Aim High….Fly High!

Computing curriculum – Implementation Plan

The mapping table below shows where curriculum objectives related to the subject area above are covered. This table is intended as guidance and may be modified according to the needs/experiences of individual cohorts of learners. The 'Big Ideas' for our Computing curriculum –Programming, Creativity, Internet and Online Safety– are interwoven throughout the topics below.

EYFS	Autumn / Spring / Summer
	EYFS does not have a computing component within their curriculum. However, the following is covered within the early years framework and acts as the foundations for our computing curriculum. **Three and Four-Year-Olds** ***Personal, Social and Emotional Development:*** • Remember rules without needing an adult to remind them. ***Physical Development:*** • Match their developing physical skills to tasks and activities in the setting. ***Understanding the World:*** • Explore how things work. **Reception:** ***Personal, Social and Emotional Development:*** • Show resilience and perseverance in the face of a challenge. • Know and talk about the different factors that support their overall health and wellbeing: -sensible amounts of 'screen time'. ***Physical Development:*** • Develop their small motor skills so that they can use a range of tools competently, safely and confidently. ***Expressive Arts and Design:*** • Explore, use and refine a variety of artistic effects to express their ideas and feelings. **ELG:** ***Personal, Social and Emotional Development Managing Self:*** • 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*:** • Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.

Year 1	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
NC	*Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.*	*Recognise common uses of information technology beyond school. Use technology purposefully to create, organise, store, manipulate, and retrieve digital content. Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.*	*Use technology purposefully to create, organise, store, manipulate, and retrieve digital content.*	*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. Recognise common uses of information technology beyond school*	*Use technology purposefully to create, organise, store, manipulate, and retrieve digital content. Use technology safely and respectfully*	*Use technology purposefully to create, organise, store, manipulate, and retrieve digital content. Use technology safely and respectfully, keeping personal information private*

	Online Safety- internet and online safety (twinkl) **The internet and Online Safety:** • Type their name on a piece of work they have created. • Open a web browser. • Recall some of the SMART rules for Internet safety. • Know who to tell if someone online asks for personal information. Understand why email is a good way to communicate.	Computing systems and networks- technology around us (NCfCE) **The internet and Online Safety:** • Create rules for using technology responsibly. **Computing and information:** • Identify technology. • Identify a computer and its main parts. • Use a mouse in different ways. • Use a keyboard to type on a computer. • Use the keyboard to edit text.	Creative media- digital painting (NCfCE) ***Creativity:*** • Describe what different freehand tools do. • Use the shape tool and the line tools. • Make careful choices when painting a digital picture. • Explain why I chose the tools I used. • Use a computer on my own to paint a picture. • Compare painting a picture on a computer and on paper.	Programming- moving a robot (NCfCE) ***Creativity:*** • Plan a simple program. ***Programming:*** • Explain what a given command will do. • Act out a given word. • Combine 'forwards' and 'backwards' commands to make a sequence. • Combine four direction commands to make sequences. • Find more than one solution to a problem.	Data and information- grouping data (NCfCE) ***Computing and information:*** • Label objects. • Identify that objects can be counted. • Describe objects in different ways. • Count objects with the same properties. • Compare groups of objects. • Answer questions about groups of objects.	Creating media- digital writing (NCfCE) ***Creativity:*** • Use a computer to write. • Add and remove text on a computer. • Identify that the look of text can be changed on a computer. • Make careful choices when changing text. • Explain why I used the tools that I chose. • Compare typing on a computer to writing on paper.
Year 2	**Autumn 1**	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
NC	*Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.*	*Recognise common uses of information technology beyond school. Use technology purposefully to create, organise, store, manipulate, and retrieve digital content. Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.*	*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 content or contact on the internet or other online technologies.*	*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. Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies*	*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.*

	<u>Online safety0 internet and online safety (twinkl)</u> ***The internet and Online Safety:*** • Know what 'digital footprint' means and that people can use the information they put online. • Identify keywords that will give good search results. • Use a website to search for information. • Begin to identify possible dangers online. • Identify websites suitable for their age. • Know when to ask an adult for advice about accessing a website and what to do if a website makes them uncomfortable. • Talk about what people might want to know about a website and give their opinion about a website. • Begin to consider who a website could be aimed at. • Identify unkind online behaviour. • Know what to do if they think someone is being unkind to them online. • Know how to safely search for information online and choose appropriate websites for their age.	<u>Computing system and network- IT around us (NCfCE)</u> ***Computing and information:*** • Recognise the uses and features of information technology. • Identify the uses of information technology in the school. • Identify information technology beyond school. • Explain how information technology helps us. • Recognise that choices are made when using information technology. ***The internet and Online Safety:*** • Explain how to use information technology safely.	<u>Creative media- digital photography (NCfCE)</u> ***Creativity:*** • Use a digital device to take a photograph. • Make choices when taking a photograph. • Describe what makes a good photograph. • Decide how photographs can be improved. • Use tools to change an image. • Recognise that photos can be changed.	<u>Programming- robot algorithms (NCfCE)</u> ***Creativity:*** • Design an algorithm. • Create and debug a program that I have written. ***Programming:*** • Describe a series of instructions as a sequence. • Explain what happens when we change the order of instructions. • Use logical reasoning to predict the outcome of a program. • Explain that programming projects can have code and artwork.	<u>Data and information- pictograms (NCfCE)</u> Collecting data in tally charts and using attributes to organise and present data on a computer. ***Computing and information:*** • Recognise that we can count and compare objects using tally charts. • Recognise that objects can be represented as pictures. • Create a pictogram. • Select objects by attribute and make comparisons. • Recognise that people can be described by attributes. • Explain that we can present information using a computer.	<u>Programming data- programming quizzes (NCfCE)</u> ***Creativity:*** • Say how music can make us feel. • Identify that there are patterns in music. • Experiment with sound using a computer. • Create music for a purpose. • Review and refine our computer work. ***Programming:*** • Use a computer to create a musical pattern.
<u>Year 3</u>	**<u>Autumn 1</u>**	**<u>Autumn 2</u>**	**<u>Spring 1</u>**	**<u>Spring 2</u>**	**<u>Summer 1</u>**	**<u>Summer 2</u>**
<u>NC</u>	*Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.*	*Use sequence, selection, and repetition in programs; work with variables and various forms of input and output. 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. 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*	*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.*	*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.*	*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.*	*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.*

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	<u>Online Safety-internet and online safety (twinkl)</u> ***The internet and Online Safety:*** • Recognise cyberbullying and identify a safe person to tell if they encounter cyberbullying. • Know that cyberbullying can happen via a range of devices. • Identify adverts online, identify a targeted advert and explore how companies use websites to promote products. • Create a strong password and explain why a strong password is important. • Explain what privacy settings are. Discuss email as a form of communication and identify an email that they should not open. • Write an email with an address and subject. • know how to safely send and receive an email. • Identify different forms of online communication and discuss their positive and negative aspects. • Discuss the differences between communication in real life and online.	<u>Computing systems and networks- connecting computers (NCfCE)</u> ***Computing and information:*** • Explain how digital devices function. • Identify input and output devices. • Recognise how digital devices can. • Explain how a computer network can be used to share information. • Explore how digital devices can be connected. • Recognise the physical components of a network.	<u>Creating media- stop frame animation (NCfCE)</u> ***The internet and Online Safety:*** ***Creativity:*** Identify the need to work consistently and carefully. Plan an animation. ***Programming:*** Explain that animation is a sequence of drawings or photographs Relate animated movement with a sequence of images. Review and improve an animation. Evaluate the impact of adding other media to an animation.	<u>Programming- sequencing sounds (NCfCE)</u> ***Creativity:*** • Create a project from a task description. • Change the appearance of my project. ***Programming:*** • Explore a new programming environment. • Identify that commands have an outcome. • Explain that a program has a start. • Recognise that a sequence of commands can have an order.	<u>Data and information- branching databases (NCfCE)</u> ***Computing and information:*** • Create questions with yes/no answers. • Create a branching database. • Plan the structure of a branching database. • Independently create an identification tool. • Identify the attributes needed to collect data about an object. • Explain why it is helpful for a database to be well structured.	<u>Creative media- desktop publishing (NCfCE)</u> ***Creativity:*** • Recognise how text and images convey information. • Recognise that text and layout can be edited. • Choose appropriate page settings. • Add content to a desktop publishing publication. • Consider how different layouts can suit different purposes. • Consider the benefits of desktop publishing.
<u>Year 4</u>	**<u>Autumn 1</u>**	**<u>Autumn 2</u>**	**<u>Spring 1</u>**	**<u>Spring 2</u>**	**<u>Summer 1</u>**	**<u>Summer 2</u>**

NC	*Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.*	*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.* *Big ideas:*	*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.*	*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. 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 sequence, selection, and repetition in programs; work with variables and various forms of input and output. 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.*	*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.*
	Online safety- internet and online safety. (twinkl) ***The internet and Online Safety:*** • Define cyberbullying. • Know how to respond to a hurtful message or comment online. • Access a trusted search engine. • Understand that different search terms give different results. • Know what plagiarism is. • Identify which information to keep private online. • Explain what digital citizenship is. • Tell someone else at least one way to stay safe online.	Computing systems and networks- the internet. (NCfCE) ***The internet and Online Safety:*** • Evaluate the consequences of unreliable content. ***Computing and information:*** • Describe how networks physically connect to other networks. • Recognise how networked devices make up the internet. • Outline how websites can be shared via the World Wide Web (WWW). • Describe how content can be added and accessed on the World Wide Web (WWW). • Recognise how the content of the WWW is created by people	Creating media- audio production (NCfCE) ***Creativity:*** • Identify that sound can be recorded. • Explain that audio recordings can be edited. • Recognise the different parts of creating a podcast project. • Apply audio editing skills independently. • Combine audio to enhance a podcast project. • Evaluate the effective use of audio.	Programming- repetition in shapes. (NCfCE) ***Creativity:*** • Design and create a program. ***Programming:*** • Identify that accuracy in programming is important. • Create a program in a text-based language. • Explain what ‘repeat’ means. • Modify a count-controlled loop to produce a given outcome. • Decompose a task into small steps. • Create a program that uses count-controlled loops to produce a given outcome.	Data and information- data logging (NCfCE) ***Computing and information:*** • Explain that data gathered over time can be used to answer questions. • Use a digital device to collect data automatically. • Explain that a data logger collects ‘data points’ from sensors over time. • Recognise how a computer can help us analyse data. • Identify the data needed to answer questions. • use data from sensors to answer questions.	Creating media- photo editing (NCfCE) ***Creativity:*** • Explain that the composition of digital images can be changed. • Explain that colours can be changed in digital images. • Explain how cloning can be used in photo editing. • Explain that images can be combined. • Combine images for a purpose. • Evaluate how changes can improve an image.
Year 5	**Autumn 1**	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**

NC	*Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.*	*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*	*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. Use technology safely, respectfully, and responsibly; recognise acceptable/unacceptable behaviour.*	*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. 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 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.*	*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.*
	<u>Online safety (twinkl)</u> ***The internet and Online Safety:*** • Identify a spam email. • Explain what to do with spam email; Understand why they should cite a source. • Explain the rules for creating a strong password. • Create a strong password using a set of rules. • Know that not everything they see online is true. • Explain how to stay safe online. Identify unsafe online behaviour.	<u>Computing systems and networks- systems and searching. (NCfCE)</u> ***.Computing and information:*** • Explain that computers can be connected together to form systems. • Recognise the role of computer systems in our lives. • Identify how to use a search engine. • Describe how search engines select results. • Explain how search results are ranked. • Recognise why the order of results is important, and to whom.	<u>Creating media- video production. (NCfCE)</u> ***The internet and Online Safety:*** • Consider the impact of the choices made when making and sharing a video. ***Creativity:*** • Explain what makes a video effective. • Use a digital device to record video. • Capture video using a range of techniques. • Create a storyboard. • Identify that video can be improved through reshooting and editing.	<u>Programming- selection in physical computing (NCfCE)</u> ***Programming:*** • Control a simple circuit connected to a computer. • Write a program that includes count-controlled loops. • Explain that a loop can stop when a condition is met. • Explain that a loop can be used to repeatedly check whether a condition has been met. • Design a physical project that includes selection. • Create a program that controls a physical computing project.	<u>Data and information- fact-file databases (NCfCE)</u> ***Computing and information:*** • Use a form to record information. • Compare paper and computer-based databases. • Outline how you can answer questions by grouping and then sorting data. • Explain that tools can be used to select specific data. • Explain that computer programs can be used to compare data visually. • Use a real-world database to answer questions.	<u>Creating media- introduction to vectors (NCfCE)</u> ***Creativity:*** • Use tools to achieve a desired effect. • Group objects to make them easier to work with. • Apply what I have learned about vector drawings. ***Programming:*** • Identify that drawing tools can be used to produce different outcomes. • Create a vector drawing by combining shapes. • Recognise that vector drawings consist of layers.
<u>Year 6</u>	**<u>Autumn 1</u>**	**<u>Autumn 2</u>**	**<u>Spring 1</u>**	**<u>Spring 2</u>**	**<u>Summer 1</u>**	**<u>Summer 2</u>**

NC	*Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.*	*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. 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.*	*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*	*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. 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*	*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.*	*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*
	<u>Online safety (twinkl)</u> ***The internet and Online Safety:*** • Say what bullying and cyberbullying are. • Say how people should deal with cyberbullying. • Understand why I should ask an adult if I am unsure. • Identify warning signs that a website might not be secure. • Identify personal information. • Explain what to do if I am asked or told something online which makes me uncomfortable. • Explain some of the dangers of revealing personal information to an online friend. • Choose an appropriate action online to stay safe. • Identify a situation I should be careful in online.	<u>Computing and system networks- communication and collaboration (NCfCE)</u> ***The internet and Online Safety:*** • Explain the importance of internet addresses. • Recognise how data is transferred across the internet. • Explain how sharing information online can help people to work together. • Evaluate different ways of working together online. • Recognise how we communicate using technology. • Evaluate different methods of online communication.	<u>Creating media- webpage creation (NCfCE)</u> ***The internet and Online Safety:*** • Review an existing website and consider its structure. • Plan the features of a web page. • Consider the ownership and use of images (copyright). • Recognise the need to preview pages. • Outline the need for a navigation path. • Recognise the implications of linking to content owned by other people.	<u>Programming- variables in games (NCfCE)</u> ***Programming:*** • Define a 'variable' as something that is changeable. • Explain why a variable is used in a program. • Choose how to improve a game by using variables. • Use my design to create a project. • Evaluate my project. ***Creativity:*** • Design a project that builds on a given example.	<u>Data and information- introduction to spreadsheets (NCfCE)</u> ***Computing and information:*** • Create a data set in a spreadsheet. • Build a data set in a spreadsheet. • Explain that formulas can be used to produce calculated data. • Apply formulas to data. • Create a spreadsheet to plan an event. • Choose suitable ways to present data.	<u>Creating media- 3D modelling (NCfCE)</u> ***Creativity:*** • Recognise that you can work in three dimensions on a computer. • Identify that digital 3D objects can be modified. • Recognise that objects can be combined in a 3D model. • Create a 3D model for a given purpose. • Plan my own 3D model. • Create my own digital 3D model.