



## Computing Curriculum

## Gawthorpe Community Academy Computing

Pupils should 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.

Pupils will be taught over a series of lessons which include:

- Online Safety
- Digital Literacy
- Basic computer skills
- Word processing skills
- Computer Science

*\* When using the words 'Computer engineer' we are referring to all: computer programmers, designers, scientists and formatters.*

Computing Intent Statement Early Years	Implementation	Impact	Research
<p>SDP High priorities: Developing subject specific vocabulary.</p>	<p>Consistent use of subject specific vocabulary.</p>	<p>Revisiting common vocabulary will allow the children to “Know more and remember more”.</p>	
<p><b>Curriculum</b>            Early Years Outcomes are planned and delivered using Chris Quigley Early Years Key Objectives. (Please see document below for skills progression and vertical links.)            Supported by Focus Learning Challenge Sarah Quinn. Child centred approach to teaching and learning is a cyclical process and includes:</p> <ul style="list-style-type: none"> <li>• Observations,</li> <li>• Analysis of observations</li> <li>• Using target tracker for gap analysis of child development and curriculum coverage. To determine next steps.</li> <li>• Planning experiences and opportunities to support observations and next steps.</li> <li>• This includes what the child’s interest are.</li> <li>• The environment is set up to connect with child's interests and their learning.</li> </ul> <p><b>Fundamentals</b>            Computing knowledge and skills are taught progressively and revisited prior to new learning to develop understanding.</p> <p><b>Basic Skills</b>            Horizontal links between subjects are explicit during the teaching of computing to ensure children build on prior knowledge and utilize knowledge and skills learned from other subjects.</p> <p><b>Staff Knowledge</b>            Computing lessons are delivered by staff who are supported by the subject leader. This promotes confident and effective delivery throughout the school, resulting in children engaging in their art learning.</p>	<ul style="list-style-type: none"> <li>• To deliver a balance of child initiated experimentation opportunities and focus teaching through concrete, meaningful experiences</li> <li>• To work in the provision areas with the children observing, scaffolding, modelling, guiding, inspiring and providing resources to meet the needs of children at that moment in time.</li> <li>• To provide a constant set of resources for children to practice and consolidate skills and development in positive terms</li> <li>• To provide appropriate resources to enhance the environment relevant to learning</li> <li>• To talk about learning in positive terms fostering the characteristics of effective learning. Making links between learning and revisiting objectives in different contexts.</li> <li>• Praising children's efforts and values in positive terms enabling the children to talk about their own learning and reflect on what they have achieved.</li> <li>• Use display to promote and reinforce learning</li> <li>• Provide access to a range of programmable toys and equipment</li> <li>• Completing a simple program using computers and whiteboards.</li> <li>• Using technology for purpose.</li> </ul> <p><b>Assessment</b>            There is continuous formative assessment during lessons. Observations and explanations are recorded to inform early learning outcomes.</p>	<p>Children have the knowledge and skills to work like a .....</p> <p>Children make sustained progress in computing.</p>	<p>Ofsted Curriculum research            “Knowledge rich” curriculum and            “Vocabulary is knowledge.”</p> <p>“Closing the Vocabulary Gap” A Quigley.</p>

Computing Intent Statement KS1	Implementation	Impact	Research
<p>SDP High Priorities: Developing subject specific vocabulary.</p>	<p>Consistent use of subject specific vocabulary.</p>	<p>Revisiting Common vocabulary will allow the children to “know more and remember more”.</p>	
<p><b>Curriculum</b> National Curriculum statutory requirements are planned and delivered using the Twinkl Planit scheme of work. Coverage of computing is outlined in the overview. However computing teaching is also included across the curriculum in areas such as maths and science. Computing skills are used in all areas of the curriculum for research and presentation.</p> <p><b>Fundamentals</b> Computing knowledge and skills are taught progressively and revisited prior to new learning to develop understanding.</p> <p><b>Basic Skills</b> Horizontal links between subjects are made explicit during the teaching of computing to ensure children build upon prior knowledge and utilize the knowledge and skills learned from other subjects.</p> <p><b>Staff Knowledge</b> Computing lessons are taught by staff who are supported by the subject leader. This promotes confident and effective delivery throughout the school, resulting in children engaging</p>	<p><b>In lessons, you will see :</b></p> <ul style="list-style-type: none"> <li>• children practicing their skills and developing knowledge through a wide range activities which are differentiated to meet all needs;</li> <li>• a combination of whole class teaching and individual choice is used to promote learning;</li> <li>• Modelling is used to show children how to block make in coding, test and debug, use apps and programs effectively and how to present and format work.</li> <li>• Children handling and coding Bee-Bots and other programmable toys.</li> <li>• Children using and applying basic computer skills including but not limited to using mouse, keyboard and monitor efficiently and being able to save and print.</li> </ul> <p><b>Assessment</b> Assessment for learning is used as a starting and end point for units of work. Formative assessment is used during and after a lesson to inform next steps, check understanding and inform current attainment</p>	<p>Children have the knowledge and skills to begin to work confidently with a wide range of software and hardware, working as a computer engineer*</p> <p>Children make sustained progress in computing.</p> <p>Children have the understanding of how the skills they are being taught can be used in a real life context.</p>	<p>“Closing the Vocabulary Gap” A Quigley.</p>

Computing Intent Statement KS2	Implementation	Impact	Research
<p>SDP High Priorities: Developing subject specific vocabulary.</p>	<p>Consistent use of subject specific vocabulary.</p>	<p>Revisiting Common vocabulary will allow the children to “know more and remember more”.</p>	
<p><b>Curriculum</b> National Curriculum statutory requirements are planned and delivered using the Twinkl Planit scheme of work.</p> <p>Coverage of computing is outlined in the overview. However computing teaching is also included across the curriculum in areas such as maths and science. Computing skills are used in all areas of the curriculum for research and presentation</p> <p><b>Fundamentals</b> Computing knowledge and skills are taught progressively and revisited prior to new learning to develop understanding.</p> <p><b>Basic Skills</b> Horizontal links between subjects are made explicit during the teaching of computing to ensure children build upon prior knowledge and utilize the knowledge and skills learned from other subjects.</p> <p><b>Staff Knowledge</b> Computing lessons are taught by staff who are supported by the subject leader. This promotes confident and effective delivery throughout the school, resulting in children engaging</p>	<p><b>In lessons, you will see :</b></p> <ul style="list-style-type: none"> <li>• children practicing their skills and developing knowledge through a wide range activities which are differentiated to meet all needs;</li> <li>• a combination of whole class teaching and individual choice is used to promote learning;</li> <li>• Modelling is used to show children how to block make in coding, test and debug, use apps and programs effectively and how to present and format work.</li> <li>• Children are taught how to use the internet safely and responsibly.</li> <li>• Children are able to debug and evaluate their own programs, codes and algorithms</li> <li>• A variety of hardware including microphones and digital recording devices are used input audio/visual/code.</li> </ul> <p><b>Assessment</b> Assessment for learning is used as a starting and end point for units of work. Formative assessment is used during and after a lesson to inform next steps, check understanding and inform current attainment</p>	<p>Children have the knowledge and skills to begin to work confidently with a wide range of software and hardware, working as a computer engineer*</p> <p>Children make sustained progress in computing.</p> <p>Children have the understanding of how the skills they are being taught can be used in a real life context.</p>	<p>“Closing the Vocabulary Gap” A Quigley.</p>



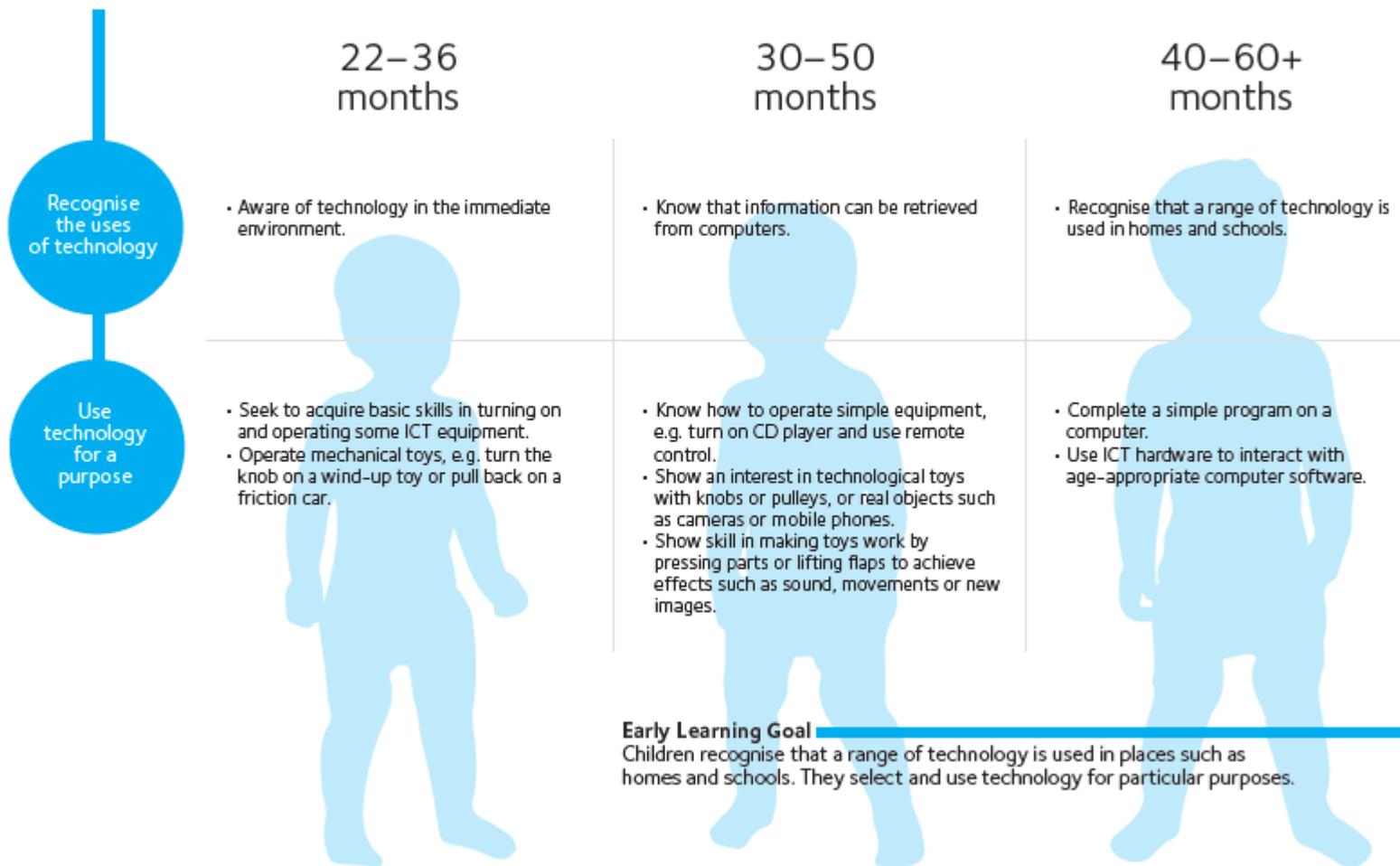
## Computing in the Early Years

# Early Years Key Objectives

Personal, social and emotional development	Communication and language	Physical development	Literacy	Mathematics	Understanding of the world	Expressive arts and design
<p><b>Making Relationships</b> Play cooperatively Form positive relationships</p> <p><b>Self Confidence and self-awareness</b> Try new activities with confidence Speak to others Ask for help</p> <p><b>Managing feelings and behaviour</b> Talk about feelings Talk about behaviour Describe behaviour that is wrong Work as part of a group or class Adjusts behaviour</p>	<p><b>Listening and attention</b> Listen attentively Listen to stories Anticipate key events Make relevant responses – appropriate response Give attention to others</p> <p><b>Understanding</b> Follow instructions Answer ‘how’ and ‘why’ questions about events</p> <p><b>Speaking</b> Can express ideas to an audience (express appropriately) Describe events in the past, present and future Develop narratives and explanations Connecting ideas and events</p>	<p><b>Moving and handling</b> Show good coordination (large and small scale) Move confidently Negotiate space Handle equipment and tools</p> <p><b>Health and self-care</b> Understand the importance of exercise and diet for good health Basic hygiene</p>	<p><b>Reading</b> Read and understand simple sentences Use phonic knowledge to decode regular words Read some common irregular words Demonstrate to others an understanding of reading</p> <p><b>Writing</b> Use phonic knowledge to write words Write some irregular common words Write simple sentences Spell some words correctly Spell some words in a phonetically plausible way</p>	<p><b>Numbers</b> Count reliably with numbers from 1 to 20 Place numbers from 1 to 20 in order Represent numbers Add and subtract Solve problems</p> <p><b>Shape, space and measure</b> Use measurements Recognise, create and describe patterns Describe objects and shapes</p>	<p><b>People and communities</b> Talk about past and present events Show sensitivity to the likes and dislikes of others Know the similarities and differences between themselves and others</p> <p><b>The world</b> Learn in familiar places Similarities and difference in places Observe and describe environments Own environment animals and plants</p> <p><b>Technology</b> Recognise the uses of technology Select technology for a purpose</p>	<p><b>Exploring and using media and materials</b> Make music and dance Experiment with colour etc.</p> <p><b>Being imaginative</b> Use media and materials imaginatively and use what they have learnt Represent ideas, thoughts and feelings through design, technology, art, music, dance, role-play and stories Represent own ideas.</p>

# Early Years Outcomes

## Technology





## Progression in Computing

Early Years	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<ul style="list-style-type: none"> <li>I can identify when a password is needed and why.</li> <li>I know the importance of keeping passwords private.</li> </ul>	<ul style="list-style-type: none"> <li>I can explain what 'Online Safety' means.</li> <li>I can explain how to communicate safely online.</li> <li>I can explain who to tell if I feel unsafe online.</li> <li>I can recall the 'SMART' rules for online safety.</li> <li>I can understand what personal information should be kept safe online.</li> <li>I can give advice to others about keeping safe online.</li> </ul>	<ul style="list-style-type: none"> <li>I can explain what a 'digital footprint' is.</li> <li>I can understand that people can use the information I put online.</li> <li>I can begin to identify possible dangers online.</li> <li>I can identify websites suitable/unsuitable for my age.</li> <li>I can explain when I should ask an adult for their advice.</li> <li>I can begin to explain who a website is aimed at.</li> <li>I can identify unkind online behaviour.</li> </ul>	<ul style="list-style-type: none"> <li>I can explain 'Cyberbullying'</li> <li>I can explain where cyberbullying can take place.</li> <li>I can identify adverts online.</li> <li>I can explain how companies use websites for their products.</li> <li>I can create a strong password.</li> <li>I can explain why a strong password is important.</li> <li>I can explain what privacy settings are.</li> <li>I can identify online communities I am part of.</li> <li>I can discuss the positive and negative aspects of online communities.</li> </ul>	<ul style="list-style-type: none"> <li>I can confidently define, and recognise, cyberbullying.</li> <li>I can explain the appropriate response to hurtful messages/comments online.</li> <li>I can access, and use, a trusted search engine.</li> <li>I can explain what 'plagiarism' is.</li> <li>I can explain what 'digital citizenship' is.</li> <li>I can explain how to be a good digital citizen.</li> <li>I can identify comments that may be hurtful to others.</li> <li>I can reflect on my own messages to ensure they are kind.</li> </ul>	<ul style="list-style-type: none"> <li>I can explain what 'phishing' is and can recognise the signs.</li> <li>I can identify a 'spam' email.</li> <li>I can explain what to do with spam email.</li> <li>I can explain the steps to take to avoid spam emails.</li> <li>I can create a strong password using a set of given rules.</li> <li>I can understand that not everything I see online is true.</li> <li>I can identify unsafe online behaviour.</li> </ul>	<ul style="list-style-type: none"> <li>I can understand that not all websites are 'secure'.</li> <li>I can identify warning signs that suggest an unsecure website.</li> <li>I can confidently explain what to do if I am asked or told something online which makes me uncomfortable.</li> <li>I can identify a situation that I may find myself in where I need to remain vigilant.</li> <li>I can explain how cyberbullying can be as harmful as in-person bullying.</li> </ul>

Early Years	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<ul style="list-style-type: none"> <li>I can identify what technology is in the classroom</li> <li>I can identify and explain, the uses of technology, in and around, my classroom (including Twitter etc.)</li> <li>I can discuss what technology is in my home and what is used for.</li> <li>I can explain that information can be retrieved from computers.</li> </ul>	<ul style="list-style-type: none"> <li>I can describe the effect of instruction blocks on a character</li> <li>I can predict the behaviour of a character, based on a sequence of instructions</li> <li>I can identify and practise the computer skills I have learned</li> </ul>	<ul style="list-style-type: none"> <li>I can understand how to best use technology to present my work</li> <li>I can identify the main features of a presentation</li> <li>I can discuss what people might want to know about a website to decide whether it is useful or not</li> <li>I can explain what I like/dislike about a website</li> <li>I can choose appropriate websites for people my age</li> </ul>	<ul style="list-style-type: none"> <li>I can identify searches that provide better results when using a search engine</li> <li>I can explain how searches return results</li> <li>I can name means of online communication</li> <li>I can explain who will be able to read my communications</li> <li>I can identify the ways, and investigate how, we communicate online</li> <li>I can explain what privacy settings are</li> <li>I can explain why a strong password is important</li> </ul>	<ul style="list-style-type: none"> <li>I can describe early forms of animation before computers and analyse how computers have made a difference.</li> <li>I can explain how computer software has improved animation techniques</li> <li>I can analyse and evaluate software</li> <li>I can explain what digital citizenship is</li> <li>I can decompose a problem into smaller parts</li> </ul>	<ul style="list-style-type: none"> <li>I can evaluate webpages</li> <li>I can use the advanced feature of Google's web search</li> <li>I can describe what is meant by a podcastI can evaluate what features make good quality audio content</li> <li>I can analyse and identify improvements to an advert</li> </ul>	<ul style="list-style-type: none"> <li>I can cross check information using different sources</li> <li>I can provide accurate crediting for sources of information</li> <li>I can evaluate whether information is reliable or not</li> <li>I can follow instructions given in software</li> <li>I can describe the actions of a sequence of commands</li> <li>I can interpret data and make comparisons</li> </ul>

Vocabulary  
Digital Literacy - Including online safety

Early Years	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Safe Stranger Password Private Camera Photograph	'Communicate safely' Unsafe Online 'SMART rules' Personal information Top tip/advice Search Internet	Digital footprint Keywords Appropriate/Inappropriate Website/webpage/address 'Rate and review' 'Kind/unkind behaviour' Results 'Possible danger' Information Links 'online content' Blog Search engine Navigate Permission	Word order Communicate Bookmark Favourite Technology Cyberbullying Advertisements Promote Privacy Online Communities Targeted Devices	URL Plagiarism 'Online profile' Digital citizen(ship) Trusted/reliable	Phishing SPAM Virus Trojan	Crediting/Citation Cross-check Warning signs Privacy Policy

# Information Technology (Basic Computer Skills)

Early Years	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<ul style="list-style-type: none"> <li>I can turn on/off digital equipment.</li> <li>I can handle technology with care.</li> <li>I can interact with technology purposefully (navigating an iPad).</li> <li>I can use technology to take a picture.</li> <li>I can use technology to record a video.</li> </ul>	<ul style="list-style-type: none"> <li>I can use a trackpad</li> <li>I can switch on and shutdown a computer</li> <li>I can explain the differences between switching and logging on and off.</li> <li>I can launch an application and manipulate windows</li> <li>I can save a file</li> <li>I can find and open a folder</li> <li>I can drag objects</li> <li>I can paint with different colours and brushes</li> <li>I can create shapes and fill areas</li> <li>I can add text to a painting</li> <li>I can use a computer program to make a poster</li> <li>I can undo an action</li> </ul>	<ul style="list-style-type: none"> <li>I can search the internet using one word</li> <li>I can follow links to another web page.</li> <li>I can create content for an online blog</li> <li>I can make and edit shapes to create a piece of art</li> <li>I can rotate, resize and recolour shapes</li> <li>I can use a range of tools in a computer program to reproduce a style of art</li> <li>I can change the shade of a colour for effect</li> <li>I can retrieve a file to edit in a computer program</li> <li>I can create a folder and save a file in my folder</li> <li></li> </ul>	<ul style="list-style-type: none"> <li>I can save webpages and share them safely</li> <li>I can bookmark or favourite a webpage</li> <li>I can manipulate windows including viewing 2 windows at once</li> <li>I can create secure passwords</li> <li>I can take screenshots</li> <li>I can use some of the main keyboard shortcuts</li> </ul>	<ul style="list-style-type: none"> <li>I can create a short computer animation using one or more stick figures</li> <li>I can create a recorded animation involving a number of moving characters on a background</li> <li>I can structure specific timing of animations using a time slider</li> <li>I can use a camera to create a short stop motion animation film</li> </ul>	<ul style="list-style-type: none"> <li>I can draw 3D shapes</li> <li>I can add detail to 3D drawings</li> <li>I can add and manipulate 3D models</li> <li>I can create a webpage layout</li> <li>I can add text to a webpage</li> <li>I can add images to a webpage</li> <li>I can add hyperlinks, using both text and images, into a webpage</li> <li>I can publish and share my webpage</li> <li>I can use software to create my own sounds by recording, editing and playing</li> <li>I can combine audio effects to create an original radio jingle</li> <li>I can research and plan digital content for a radio podcast</li> <li>I can use software to create and present digital content for a radio podcast</li> <li>I can design and record a persuasive radio advert for a product or service</li> <li>I can present and evaluate audio content.</li> </ul>	<ul style="list-style-type: none"> <li>I can create appropriate animations</li> <li>I can structure and control the timing of events</li> <li>I can control when objects need to be visible</li> <li>I can sequence events to create a story narrative</li> <li>I can add voice sounds to enhance an animated story</li> <li>I can add interactive user features to a scene or story</li> <li>I can use appropriate software and other tools effectively to write a film script</li> <li>I can locate and check appropriate digital content, and provide accurate crediting of sources</li> <li>I can use digital recording devices to film and import into video editing software</li> <li>I can plan, conduct and import video interviews as part of a short film</li> <li>I can use video editing software to create a short film</li> <li>I can use video editing software to turn a film project into a finished movie and present it.</li> </ul>

# Vocabulary

## Information Technology - Basic Computer Skills/Program Specific Skills

Early Years	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Computer Laptop iPad/tablet On Off Click SMART/ Whiteboard  Application Mouse Keyboard Screen Double click Button Select	Shutdown Launch Windows Save File Open Drag Objects Cursor Components (mouse, trackpad, screen, monitor) Folder Log on/off Shutdown Computer program Undo/redo Edit Insert Print Image	Computer art Tools Retrieve Software Rotate Resize Duplicate Arrange Manipulate Upload Print Preview	Database Screenshots Menu Shortcuts Audio Video Hyperlinks Combine	Movie Maker Opening title Duration Credits Project Crop Snipping Tool 'Pan and zoom'	Inference points Measure tool SketchUp Push/pull Offset Interpret Digital content Podcast Audio content Broadcast Download Import/Export	Convert .mp3/.mp4

Early Years	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	<ul style="list-style-type: none"> <li>I can use two hands to type on a keyboard</li> <li>I can use the shift key for capital letters</li> <li>I can type symbols</li> <li>I can edit text</li> <li>I can use undo and redo</li> <li>I can select and format text</li> <li>I can format the font- colour, size, style bold, italics and underline</li> </ul>	<ul style="list-style-type: none"> <li>I can create a simple presentation with text</li> <li>I can add and format an image</li> <li>I can reorder slides and present a presentation</li> <li>I can search for files and applications</li> <li>I can print using different options</li> </ul>	<ul style="list-style-type: none"> <li>I can use &lt;shift&gt;, &lt;CAPS LOCK&gt; and &lt;space&gt; correctly</li> <li>I can edit using &lt;backspace&gt;, &lt;delete&gt;, the arrow keys, undo and redo</li> <li>I can align text</li> <li>I can use bullets and numbering</li> <li>I can insert and format text boxes</li> <li>I can create slide templates and organise slides with hyperlinks</li> <li>I can add theme, transitions and animation to a presentation</li> <li>I can insert audio and video into slides.</li> </ul>	<ul style="list-style-type: none"> <li>I can format images for a purpose</li> <li>I can use formatting tools to create an effective layout</li> <li>I can use the spellcheck tool</li> <li>I can insert and format a table in a word processing document</li> <li>I can change a page layout for a purpose-orientation, size and using columns.</li> <li>I can create hyperlinks with a word document</li> <li>I can create the layout of a comic strip using photos in a desktop publisher</li> <li>I can edit and enhance photos and text for presentation</li> <li>I can arrange and layer objects, including titles and backgrounds</li> <li>I can add and arrange photos to a movie presentation, with animation effects</li> <li>I can add an audio soundtrack and text captions to a photo sequence.</li> </ul>	<ul style="list-style-type: none"> <li>I can create a complex 3D model</li> <li>I can create a 3D model of my own design</li> <li>I can draw and interpret a flowchart with the correct symbols</li> <li>I can create and edit a flowchart to control a simulated device</li> <li>I can control multiple outputs at the same time</li> <li>I can use a decision symbol based on the status of an input</li> <li>I can create a flowchart program containing a subroutine</li> <li>I can design, write and debug my own flowchart program for a given task</li> </ul>	<ul style="list-style-type: none"> <li>I can enter data and formulae into a spreadsheet</li> <li>I can order and present data based on calculations</li> <li>I can add, edit and calculate data</li> <li>I can use a spreadsheet to solve problems</li> <li>I can plan and calculate a spending budget</li> <li>I can design a spreadsheet for a specific purpose.</li> </ul>

**Vocabulary**  
**Information Technology – Microsoft Office Skills**

Early Years	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
text type	font edit symbol backspace delete space/space bar capital letter/caps lock bold italics underline insert document	shift presentation add/format reorder slide microsoft powerpoint layout source text box border outline	uppercase lowercase align bullets numbering justified secure slide templates theme design branching transitions animations	spellcheck table word processing orientation columns/rows cells desktop publisher/ microsoft publisher enhance layer soundtrack caption	Children will explore and embed previous vocabulary through their webpage design.	microsoft excel spreadsheet formula function data calculations budget cell reference graph running total

Early Years	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<ul style="list-style-type: none"> <li>I can complete a simple programming sequence using a range of technology (BeeBots, programming games online).</li> </ul>	<ul style="list-style-type: none"> <li><i>Children to continue using BeeBots to develop understanding of coding and programming moving onto using ScratchJNR as an iPad/laptop based program.</i></li> <li>I can create instructions using pictures</li> <li>I know what an algorithm is</li> <li>I can see how a product changes when I change the instructions.</li> <li>I can de-bug my work.</li> <li>I can program a Bee Bot to move</li> <li>I can describe and use instructions to program a character</li> <li>I can program a character to grow and shrink</li> <li>I can use instructions to make characters move at different speeds and distance</li> <li>I can use a repeat instruction</li> <li>I can create programs with a sequence of linked instructions</li> </ul>	<ul style="list-style-type: none"> <li><i>Children to apply growing programming skills into 'Turtle Logo' program.</i></li> <li>I can give or follow an algorithm to turn right or left- half turns or quarter turns</li> <li>I can use the commands right 90 and left 90</li> <li>I can give, follow and complete an algorithm</li> <li>I can use recognised language in an algorithm</li> <li>I can create test and debug an algorithm</li> <li>I can use the green flag to start</li> <li>I can use commands to change the backdrop and add sprites</li> <li><i>Children to apply growing programming skills by being introduced to Scratch.</i></li> </ul>	<ul style="list-style-type: none"> <li>I can create and debug using the move, repeat and rotate commands</li> <li>I can create and debug algorithms using pen up and pen down</li> <li>I can create and debug algorithms that draw regular polygons</li> <li>I can create and debug algorithms to draw shapes</li> <li>I can create and debug algorithms to draw patterns</li> <li>I can write a variable value where required</li> <li>I can use calculations as variables</li> </ul>	<ul style="list-style-type: none"> <li>I can create and debug an algorithm to create a procedure</li> <li>I can create and debug an algorithm that uses setpos to draw shapes</li> <li>I can create and debug an algorithm with different colours</li> <li>I can create and debug an algorithm to fill areas with colour</li> <li>I can create and debug an algorithm to write text</li> <li>I can create and debug an algorithm to draw arcs</li> <li>I can write a program</li> <li>I can design, write and debug my own program by selecting appropriate visual block commands to create a sequence</li> <li>I can work with variables</li> <li>I can use sequence and selection</li> </ul>	<ul style="list-style-type: none"> <li>I can design and program a character game</li> <li>I can design my own characters and backdrops</li> <li>I can add features or effects to enhance a game</li> <li>I can create an original animated game with a specific goal</li> <li>I can program costume changes for a sprite</li> <li>I can add point scoring and levels to game code.</li> <li>I can create events as a consequence to another action</li> <li>I can use code to increase the value of a variable</li> </ul>	<ul style="list-style-type: none"> <li>I can investigate and evaluate the features of programming software</li> <li>I can program Kodu using 'when' and 'do' instructions</li> <li>I can use tools and add features to create an original landscape in Kodu</li> <li>I can analyse and deconstruct code to work out it's purpose</li> <li>I can program a character to be controlled around a custom track to reach a goal</li> <li>I can program a character to follow an automatic path</li> </ul>

Vocabulary  
Computer Science

Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Instructions BeeBot Arrow Turn Error	Precise Algorithm Program (verb) Debug Sequence/linked instructions/ Continuous loop Step-by-step Direct (verb) Direction Evaluate Programming Character Grow/shrink Speed/distance Repeat/repeat instruction Predict behaviour Recorded sound Navigate Sprite Position Background Blocks Add/remove Edit Value 'repeat forever' Section Effect	'Execute an action' Complex instructions Half turn Quarter turn Commands 'Recognised language' Test 'Accurate instructions' Abbreviation Rotate Variable Backdrop Project	Polygons Patterns Variable Script/Script Area	Animation Timing/Time slider Stop-motion Frames/linked frames Webcam Digital device Interaction Procedure Setpo Decompose Repetition Scoring system Numerical	Input/output Flowchart Decision symbol Status Subroutine Conventional sequence Modify Costume 'Game code' Consequence Coding language Logical	'Interactive User Feature' Succession 'When' and 'Do' instructions Automatic path Virtual environment Playability



## Computing Overview

## Gawthorpe Community Academy Computing Curriculum Overview

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1	Computer skills	Painting (Art)	Online Safety	Word processing Skills	Programming Toys	Programming with ScratchJR
Year 2	Internet Research Skills	Computer Art (Art)	Online Safety	Presentation Skills	Preparing for Turtle logo	Programming with Turtle Logo and Scratch
Year 3	Internet Research & Communication (Geography)	Drawing & Desktop Publishing (Art)	Online Safety	Presentation Skills	Word Processing	Programming with Turtle logo and Scratch
Year 4	Word Processing	Animation (Art)	Online Safety	Programming Turtle Logo  Data logging	Scratch: Questions & Quizzes	
Year 5	Flowol (DT)	Radio Station (Science, Music & Literacy)	Online Safety	Internet Research and Webpage Design	3D Modelling – Sketch Up (DT)	Scratch 3.0:Developing Games
Year 6	Spreadsheets (Science & Maths)	Film Making (Literacy & DT)  Data logging	Online Safety	Scratch: Animated Series	KoDu Programming	

# National Curriculum Requirements of Computing at Key Stage 1

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 context or content on the internet or other online technologies

## National Curriculum Requirements of Computing at 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

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Computing

# Knowledge, Skills and Understanding breakdown for Computing: Year 1

Online Safety	Digital literacy	Information technology (Basic computer skills)
<ul style="list-style-type: none"> <li>• Can they explain what 'Online Safety' means?</li> <li>• Can they explain how to communicate safely online?</li> <li>• Can they explain who to tell if they feel unsafe online?</li> <li>• Can they recall the 'SMART' rules for online safety?</li> <li>• Do they understand what personal information should be kept safe online?</li> <li>• Can they give advice to others about keeping safe online?</li> </ul>	<ul style="list-style-type: none"> <li>• Can they describe the effect of instruction blocks on a character?</li> <li>• Can they predict the behaviour of a character, based on a sequence of instructions?</li> <li>• Can they identify and practise the computer skills I have learned?</li> </ul>	<ul style="list-style-type: none"> <li>• Can they use a computer mouse or trackpad?</li> <li>• Can they switch on and shutdown a computer?</li> <li>• Can they launch an application and manipulate windows?</li> <li>• Can they save a file?</li> <li>• Can they drag objects?</li> <li>• Can they identify and practise computer skills?</li> <li>• Can they paint with different colours?</li> <li>• Can they paint with different brushes?</li> <li>• Can they create shapes and fill areas?</li> <li>• Can they make changes to improve their own work?</li> <li>• Can they add text to a painting?</li> <li>• Can they use a computer program to make a poster?</li> </ul>
Information technology (Word processing)	Computer Science	
<ul style="list-style-type: none"> <li>• Can they type on a keyboard.?</li> <li>• Can they type symbols and save files?</li> <li>• Can they edit text?</li> <li>• Can they use a keyboard?</li> <li>• Can they select and format text?</li> <li>• Can they format the font?</li> </ul>	<ul style="list-style-type: none"> <li>• Can they create instructions using pictures?</li> <li>• Can they say why it is important to be precise when writing an algorithm?</li> <li>• Can they write instructions to program a person like a computer?</li> <li>• Can they program a Bee-Bot to move.?</li> <li>• Can they program a sequence to make a Bee-Bot move?</li> <li>• Can they describe and use instructions to program a character?</li> <li>• Can they program a character to grow and shrink?</li> <li>• Can they use instructions to make characters move at different speeds and distance?</li> <li>• Can they use a repeat instruction to make a sequence of instructions run more than once?</li> <li>• Can they create programs that play a recorded sound?</li> <li>• Can they create programs with a sequence of linked instructions?</li> </ul>	

# Knowledge, Skills and Understanding breakdown for Computing: Year 2

Online Safety	Digital literacy	Information technology (Basic computer skills)
<ul style="list-style-type: none"> <li>• Can they search the Internet to find results suitable for children?</li> <li>• Can they search for information safely online?</li> </ul> <p>Can they follow links safely online?</p> <ul style="list-style-type: none"> <li>• Can they use an online blog safely and respectfully?</li> <li>• Can they post positive comments and responses on a blog?</li> </ul>	<p>Can they follow links to another web page?</p> <p>Can they create content for an online blog?</p>	<p>Can they use a camera to take safe photos to use online?</p> <p>Can they create computer art?</p> <p>Can they use a range of tools in a computer program to reproduce a style of art?</p> <p>Can they make and edit shapes to create a piece of art?</p> <p>Can they change the shade of a colour for effect?</p> <p>Can they retrieve a file to edit in a computer program?</p> <p>Can they use a range of skills to create a piece of art?</p> <p>Can they use folders?</p> <p>Can they search and print?</p>
Information technology (Word processing)	Computer Science	
<p>Can they organise ideas for a presentation?</p> <p>Can they create a simple presentation with text?</p> <p>Can they add and format an image?</p> <p>Can they reorder slides and present a presentation?</p>	<ul style="list-style-type: none"> <li>• Can they give and follow an algorithm to turn right or left?</li> <li>• Can they give and follow an algorithm to make half and quarter turns?</li> <li>• Can they give and follow an algorithm using the commands right 90 and left 90?</li> <li>• Can they give, follow and complete an algorithm?</li> <li>• Can they use recognised language in an algorithm?</li> <li>• Can they create, test and debug an algorithm?</li> <li>• Can they create an algorithm to move or rotate the turtle?</li> <li>• Can they create an algorithm and use the repeat command?</li> <li>• Can they create an algorithm and add sound?</li> <li>• Can they create an algorithm and use the repeat and say command?</li> <li>• Can they create an algorithm and use the green flag to start?</li> <li>• Can they create an algorithm and use the commands to change the backdrop and add sprites?</li> </ul>	

# Knowledge, Skills and Understanding breakdown for Computing: Year 3

## Online Safety

- Can they explain how to stay safe when communicating online?
- Can they explain why I need to be responsible online?

## Digital literacy

- Can they explain how searches return results?
- Can they identify the ways, and investigate how, we communicate online?
- Can they evaluate slide layout and make improvements?

## Information technology (Basic computer skills)

- Can they identify how word order affects search results?
- Can they save and share webpages?
- Can they draw with different shapes and lines?
- Can they order and group objects?
- Can they manipulate shapes and lines?
- Can they recognise effective layout?
- Can they combine text and images?
- Can they lay out objects effectively?

## Information technology (Word processing)

- Can they plan a branching story?
- Can they create slide templates and organise slides with hyperlinks?
- Can they add theme, transitions and animation to a presentation?
- Can they use action settings?
- Can they insert audio and video?
- Can they use basic computer skills?
- Can they change the case of text?
- Can they align text?
- Can they use bullets and numbering?
- Can they use the <ctrl> key?
- Can they insert and format text boxes?

## Computer Science

- Can they create and debug an algorithm using the move, rotate and repeat commands?
- Can they create and debug algorithms using penup and pendown?
- Can they create and debug algorithms that draw regular polygons?
- Can they create and debug algorithms that draw shapes?
- Can they create and debug algorithms that draw regular polygons?
- Can they create and debug algorithms to draw patterns?

# Knowledge, Skills and Understanding breakdown for Computing: Year 4

## Online Safety

- Can they explain 'Cyberbullying'?
- Can they create a strong password and explain why a strong password is important?
- Can they explain what privacy settings are?
- Can they identify online communities they are part of?
- Can they discuss the positive and negative aspects of online communities?

## Digital literacy

- Can they analyse and evaluate software?
- Can they describe early forms of animation before computers and how computers have made a difference?

## Information technology (Basic computer skills)

- Can they create a short computer animation using one or more moving stick figures?
- Can they create a recorded animation involving a number of moving characters on a background?
- Can they structure specific timing of animations using a time slider?
- Can they use a camera to create a short stop-motion animation film?

## Information technology (Word processing)

- Can they format images for a purpose?
- Can they use formatting tools to create an effective layout?
- Can they use the spellcheck tool?
- Can they insert and format a table in a word processing document?
- Can they change a page layout for a purpose?
- Can they create hyperlinks within a word document?

## Computer Science

- Can they compare quizzes and decompose a problem into smaller parts?
- Can they write and debug a program.?
- Can they use sequence and selection?
- Can they write and debug a program which uses sequence and repetition?
- Can they work with variables?
- Can they write and debug a program which uses sequence?
- Can they write a program?
- Can they design, write and debug my own program by selecting appropriate visual block commands to create a sequence?
- Can they create and debug an algorithm to create a procedure?
- Can they create and debug an algorithm that uses setpos to draw shapes?
- Can they create and debug an algorithm with different colours?
- Can they create and debug an algorithm to fill areas with colour?
- Can they create and debug an algorithm to produce text?
- Can they create and debug an algorithm to draw arcs?

# Knowledge, Skills and Understanding breakdown for Computing: Year 5

## Online Safety

- Can they explain what 'phishing' is recognise the signs?
- Can they identify a 'spam' email?
- Can they explain what to do with spam email?
- Can they explain the steps to take to avoid spam emails?
- Can they create a strong password using a set of given rules?
- Do they understand that not everything they see online is true?
- Can they identify unsafe online behaviour?

## Digital literacy

- Can they evaluate webpages?
- Can they use the advanced feature of Google's web search?
- Can they describe what is meant by a podcast?
- Can they evaluate what features make good quality audio content?
- Can they analyse and identify improvements to an advert?

## Information technology (Basic computer skills)

- Can they create a webpage layout?
- Can they add text to a webpage?
- Can they add images to a webpage?
- Can they add hyperlinks into a webpage?
- Can they publish and share my webpage?
- Can they use software to create my own sounds by recording, editing and playing?
- Can they combine audio effects to create an original radio jingle.?
- Can they research and plan digital content for a radio podcast?
- Can they use software to create and present digital content for a radio podcast?
- Can they draw 3D shapes?
- Can they add detail to 3D drawings?
- Can they add and manipulate 3D models?
- Can they create a complex 3D model?
- Can they create a complex 3D model for my own design?

## Information technology (Word processing)

- Can they draw and interpret a flowchart with the correct symbols?
- Can they use a decision symbol based on the status of an input?
- Can they create a flowchart program containing a subroutine?
- Can they design, write and debug my own flowchart program for a given task?

## Computer Science

- Can they create and edit a flowchart to control a simulated device?
- Can they control multiple outputs at the same time?
- Can they design and program a character game?
- Can they design an original character or backdrop for a game?
- Can they add features or effects to enhance a game?
- Can they create an original animated game with a specific goal?
- Can they program costume changes for a sprite?
- Can they add point-scoring and levels to game code?

# Knowledge, Skills and Understanding breakdown for Computing: Year 6

## Online Safety

- Do they understand that not all websites are 'secure'?
- Can they identify warning signs that suggest an unsecure website.
- Can they confidently explain what to do if I am asked or told something online which makes me uncomfortable?
- Can they explain how cyberbullying can be as harmful as in-person bullying?

## Digital literacy

- Can they locate and check appropriate digital content, and provide accurate crediting of sources?
- Can they analyse and deconstruct code to work out its purpose?

## Information technology (Basic computer skills)

- Can they use appropriate software and other tools effectively to write a film script?
- Can they use digital recording devices to film and import into video editing software?
- Can they plan, conduct and import video interviews as part of a short film?
- Can they use video editing software to create a short film?
- Can they use video editing software to turn a film project into a finished movie and present it?

## Information technology (Word processing)

- Can they enter data and formulae into a spreadsheet?
- Can they order and present data based on calculations?
- Can they add, edit and calculate data?
- Can they use a spreadsheet to solve problems?
- Can they plan and calculate a spending budget?
- Can they design a spreadsheet for a specific purpose?

## Computer Science

- Can they create appropriate animations for a story scene?
- Can they structure and control the timing of events?
- Can they control when objects need to be visible?
- Can they sequence events to create a story narrative?
- Can they add voice sounds to enhance an animated story?
- Can they add interactive user features to a scene or story?
- Can they investigate and evaluate the features of programming software?
- Can they program Kodu using 'When' and 'Do' instructions?
- Can they use tools and add features to create an original landscape in Kodu?
- Can they program a character to be controlled around a custom track to reach a goal?
- Can they program a character to follow an automatic path?