Creator Doink Greenscreen

Lower Key Stage Two	Year 3 <i>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.</i> <u>Word Processing</u> • I can copy and paste images and text • I can use cut, copy and paste to quickly duplicate and organise text • I can use index fingers on keyboard home keys (f/j), use left fingers for a/s/d/f/g and use right fingers for h/j/k/l • I can edit the style and effect of my text and images to make my document more engaging and eye-catching. For example borders and shadows • I can add images alongside text in a word processed document. <u>Data Handling – Interactive Story Graphs</u> • I can create my own sorting diagram and complete a data handling activity with it using images and text. • I can create a feelings chart exploring a story or character’s feelings. <u>AR & VR – Creating 360 images</u> • I can create a presentation demonstrating my understanding with a range of media. • I can create my own digital 360 image and explore it in VR <u>Interactive Comics</u> • I can edit the style and effect of my text and images to make my document more engaging and eye-catching. For example, borders and shadows. • I can create an interactive comic with sounds, formatted text and video.	Year 4 <i>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.</i> <u>Video Creation – Visual Storytelling</u> • I can sequence clips of mixed media in a timeline and record a voiceover • I can evaluate and improve the best video tools to best explain my understanding. <u>Presentations – Digital Posters</u> • I can combine digital images from different sources, objects, and text to make a final piece of a variety of tasks: posters, documents, eBooks, scripts, leaflets. • I can import images to a project from the web and camera roll <u>Sound – Movie Soundtrack</u> • Edit sound effects for a purpose. • Compose a soundtrack that can be added to a film project. • I can add music and sound effects to my films <u>Data Handling – Online Questionnaire</u> • Confidently and regularly use text shortcuts such as cut, copy and paste and delete to organise text • I can create and publish my own online questionnaire and analyse the results.
A	Microsoft Word Seesaw Keynote/Figment AR Book Creator	Adobe Spark Video Adobe Spark Post Garageband Microsoft Forms

Upper Key Stage Two

Year 5

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.

AR & VR – Interactive Displays

- I can evaluate and improve the best video tools to best explain my understanding.
- I can enhance digital photos and images using crop, brightness and resize tools
- I can create an interactive poster using AR

Animation – Character Interviews

- I can take multiple animations of a character I have created and edit them together for a longer video.
- I can record animations of different characters and edit them together to create an interview.
- I can evaluate and improve the best video tools to best explain my understanding.

Video Creation – Greenscreen News Reports

- I can organise and reorganise text on screen to suit a purpose
- I can use cutaway and split screen tools in iMovie.
- I can evaluate and improve the best video tools to best explain my understanding.
- I can further improve green screen clips using crop and resize and explore more creative ways to use the tool - wearing I can solve problems by decomposing them into smaller parts

Sound – Four Chord Remix

- Create a simple four chord song following the correct rhythm.
- Create a remix of a popular song.
- I can solve problems by decomposing them into smaller parts
- I can critically evaluate my work and suggest improvements

Year 6

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.

Animation – Animated Cartoon

- I can plan, script and create a 3D animation to explain a concept or tell a story.
- I can choose and create different types of animations to best explain my learning
- I can create videos using a range of media - green screen, animations, film and image.

Video Creation – Greenscreen Special Effects

- I can choose and create different types of animations to best explain my learning.
- I can create videos using a range of media - green screen, animations, film and image.
- I can critically evaluate my work and suggest improvements
- I can explain how I am developing an online reputation which will allow other people to form an opinion of me.
- I can describe some simple ways that help build a positive online

AV & VR – Interactive VR Experience

- I can create an interactive guide to an image by embedding digital content and publishing it online.
- I can create a webpage and embed video.
- I can create videos using a range of media - green screen, animations, film and image.
- I can make a digital photo using camera settings
- I can create an interactive VR experience.
- I can solve problems by decomposing them into smaller parts

Presentation – App Prototype

- I can confidently choose the best application to demonstrate my learning.
- I can format text to suit a purpose.
- I can publish my documents online regularly and discuss the audience and purpose of my content.
- I can design an app prototype that links multimedia pages together with hyperlinks.
- I can choose applications to communicate to a specific audience.
- I can evaluate my own content and consider ways to improvements.
- I can edit a picture to remove items, add backgrounds, merge 2 photos

	Chatterpix and Eyejack Animate Anything and either Apple Clips or Adobe Spark Video Doink Greenscreen Garageband	Plotagon Doink Greenscreen Thinglink Keynote
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