



## Computing

*OUR mission is to harness the sorcery of TECHNOLOGY, wielded through the power of Chromebooks, in all facets of learning. Our goal is to illuminate the path for SEND access and to awaken the minds of all pupils, instilling within them a passion for critical thinking, and a deep-seated understanding of subject-specific knowledge. Through this journey, we shall forge a bond between knowledge, skills, attitudes, and values, bringing forth a bespoke method of teaching our curriculum that is both fluent and flexible, weaving a tapestry of wonder and possibility.*

THS has a high-quality computing education that equips pupils to 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.**

### Subject Content for Early Years Computing

In the early years, the subject content for Computing focuses on establishing foundational knowledge that will support further learning in Key Stage 1 (KS1) and beyond. Key areas include:

- Understanding Sequence: Pupils develop knowledge of sequence by describing events using time connectives such as "first," "next," and "then."
- Using Devices: Children gain experience with devices, such as robots, which will be used more widely in KS1. This helps reduce cognitive load when they encounter more complex problems later.
- Choosing Suitable Devices and Programs: In information technology, pupils learn to choose suitable devices and programmes, which are early steps in using computers purposefully and productively.
- Exploring Digital Literacy: Pupils explore online safety and dilemmas through storytelling, and they develop skills in using a mouse or keyboard while engaging in phonics activities.
- This foundational knowledge is crucial for building the skills necessary for more advanced computing concepts in subsequent educational stages.

### In Key Stage 1 (KS1), pupils should be taught the following content in Computing:

- Understanding Algorithms: Pupils should learn what algorithms are, how they are implemented as programmes on digital devices, and that programmes execute by following precise and unambiguous instructions.
- Creating and Debugging Programs: They should be able to create and debug simple programmes.
- Logical Reasoning: Pupils should use logical reasoning to predict the behaviour of simple programmes.
- Purposeful Use of Technology: They should use technology purposefully to create, organise, store, manipulate, and retrieve digital content.
- Recognising IT Uses: Pupils should recognise common uses of information technology beyond school.
- Safe and Respectful Technology Use: They should learn to use technology safely and respectfully, keeping personal information private, and identifying where to go for help and support when they have concerns about content or contact on the internet or other online technologies.

### In Key Stage 2 (KS2), pupils should be taught the following content in Computing:

- Designing and Debugging Programs: Pupils should design, write, and debug programmes that accomplish specific goals, including controlling or simulating physical systems. They should also solve problems by decomposing them into smaller parts.
- Using Programming Concepts: They should use sequence, selection, and repetition in programmes, and work with variables and various forms of input and output.
- Logical Reasoning: Pupils should use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programmes.
- Understanding Computer Networks: They should understand computer networks, including the internet, and how they can provide multiple services, such as the World Wide Web, along with the opportunities they offer for communication and collaboration.
- Effective Use of Search Technologies: Pupils should use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.
- Combining Software: They should select, use, and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programmes, systems, and content that accomplish given goals, including collecting, analysing, evaluating, and presenting data and information.
- Safe and Responsible Technology Use: Pupils should use technology safely, respectfully, and responsibly; recognise acceptable and unacceptable behaviour; and identify a range of ways to report concerns about content and contact.

Year 1	Unit of Study	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
Autumn 1	<p>Online Safety</p> <p>This is the first online safety unit and is aimed at teaching basic online safety and digital literacy skills. In this unit, children learn about the potential dangers in the online world and what basic steps we all need to take in order to have positive digital experiences. The first lesson, which is intended to be taught at the start of the school year, focuses on why it is important for children to name their creative work. They go on to learn about using a search engine safely to find pictures. Children learn the SMART rules and look at what information should be kept safe when using the Internet. The lessons then explore the positives and potential negatives of online communication, such as email, and children will develop the skills to recognise potential dangers and act accordingly to keep themselves and others safe.</p>	<p>Catch up and classroom discussions</p>	<p>To create name and date my digital creative work.</p> <p>I can give my work a filename that shows it is my work.</p> <p>I can say why it is important to name and date my work.</p> <p>I can begin to decide what needs copyright.</p>	<p>To safely search for images online.</p> <p>I can select and use Safe Search filters.</p> <p>I can type words to find an image online.</p> <p>I know to speak to a trusted adult if I see, hear or read something online that upsets me</p>	<p>To understand how to communicate safely online.</p> <p>I can explain what each letter of SMART stands for.</p> <p>I can spot when something online might not be safe.</p> <p>I can make links between the offline and online world.</p>	<p>To understand what personal information I need to keep safe.</p> <p>I can talk about my own personal information.</p> <p>I can recognise what personal information can affect my safety.</p> <p>I know who to tell if someone asks for my personal information</p>	<p>To explore how to use email to safely communicate.</p> <p>I can say why email is a good way of communicating</p> <p>I can suggest ways to use email safely.</p> <p>I can guide others to make safe choices online.</p>	<p>To apply my online safety knowledge to help others make good choices online.</p> <p>I can recognise potential dangers online.</p> <p>I can use my online safety knowledge to decide what to do in different situations.</p> <p>I can guide others to make safe choices online.</p>
Autumn 2	<p>Digital Design</p> <p>Learners will develop their understanding of a range of tools used for digital painting. They then use these tools to create their own digital paintings, while gaining inspiration from a range of artists' work. The unit concludes with learners considering their preferences when painting with and without the use of digital devices.</p>	<p>To describe what different freehand tools do</p> <p>I can make marks on a screen and explain which tools I used</p> <p>I can draw lines on a screen and explain which tools I used</p> <p>I can use the paint tools to draw a picture</p>	<p>To use the shape tool and the line tools</p> <p>I can make marks with the square and line tools</p> <p>I can use the shape and line tools effectively</p> <p>I can use the shape and line tools to recreate the work of an artist</p>	<p>To make careful choices when painting a digital picture</p> <p>I can choose appropriate shapes</p> <p>I can make appropriate colour choices</p> <p>I can create a picture in the style of an artist</p>	<p>To explain why I chose the tools I used</p> <p>I can explain that different paint tools do different jobs</p> <p>I can choose appropriate paint tools and colours to recreate the work of an artist</p> <p>I can say which tools were helpful and why</p>	<p>To use a computer on my own to paint a picture</p> <p>I can make dots of colour on the page</p> <p>I can change the colour and brush sizes</p> <p>I can use dots of colour to create a picture in the style of an artist on my own</p>	<p>To compare painting a picture on a computer and on paper</p> <p>I can explain that pictures can be made in lots of different ways</p> <p>I can spot the differences between painting on a computer and on paper</p> <p>I can say whether I prefer painting using a computer or using paper</p>	
Spring 1	<p>Programming A – On the Move Discovery Coding.</p> <p>Children will create programs using object and command blocks with start and click events. They will learn the vocabulary: run/code/execute/program/instructions/action/object s/</p>	<p>Under the Sea</p> <p>I can write code to make a fish move across the screen</p> <p>I can write code to make a jellyfish move in more than one direction on the screen</p> <p>I can decide on the direction in which three sea creatures will move and write code to make this happen.</p>	<p>Royal Chase</p> <p>I know that a character is an object and I can write code to make it move around the screen.</p> <p>I can write code to make several objects move in different directions</p> <p>I can explain how I have used code to make objects move in different directions I have chosen.</p>	<p>Transport on the Go</p> <p>I can write code to make an object move when it is clicked on.</p> <p>I can write code to make different objects move in different directions when clicked on.</p> <p>I can explain how I programmed different objects to move in different directions when clicked on.</p>	<p>Another Planet</p> <p>I can write code to make a rocket moved when clicked on.</p> <p>I can use code to write a computer program where several objects move in different directions when clicked on.</p> <p>I can explain the different parts of my program, and what the code in each part does.</p>	<p>Free Code Challenge</p> <p>I can use the creative mode to design my own animated scene.</p> <p>I can explain how my code in the scene works.</p> <p>I can say what I would change if I could.</p>		
Spring 2	<p>Data and Information – Grouping data</p> <p>This unit introduces pupils to data and information. They will begin by using labels to put objects into groups and labelling these groups.</p>	<p>To label objects</p> <p>I can describe objects using labels</p> <p>I can match objects to groups</p>	<p>To identify that objects can be counted</p> <p>I can count objects</p> <p>I can group objects</p>	<p>To describe objects in different ways</p> <p>I can describe an object</p>	<p>To count objects with the same properties</p> <p>I can group similar objects</p>	<p>To compare groups of objects</p> <p>I can choose how to group objects</p>	<p>To answer questions about groups of objects</p> <p>I can decide how to group objects to answer a question</p>	

	<p>Pupils will demonstrate that they can count a small number of objects, before and after the objects are grouped. They will then begin to demonstrate their ability to sort objects into different groups, based on the properties they choose. Finally, pupils will use their ability to sort objects into different groups to answer questions about data.</p>	<p>I can identify the label for a group of objects</p>	<p>I can count a group of objects</p>	<p>I can describe a property of an object</p> <p>I can find objects with similar properties</p>	<p>I can group objects in more than one way</p> <p>I can count how many objects share a property</p>	<p>I can describe groups of objects</p> <p>I can record how many objects are in a group</p>	<p>I can compare groups of objects</p> <p>I can record and share what I have found</p>	
<p>Summer 1</p>	<p>Creating Media Learners will develop their understanding of the various aspects of using a computer to create and manipulate text. They will become more familiar with using a keyboard and mouse to enter and remove text. Learners will also consider how to change the look of their text and will be able to justify their reasoning in making these changes. Finally, learners will consider the differences between using a computer to create text and writing text on paper. They will be able to explain which method they prefer and explain their reasoning for choosing this.</p>	<p>To use a computer to write</p> <p>I can open a word processor</p> <p>I can recognise keys on a keyboard</p> <p>I can identify and find keys on a keyboard</p>	<p>To add and remove text on a computer</p> <p>I can enter text into a computer</p> <p>I can use letter, number, and Space keys</p> <p>I can use Backspace to remove text</p>	<p>To identify that the look of text can be changed on a computer</p> <p>I can type capital letters</p> <p>I can explain what the keys that I have already learnt about do</p> <p>I can identify the toolbar and use bold, italic, and underline</p>	<p>To make careful choices when changing text</p> <p>I can select a word by double-clicking</p> <p>I can select all of the text by clicking and dragging</p> <p>I can change the font</p>	<p>To explain why I used the tools that I chose</p> <p>I can say what tool I used to change the text</p> <p>I can decide if my changes have improved my writing</p> <p>I can use 'Undo' to remove changes</p>	<p>To compare typing on a computer to writing on paper</p> <p>I can make changes to text on a computer</p> <p>I can explain the differences between typing and writing</p> <p>I can say why I prefer typing or writing</p>	
<p>Summer 2</p>	<p>Programming B – Simple Inputs Discovery Coding</p> <p>Children will combine start up and input events to create more advanced programs. They will make bubble burst when they are clicked, catch a fish as it swims, make characters chase each other in a magic castle and get cars and emergency vehicles to stop, start and drive in different directions.</p> <p>Vocabulary: code/object/action/click/start event/ click event /action/ object</p>	<p>Burst the Bubbles</p> <p>I can write code to make a bubble disappear when it is clicked on, or to make a bubble move when my programs exits.</p> <p>I can combine code to make a bubble move when my program starts and disappear when it is clicked on.</p> <p>I can write code to make three bubbles move when my program starts and pop when they are clicked on.</p>	<p>Catch the fish</p> <p>I can write a code to make a fish move at the start and then disappear when it is clicked on.</p> <p>I can write code to program three fish to move at the start and then disappear when they are clicked on.</p> <p>I can explain how I have combined start events and click events to create my game.</p>	<p>Magic Castle</p> <p>I can write code to make a queen escape from a wizard when she is clicked on.</p> <p>I can combine start events and click events to create an animated scene and explain how my code works.</p> <p>I can plan and create my own scene and explain how my code works.</p>	<p>Emergency</p> <p>I can write code that includes start events and click events to control vehicles.</p> <p>I can write code in which the same object responds to both click events and start events.</p> <p>I can plan and design my own animation and explain how I used start and click events.</p>	<p>Debugging programmes</p> <p>I can use my coding knowledge to fix the mistakes in a variety of programs.</p>	<p>Free code Challenge</p> <p>I can design my own game which combines click and start events.</p> <p>I can create a game where the player has to catch an object by clicking on it.</p> <p>I can program an game where once an object is caught it can disappear or change direction.</p>	

Year 2	Unit of Study	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
Autumn 1	Online Safety In this unit, children learn about how what they do online leaves a trail called a digital footprint. They will look at how to improve the efficiency of their online searches, the types of websites that are best for children to access when looking for information, as well as how to identify inappropriate content and the actions they should take if they do. Children will be introduced to the term 'cyberbullying' and look at how they should communicate online and deal with instances of people being unkind via digital means.	Catch up and classroom discussions	To understand that the information I put online leaves a digital footprint.  I can explain what 'digital footprint' means.  I can explain how people might use the information I put online.  I can explain how a digital footprint contains information about a person.	To use keywords in an online search to find key information about a topic.  I can identify which keywords will give me good results.  I can use a website to search for information.	To recognise whether a website is appropriate for children.  I can identify websites that are suitable for my age.  I can identify when to ask an adult for advice about accessing a website.  I know what to do if a website makes me uncomfortable in any way.	To rate and review informative websites.  I can discuss what people might want to know about a website to decide whether it is useful or not.  I can explain what I like or dislike about a website.  I can use clues to decide who a website is aimed at.	To be able to identify kind and unkind behaviour online.  I can identify unkind online behaviour  I know what to do if I think someone is being unkind to me online.	To apply knowledge of safe and sensible online activities to different situations  I can choose a sensible course of action if I feel uncomfortable online.  I can explain how to safely search for information online.  I can choose appropriate websites for someone my age.
Autumn 2	Digital photography Unit introduction Learners will learn to recognise that different devices can be used to capture photographs and will gain experience capturing, editing, and improving photos. Finally, they will use this knowledge to recognise that images they see may not be real.	To use a digital device to take a photograph  I can recognise what devices can be used to take photographs  I can talk about how to take a photograph  I can explain what I did to capture a digital photo	To make choices when taking a photograph  I can explain the process of taking a good photograph  I can take photos in both landscape and portrait format  I can explain why a photo looks better in portrait or landscape format	To describe what makes a good photograph  I can identify what is wrong with a photograph  I can discuss how to take a good photograph  I can improve a photograph by retaking it	To decide how photographs can be improved  I can explore the effect that light has on a photo  I can experiment with different light sources  I can explain why a picture may be unclear	To use tools to change an image  I can recognise that images can be changed  I can use a tool to achieve a desired effect  I can explain my choices	To recognise that photos can be changed  I can apply a range of photography skills to capture a photo  I can recognise which photos have been changed  I can identify which photos are real and which have been changed	
Spring 1	Programming A – Different sorts of input Discover Coding  Children will learn about types of input and output. The children will make different things happen by clicking and releasing the mouse, trackpad, or keyboard. They will use event blocks for different types of computer input  Vocabulary: output input / pointer / key press	Red Riding Hood  I can write code to make Red Riding Hood move when a key is pressed.  I can write code to make Red Riding Hood move in different directions and stop when different keys are pressed.  I can design and program an app that challenges my friend to use different keys to make characters on screen move in different directions.	Keys to the Race  I can program an object to hide when a key is pressed.  I can program objects to move and hide when keys are pressed.  I can explain how my code makes objects respond when keys are pressed.	Up in the Air  I can write code to make a plane change direction when a key is pressed.  I can write code to make several planes move and change directions when different keys are pressed.  I can explain my code and say which parts of the code will execute when different keys are pressed.	Shark Attack  I can write code to make an object change direction when the pointer is pressed.  I can write code to make several objects change direction when the pointer is pressed and released.  I can explain my code and how it works.	Snow White  I can write code to make Snow White follow the mouse pointer  I can write code to make objects move and disappear in response to different inputs.  I can describe which inputs will make different parts of my code execute.	Free Code Challenge  I can design and create different types of input to control two characters, one is controlled by the keyboard and the other is controlled by the pointer. Add other objects to the stage and make them hide and re-appear when the mouse pointer is pressed and released.	
Spring 2	Unit introduction - Pictograms Learners will begin to understand what the term data means and how data can be collected in the form of a tally chart. They will learn the term 'attribute' and use this to help them organise data. They will then progress onto presenting data in the form of pictograms and finally block diagrams. Learners will use the data presented to answer questions.	To recognise that we can count and compare objects using tally charts  I can record data in a tally chart  I can represent a tally count as a total  I can compare totals in a tally chart	To recognise that objects can be represented as pictures  I can enter data onto a computer  I can use a computer to view data in a different format	To create a pictogram  I can organise data in a tally chart  I can use a tally chart to create a pictogram  I can explain what the pictogram shows	To select objects by attribute and make comparisons  I can tally objects using a common attribute  I can create a pictogram to arrange objects by an attribute	To recognise that people can be described by attributes  I can choose a suitable attribute to compare people  I can collect the data I need  I can create a pictogram and draw conclusions from it	To explain that we can present information using a computer  I can use a computer program to present information in different ways  I can share what I have found out using a computer	

			I can use pictograms to answer simple questions about objects		I can answer 'more than'/'less than' and 'most/least' questions about an attribute		I can give simple examples of why information should not be shared	
<b>Summer 1</b>	<p>Digital Music</p> <p>In this unit, learners will be using a computer to create music. They will listen to a variety of pieces of music and consider how music can make them think and feel. Learners will compare creating music digitally and non-digitally. Learners will look at patterns and purposefully create music.</p>	<p>To say how music can make us feel</p> <p>I can identify simple differences in pieces of music</p> <p>I can describe music using adjectives</p> <p>I can say what I do and don't like about a piece of music</p>	<p>To identify that there are patterns in music</p> <p>I can create a rhythm pattern</p> <p>I can play an instrument following a rhythm pattern</p> <p>I can explain that music is created and played by humans</p>	<p>To experiment with sound using a computer</p> <p>I can connect images with sounds</p> <p>I can use a computer to experiment with pitch</p> <p>I can relate an idea to a piece of music</p>	<p>To use a computer to create a musical pattern</p> <p>I can identify that music is a sequence of notes</p> <p>I can explain how my music can be played in different ways</p> <p>I can refine my musical pattern on a computer</p>	<p>To create music for a purpose</p> <p>I can create a rhythm which represents an animal I've chosen</p> <p>I can create my animal's rhythm on a computer</p> <p>I can add a sequence of notes to my rhythm</p>	<p>To review and refine our computer work</p> <p>I can review my work</p> <p>I can explain how I changed my work</p> <p>I can listen to music and describe how it makes me feel</p>	
<b>Summer 2</b>	<p>Programming B – Buttons and Instructions Discovery Coding</p> <p>Children will learn that buttons are objects that can be used to control another object.</p> <p>The children will code a program using a click event to execute the code.</p> <p>Vocabulary: Object / Actions / Button / Input / run / execute/ control / click / algorithm</p>	<p>Fly a helicopter</p> <p>I can write code so that the button will make a helicopter move when clicked.</p> <p>I can write code so that different buttons can be used to make a helicopter move in different directions when they are clicked.</p> <p>I can add to my code so that a button will make the helicopter stop and hover, and I can explain how my code works.</p>	<p>Slug Hunt</p> <p>I can write code so that a button, when clicked, will make a bird move around the screen.</p> <p>I can write code where different buttons control the way the bird moves.</p> <p>I can design a program an app and explain how it works.</p>	<p>Find my Cat</p> <p>I can write code so that when buttons are clicked, a witch moves around the screen.</p> <p>I can write code where a set of buttons control the witch, and a different button hides the cat.</p> <p>I can design and program an app and explain how it works.</p>	<p>Hungry Migbod</p> <p>I can write code so that buttons will make Migbod move around.</p> <p>I can write code so that a set of buttons will make Migbod move, and different buttons will make multiple fruit objects disappear.</p> <p>I can explain which parts of my code will execute when different buttons are clicked.</p>	<p>Debugging Challenge</p> <p>Use your coding knowledge to fix the mistakes in a variety of programs.</p>	<p>Free Code Challenge</p> <p>I can choose a character and then make an obstacle course by adding more objects to the screen for them to avoid.</p> <p>I can also make a paint tool to draw the characters. I can use the plus button in the design palette to add some buttons that make the character move in different directions.</p> <p>I can write the code to steer my character around without bumping into anything.</p>	

Year 3	Unit of Study	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
Autumn 1	<p>Online Safety</p> <p>In this unit, children are introduced to email and other forms of online communication. They will look at how to write and send emails, as well as how to decide if an email is safe to open. They will build on their existing knowledge of cyberbullying and how to deal with unkind behaviour online. The use and importance of privacy settings is introduced, and children will discuss the types of information we should not share online. They will build on the idea of a digital footprint by thinking about how the adverts they see online are targeted at them. Children will finish the unit by using the knowledge they have gained to plan a party using online communication methods.</p>	<p>Catch up and classroom discussions</p>	<p>To know what cyberbullying is and how to address it. I can recognise cyberbullying. I can identify a safe person to tell if I encounter cyberbullying. I know that cyberbullying can happen via a range of devices.</p>	<p>To understand how websites use advertisements to promote products. I can identify adverts online. I can identify a targeted advert. I can explore how companies use websites to promote products.</p>	<p>To create strong passwords and understand privacy settings. I can create a strong password. I can explain why a strong password is important. I can explain what privacy settings are.</p>	<p>To safely send and receive emails. I can discuss email as a form of communication. I can identify an email that I should not open. I know how to safely receive an email.</p>	<p>To explore different ways children can communicate online. I can identify online communities I am a part of. I can discuss the positive and negative aspects of online communication I can discuss the differences between communication in real life and online</p>	<p>To use knowledge about online safety to plan a part online. I can discuss what I have learnt about online safety I can communicate my ideas with a group clearly and listen to others' contributions. I can use what I know about online safety to plan a party using online methods.</p>
Autumn 2	<p>Stop-frame animation</p> <p>Unit introduction <b>Learners will use a range of techniques to create a stop-frame animation using tablets. Next, they will apply those skills to create a story-based animation. This unit will conclude with learners adding other types of media to their animation, such as music and text.</b></p>	<p>To explain that animation is a sequence of drawings or photographs I can draw a sequence of pictures I can create an effective flip book—style animation I can explain how an animation/flip book works</p>	<p>To relate animated movement with a sequence of images I can predict what an animation will look like I can explain why little changes are needed for each frame I can create an effective stop-frame animation</p>	<p>To plan an animation I can break down a story into settings, characters and events I can describe an animation that is achievable on screen I can create a storyboard</p>	<p>To identify the need to work consistently and carefully I can use onion skinning to help me make small changes between frames I can review a sequence of frames to check my work I can evaluate the quality of my animation</p>	<p>To review and improve an animation I can explain ways to make my animation better I can evaluate another learner's animation I can improve my animation based on feedback</p>	<p>To evaluate the impact of adding other media to an animation I can add other media to my animation I can explain why I added other media to my animation</p> <p>I can evaluate my final film</p>	
Spring 1	<p>Programming A – Sequence and animation</p> <p>The children will program sequences to create simple animations and simulations. They will decide what should happen first, what happens next and the order of everything in between. They will code sequences commands to fly a rocket through space, create an animated scene by coding more than one sequence, use a timer event to control their sequence and build a race in space and combine timer events to program a set of traffic lights. Key Vocabulary: Sequence, run, before, after, execute, algorithm. Action, debug</p>	<p>Stepping through Space</p> <p>I can write code to make a spaceship move around the screen. I can plan and write a sequence of instructions to create a program I can describe the order in which different parts of my code will execute and explain how this helped me create my program.</p>	<p>Snail versus Spider</p> <p>I can write code to make a sequence of events happen in the right order. I can write a program that involves several sequences of events I can plan and write code for my own program involving sequence and explain how I did this.</p>	<p>Alien Space Race</p> <p>I can use a timer event to control when things happen in my program I can use several timer events to sequence different parts of my code. I can explain how a timer event has helped me to control the sequence in which parts of my code are executed.</p>	<p>Traffic Lights</p> <p>I can use a timer event to control when things happen in my program. I can plan and write code for a sequence of events and use this to solve a problem. I can explain how a timer event has helped me to control the sequence in which parts of my code are executed.</p>	<p>Free code challenge</p> <p>Add a character to the screen Choose 4 things for them to do (pick a flower, play with a ball, eat a sandwich, go home) Draw objects to represent these events, and decide which order your character will do them Use your coding skills to make this happen. Change your code to make the actions happen in a different order</p>		

<p><b>Spring 2</b></p>	<p>Data and information – Branching databases</p> <p>Learners will develop their understanding of what a branching database is and how to create one. They will use yes/no questions to gain an understanding of what attributes are and how to use them to sort groups of objects. Learners will create physical and on-screen branching databases. To conclude the unit, they will create an identification tool using a branching database, which they will test by using it. They will also consider real-world applications for branching</p>	<p>To create questions with yes/no answers I can investigate questions with yes/no answers I can make up a yes/no question about a collection of objects</p> <p>I can create two groups of objects separated by one attribute</p>	<p>To identify the attributes needed to collect data about an object I can select an attribute to separate objects into groups I can create a group of objects within an existing group</p> <p>I can arrange objects into a tree structure</p>	<p>To create a branching database I can select objects to arrange in a branching database I can group objects using my own yes/no questions</p> <p>I can test my branching database to see if it works</p>	<p>To explain why it is helpful for a database to be well structured I can create yes/no questions using given attributes I can compare two branching database structures I can explain that questions need to be ordered carefully to split objects into similarly sized groups</p>	<p>To plan the structure of a branching database I can independently create questions to use in a branching database I can create questions that will enable objects to be uniquely identified</p> <p>I can create a physical version of a branching database</p>	<p>To independently create an identification tool I can create a branching database that reflects my plan I can work with a partner to test my identification tool</p> <p>I can suggest real-world uses for branching databases</p>	
<p><b>Summer 1</b></p>	<p>Creating Media During this unit, learners will become familiar with the terms ‘text’ and ‘images’ and understand that they can be used to communicate messages. They will use desktop publishing software and consider careful choices of font size, colour and type to edit and improve premade documents. Learners will be introduced to the terms ‘templates’, ‘orientation’, and ‘placeholders’ and begin to understand how these can support them in making their own template for a magazine front cover. They will start to add text and images to create their own pieces of work using desktop publishing software. Learners will look at a range of page layouts thinking carefully about the purpose of these and evaluate how and why desktop publishing is used in the real world.</p>	<p>To recognise how text and images convey information I can explain the difference between text and images I can recognise that text and images can communicate messages clearly</p> <p>I can identify the advantages and disadvantages of using text and images</p>	<p>To recognise that text and layout can be edited I can change font style, size, and colours for a given purpose I can edit text</p> <p>I can explain that text can be changed to communicate more clearly</p>	<p>To choose appropriate page settings I can explain what ‘page orientation’ means I can recognise placeholders and say why they are important I can create a template for a particular purpose</p>	<p>To add content to a desktop publishing publication I can choose the best locations for my content I can paste text and images to create a magazine cover</p> <p>I can make changes to content after I’ve added it</p>	<p>To consider how different layouts can suit different purposes I can identify different layouts I can match a layout to a purpose</p> <p>I can choose a suitable layout for a given purpose</p>	<p>To consider the benefits of desktop publishing I can identify the uses of desktop publishing in the real world I can say why desktop publishing might be helpful</p> <p>I can compare work made on desktop publishing to work created by hand</p>	
<p><b>Summer 2</b></p>	<p>Programming B – Conditional event (selection) The children will tell the computer to execute code if or <b>when</b> a certain condition is met. They will write code which will only execute if one object hits another, or if the object is touching a certain colour. This is known a selection. They will program a spaceship through a maze so that it stops at walls, keep a car on track by changing its direction if it hits a colour, make eggs disappear and reappear in random places and use a hit event to control more the one object at a time. Vocabulary: walls, condition, conditional statement, background, hit event, direction, input, collide, object</p>	<p>Space Maze</p> <p>I can write code that includes a conditional statement, using a hit event, to program an object to stop when it hits a wall in a maze. I can use more than one conditional hit event in my code. I can explain how I used conditional hit events in my code to make the spaceship stop when it hits a wall and disappear when it hits a “black hole”.</p>	<p>Self-Driving Car</p> <p>I can use a conditional hit to make a car change direction if it touches a certain colour. I can use a conditional hit event to make a car follow a track with several changes of direction. I can explain my code and say which part of it will execute when different conditions are met.</p>	<p>Hungry Snake</p> <p>I can use a conditional hit event in my code to make an egg disappear when a snake hits it. I can use several conditioning hit events in my code to make different things happen on the screen. I can design a simple game and explain how the code used to create my program executes as the game is being played.</p>	<p>Pufferfish Pop</p> <p>I can use a conditional hit event in my code to make a bubble disappear when a pufferfish hits it. I can use several conditional hit events in my code to make different things happen. I can design a simple game and explain how the code executes as the game is being played.</p>	<p>Debugging conditional events I can use my coding knowledge to fix mistakes in a variety of programs.</p>	<p>Free Code Challenge</p> <p>Choose a character and design a maze for your character to navigate. Add some items which they need to pick up along the way and include some obstacles which make the stop, change direction or disappear altogether. Use hit events to say what should happen when you</p>	

Year 4	Unit of Study	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
Autumn 1	Online Safety In this unit, children learn about preventing and dealing with cyberbullying; how to use search engines efficiently; how to avoid plagiarism online; and how to be a good digital citizen. The unit ends with children applying their new knowledge to design a character to be displayed around school to promote online safety	Catch up and classroom discussions	I can identify how a message can hurt someone's feelings. I can explain why other people may be hurt by messages or comments. I can edit my own messages and comments to make sure I am not being unkind I know how to respond to a hurtful message or comment online.	I can use a search engine accurately. I can access a trusted search engine I can use strategies which improve my results when searching online. I can choose an appropriate number of words to include in my searches.	I understand the term 'plagiarism' and how to avoid it. I can explain what a citation is. I can write a citation. I can explain why plagiarism is harmful.	To create a safe online profile I can identify the information that I shouldn't share online. I know why it is dangerous to share certain information. I understand why some websites ask for registration information.	To explain how to be a responsible digital citizen. I can explain what digital citizenship is. I can explain how to be a good citizen in real life and online.	To create an online safety superhero character I can design a character that represents at least one aspect of online safety. I can use what I have learned about online safety to explain what behaviour my superhero will look for I can apply what I have learned to write a 'top tip' for online safety.
Autumn 2	Creating Media – Audio production Learners will identify the input device (microphone) and output devices (speaker or headphones) required to work with sound digitally. Learners will discuss the ownership of digital audio and the copyright implications of duplicating the work of others. In order to record audio themselves, learners will use Audacity to produce a podcast, which will include editing their work, adding multiple tracks, and opening and saving the audio files. Finally, learners will evaluate their work and give feedback to their peers.	To identify that sound can be recorded I can identify the input and output devices used to record and play sound I can use a computer to record audio  I can explain that the person who records the sound can say who is allowed to use it	To explain that audio recordings can be edited I can re-record my voice to improve my recording I can inspect the soundwave view to know where to trim my recording I can discuss what sounds can be added to a podcast	To recognise the different parts of creating a podcast project I can explain how sounds can be combined to make a podcast more engaging I can save my project so the different parts remain editable  I can plan appropriate content for a podcast	To apply audio editing skills independently I can record content following my plan I can review the quality of my recordings I can improve my voice recordings	To combine audio to enhance my podcast project I can open my project to continue working on it I can arrange multiple sounds to create the effect I want I can explain the difference between saving a project and exporting an audio file	To evaluate the effective use of audio I can listen to an audio recording to identify its strengths I can suggest improvements to an audio recording I can choose appropriate edits to improve my podcast	
Spring 1	Programming A – Introduction to Variables The children will be introduced to variables that will store information, like game scores and time. For example: the children will tell the computer to add a point every time they hit a target in the game or display a message when they get to 10. They will code games where the player earns points for popping balloons, lose points for choosing different foods, count items and add up totals in a shopping game and make a pirate treasure-hunt game. Vocabulary: variable, score, start, click, time, alert, conditional event, score, time, value, hit event, negative, collide, set, cost, total, button, event, change.	Pop Game  I can write code including a variable that changes each time a balloon is popped. I can program the variable to increase in value by different amounts when different balloons are popped. I can add a time limit and explain how I have used a variable to keep track of the score.	Catch the Coconuts  I can write code including a variable that will increase in value each time a monkey catches a coconut. I can write code including a variable that increases by different amounts depending on which condition is met. I can explain how my code works and identify the variables and conditional events I have used.	Healthy eating  I can write code including a variable that will increase in value each time a condition is met. I can write code where the value of a variable changes by positive and negative amounts when different conditions are met. I can explain how variables are used to keep track of the #score in my game.	Tablet till  I can write code including several variables to display the number of items bought in a shop. I can write code including several variables and set the value of a variable to a specific amount. I can explain how I have used variables in my shopping app and describe the difference between setting and changing the value of variables.	Pirate Gold  I can write code including a variable that will increase in value when a condition is met. I can write code including a variable that will increase or decrease or reset to zero when different conditions are met. I can design my own scoring system for a game and write code that includes a variable for this.	Debugging Variable Variables  I can use my coding knowledge to fix mistakes in a variety of programs.	
Spring 2	Data Information – Data logging In this unit, pupils will consider how and why data is collected over time. Pupils will consider the senses that humans use to experience the environment and how computers can use special input devices called sensors to monitor the environment. Pupils will collect data	To explain that data gathered over time can be used to answer questions  ● I can choose a data set to answer a given question  ● I can suggest questions that can be	To use a digital device to collect data automatically  ● I can explain what data can be collected using sensors  ● I can use data from a sensor to answer a given question	To explain that a data logger collects 'data points' from sensors over time  ● I can recognise that a data logger collects data at given points	To recognise how a computer can help us analyse data  ● I can view data at different levels of detail  ● I can sort data to find information	To identify the data needed to answer questions  ● I can propose a question that can be answered using logged data  ● I can plan how to collect data using a data logger	To use data from sensors to answer questions  ● I can interpret data that has been collected using a data logger  ● I can draw conclusions from the data that I have collected	

	as well as access data captured over long periods of time. They will look at data points, data sets, and logging intervals. Pupils will spend time using a computer to review and analyse data. Towards the end of the unit, pupils will pose questions and then use data loggers to automatically collect the data needed to answer those questions.	answered using a given data set ● I can identify data that can be gathered over time	● I can identify that data from sensors can be recorded	● I can identify the intervals used to collect data ● I can talk about the data that I have captured	● I can explain that there are different ways to view data	● I can use a data logger to collect data	● I can explain the benefits of using a data logger	
Summer 1	Creating Media – Photo editing Learners will develop their understanding of how digital images can be changed and edited, and how they can then be resaved and reused. They will consider the impact that editing images can have, and evaluate the effectiveness of their choices.	To explain that the composition of digital images can be changed I can improve an image by rotating it I can explain why I might crop an image I can use photo editing software to crop an image	To explain that colours can be changed in digital images I can explain that different colour effects make you think and feel different things I can experiment with different colour effects I can explain why I chose certain colour effects	To explain how cloning can be used in photo editing I can add to the composition of an image by cloning I can identify how a photo edit can be improved I can remove parts of an image using cloning	To explain that images can be combined I can experiment with tools to select and copy part of an image I can use a range of tools to copy between images I can explain why photos might be edited	To combine images for a purpose I can describe the image I want to create I can choose suitable images for my project I can create a project that is a combination of other images	To evaluate how changes can improve an image I can review images against a given criteria I can use feedback to guide making changes I can combine text and my image to complete the project	
Summer 2	Programing B – Repetition and Loops Children will use a loop to repeat an instruction. The loops can also be nested inside each other to form complex repetitions. They will use a loop to program the movements of garden bugs, use nested loops to drive a car around a track, use infinite and conditional loops to make a rocket orbit the moon and combine different types of loops to create a pattern in the sky. Vocabulary: repetition, loop, action, efficient, nesting, repeat, always, variable, condition, timer, if statement, loop, direction.	Bugs in the Garden I can write code that uses repetition to affect a single object on the screen. I can choose when to use a repetition in my code to make my code more efficient (abstraction). I can choose when to use repetition in my code and say why it's useful.	Driving me Loopy I can use more than one loop in my code. I can write code that included more complex repetition. I can solve a problem by writing code involving complex loops.	Astronaut Orbit I can write code to make the moon rotate and a rocket orbit the moon. I can write code to make a rocket orbit the moon then change direction. I can plan my own animation and write code for this.	Hot Air Balloon Show I can write code using a loop, a variable and an if statement to make a balloon move. I can use loops, a variable, and an if statement to create an animated scene where two balloons move and form a repeating pattern. I can explain how repetition, loops, if statements and variables are used in my code.	Free code Challenge Use the free code area to design an animation which uses all three kinds of loops; A counted Loop, An Infinite Loop and A Conditional Loop. You could make sea creatures move through water, fly some planes through the air or choose characters and setting of your own.		

Year 5	Unit of Study	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
Autumn 1	<p>Online Safety</p> <p>In this unit, children will learn about email safety with a focus on preventing and dealing with spam. They will consider the importance of strong passwords and learn how to create them. Children will build on their knowledge of plagiarism and fair use of people's work by learning how to write citations and references for websites they may use. They will scrutinise photographs that they see online and learn how easy it is to manipulate pictures and present them as reality.</p>	<p>Catch up and classroom discussions</p>	<p>To identify spam emails and what to do with them. I can look at the sender and subject to spot a spam email. I know what to do with spam email. I can take steps to avoid receiving spam.</p>	<p>To write citations for websites I use for research. I can explain why it is important to cite a source. I can cite a website. I can follow a citation to access an online source.</p>	<p>To create strong passwords. I can explain the rules for creating a strong password. I can create a strong password using a set of rules. I can explain why having a strong password is important.</p>	<p>To recognise when, why and how photographs we see online may have been edited. I can recognise changes that have been made to an original photograph. I understand that not everything I see online is true. I can explain how false photographs can make people feel bad about themselves.</p>	<p>To apply online safety rules to real-life scenarios I can explain how to stay safe online. I can give an example of unsafe online behaviour and the possible consequences. I can explain how to apply online safety rules to a given scenario.</p>	<p>To apply online safety rules to real-life scenarios. I can explain how to stay safe online. I can give an example of unsafe online behaviour and the possible consequences. I can explain how to apply online safety rules to a given scenario</p>
Autumn 2	<p>Creating Media – Video production</p> <p>Learners will learn how to create short videos by working in pairs or groups. As they progress through this unit, they will be exposed to topic-based language and develop the skills of capturing, editing, and manipulating video. Learners are guided with step-by-step support to take their idea from conception to completion. At the conclusion of the unit, learners have the opportunity to reflect on and assess their progress in creating a video.</p>	<p>To explain what makes a video effective I can explain that video is a visual media format I can identify features of videos I can compare features in different videos</p>	<p>To use a digital device to record video I can identify and find features on a digital video recording device I can experiment with different camera angles I can make use of a microphone</p>	<p>To capture video using a range of techniques I can suggest filming techniques for a given purpose I can capture video using a range of filming techniques I can review how effective my video is</p>	<p>To create a storyboard I can outline the scenes of my video I can decide which filming techniques I will use I can create and save video content</p>	<p>To identify that video can be improved through reshooting and editing I can store, retrieve, and export my recording to a computer I can explain how to improve a video by reshooting and editing I can select the correct tools to make edits to my video</p>	<p>To consider the impact of the choices made when making and sharing a video I can make edits to my video and improve the final outcome I can recognise that my choices when making a video will impact the quality of the final outcome I can evaluate my video and share my opinions</p>	
Spring 1	<p>Programming A – Selection in physical programming</p> <p>In this unit, learners will use physical computing to explore the concept of selection in programming through the use of the Microbit programming environment. Learners will be introduced to a microcontroller and learn how to connect and program it to control components (including output devices — LEDs and motors). Learners will be introduced to conditions as a means of controlling the flow of actions in a program. Learners will make use of their knowledge of repetition and conditions when introduced to the concept of selection (through the 'if...then...' structure) and write algorithms and programs that utilise this concept. To conclude the unit, learners will design and make a working model of a fairground carousel that will demonstrate their understanding of how the microcontroller and its components are connected, and how selection can be used to control the operation of the model. Throughout this unit, learners will apply the stages of programming design.</p>	<p>To control a simple circuit connected to a computer I can create a simple circuit and connect it to a microcontroller I can program a microcontroller to make an LED switch on I can explain what an infinite loop does</p>	<p>To write a program that includes count-controlled loops I can connect more than one output component to a microcontroller I can use a count-controlled loop to control outputs I can design sequences that use count-controlled loops</p>	<p>To explain that a loop can stop when a condition is met I can explain that a condition is either true or false I can design a conditional loop I can program a microcontroller to respond to an input</p>	<p>To explain that a loop can be used to repeatedly check whether a condition has been met I can explain that a condition being met can start an action I can identify a condition and an action in my project I can use selection (an 'if...then...' statement) to direct the flow of a program</p>	<p>To design a physical project that includes selection I can identify a real-world example of a condition starting an action I can describe what my project will do I can create a detailed drawing of my project</p>	<p>To create a program that controls a physical computing project I can write an algorithm that describes what my model will do I can use selection to produce an intended outcome I can test and debug my project</p>	

<p><b>Spring 2</b></p>	<p>Data and information – Flat-file databases This unit looks at how a flat-file database can be used to organise data in records. Learners will use tools within a database to order and answer questions about data. They will create graphs and charts from their data to help solve problems. They will also use a real-life database to answer a question, and present their work to others.</p>	<p>To use a form to record information I can create a database using cards I can explain how information can be recorded I can order, sort, and group my data cards</p>	<p>To compare paper and computer-based databases I can explain what a field and a record is in a database I can navigate a flat-file database to compare different views of information I can choose which field to sort data by to answer a given question</p>	<p>To outline how you can answer questions by grouping and then sorting data I can explain that data can be grouped using chosen values I can group information using a database I can combine grouping and sorting to answer specific questions</p>	<p>To explain that tools can be used to select specific data I can choose which field and value are required to answer a given question I can outline how 'AND' and 'OR' can be used to refine data selection I can choose multiple criteria to answer a given question</p>	<p>To explain that computer programs can be used to compare data visually I can select an appropriate chart to visually compare data I can refine a chart by selecting a particular filter I can explain the benefits of using a computer to create charts</p>	<p>To use a real-world database to answer questions I can ask questions that will need more than one field to answer I can refine a search in a real-world context I can present my findings to a group</p>	
<p><b>Summer 1</b></p>	<p>Vector Drawing In this unit, learners start to create vector drawings. They learn how to use different drawing tools to help them create images. Learners recognise that images in vector drawings are created using shapes and lines, and each individual element in the drawing is called an object. Learners layer their objects and begin grouping and duplicating them to support the creation of more complex pieces of work.</p>	<p>To identify that drawing tools can be used to produce different outcomes I can recognise that vector drawings are made using shapes I can experiment with the shape and line tools I can discuss how vector drawings are different from paper-based drawings</p>	<p>To create a vector drawing by combining shapes I can identify the shapes used to make a vector drawing I can explain that each element added to a vector drawing is an object I can move, resize, and rotate objects I have duplicated</p>	<p>To use tools to achieve a desired effect I can use the zoom tool to help me add detail to my drawings I can explain how alignment grids and resize handles can be used to improve consistency I can modify objects to create a new image</p>	<p>To recognise that vector drawings consist of layers I can identify that each added object creates a new layer in the drawing I can change the order of layers in a vector drawing I can use layering to create an image</p>	<p>To group objects to make them easier to work with I can copy part of a drawing by duplicating several objects I can recognise when I need to group and ungroup objects I can reuse a group of objects to further develop my vector drawing</p>	<p>To apply what I have learned about vector drawings I can create a vector drawing for a specific purpose I can reflect on the skills I have used and why I have used them I can compare vector drawings to freehand paint drawings</p>	
<p><b>Summer 2</b></p>	<p>Programming B – Random numbers and simulations The children use random numbers to control certain properties in their programs, making things less predictable and more interesting. They will generate random numbers to control the speed of a racing games, make ma caterpillar move in random directions and appear in random places, get a tortoise to cross the read safely with traffic moving at random and set random directions within a specific range to stimulate a ball bouncing. Vocabulary: variable, generate, random, simulate, x-axis, angle, coordinates, degrees, condition, position, value, event, hit, heading, variable, position</p>	<p>Racing at Random I can write code that causes random numbers to simulate the roll of a dice. I can write code that uses random numbers to move cars along the x-axis. I can explain why I have used random numbers and can think of other ways to use them in my code.</p>	<p>Caterpillar Catcher I can write code that uses random numbers to move a caterpillar in random directions. I can write code that uses random numbers to move a caterpillar in random directions. I can design and create a game that uses random numbers and conditions and explain how my program works.</p>	<p>Cross the Road I can write code that uses random numbers to make cars move at random speeds and in different directions. I can write code that uses random numbers to move cars in different directions at random speeds and use hit events to add more randomisation in their headings. I can design and create a game that uses random numbers and conditions and explain my code.</p>	<p>Ping Pong I can write code that uses random numbers to move a ball at a random heading. I can select the right range for my random numbers in order to control; the general direction of the ball in a ping-pong game. I can explain how I have used random numbers in my program and why I have chosen different ranges for particular values.</p>	<p>Pinball I can write code that uses random numbers to make a ball move in a random direction when a button is pressed. I can write code to make the ball bounce back in random directions when it hits the edges of my screen. I can write code to create a pinball game and explain how the game works.</p>	<p>Free code Challenge Create a simulation of a natural environment, showing the creatures that live there. Add some random elements to make the scene more interesting. Underwaters scene with random movement and speeds of sea creatures, or a garden with bugs that change in direction every few seconds or whenever they are clicked on.</p>	

Year 6	Unit of Study	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
Autumn 1	<p>Online Safety</p> <p>In this unit about online safety, children will be taking a more in depth look at a variety of online safety issues, most of which they will have been familiarized with in previous years. They will be introduced to the idea of the internet, as a type of media, and how it can shape our ideas about boys and girls through stereotypes. Children will be given ways to deal with online content that they find worrying or even believe to be dangerous.</p>	<p>Catch up and classroom discussions</p>	<p>I can find similarities and differences between bullying and cyberbullying.</p> <p>I can say what bullying and cyberbullying are.</p> <p>I can identify good strategies to deal with cyberbullying.</p> <p>I can suggest ways in which people could deal with cyberbullying.</p>	<p>I can identify secure websites by identifying privacy seals of approval.</p> <p>I can look in the address bar of a website to check for security</p> <p>I can find a link to a privacy policy.</p> <p>I can identify warning signs that a website might not be secure.</p>	<p>I understand the benefits and pitfalls of online relationships.</p> <p>I can explain what to do if I am asked or told something online which makes me uncomfortable.</p> <p>I can identify information that I should never share.</p> <p>I can explain some of the dangers of revealing personal information to an online friend.</p>	<p>I can identify how the media play a powerful role in shaping ideas about girls and boys.</p> <p>I know what a stereotype is.</p> <p>I can compare gender stereotypes</p> <p>I can identify a gender stereotype in a media message.</p>	<p>I can apply my e-safety knowledge to my online activities.</p> <p>I can identify a situation I should be careful of online.</p> <p>I can choose an appropriate action online to stay safe.</p> <p>I know what the SMART acronym means.</p>	<p>I can use my knowledge of e-safety to create a multiple choice quiz.</p> <p>I can recall what I have learnt about e-safety.</p> <p>I can use my knowledge of e-safety to help teach others.</p>
Autumn 2	<p>Creating Media – Web page creation</p> <p>Learners will be introduced to creating websites for a chosen purpose. Learners identify what makes a good web page and use this information to design and evaluate their own website using Google Sites. Throughout the process, learners pay specific attention to copyright and fair use of media, the aesthetics of the site, and navigation paths.</p>	<p>Discovery Coding introduction to HTML-adding Images, Debugging and test.</p> <p>I can learn how to add images to a web page using HTML.</p> <p>I can understand new vocabulary associated with using HTML, including: images, jpgs, text, headings and paragraphs.</p>	<p>To review an existing website and consider its structure can explore a website</p> <p>I can discuss the different types of media used on websites</p> <p>I know that websites are written in HTML</p>	<p>To plan the features of a web page</p> <p>I can recognise the common features of a web page</p> <p>I can suggest media to include on my page</p> <p>I can draw a web page layout that suits my purpose</p>	<p>To consider the ownership and use of images (copyright)</p> <p>I can say why I should use copyright-free images</p> <p>I can find copyright-free images</p> <p>I can describe what is meant by the term 'fair use'</p>	<p>To recognise the need to preview pages</p> <p>I can add content to my own web page</p> <p>I can preview what my web page looks like</p> <p>I can evaluate what my web page looks like on different devices and suggest/make edits.</p>	<p>To outline the need for a navigation path</p> <p>I can explain what a navigation path is</p> <p>I can describe why navigation paths are useful</p> <p>I can make multiple web pages and link them using hyperlinks</p>	<p>To recognise the implications of linking to content owned by other people</p> <p>I can explain the implication of linking to content owned by others</p> <p>I can create hyperlinks to link to other people's work</p> <p>I can evaluate the user experience of a website</p>
Spring 1	<p><b>Programming A – More Complex Variables</b></p> <p>Children will use a variable to store information so that it can be checked later. The variables will be combined with conditional events and will be used to create Boolean expressions. There are like True or False type questions that you ask the computer.</p> <p>Children will use variables to ask the user for an input and create an interactive graph, combine variable with conditional events to create a game which gets more and more difficult, perform calculations with variables to simulate a toy shop till, and use Boolean expressions to simulate a working stopwatch.</p> <p>Vocabulary: input, variable, property, background, grid, pixel, block, convert, alignment, unit, scale, condition, event, loop, if statement, discount, calculate, total, percentage, Boolean, analogue, digital.</p>	<p>Shape Shifting</p> <p>I can write code that prompts the user for an input.</p> <p>I can write code that promotes the user for an input and uses this to change the properties of an object.</p> <p>I can explain how I have used variables in my code.</p>	<p>Pop challenge</p> <p>I can create a ballon pop game that uses a variable to keep score.</p> <p>I can write code to check the score in my game and combine this with conditional "if statements" inside looping events to make the game harder.</p> <p>I can describe the way I have used variables, loops and conditional events in my code to make the game work.</p>	<p>Toy Shop Till</p> <p>I can write code that sets prices for items and uses a variable to store this data.</p> <p>I can write code to set prices for items and can perform calculations with these variables.</p> <p>I can explain the code that makes the shop till work.</p>	<p>Stopwatch</p> <p>I can create a stopwatch that counts seconds and records minutes every 60 seconds.</p> <p>I can add stop, start and reset buttons to my stopwatch.</p> <p>I can explain how the code for my stopwatch works, including both analogue and digital displays.</p>	<p>Debugging Variable</p> <p>I can use my coding knowledge to fix mistakes in a variety of programs.</p>		

<p><b>Spring 2</b></p>	<p>Data and Information - Introduction to spreadsheets This unit introduces the learners to spreadsheets. They will be supported in organising data into columns and rows to create their own data set. Learners will be taught the importance of formatting data to support calculations, while also being introduced to formulas and will begin to understand how they can be used to produce calculated data. Learners will be taught how to apply formulas that include a range of cells, and apply formulas to multiple cells by duplicating them. Learners will use spreadsheets to plan an event and answer questions. Finally, learners will create charts, and evaluate their results in comparison to questions asked.</p>	<p>To create a data set in a spreadsheet I can collect data I can suggest how to structure my data I can enter data into a spreadsheet</p>	<p>To build a data set in a spreadsheet I can explain what an item of data is I can choose an appropriate format for a cell I can apply an appropriate format to a cell</p>	<p>To explain that formulas can be used to produce calculated data I can explain which data types can be used in calculations I can construct a formula in a spreadsheet I can identify that changing inputs changes outputs</p>	<p>To apply formulas to data I can calculate data using different operations I can create a formula which includes a range of cells I can apply a formula to multiple cells by duplicating it</p>	<p>To create a spreadsheet to plan an event I can use a spreadsheet to answer questions I can explain why data should be organised I can apply a formula to calculate the data I need to answer questions</p>	<p>To choose suitable ways to present data I can produce a chart I can use a chart to show the answer to a question I can suggest when to use a table or chart</p>	
<p><b>Summer 1</b></p>	<p>3D Modelling Learners will develop their knowledge and understanding of using a computer to produce 3D models. Learners will initially familiarise themselves with working in a 3D space, moving, resizing, and duplicating objects. They will then create hollow objects using placeholders and combine multiple objects to create a model of a desk tidy. Finally, learners will examine the benefits of grouping and ungrouping 3D objects, then go on to plan, develop, and evaluate their own 3D model of a building.</p>	<p>To recognise that you can work in three dimensions on a computer I can add 3D shapes to a project I can view 3D shapes from different perspectives I can move 3D shapes relative to one another</p>	<p>To identify that digital 3D objects can be modified I can resize an object in three dimensions I can lift/lower 3D objects I can recolour a 3D object</p>	<p>To recognise that objects can be combined in a 3D model I can rotate objects in three dimensions I can duplicate 3D objects I can group 3D objects</p>	<p>To create a 3D model for a given purpose I can accurately size 3D objects I can show that placeholders can create holes in 3D objects I can combine a number of 3D objects</p>	<p>To plan my own 3D model I can analyse a 3D model I can choose objects to use in a 3D model I can combine objects in a design</p>	<p>To create my own digital 3D model I can construct a 3D model based on a design I can explain how my 3D model could be improved I can modify my 3D model to improve it</p>	
<p><b>Summer 2</b></p>	<p>Programming B – Sensing Movement This unit is the final KS2 programming unit and brings together elements of all the four programming constructs: sequence from Year 3, repetition from Year 4, selection from Year 5, and variables (introduced in Year 6 – ‘Programming A’. It offers pupils the opportunity to use all of these constructs in a different, but still familiar environment, while also utilising a physical device — the micro:bit. The unit begins with a simple program for pupils to build in and test within the new programming environment, before transferring it to their micro:bit. Pupils then take on three new projects in Lessons 2, 3, and 4, with each lesson adding more depth.</p>	<p>To create a program to run on a controllable device I can apply my knowledge of programming to a new environment I can test my program on an emulator I can transfer my program to a controllable device</p>	<p>To explain that selection can control the flow of a program I can identify examples of conditions in the real world I can use a variable in an if, then, else statement to select the flow of a program I can determine the flow of a program using selection</p>	<p>To update a variable with a user input I can use a condition to change a variable I can experiment with different physical inputs I can explain that checking a variable doesn't change its value</p>	<p>To use a conditional statement to compare a variable to a value I can use an operand (e.g. &lt;=&gt;) in an if, then statement I can explain the importance of the order of conditions in else, if statements I can modify a program to achieve a different outcome</p>	<p>To design a project that uses inputs and outputs on a controllable device I can decide what variables to include in a project I can design the algorithm for my project I can design the program flow for my project</p>	<p>To develop a program to use inputs and outputs on a controllable device I can create a program based on my design I can test my program against my design I can use a range of approaches to find and fix bugs</p>	