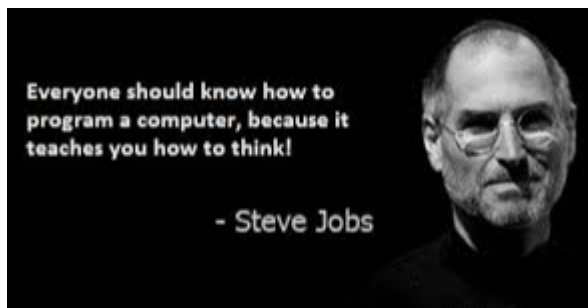


Charmouth Primary School

Subject Stories:

Computing



Intent

Through our computing curriculum at Charmouth, we aim to give our pupils the life-skills that will enable them to embrace and utilise new technology in a socially responsible and safe way in order to flourish. We want our pupils to be able to operate in the 21st century workplace and we want them to know the

career opportunities that will be open to them if they study computing. We want children to become autonomous, independent users of computing technologies, gaining confidence and enjoyment from their activities. We want the use of technology to support learning across the entire curriculum and to ensure that our curriculum is accessible to every child. Not only do we want them to be digitally literate and competent end-users of technology but through our computer science lessons we want them to develop creativity, resilience and problem-solving and critical thinking skills. We want our pupils to have a breadth of experience to develop their understanding of themselves as individuals within their community but also as members of a wider global community and as responsible digital citizens.

Computing is taught in an inclusive way. For pupils with additional needs, there will be every opportunity to work towards the overall objectives of the year group. Pupils may be supported by additional modelling of skills from adults or peers, verbal or written task cards with reminders which break tasks into smaller chunks, or additional time (pre-teaching) to use given software or hardware. High expectations will challenge all children to meet their personal targets.

The National Curriculum Aims for Computing

The national curriculum for computing aims to ensure that all pupils:

- ♣ can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- ♣ can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- ♣ can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
- ♣ are responsible, competent, confident and creative users of information and communication technology.

Computing within Early Years

Whilst there is not a specific Educational Programme or Early Learning Goal for computing in the Early Years Framework, certain statements from the 2020 Development Matters are considered prerequisite skills for computing within the national curriculum.

The table below outlines the most relevant statements taken from the Early Learning Goals in the EYFS statutory framework and the Development Matters age ranges for Three and Four-Year-Olds and Reception to match the programme of study for computing.

Computing			
Three and Four-Year-Olds	Personal, Social and Emotional Development		<ul style="list-style-type: none"> Remember rules without needing an adult to remind them.
	Physical Development		<ul style="list-style-type: none"> Match their developing physical skills to tasks and activities in the setting.
	Understanding the World		<ul style="list-style-type: none"> Explore how things work.
Reception	Personal, Social and Emotional Development		<ul style="list-style-type: none"> Show resilience and perseverance in the face of a challenge. Know and talk about the different factors that support their overall health and wellbeing: <ul style="list-style-type: none"> -sensible amounts of 'screen time'.
	Physical Development		<ul style="list-style-type: none"> Develop their small motor skills so that they can use a range of tools competently, safely and confidently.
	Expressive Arts and Design		<ul style="list-style-type: none"> Explore, use and refine a variety of artistic effects to express their ideas and feelings.
ELG	Personal, Social and Emotional Development	Managing Self	<ul style="list-style-type: none"> Be confident to try new activities and show independence, resilience and perseverance in the face of challenge. Explain the reasons for rules, know right from wrong and try to behave accordingly.
	Expressive Arts and Design	Creating with Materials	<ul style="list-style-type: none"> Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1/2 Year A	Technology Around Us	Digital Painting	Moving A Robot		Robot Algorithms	
Year 1/2 Year B	I.T. Around Us	Digital Photography	Grouping Data		Pictograms	
Year 3/4 Year A	Connecting Computers	The Internet		Stop Frame Animation		Data Logging
Year 3/4 Year B	Events and Actions in Programs	Repetition in Games		Audio Production		Branching Databases
Year 5/6 Year A	Video Production	Systems and Searching	Selection in Physical Computing		Flat File Databases	
Year 5/6 Year B	Webpage Creation	Communication and Collaboration	Variables in Games		Introduction to Spreadsheets	

Knowledge and Skills: Year 1/2 A

Computing Systems and Networks

Creating Media

Programming

Programming

Technology Around Us (Autumn 1)	Digital Painting (Autumn 2)	Moving A Robot (Spring 1)	Robot Algorithms (Summer 1)
<p>NATIONAL CURRICULUM COVERAGE: Use technology purposefully to organise, store, manipulate, and retrieve digital content.</p>	<p>NATIONAL CURRICULUM COVERAGE: Use technology purposefully to create digital content.</p>	<p>NATIONAL CURRICULUM COVERAGE: Understand what algorithms are, how they are implemented as programs on digital devices. Create and debug simple programs</p>	<p>NATIONAL CURRICULUM COVERAGE: 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.</p>
<p>SUBSTANTIVE KNOWLEDGE: I CAN identify technology. I CAN identify a computer and its main parts. I KNOW HOW TO use a mouse in different ways. I CAN use a keyboard to type on a computer and to edit text.</p>	<p>SUBSTANTIVE KNOWLEDGE: I CAN describe what different freehand tools do. I CAN use the shape tool and the line tools. I CAN make careful choices when painting a digital picture and explain my choices. I CAN use a computer on my own to paint a picture. I CAN compare painting a picture on a computer and on paper.</p>	<p>SUBSTANTIVE KNOWLEDGE: I CAN explain what a given command will do. I CAN combine 'forwards' and 'backwards' commands to make a sequence. I KNOW HOW TO combine four direction commands to make sequences. I KNOW HOW TO plan a simple program. I CAN find more than one solution to a problem.</p>	<p>SUBSTANTIVE KNOWLEDGE: I CAN describe a series of instructions as a sequence. I CAN explain what happens when we change the order of instructions. I CAN use logical reasoning to predict the outcome of a program. I KNOW that programming projects can have code and artwork. I CAN design an algorithm. I CAN create and debug a program that I have written.</p>
<p>DISCIPLINARY KNOWLEDGE: (LINKS TO 'EDUCATION FOR A CONNECTED WORLD') Health, well-being and lifestyle I can identify rules that help keep us safe and healthy in and beyond the home when using technology. I can give examples of these rules.</p>	<p>DISCIPLINARY KNOWLEDGE: (LINKS TO 'EDUCATION FOR A CONNECTED WORLD') Copyright and ownership I can say why it belongs to me (e.g. 'I designed it' or 'I filmed it').</p>	<p>DISCIPLINARY KNOWLEDGE: (LINKS TO 'EDUCATION FOR A CONNECTED WORLD') Copyright and ownership I can name my work so that others know it belongs to me.</p>	<p>DISCIPLINARY KNOWLEDGE: (LINKS TO 'EDUCATION FOR A CONNECTED WORLD') Copyright and ownership I can recognise that content on the internet may belong to other people. I can save my work under a suitable title / name so that others know it belongs to me (e.g. filename, name on content).</p>
<p>Knowledge and Skills: Year 1/2 B</p>			
<p>Computing Systems and Networks</p>	<p>Creating Media</p>	<p>Data and Information</p>	<p>Data and Information</p>

<p align="center">I.T. Around Us (Summer 1)</p>	<p align="center">Digital Photography (Autumn 2)</p>	<p align="center">Grouping Data (Spring 1)</p>	<p align="center">Pictograms (Summer 2)</p>
<p>NATIONAL CURRICULUM COVERAGE: Recognise common uses of information technology beyond school. Use technology safely and respectfully, keeping personal information private.</p>	<p>NATIONAL CURRICULUM COVERAGE: Use technology purposefully to create, organise, store, manipulate, and retrieve digital content. Recognise common uses of information technology beyond school.</p>	<p>NATIONAL CURRICULUM COVERAGE: Use technology purposefully to create, organise, store, manipulate and retrieve digital content.</p>	<p>NATIONAL CURRICULUM COVERAGE: Use technology purposefully to create, organise, store, manipulate, and retrieve digital content</p>
<p>SUBSTANTIVE KNOWLEDGE: I KNOW the uses and features of information technology I CAN identify the uses of information technology in my school. I CAN identify information technology beyond school. I CAN explain how information technology helps us. I CAN explain how to use information technology safely.</p>	<p>SUBSTANTIVE KNOWLEDGE: I CAN use a digital device to take a photograph. I CAN make choices when taking a photograph. I CAN describe what makes a good photograph. I KNOW how photographs can be improved. I KNOW HOW TO use tools to change an image.</p>	<p>SUBSTANTIVE KNOWLEDGE: I CAN label objects. I CAN identify that objects can be counted, and can count objects with the same properties. I CAN describe objects in different ways. I CAN compare groups of objects. I CAN answer questions about groups of objects.</p>	<p>SUBSTANTIVE KNOWLEDGE: I KNOW that we can count and compare objects using tally charts. I KNOW that objects can be represented as pictures I CAN create a pictogram. I CAN select objects by attribute and make comparisons. I KNOW that recognise that people can be described by attributes. I KNOW that that we can present information using a computer.</p>
<p>DISCIPLINARY KNOWLEDGE: (LINKS TO 'EDUCATION FOR A CONNECTED WORLD') Health, wellbeing and lifestyle I can explain simple guidance for using technology in different environments and settings e.g. accessing online technologies in public places and the home environment. I can say how those rules / guides can help anyone accessing online technologies.</p>	<p>DISCIPLINARY KNOWLEDGE: (LINKS TO 'EDUCATION FOR A CONNECTED WORLD') Self-image and identity I know that some images are not real (fake).</p>	<p>DISCIPLINARY KNOWLEDGE: (LINKS TO 'EDUCATION FOR A CONNECTED WORLD') Copyright and ownership I know that the work I create belongs to me. I can name my work so that others know it belongs to me.</p>	<p>DISCIPLINARY KNOWLEDGE: (LINKS TO 'EDUCATION FOR A CONNECTED WORLD') Privacy and security I can identify some simple examples of my personal information (e.g. name). I can describe the people I can trust and can share this with; I can explain why I can trust them.</p>
<p>Knowledge and Skills: Year 3/4 A</p>			
<p align="center">Computing Systems and Networks</p>	<p align="center">Computing Systems and Networks</p>	<p align="center">Creating Media</p>	<p align="center">Data and Information</p>
<p align="center">Connecting Computers (Autumn 1)</p>	<p align="center">The Internet (Autumn 2)</p>	<p align="center">Stopframe Animation (Spring 2)</p>	<p align="center">Data Logging (Summer 2)</p>

<p>NATIONAL CURRICULUM COVERAGE: 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.</p>	<p>NATIONAL CURRICULUM COVERAGE: Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.</p>	<p>NATIONAL CURRICULUM COVERAGE: 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.</p>	<p>NATIONAL CURRICULUM COVERAGE: Use sequence, selection, and repetition in programs; work with variables and various forms of input and output.</p>
<p>SUBSTANTIVE KNOWLEDGE: I KNOW how a computer network can be used to share information. I CAN explain how digital devices function. I CAN identify input and output devices. I KNOW how digital devices can be connected. I CAN recognise the physical components of a network.</p>	<p>SUBSTANTIVE KNOWLEDGE: I KNOW how networks physically connect to other networks. I KNOW that networked devices make up the internet. I KNOW how websites can be shared via the World Wide Web (WWW). I KNOW that the content of the WWW is created by people. I UNDERSTAND the consequences of unreliable content.</p>	<p>SUBSTANTIVE KNOWLEDGE: I KNOW that animation is a sequence of drawings or photographs. I CAN relate animated movement with a sequence of images. I CAN plan an animation. I CAN review and improve an animation. I CAN evaluate the impact of adding other media to an animation.</p>	<p>SUBSTANTIVE KNOWLEDGE: I KNOW that data gathered over time can be used to answer questions. I CAN use a digital device to collect data automatically. I KNOW that a data logger collects 'data points' from sensors over time. I KNOW that a computer can help us analyse data. I CAN use data from sensors to answer questions.</p>
<p>DISCIPLINARY KNOWLEDGE: (LINKS TO 'EDUCATION FOR A CONNECTED WORLD') Privacy and Security I can describe how connected devices can collect and share anyone's information with others.</p>	<p>DISCIPLINARY KNOWLEDGE: (LINKS TO 'EDUCATION FOR A CONNECTED WORLD') Managing Online Information I can explain what is meant by fake news, e.g. why some people will create stories or alter photographs and put them online to pretend something is true when it isn't.</p>	<p>DISCIPLINARY KNOWLEDGE: (LINKS TO 'EDUCATION FOR A CONNECTED WORLD') Copyright and Ownership When searching on the internet for content to use, I can explain why I need to consider who owns it and whether I have the right to reuse it.</p>	<p>DISCIPLINARY KNOWLEDGE: (LINKS TO 'EDUCATION FOR A CONNECTED WORLD') No specific links to the unit -revisit e-safety messages including: Self Image and Identity I can explain how people can represent themselves in different ways online.</p>

Knowledge and Skills: Year 3/4 B

Programming	Programming	Creating Media	Data and Information
Events and Actions in Programs (Autumn 1)	Repetition in Games (Autumn 2)	Audio Production (Spring 2)	Branching Databases (Summer 2)

<p>NATIONAL CURRICULUM COVERAGE: Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.</p>	<p>NATIONAL CURRICULUM COVERAGE: Use logical reasoning to explain how some simple algorithms work, and to detect and correct errors in algorithms and programs.</p>	<p>NATIONAL CURRICULUM COVERAGE: 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.</p>	<p>NATIONAL CURRICULUM COVERAGE: 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.</p>
<p>SUBSTANTIVE KNOWLEDGE: I KNOW how a sprite moves in an existing project. I CAN create a program to move a sprite in four directions. I CAN adapt a program to a new context and develop it by adding features. I CAN identify and fix bugs in a program. I CAN design and create a maze-based challenge.</p>	<p>SUBSTANTIVE KNOWLEDGE: I CAN develop the use of count-controlled loops in a different programming environment. I KNOW that in programming there are infinite loops and count-controlled loops. I CAN develop a design that includes two or more loops which run at the same time. I CAN design and create a project that includes repetition.</p>	<p>SUBSTANTIVE KNOWLEDGE: I KNOW that sound can be recorded. I KNOW that audio recordings can be edited. I CAN recognise the different parts of creating a podcast project. I CAN apply audio editing skills independently. I CAN combine audio to enhance my podcast project.</p>	<p>SUBSTANTIVE KNOWLEDGE: I CAN select an attribute to separate objects into groups. I CAN create questions with yes/no answers. I CAN create a branching database. I CAN plan the structure of a branching database. I CAN independently create an identification tool.</p>
<p>DISCIPLINARY KNOWLEDGE: (LINKS TO 'EDUCATION FOR A CONNECTED WORLD') No specific links to the unit -revisit e-safety messages including: Online Bullying I can give examples of how bullying behaviour could appear online and how someone can get support. I can describe ways people can be bullied through a range of media (e.g. image, video, text).</p>	<p>DISCIPLINARY KNOWLEDGE: (LINKS TO 'EDUCATION FOR A CONNECTED WORLD') No specific links to the unit -revisit e-safety messages including: Online Bullying I can explain why people need to think carefully about how content they post might affect others, their feelings and how it may affect how others feel about them (their reputation).</p>	<p>DISCIPLINARY KNOWLEDGE: (LINKS TO 'EDUCATION FOR A CONNECTED WORLD') Copyright and Ownership I can explain why copying someone else's work from the internet without permission can cause problems. I can give some simple examples of content which I must not use without permission from the owner, e.g. videos, music, images.</p>	<p>DISCIPLINARY KNOWLEDGE: (LINKS TO 'EDUCATION FOR A CONNECTED WORLD') No specific links to the unit -revisit e-safety messages including: Online Relationships I can give examples of how to be respectful to others online and describe how to recognise healthy and unhealthy online behaviours.</p>

Knowledge and Skills: Year 5/6 A

<p>Creating Media</p>	<p>Computing Systems and Networks</p>	<p>Programming</p>	<p>Data and Information</p>
<p>Video Production (Autumn 1)</p>	<p>Systems and Searching (Autumn 2)</p>	<p>Selection in Physical Computing (Spring 1)</p>	<p>Flat-File Databases (Summer 1)</p>

<p>NATIONAL CURRICULUM COVERAGE: Select, use, and combine a variety of software on a range of digital devices to design and create a range of programs, systems, and content that accomplish given goals, collecting, analysing, evaluating, and presenting data/information.</p>	<p>NATIONAL CURRICULUM COVERAGE: Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.</p>	<p>NATIONAL CURRICULUM COVERAGE: Design, write, and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.</p>	<p>NATIONAL CURRICULUM COVERAGE: Select, use, and combine a variety of software to design and create a range of programs, systems, and content that accomplish given goals, including collecting, analysing, evaluating, and presenting data and information.</p>
<p>SUBSTANTIVE KNOWLEDGE: I CAN explain what makes a video effective. I CAN use a digital device to record video. I CAN capture video using a range of techniques. I CAN create a storyboard. I UNDERSTAND that video can be improved through reshooting and editing.</p>	<p>SUBSTANTIVE KNOWLEDGE: I KNOW that computers can be connected together to form systems. I CAN recognise the role of computer systems in our lives. I KNOW how to use a search engine. I KNOW how search engines select results and how search results are ranked. I KNOW why the order of results is important, and to whom.</p>	<p>SUBSTANTIVE KNOWLEDGE: I CAN control a simple circuit connected to a computer. I KNOW write a program that includes count-controlled loops. I CAN explain that a loop can stop when a condition is met. I CAN design a physical project that includes selection. I CAN create a program that controls a physical computing project.</p>	<p>SUBSTANTIVE KNOWLEDGE: I CAN use a form to record information. I CAN compare paper and computer-based databases. I CAN outline how you can answer questions by grouping and then sorting data. I KNOW that computer programs can be used to compare data visually. I CAN use a real-world database to answer questions.</p>
<p>DISCIPLINARY KNOWLEDGE: (LINKS TO 'EDUCATION FOR A CONNECTED WORLD') Managing Online Information I can evaluate digital content and can explain how to make choices about what is trustworthy e.g. differentiating between adverts and search results.</p>	<p>DISCIPLINARY KNOWLEDGE: (LINKS TO 'EDUCATION FOR A CONNECTED WORLD') Managing Online Information I can explain how search engines work and how results are selected and ranked. I can explain what is meant by the term 'stereotype', how 'stereotypes' are amplified and reinforced online, and why accepting 'stereotypes' may influence how people think about others.</p>	<p>DISCIPLINARY KNOWLEDGE: (LINKS TO 'EDUCATION FOR A CONNECTED WORLD') No specific links to the unit -revisit e-safety messages including: Online Bullying I can explain why people need to think about how content they post might affect others, their feelings and how it may affect how others feel about them.</p>	<p>DISCIPLINARY KNOWLEDGE: (LINKS TO 'EDUCATION FOR A CONNECTED WORLD') Online Relationships I can explain how sharing something online may have an impact either positively or negatively.</p>

Knowledge and Skills: Year 5/6 B

<p>Creating Media</p>	<p>Computing Systems and Networks</p>	<p>Programming</p>	<p>Data and Information</p>
<p>Web Page Creation (Autumn 1)</p>	<p>Communication and Collaboration (Autumn 2)</p>	<p>Variables in Games (Summer 2)</p>	<p>Introduction to Spreadsheets (Summer 1)</p>

<p>NATIONAL CURRICULUM COVERAGE: Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.</p>	<p>NATIONAL CURRICULUM COVERAGE: 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.</p>	<p>NATIONAL CURRICULUM COVERAGE: Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.</p>	<p>NATIONAL CURRICULUM COVERAGE: Select, use, and combine a variety of software 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.</p>
<p>SUBSTANTIVE KNOWLEDGE: I CAN review an existing website and consider its structure. I CAN plan the features of a web page. I CAN consider the ownership and use of images (copyright). I CAN explain what a navigation path is. I CAN make multiple web pages and link them using hyperlinks.</p>	<p>SUBSTANTIVE KNOWLEDGE: I KNOW how data is transferred across the internet. I KNOW how sharing information online can help people to work together. I CAN evaluate different ways of working together online. I KNOW how we communicate using technology.</p>	<p>SUBSTANTIVE KNOWLEDGE: I CAN define a 'variable' as something that is changeable. I CAN explain why a variable is used in a program. I CAN choose how to improve a game by using variables. I CAN design a project that builds on a given example. I CAN use my design to create a project.</p>	<p>SUBSTANTIVE KNOWLEDGE: I CAN create a data set in a spreadsheet. I KNOW that formulas can be used to produce calculated data. I CAN apply formulas to data. I CAN create a spreadsheet to plan an event. I CAN choose suitable ways to present data.</p>
<p>DISCIPLINARY KNOWLEDGE: (LINKS TO 'EDUCATION FOR A CONNECTED WORLD') Copyright and Ownership I can demonstrate the use of search tools to find and access online content which can be reused by others. I can demonstrate how to make references to and acknowledge sources I have used from the internet. I can assess and justify when it is acceptable to use the work of others.</p>	<p>DISCIPLINARY KNOWLEDGE: (LINKS TO 'EDUCATION FOR A CONNECTED WORLD') Managing Online Information I can describe how fake news may affect someone's emotions and behaviour, and explain why this may be harmful. I can explain why someone would need to think carefully before they share.</p>	<p>DISCIPLINARY KNOWLEDGE: (LINKS TO 'EDUCATION FOR A CONNECTED WORLD')No specific links to the unit -revisit e-safety messages including: Online Relationships I can describe how to be kind and show respect for others online including respecting boundaries regarding what is shared online and how to support if others don't.</p>	<p>DISCIPLINARY KNOWLEDGE: (LINKS TO 'EDUCATION FOR A CONNECTED WORLD') Managing Online Information I can explain what is meant by 'being sceptical'; I can give examples of when and why it is important to be 'sceptical'. I can explain what is meant by a 'hoax'.</p>

Progression by Area: COMPUTING SYSTEMS AND NETWORKS

<p>Year 1/2 Year A Year 1/2 Year B</p>	<p>Year 3/4 Year A Year 3/4 Year B</p>	<p>Year 5/6 Year A Year 5/6 Year B</p>
<p>To identify technology. To identify a computer and its main parts. To use a mouse in different ways. To use a keyboard to type on a computer and edit text.</p> <p>To use a digital device to take a photograph. To make choices when taking a photograph. To describe what makes a good photograph. To know how photographs can be improved. To use tools to change an image.</p>	<p>To know how a computer network can be used to share information. To explain how digital devices function. To identify input and output devices. To know how digital devices can be connected. To recognise the physical components of a network.</p> <p>To know how networks physically connect to other networks. To know that networked devices make up the internet. To know how websites can be shared via the World Wide Web (WWW). To understand that the content of the WWW is created by people. To understand the consequences of unreliable content.</p>	<p>To know that computers can be connected together to form systems. To recognise the role of computer systems in our lives. To know how to use a search engine. To know how search engines select results and how search results are ranked. To know why the order of results is important, and to whom.</p> <p>To know how data is transferred across the internet. To know how sharing information online can help people to work together. To evaluate different ways of working together online. To know how we communicate using technology.</p>

Progression by Area: CREATING MEDIA

Year 1/2 Year A Year 1/2 Year B	Year 3/4 Year A Year 3/4 Year B	Year 5/6 Year A Year 5/6 Year B
<p>To describe what different freehand tools do.</p> <p>To use the shape tool and the line tools.</p> <p>To make careful choices when painting a digital picture and explain my choices.</p> <p>To use a computer on my own to paint a picture.</p> <p>To compare painting a picture on a computer and on paper.</p> <p>To use a digital device to take a photograph.</p> <p>To make choices when taking a photograph.</p> <p>To describe what makes a good photograph.</p> <p>To know how photographs can be improved.</p> <p>To know how to use tools to change an image.</p>	<p>To know that animation is a sequence of drawings or photographs.</p> <p>To relate animated movement with a sequence of images.</p> <p>To plan an animation.</p> <p>To review and improve an animation.</p> <p>To evaluate the impact of adding other media to an animation.</p> <p>To know that sound can be recorded.</p> <p>To know that audio recordings can be edited.</p> <p>To recognise the different parts of creating a podcast project.</p> <p>To apply audio editing skills independently.</p> <p>To combine audio to enhance my podcast project.</p>	<p>To explain what makes a video effective.</p> <p>To use a digital device to record video.</p> <p>To capture video using a range of techniques.</p> <p>To create a storyboard.</p> <p>To understand that video can be improved through reshooting and editing.</p> <p>To review an existing website and consider its structure.</p> <p>To plan the features of a web page.</p> <p>To consider the ownership and use of images (copyright).</p> <p>To explain what a navigation path is.</p> <p>To make multiple web pages and link them using hyperlinks.</p>

Progression by Area: DATA AND INFORMATION

<p>Year 1/2 Year A Year 1/2 Year B</p>	<p>Year 3/4 Year A Year 3/4 Year B</p>	<p>Year 5/6 Year A Year 5/6 Year B</p>
<p>To label objects. To identify that objects can be counted, and can count objects with the same properties. To describe objects in different ways. To compare groups of objects. To answer questions about groups of objects.</p> <p>To know that we can count and compare objects using tally charts. To know that objects can be represented as pictures. To create a pictogram. To select objects by attribute and make comparisons. To know that recognise that people can be described by attributes. To know that that we can present information using a computer.</p>	<p>To know that data gathered over time can be used to answer questions. To use a digital device to collect data automatically. To know that a data logger collects 'data points' from sensors over time. To know that a computer can help us analyse data. To use data from sensors to answer questions.</p> <p>To select an attribute to separate objects into groups. To create questions with yes/no answers. To create a branching database. To plan the structure of a branching database. To independently create an identification tool.</p>	<p>To use a form to record information. To compare paper and computer-based databases. To outline how you can answer questions by grouping and then sorting data. To that computer programs can be used to compare data visually. To use a real-world database to answer questions.</p> <p>To create a data set in a spreadsheet. To know that formulas can be used to produce calculated data. To apply formulas to data. To create a spreadsheet to plan an event. To choose suitable ways to present data.</p>

Progression by Area: PROGRAMMING

<p>Year 1/2 Year A Year 1/2 Year B</p>	<p>Year 3/4 Year A Year 3/4 Year B</p>	<p>Year 5/6 Year A Year 5/6 Year B</p>
<p>To explain what a given command will do.</p> <p>To combine 'forwards' and 'backwards' commands to make a sequence.</p> <p>To combine four direction commands to make sequences.</p> <p>To plan a simple program.</p> <p>To find more than one solution to a problem.</p> <p>To describe a series of instructions as a sequence.</p> <p>To explain what happens when we change the order of instructions.</p> <p>To use logical reasoning to predict the outcome of a program.</p> <p>To know that programming projects can have code and artwork.</p> <p>To design an algorithm.</p> <p>To create and debug a program that I have written.</p>	<p>To know how a sprite moves in an existing project.</p> <p>To create a program to move a sprite in four directions.</p> <p>To adapt a program to a new context and develop it by adding features.</p> <p>To identify and fix bugs in a program.</p> <p>To design and create a maze-based challenge.</p> <p>To develop the use of count-controlled loops in a different programming environment.</p> <p>To know that in programming there are infinite loops and count-controlled loops.</p> <p>To develop a design that includes two or more loops which run at the same time.</p> <p>To design and create a project that includes repetition.</p>	<p>To control a simple circuit connected to a computer.</p> <p>To write a program that includes count-controlled loops.</p> <p>To explain that a loop can stop when a condition is met.</p> <p>To design a physical project that includes selection.</p> <p>To create a program that controls a physical computing project.</p> <p>To define a 'variable' as something that is changeable.</p> <p>To explain why a variable is used in a program.</p> <p>To choose how to improve a game by using variables.</p> <p>To design a project that builds on a given example.</p> <p>To use my design to create a project.</p>

The E-Safety Curriculum

The e-safety curriculum is based on statements taken from the Education for a Connected World framework, as recommended by the Department for Education. Some statements are taught within planned computing units. Other statements for each year group are taught in non-computing half terms, alongside PSHE objectives or through Internet Safety focus days/weeks.

1. Self-image and Identity

Year Group:	Curricular Goal:	Taught through:
1/2	<p>I can recognise, online or offline, that anyone can say 'no' / 'please stop' / 'I'll tell' / 'I'll ask' to somebody who makes them feel sad, uncomfortable, embarrassed or upset.</p> <p>I can recognise that there may be people online who could make someone feel sad, embarrassed or upset.</p> <p>I know that some images are not real.</p> <p>If something happens that makes me feel sad, worried, uncomfortable or frightened I can give examples of when and how to speak to an adult I can trust and how they can help.</p> <p>I can recognise that there may be people online who could make someone feel sad, embarrassed or upset.</p>	<p>Through discrete teaching in non-computing half terms, alongside PSHE curriculum and through E-Safety focus days/weeks.</p> <p>Digital Photography (Year B Autumn 2)</p> <p>Through discrete teaching in non-computing half terms, alongside PSHE curriculum and through E-Safety focus days/weeks.</p>
3/4	<p>I can explain how people can represent themselves in different ways online.</p> <p>I can explain ways in which someone might change their identity depending on what they are doing online (e.g. gaming; using an avatar; social media) and why.</p> <p>I can explain that others online can pretend to be someone else, including my friends, and can suggest reasons why they might do this.</p>	<p>Year 3/4 A Summer 2</p> <p>Through discrete teaching in non-computing half terms, alongside PSHE curriculum and through E-Safety focus days/weeks.</p>
5/6	<p>I can explain how identity online can be copied, modified or altered.</p> <p>I can identify and critically evaluate online content relating to gender, race, religion, disability, culture and other groups, and explain why it is important to challenge and reject inappropriate representations online.</p>	<p>Through discrete teaching in non-computing half terms, alongside PSHE curriculum and through E-Safety focus days/weeks.</p>

2. Online relationships

Year Group:	Curricular Goal:	Taught through:
1/2	<p>I can give examples of when I should ask permission to do something online and explain why this is important.</p> <p>I can explain why it is important to be considerate and kind to people online and to respect their choices.</p> <p>I can give examples of how someone might use technology to communicate with others they don't also know offline and explain why this might be risky. (e.g. email, online gaming, a pen-pal in another school / country).</p> <p>I can explain why I have a right to say 'no' or 'I will have to ask someone'. I can explain who can help me if I feel under pressure to agree to something I am unsure about or don't want to do.</p> <p>I can explain why I should always ask a trusted adult before clicking 'yes', 'agree' or 'accept' online.</p>	<p>Through discrete teaching in non-computing half terms, alongside PSHE curriculum and through E-Safety focus days/weeks.</p> <p>Through discrete teaching in non-computing half terms, alongside PSHE curriculum and through E-Safety focus days/weeks.</p>
3/4	<p>I can explain what it means to 'know someone' online and why this might be different from knowing someone offline.</p> <p>I can explain the importance of giving and gaining permission before sharing things online; how the principles of sharing online is the same as sharing offline e.g. sharing images and videos.</p> <p>I can give examples of how to be respectful to others online and describe how to recognise healthy and unhealthy online behaviours.</p>	<p>Through discrete teaching in non-computing half terms, alongside PSHE curriculum and through E-Safety focus days/weeks.</p> <p>Year 3/4 B Summer 2</p>
5/6	<p>I can describe how to be kind and show respect for others online including the importance of respecting boundaries regarding what is shared about them online and how to support them if others do not.</p> <p>I can explain how sharing something online may have an impact either positively or negatively.</p> <p>I can give examples of technology specific forms of communication (e.g. emojis, memes and GIFs).</p> <p>I can explain that taking or sharing inappropriate images of someone (e.g. embarrassing images), even if they say it is okay, may have an impact for the sharer and others; and who can help if someone is worried about this.</p>	<p>Year 5/6 B Summer 2</p> <p>Year 5/6 A Summer 1</p> <p>Through discrete teaching in non-computing half terms, alongside PSHE curriculum and through E-Safety focus days/weeks.</p>

3. Online reputation

Year Group:	Curricular Goal:	Taught through:
1/2	<p>I can identify ways that I can put information on the internet.</p> <p>I can describe what information I should not put online without asking a trusted adult first.</p> <p>I can explain how information put online about someone can last for a long time.</p> <p>I can describe how anyone's online information could be seen by others.</p>	Through discrete teaching in non-computing half terms, alongside PSHE curriculum and through E-Safety focus days/weeks.
3/4	<p>I can describe how to find out information about others by searching online.</p> <p>I can explain ways that some of the information about anyone online could have been created, copied or shared by others.</p>	Through discrete teaching in non-computing half terms, alongside PSHE curriculum and through E-Safety focus days/weeks.
5/6	<p>I can describe ways that information about anyone online can be used by others to make judgments about an individual and why these may be incorrect.</p> <p>I can explain strategies anyone can use to protect their 'digital personality' and online reputation, including degrees of anonymity.</p>	Through discrete teaching in non-computing half terms, alongside PSHE curriculum and through E-Safety focus days/weeks.

4. Online bullying

Year Group:	Curricular Goal:	Taught through:
1/2	<p>I can describe ways that some people can be unkind online, and how this can make others feel.</p> <p>I can describe how to behave online in ways that do not upset others and can give examples.</p> <p>I can explain what bullying is, how people may bully others and how bullying can make someone feel.</p> <p>I can explain why anyone who experiences bullying is not to blame.</p> <p>I can talk about how anyone experiencing bullying can get help.</p>	<p>Through discrete teaching in non-computing half terms, alongside PSHE curriculum and through E-Safety focus days/weeks.</p>
3/4	<p>I can give examples of how bullying behaviour could appear online and how someone can get support.</p> <p>I can describe ways people can be bullied through a range of media (e.g. image, video, text, chat).</p> <p>I can explain why people need to think carefully about how content they post might affect others, their feelings and how it may affect how others feel about them (their reputation).</p>	<p>Year 3/4 B Autumn 1</p> <p>Year 3/4 B Autumn 2</p>
5/6	<p>I can explain why people need to think about how content they post might affect others, their feelings and how it may affect how others feel about them.</p> <p>I can describe how what one person perceives as playful joking and teasing (including 'banter') might be experienced by others as bullying.</p> <p>I can identify a range of ways to report concerns and access support both in school and at home about online bullying.</p> <p>I can explain how to block abusive users.</p>	<p>Year 5/6 A Spring 1</p> <p>Through discrete teaching in non-computing half terms, alongside PSHE curriculum and through E-Safety focus days/weeks.</p>

5. Managing online information

Year Group:	Curricular Goal:	Taught through:
1/2	<p>I can identify devices I could use to access information on the internet.</p> <p>I know how to get help from a trusted adult if we see content that makes us feel sad, uncomfortable worried or frightened.</p> <p>I can use simple keywords in search engines.</p> <p>I can demonstrate how to navigate a simple webpage to get to information I need (e.g. home, forward, back buttons; links, tabs and sections).</p> <p>I can explain why some information I find online may not be real or true.</p>	<p>Through discrete teaching in non-computing half terms, alongside PSHE curriculum and through E-Safety focus days/weeks.</p> <p>Through discrete teaching in non-computing half terms, alongside PSHE curriculum and through E-Safety focus days/weeks.</p>
3/4	<p>I can demonstrate how to use key phrases in search engines to gather accurate information online.</p> <p>I can describe how to search for information within a wide group of technologies and make a judgement about the probable accuracy (e.g. social media, image sites, video sites).</p> <p>I can describe some of the methods used to encourage people to buy things online (e.g. advertising offers; in-app purchases, pop-ups) and can recognise some of these when they appear online.</p> <p>I can explain what is meant by fake news e.g. why some people will create stories or alter photographs and put them online to pretend something is true when it isn't.</p>	<p>Through discrete teaching in non-computing half terms, alongside PSHE curriculum and through E-Safety focus days/weeks.</p> <p>Year 3/4 A Autumn 2</p>
5/6	<p>I can explain what is meant by 'being sceptical'; I can give examples of when and why it is important to be 'sceptical'.</p> <p>I can evaluate digital content and can explain how to make choices about what is trustworthy e.g. differentiating between adverts and search results.</p> <p>I can explain how search engines work and how results are selected and ranked.</p> <p>I can explain what is meant by the term 'stereotype', how 'stereotypes' are amplified and reinforced online, and why accepting 'stereotypes' may influence how people think about others.</p>	<p>Year 5/6 B Summer 1</p> <p>Year 5/6 A Autumn 1</p> <p>Year 5/6 A Autumn 2</p> <p>Year 5/6 A Autumn 2</p> <p>Year 5/6 B Autumn 2</p>

I can describe how fake news may affect someone's emotions and behaviour, and explain why this may be harmful.

Year 5/6 B Summer 1

I can explain what is meant by a 'hoax'.

Year 5/6 B Autumn 2

I can explain why someone would need to think carefully before they share.

6. Health, wellbeing and lifestyle

Year Group:	Curricular Goal:	Taught through:
1/2	<p>I can identify rules that help keep us safe and healthy in and beyond the home when using technology.</p> <p>I can give some simple examples of these rules.</p> <p>I can explain simple guidance for using technology in different environments and settings e.g. accessing online technologies in public places and the home environment.</p> <p>I can say how those rules / guides can help anyone accessing online technologies.</p>	<p>Technology Around Us (Year A Autumn 1)</p> <p>Technology Around Us (Year A Autumn 1) I.T. Around Us (Year B Autumn 1)</p> <p>I.T. Around Us (Year B Autumn 1)</p>
3/4	<p>I can explain how using technology can be a distraction from other things, in both a positive and negative way.</p> <p>I can identify times or situations when someone may need to limit the amount of time they use technology e.g. I can suggest strategies to help with limiting this time.</p> <p>I can explain why some online activities have age restrictions, why it is important to follow them and know who I can talk to if others pressure me to watch or do something online that makes me feel uncomfortable (e.g. age restricted gaming or web sites).</p>	<p>Through discrete teaching in non-computing half terms, alongside PSHE curriculum and through E-Safety focus days/weeks.</p>
5/6	<p>I can describe ways technology can affect health and well-being both positively (e.g. mindfulness apps) and negatively.</p> <p>I can explain how and why some apps and games may request or take payment for additional content (e.g. in-app purchases, lootboxes) and explain the importance of seeking permission from a trusted adult before purchasing.</p> <p>I can describe common systems that regulate age-related content (e.g. PEGI, BBFC, parental warnings) and describe their purpose.</p> <p>I can assess and action different strategies to limit the impact of technology on health (e.g. night-shift mode, regular breaks, correct posture, sleep, diet and exercise).</p>	<p>Through discrete teaching in non-computing half terms, alongside PSHE curriculum and through E-Safety focus days/weeks.</p>

7. Privacy and security

Year Group:	Curricular Goal:	Taught through:
1/2	<p>I can explain that passwords are used to protect information, accounts and devices.</p> <p>I can explain why it is important to always ask a trusted adult before sharing any personal information online, belonging to myself or others.</p> <p>I can identify some simple examples of my personal information (e.g. name, address, birthday, age, location).</p> <p>I can describe who would be trustworthy to share this information with; I can explain why they are trusted.</p>	<p>Through discrete teaching in non-computing half terms, alongside PSHE curriculum and through E-Safety focus days/weeks.</p> <p>Pictograms (Year B Summer 1)</p> <p>Pictograms (Year B Summer 1)</p>
3/4	<p>I can describe how connected devices can collect and share anyone's information with others.</p> <p>I can describe simple strategies for creating and keeping passwords private.</p> <p>I know what the digital age of consent is and the impact this has on online services asking for consent.</p>	<p>Year 3/4 A Autumn 1</p> <p>Through discrete teaching in non-computing half terms, alongside PSHE curriculum and through E-Safety focus days/weeks.</p>
5/6	<p>I can explain what a strong password is and demonstrate how to create one.</p> <p>I can explain how many free apps or services may read and share private information (e.g. friends, contacts, likes, images, videos, voice, messages, geolocation) with others.</p> <p>I can explain what app permissions are and can give some examples.</p> <p>I can describe ways in which some online content targets people to gain money or information illegally; I can describe strategies to help me identify such content (e.g. scams, phishing).</p>	<p>Through discrete teaching in non-computing half terms, alongside PSHE curriculum and through E-Safety focus days/weeks.</p>

Year Group:	Curricular Goal:	Taught through:
1/2	<p>I can name my work so that others know it belongs to me.</p> <p>I know the work I create belongs to me.</p> <p>I can say why it belongs to me (e.g. 'I designed it' or 'I filmed it').</p> <p>I can save my work under a suitable title / name so that others know it belongs to me (e.g. filename, name on content).</p> <p>I can recognise that content on the internet may belong to other people.</p>	<p>Moving A Robot (Year A Spring 1)</p> <p>Grouping Data (Year B Spring 1)</p> <p>Digital Painting (Year A Autumn 2)</p> <p>Robot Algorithms (Year A Summer 1)</p> <p>Robot Algorithms (Year A Summer 1)</p>
3/4	<p>When searching on the internet for content to use, I can explain why I need to consider who owns it and whether I have the right to reuse it.</p> <p>I can explain why copying someone else's work from the internet without permission can cause problems.</p> <p>I can give some simple examples of content which I must not use without permission from the owner, e.g. videos, music, images.</p>	<p>Year 3/4 A Spring 2</p> <p>Year 3/4 B Spring 2</p> <p>Year 3/4 B Spring 2</p>
5/6	<p>I can assess and justify when it is acceptable to use the work of others.</p> <p>I can demonstrate the use of search tools to find and access online content which can be reused by others.</p> <p>I can demonstrate how to make references to and acknowledge sources I have used from the internet.</p>	<p>Year 5/6 B Autumn 1</p> <p>Year 5/6 B Autumn 1</p> <p>Year 5/6 B Autumn 1</p>

Lesson Design in Computing

The Charmouth long term programme and progression plan for computing is based on the Teach Computing scheme from the National Centre for Computing Education, with units selected and placed to create a cohesive programme across the school's class structure, incorporating a two-year rolling programme at Key Stage 2. It is up to class teachers to assess on an individual or school basis if the resources or tasks might best be adapted to suit the needs of specific classes, and they are encouraged to discuss this with the computing subject leader to ensure the integrity of the progression plan is not affected.

Teaching and learning approaches in classes are underpinned by the 12 pedagogical principles of the NCCE, as below:

Lead with concepts

Support pupils in the acquisition of knowledge, through the use of key concepts, terms, and vocabulary, providing opportunities to build a shared and consistent understanding. Glossaries, concept maps, and displays, along with regular recall and revision, can support this approach.

Work together

Encourage collaboration, specifically using pair programming and peer instruction, and also structured group tasks. Working together stimulates classroom dialogue, articulation of concepts, and development of shared understanding.

Get hands-on

Use physical computing and making activities that offer tactile and sensory experiences to enhance learning. Combining electronics and programming with arts and crafts (especially through exploratory projects) provides pupils with a creative, engaging context to explore and apply computing concepts.

Unplug, unpack, repack

Teach new concepts by first unpacking complex terms and ideas, exploring these ideas in unplugged and familiar contexts, then repacking this new understanding into the original concept. This approach (semantic waves) can help pupils develop a secure understanding of complex concepts.

Model everything

Model processes or practices – everything from debugging code to binary number conversions – using techniques such as worked examples and live coding. Modelling is particularly beneficial to novices, providing scaffolding that can be gradually taken away.

Add variety

Provide activities with different levels of direction, scaffolding, and support that promote active learning, ranging from highly structured to more exploratory tasks. Adapting your instruction to suit different objectives will help keep all pupils engaged and encourage greater independence.

Create projects

Use project-based learning activities to provide pupils with the opportunity to apply and consolidate their knowledge and understanding. Design is an important, often overlooked aspect of computing. Pupils can consider how to develop an artefact for a particular user or function, and evaluate it against a set of criteria.

Make concrete

Bring abstract concepts to life with real-world, contextual examples and a focus on interdependencies with other curriculum subjects. This can be achieved through the use of unplugged activities, proposing analogies, storytelling around concepts, and finding examples of the concepts in pupils' lives.

Read and explore code first

When teaching programming, focus first on code 'reading' activities, before code writing. With both block-based and text-based programming, encourage pupils to review and interpret blocks of code. Research has shown that being able to read, trace, and explain code augments pupils' ability to write code.

Challenge misconceptions

Use formative questioning to uncover misconceptions and adapt teaching to address them as they occur. Awareness of common misconceptions alongside discussion, concept mapping, peer instruction, or simple quizzes can help identify areas of confusion.

Foster program comprehension

Use a variety of activities to consolidate knowledge and understanding of the function and structure of programs, including debugging, tracing, and Parson's Problems. Regular comprehension activities will help secure understanding and build connections with new knowledge.

Structure lessons

Use supportive frameworks when planning lessons, such as PRIMM (Predict, Run, Investigate, Modify, Make) and Use-Modify-Create. These frameworks are based on research and ensure that differentiation can be built in at various stages of the lesson.

Inclusion in Computing means: everyone feeling they can be successful, opportunities to explore their creativity from their own starting points, supporting language and communication for all learners.

Possible struggle or challenge	Scaffold or support to consider
<ul style="list-style-type: none"> - Difficulties with language/ vocabulary 	<ul style="list-style-type: none"> - Ensure language used is clear, unambiguous and accessible. Look out for words with double meanings, eg cut, paste, mouse. - Key words, meanings and symbols are highlighted, clearly explained and regularly reinforced/revisited. - Instructions are given clearly and reinforced visually, where necessary. - Wording of questions is planned carefully, avoiding complex vocabulary and sentence structures. Questions are prepared in different styles/levels for different pupils – careful preparation ensures all pupils have opportunities to answer open-ended questions.
<ul style="list-style-type: none"> - Difficulties with motor skills 	<ul style="list-style-type: none"> - For some pupils, supervision and help from an adult and/or buddy in the making stages is invaluable for them to learn and practise skills safely. - However, additional adults should promote pupils’ independence by giving guidance and asking questions that enable pupils to: " think for themselves – pupils should not always be following a designing and making process step by step, with the teacher/ additional adult doing most of the thinking, and " perform tasks for themselves – be aware of the fine line between intervention and taking over a pupil’s project. - Additional adults should be clear about: the order and importance of processes in a task; the skills and knowledge they must promote; and the health and safety rules, eg basic food hygiene.
<ul style="list-style-type: none"> - Difficulties with engagement, resilience and self-esteem 	<ul style="list-style-type: none"> - Teachers’ responses to pupils’ errors recognise, value and build on the thinking that led to them. - End-of-lesson discussions consider the ways of working the class has found fruitful or difficult. Pupils are asked, for example: "Which key words/skills/processes were difficult and why?" "Which parts of a task slowed you down?", and

	<p>"What could be done to improve things next time?"</p> <ul style="list-style-type: none"> - Tasks motivate pupils. They stimulate interest and enthusiasm; are challenging but manageable; draw on real and familiar contexts; are relevant to pupils' lives, and build on previous learning in the subject and in other areas of the curriculum.
<ul style="list-style-type: none"> - Processing difficulties, or struggles to retain information 	<ul style="list-style-type: none"> - Display pupils' work, assessment criteria for tasks, or projects and posters to encourage pupils' understanding or trigger their memory. - Demonstrate software in short, achievable steps for pupils who, for example, may have a poor concentration span or poor motor skills. - Reduce the possibility of frustration at not being able to use programs to achieve an objective by having 'how-to' posters on the wall.
<ul style="list-style-type: none"> - Sensory challenges or visual impairment 	<ul style="list-style-type: none"> - Reduce glare where possible. - Ensure there is enough light for written work. - Make sure the teacher's face can be seen – avoid standing in front of light sources, eg windows. - Seating should allow all pupils in the class to communicate, respond and interact with each other and the teacher in discussions. - Avoid the need for copying lots of information, eg long website addresses.

Assessment in Computing

The focus of our assessment in computing is the formative assessment of whether children have gained the knowledge and skills that was planned for in the curriculum.

Formative assessment opportunities can take many forms in computing. It might involve a quick scan of pupils' work on screen or on paper. Teachers may ask questions that illustrate that pupils understand the learning. For example, point to the code and ask a pupil to explain what it does. You might ask pupils what they would do if they accidentally highlighted and deleted their text or if they took an animation picture frame with their hand in it by mistake. These types of questions allow you to assess if pupils have the necessary knowledge, even if they haven't needed it yet.

Revisiting a mind map of the same area of learning, say after three weeks of studying an ICT topic, can be a good way of assessing – through the added 'branches' of the map – how pupils' understanding of concepts is developing. This approach can be particularly valuable for pupils for whom oral and written communication present a barrier, as pictures and symbols can be included.