Computing Curriculum
Year 1 and 2 – Cycle A

Purpose of study

A high-quality computing education 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.

Aims

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

♣ can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation

♣ can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems

♣ can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems

♣ are responsible, competent, confident and creative users of information and communication technology.

EYFS

There are no statutory requirements to use and learn about technology in EYFS. However, at Caythorpe we believe technology can play a role in supporting early communication, language and literacy. It can offer new learning opportunities through ebooks, digital cameras, programmable toys, apps, computers with appropriate software, iPads and video calling. Thus, by the end of the year the pupils at Caythorpe have a range of technologies available to them within the nursery's continuous provision which they can choose to use whenever they wish to for their own purposes. Whilst children are developing their understanding of these technologies, practitioners should be drawing their attention to the technology that's being used in the world around them, from mobile phones to pedestrian crossings. Practitioners should also provide a positive role model by showing children that adults use technology for their own purposes and by talking to the children about the value they place on this use. In this way children will see technology used for real purposes and will develop the understanding that technologies are tools to be used when they're needed and that they're not used just for the sake of it. They will develop a positive disposition towards technology and a motivation to use it both now and in the future.

Attainment targets

By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study. Schools are not required by law to teach the example content in [square brackets].

Key stage 1 Pupils should be taught to:

♣ understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions

♣ create and debug simple programs

♣ use logical reasoning to predict the behaviour of simple programs

♣ use technology purposefully to create, organise, store, manipulate and retrieve digital content

♣ recognise common uses of information technology beyond school

♣ use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.

Key stage 2 Pupils should be taught to:

♣ design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts

♣ use sequence, selection, and repetition in programs; work with variables and various forms of input and output

♣ use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs

♣ understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration

♣ use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content

♣ select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information

♣ use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

	Autumn	Spring	Summer

	Non- Negotiables C8: Participate in class social media accounts, C9: Understand online risks and the age rules for sites., C10: Use a range of applications and devices in order to communicate ideas, work and messages.					
		C4 Control when drawings appear and set the pen colour, size and shape		C11: Use simple databases to record information in areas across the curriculum.	C1: Control motion by specifying the number of steps to travel, direction and turn. C5 Specify user inputs (such as dicks) to control events.	C1: Control motion by specifying the number of steps to travel, direction and turn. C6: Specify the nature of events (such as a single event or a loop).
Topic	Y1 Systems-and-networks-technology-around-us Y2 – Information Technology/networks	Creating Media – Digital Painting	Creating Media – Digital Writing	Data and Information – Grouping data	Programming A – Programming a Robot	Programming B – Introduction to Animation
Resources	Laptops, iPads, paint program	Laptops, suitable app	Laptops, suitable app	Laptops, suitable app	Bee-bots, bee-bot mats,	ScratchJnr, Beebots,
Vocabulary	Technology, computer, mouse, screen, keyboard, information technology, devices, app, program, click, drag, button, bar code, bank card,	Media, freehand, tools,	Text, delete, keys, back space, enter/return,	Data,	Command, robot, button, memory, program, direct, forwards, backwards, left, right, repeat,	Block, algorithm, sprite, start, run, join, background, program
Lesson 1	**Year 1:** To identify technology and safety **Year 2:** To recognise the uses and features of information technology **Activities:** Learners will become familiar with the term 'technology'. They will classify what is and what is not technology in their school and/or classroom. Learners will demonstrate their understanding of how technology helps us in different ways. **Y2s** identify devices which are computers and consider how IT can help us both at school and at home. **Outcomes:** **Year 1:** I can explain technology as something that helps us I can locate examples of technology in the classroom I can explain how these technology examples help us **Year 2:** I can identify examples of computers I can describe some uses of computers I can identify that a computer is a part of information technology	**Year 1/2** To describe what different freehand tools do **Activities:** This lesson introduces learners to the freehand tools available for digital painting. **Outcomes:** **Year 1:**I can make marks on a screen and explain which tools I used I can draw lines on a screen and explain which tools I used I can use the paint tools to draw a picture **Year 2:** I can draw lines on a screen and explain which tools I used I can use the paint tools to draw a picture	**Year 1/2** To use a computer to write **Activities:** This is the first lesson in which Year 1 learners will experience using a computer to create and manipulate text. It is important that they know how to log on and follow the rules that keep them safe. In this lesson, the learners will familiarise themselves with a word processor and think about how they might use this application in the future. The learners will also be identifying and finding keys, before adding text to their page by pressing keys on a keyboard. **Note:** If this lesson is the first time that the learners will be logging in to the computer, additional support/time may be required to facilitate this step. **Outcomes:** **Year 1:** I can open a word processor I can recognise keys on a keyboard I can identify and find keys on a keyboard **Year 2:** I can recognise keys on a keyboard I can identify and find keys on a keyboard	**Year 1/2** To label objects **Activities:** In this lesson, pupils will begin to understand that objects have many different labels that can be used to put them into groups. They will name different objects and begin to experiment with placing them into different groups. Pupils will also label a group of objects, and begin to understand that an object can fit into more than one group depending on the context. **Outcomes:** **Year 1:** I can describe objects using labels I can match objects to groups I can identify the label for a group of objects **Year 2:** I can match objects to groups I can identify the label for a group of objects	**Year 1/2** To explain what a given command will do **Activities:** This lesson introduces the learners to floor robots. Learners will talk about what the buttons might do and then try the buttons out. Time will be spent linking an outcome to a button press. Learners will consider the direction command buttons, as well as buttons to clear memory and run programs. **Outcomes:** **Year 1:** I can predict the outcome of a command on a device I can match a command to an outcome I can run a command on a device **Year 2:** I can match a command to an outcome I can run a command on a device	**Year 1/2**To choose a command for a given purpose **Activities:** During this lesson learners will become accustomed to the ScratchJr programming environment. They will discover that they can move characters on-screen using commands, and compare ScratchJr to the Bee-Bots used in the previous unit. **Outcomes:** **Year 1:** I can find the commands to move a sprite I can use commands to move a sprite I can compare different programming tools **Year 2:** I can use commands to move a sprite I can compare different programming tools
Lesson 2	**Year 1:** To identify a computer and its main parts **Year 2:** To identify information technology in the home	**Year 1/2** To use the shape tool and the line tools **Activities:** This lesson introduces learners to the line and shape tools and revisits the fill and undo tools used for	**Year 1/2** To add and remove text on a computer **Activities:** In this lesson, learners will continue to familiarise themselves with word processors and how they can	**Year 1/2** To identify that objects can be counted **Activities:** In this lesson, pupils will begin to think about grouping objects based on what the objects are. They will	**Year 1:** To act out a given word **Year 2:**To act out a given instruction **Activities:** **Outcomes:** During this lesson, learners will think about the language used to give directions and	**Year 1/2** To show that a series of commands can be joined together **Activities:** During this lesson learners will discover that blocks can be joined together in ScratchJr. They will

	Activities: Learners will get to know the main parts of a desktop or laptop computer. They will practise turning on and logging in to a computer. The learners will apply their knowledge of the different parts of a computer, to complete a mouse-based task. Y2 - consider common uses of information technology in a context that they are familiar with beyond school. **Outcomes:** **Year 1:** I can name the main parts of a computer I can switch on and log into a computer I can use a mouse to click and drag **Year 2:** I can explain the purpose of information technology in the home I can open a file I can move and resize images	digital painting. Learners create their own digital painting in the style of an artist. **Outcomes:** **Year 1:** I can make marks with the square and line tools I can use the shape and line tools effectively I can use the shape and line tools to create a picture **Year 2:** I can use the shape and line tools effectively I can use the shape and line tools to recreate the work of an artist	interact with the computer using a keyboard. The learners will focus on adding text and will explore more of the keys found on a keyboard. Finally, they will begin to use the backspace button to remove text from the computer. **Note:** This lesson and subsequent lessons could be linked to a topic that the learners are currently learning about other curriculum areas. The 'lost toy' could be replaced with a character from their current topic of work. **Outcomes:** **Year 1:** I can enter text into a computer I can use letter, number, and space keys **Year 2:** I can enter text into a computer I can use letter, number, and space keys I can use backspace to remove text	demonstrate the ability to count a small number of objects before they group them, and will then begin to show that they can count groups of objects with the same property. Pupils will also begin to learn that computers are not intelligent and require input from humans to perform tasks. **Outcomes:** **Year 1:** I can count objects. I can group objects I can count a group of objects **Year 2:** I can group objects I can count a group of objects	how precise it needs to be. Learners will also work with a partner, giving and following instructions. This real-world activity should, at suitable points during this lesson, be related to the floor robot that was introduced in the last lesson. **Year 1:** I can follow an instruction I can recall words that can be acted out I can give directions **Year 2:** I can follow more than one instruction I can recall words that can be acted out I can give clear directions	use a **Start** block to run their programs. They will also learn additional skills such as adding backgrounds and deleting sprites. Learners will follow given algorithms to create simple programs. **Outcomes:** **Year 1:** I can use more than one block by joining them together I can use a **Start** block in a program I can run my program **Year 2:** I can use more than one block by joining them together I can use a **Start** block in a program I can run my program
Lesson 3	**Year 1:** To use a mouse in different ways **Year 2:** To identify information technology beyond school **Activities:** Learners will be building on the mouse skills they were introduced to in Lesson 2. Learners will review images of a computer to explain what each part does. They will develop an understanding that different computers use different mice, but they perform the same function. They will use the mouse to open a program and create a simple picture. **Outcomes:** **Year 1:** I can use a mouse to open a program I can click and drag to make objects on a screen I can use a mouse to create a picture **Year 2:** I can find examples of information technology I can talk about uses of information technology I can compare types of information technology	**Year 1:** To make careful choices when painting a digital picture **Year 2:** To make and explain careful choices when painting a digital picture **Activities:** This lesson introduces learners to a range of shape tools, allowing them to create a painting in the style of an artist. **Outcomes:** **Year 1:** I can choose appropriate shapes I can make appropriate colour choices I can create a picture **Year 2:** I can choose appropriate shapes I can make appropriate colour choices I can create a picture in the style of an artist	**Year 1/2** To identify that the look of text can be changed on a computer **Activities:** In this lesson, learners will begin to explore the different tools that can be used in word processors to change the look of the text. Learners will use the Caps Lock key to add capital letters to their writing and will begin thinking about how to use this successfully. The learners will match simple descriptions with the key that they relate to. Finally, learners will begin exploring the different buttons available on the toolbar in more detail, and use these to change their own text. **Outcomes:** **Year 1:**I can type capital letters I can explain what the keys that I have learnt about already do I can identify the toolbar and use bold, italic, or underline **Year 2:** I can type capital letters I can explain what the keys that I have learnt about already do I can identify the toolbar and use bold, italic, and underline	**Year 1/2** To describe objects in different ways **Activities:** In this lesson, pupils will begin to understand that objects can be described in many different ways. They will identify the properties of objects and begin to understand that properties can be used to group objects; for example, objects can be grouped by colour or size. Finally, pupils will demonstrate their ability to find objects with similar properties and begin to understand the reason that we need to give labels to images on a computer. **Outcomes:** **Year 1:** I can describe an object I can describe a property of an object **Year 2:** I can describe an object I can describe a property of an object I can find objects with similar properties	**Year 1/2** To combine forwards and backwards commands to make a sequence **Activities:** In this lesson, learners will focus on programming the floor robot to move forwards and backwards. They will see that the robot moves forwards and backwards a fixed distance. This highlights the idea that robots follow a clear (fixed) command in a precise and repeatable way. Learners will think about starting the robot from the same place each time. Using the same start position with fixed commands will allow learners to predict what a program will do. **Note**: This lesson focuses specifically on forwards and backwards movement only. This is to ensure that learners are developing a depth of knowledge in the concepts surrounding programming, as well as increasing their ability to make the robot move. The success criteria chosen highlight this and ensure that the learners' knowledge builds in a suitably paced way. **Outcomes:** **Year 1:** I can compare forwards and backwards movements I can start a sequence from the same place **Year 2:** I can compare forwards and backwards movements I can start a sequence from the same place I can predict the outcome of a sequence involving forwards and backwards commands	**Year 1/2** To identify the effect of changing a value **Activities:** During this lesson learners will discover that some blocks in ScratchJr have numbers underneath them. They will learn how to change these values and identify the effect on a block of changing a value. **Outcomes:** **Year 1:** I can find blocks that have numbers I can change the value **Year 2:** I can find blocks that have numbers I can change the value I can say what happens when I change a value
Lesson 4	**Year 1:** To use a keyboard to type on a computer **Year 2:** To explain how information technology benefits us	**Year 1/2** To explain why I chose the tools I used **Activities:** This lesson increases learners' understanding of the available paint tools and encourages them to select the	**Year 1/2** To make careful choices when changing text **Activities:** In this lesson, learners will begin to understand when it is best to change the look of their text and which	**Year 1/2** To count objects with the same properties **Activities:** In this lesson, pupils will classify objects based on their properties. They will group objects that	**Year 1:** To combine four direction commands to make sequences **Year 2:** To combine four or more direction commands to make sequences **Activities:** In this lesson, learners will use left and right turn commands along with	**Year 1/2** To explain that each sprite has its own instructions **Activities:** During this lesson learners will be taught how to add and delete sprites in ScratchJr. They will discover

	Activities: Learners will begin to use the computer keyboard for a purpose. They should understand that writing on a keyboard is called typing and will begin to demonstrate their ability to write their name. Learners will then save their work using the save icon and understand that this icon is used in lots of different programs. Y2 focus on the specific use of IT in a shop. **Outcomes:** **Year 1:** I can say what a keyboard is for I can type my name on a computer I can save my work to a file **Year 2:** I can demonstrate how information technology is used in a shop I can recognise that information technology can be connected I can explain how information technology helps people	best tools to create a digital painting in the style of Wassily Kandinsky. **Outcomes:** **Year 1:** I know that different paint tools do different jobs I can choose appropriate paint tools and colours to recreate the work of an artist I can say which tools were helpful **Year 2:** I know that different paint tools do different jobs I can choose appropriate paint tools and colours to recreate the work of an artist I can say which tools were helpful and why	tool will achieve the most appropriate outcome. The learners will begin to use their mouse cursor to select text to enable them to make more efficient changes. They will explore the different fonts available to them and change the font for their lost toy poster. **Outcomes:** **Year 1:** I can select a word by double-clicking I can select all of the text by clicking and dragging I can change the font **Year 2:** I can select a word by double-clicking I can select all of the text by clicking and dragging I can change the font and explain my choices	have similar properties, and will be able to explain how they have grouped these. Pupils will begin to group a number of the same objects in different ways, and will demonstrate their ability to count these different groups. **Outcomes:** **Year 1:** I can group similar objects I can group objects in more than one way I can count how many objects share a property **Year 2:** I can group similar objects I can group objects in more than one way I can count how many objects share a property	forwards and backwards commands. Doing this will allow learners to develop slightly more complex programs. Learners will create their programs in this lesson through trial and error before moving onto planning out their programs in the next lesson. In the last activity, learners will predict where given programs will move the robot. Learners will make their predictions by 'stepping through' the commands and matching the program steps to movements. **Outcomes:** **Year 1:** I can compare left and right turns I can experiment with turn and move commands to move a robot I can predict the outcome of a sequence involving up to four commands **Year 2:** I can compare left and right turns I can experiment with turn and move commands to move a robot I can predict the outcome of a sequence involving four or more commands	that each sprite has its own programming area, and learn how to add programming blocks to give instructions to each of the sprites. **Outcomes:** **Year 1:** I can show that a project can include more than one sprite I can delete a sprite I can add blocks to each of my sprites **Year 2:** I can show that a project can include more than one sprite I can delete a sprite I can add blocks to each of my sprites
Lesson 5	**Year 1:** To use the keyboard to edit text **Year 2:** To show how to use information technology safely **Activities:** Learners will begin by opening a file they have previously created. They will demonstrate their ability to use a keyboard to edit text, by writing a sentence and then deleting letters. They will also use the keyboard arrow keys to move the text cursor in their textbox. Y2 - learners will consider how they use different forms of information technology safely, in a range of different environments. **Outcomes:** **Year 1:** I can open my work from a file I can use the arrow keys to move the cursor I can delete letters **Year 2:** I can list different uses of information technology I can recognise how to use information technology responsibly I can say how those rules/guides can help me	**Year 1/2** To use a computer on my own to paint a picture **Activities:** Learners select appropriate colours, brush sizes, and brush tools to independently create their own image in the style of an artist. **Outcomes:** **Year 1:** I can make dots of colour on the page I can change the colour and brush sizes I can use dots of colour to create a picture in the style of an artist on my own **Year 2:** I can make dots of colour on the page I can change the colour and brush sizes I can use dots of colour to create a picture in the style of an artist on my own and explain my choices of tools used	**Year 1/2** To explain why I used the tools that I chose **Activities:** In this lesson, learners will begin to justify their use of certain tools when changing text. The learners will decide whether the changes that they have made have improved their writing and will begin to use 'undo' to remove changes. They will begin to consolidate their ability to select text using the cursor, through double-clicking and clicking and dragging. The learners will be able to explain what tool from the toolbar they have used to change their writing. **Outcomes:** **Year 1:** I can say what tool I used to change the text I can decide if my changes have improved my writing **Year 2:** I can say what tool I used to change the text I can decide if my changes have improved my writing I can use 'undo' to remove changes	**Year 1:** To compare groups of objects **Year 2:** To compare and describe a group of objects **Activities:** In this lesson, pupils will choose how they want to group different objects by properties. They will begin to compare and describe groups of objects, then they will record the number of objects in each group. **Outcomes:** **Year 1:** I can choose how to group objects I can describe groups of objects I can record how many objects are in a group **Year 2:** I can choose how to group objects I can describe groups of objects I can record how many objects are in a group	**Year 1:** To plan a simple program **Year 2:** To plan a program **Activities:** In this lesson, learners will decide what their program will do. They will then create their program and test it on the robot. Where needed, learners will also debug their programs. **Outcomes:** **Year 1:** I can explain what my program should do I can choose the order of commands in a sequence **Year 2:** I can explain what my program should do I can choose the order of commands in a sequence I can debug my program	**Year 1/2** To design the parts of a project **Activities:** During this lesson learners will choose appropriate backgrounds and sprites for a 'Space race' project. They will decide how each sprite will move, and create an algorithm based on the blocks available in ScratchJr that reflects this. **Outcomes:** **Year 1:** I can choose appropriate artwork for my project I can decide how each sprite will move **Year 2:** I can choose appropriate artwork for my project I can decide how each sprite will move I can create an algorithm for each sprite
Lesson 6	**Year 1:** To create rules for using technology responsibly **Year 2:** To recognise that choices are made when using information technology **Activities:** Learners will be introduced to the concept of using computers safely, within the context of a school setting. They will explore	**Year 1/2** To compare painting a picture on a computer and on paper **Activities:** Learners compare their preferences when creating paintings on computers and on paper. **Outcomes:** **Year 1:**I can explain that pictures can be	**Year 1/2** To compare writing on a computer with writing on paper **Activities:** In this lesson, learners will make comparisons between using a computer for writing and writing on paper. The learners will discuss how the two methods are the same and different,	**Year 1/2** To answer questions about groups of objects **Activities:** In this lesson, pupils will decide how to group objects to answer questions. They will compare their groups by thinking about how they are similar or different, and they will record	**Year 1/2** To find more than one solution to a problem **Activities:** **Outcomes:** **Year 1:** I can identify several possible solutions I can plan two programs	**Year 1:** To use my algorithm to create a program **Year 2:** **Activities:** During this lesson learners will use their project designs from the previous lesson to create their projects on-screen in ScratchJr. They will use their project design, including

	why we have rules in school and how those rules help us, and then apply this understanding to rules needed for using computer technology safely. **Outcomes:** **Year 1:** I can identify rules to keep us safe and healthy when we are using technology in and beyond the home I can give examples of some of these rules I can discuss how we benefit from these rules **Year 2:** I can identify the choices that I make when using information technology I can explain simple guidance for using information technology in different environments and settings I can enjoy a variety of activities	made in lots of different ways I can spot the differences between painting on a computer and on paper I can say whether I prefer painting using a computer or using paper **Year 2:** I can explain that pictures can be made in lots of different ways I can spot and explain the differences between painting on a computer and on paper I can say whether I prefer painting using a computer or using paper giving reasons	and think of examples to explain this. They will demonstrate making changes to writing using a computer to compare the two methods. Finally, the learners will begin to explain which they liked best, and think about which method would be the best method to use in different situations. **Outcomes:** **Year 1:** I can write a message on a computer and on paper I can compare using a computer with using a pencil and paper I can say which method I like best **Year 2:** I can write a message on a computer and on paper I can compare using a computer with using a pencil and paper I can say which method I like best giving reasons for my choices	what they find. They will then share what they have found with their peers. **Outcomes:** **Year 1:** I can decide how to group objects to answer a question I can compare groups of objects I can record and share what I have found **Year 2::** I can decide how to group objects to answer a question I can compare groups of objects I can record and explain what I have found	I can use two different programs to get to the same place **Year 2:** I can identify several possible solutions I can plan two programs I can use two different programs to get to the same place	algorithms created in the previous lesson, to make programs for each of their rocket sprites. They will test whether their algorithms are effective when their programs are run. **Outcomes:** **Year 1:** I can use sprites that match my design I can add programming blocks based on my algorithm **Year 2:** I can use sprites that match my design I can add programming blocks based on my algorithm I can test the programs I have created

	Technology Around Us	**Creating Media – Digital Painting**	**Creating Media – Digital writing**	**Data Information – Grouping Data**	**Programming A – Moving a Robot**	**Programming B -**
Progression	As this is a Year 1 unit, no prior knowledge is assumed. This unit progresses students' knowledge and understanding of technology and how they interact with it in school. Learners will build their knowledge of parts of a computer and develop the basic skills needed to effectively use a computer keyboard and mouse. Y2 - Learners should have an understanding of what technology is and where it is used in a school context. They should also be familiar with the technology available in their own school setting. Y2 - This unit progresses students' knowledge and understanding of technology and how they interact with it beyond school. Learners will also build on their knowledge of using technology safely and responsibly, and begin to consider the implications of the choices that they make.	Learners should be familiar with: How to switch their device on Usernames Passwords For an introduction to keyboard and mouse skills, learners may benefit from completing the Year 1 Computing Systems & Networks unit prior to this unit.	This unit progresses students' knowledge and understanding of using computers to create and manipulate digital content, focussing on using a word processor. The learners will develop their ability to find and use the keys on a keyboard in order to create digital content. The learners are then introduced to manipulating the resulting text, making cosmetic changes, and justifying their reason for making these changes.		This unit progresses students' knowledge and understanding of giving and following instructions. It moves from giving instructions to each other to giving instructions to a robot by programming it.	This unit progresses learners' knowledge and understanding of programming and follows on from 'Programming A – Moving a robot', where children will have learned to program a floor robot using instructions.

Curricular Links	Y1 - 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. Education for a Connected World links **Health, well-being and lifestyle** I can identify rules that help keep us safe and healthy in and beyond the home when using technology I can give some simple examples **Copyright and ownership** I know that the work I create belongs to me I can name my work so that others know it belongs to me Y2 – As above – Use technology purposefully to create, organise, store, manipulate and retrieve digital content	**KS1 Computing** Use technology purposefully to create, organise, store, manipulate, and retrieve digital content **KS1 Art and Design** Pupils should be taught: To develop a wide range of art and design techniques in using colour, pattern, texture, line, shape, form, and space About the work of a range of artists, craft makers, and designers, describing the differences and similarities between different practices and disciplines and making links to their own work	Use technology purposefully to create, organise, store, manipulate and retrieve digital content Use technology safely and respectfully, keeping personal information private Education for a Connected World links **Privacy and security** I can give reasons why I should only share information with people I choose to and can trust. (Y1)	Use technology purposefully to create, organise, store, manipulate and retrieve digital content Use technology safely and respectfully Education for a Connected World links **Copyright and ownership** I know that work I create belongs to me (Y1) I can name my work so that others know it belongs to me (Y1)	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	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

Assessment	Assessment opportunities are detailed in each lesson plan. The learning objective and success criteria are introduced in the slide deck at the beginning of each lesson and then reviewed at the end. Learners are invited to assess how well they feel they have met the learning objective using thumbs up, thumbs sideways, or thumbs down.	Assessment opportunities are detailed in each lesson plan. The learning objectives and success criteria are introduced in the slide deck at the beginning of each lesson and then reviewed at the end. Learners are invited to assess how well they feel they have met the learning objective using thumbs up, thumbs sideways. or thumbs down.	Assessment opportunities are detailed in each lesson plan. The learning objective and success criteria are introduced in the slide deck at the beginning of each lesson and then reviewed at the end. Learners are invited to assess how well they feel they have met the learning objective using thumbs up, thumbs sideways, or thumbs down.	Assessment opportunities are detailed in each lesson plan. The learning objective and success criteria are introduced in the slide deck at the beginning of each lesson and then reviewed at the end. Pupils are invited to assess how well they feel they have met the learning objective using thumbs up, thumbs sideways, or thumbs down.	Assessment opportunities are detailed in each lesson plan. The learning objective and success criteria are introduced in the slide deck at the beginning of each lesson and then reviewed at the end. Learners are invited to assess how well they feel they have met the learning objective using thumbs up, thumbs sideways, or thumbs down.	Assessment opportunities are detailed in each lesson plan. The learning objective and success criteria are introduced in the slide deck at the beginning of each lesson and then reviewed at the end. Learners are invited to assess how well they feel they have met the learning objective using thumbs up, thumbs sideways, or thumbs down.

Subject Knowledge	Teachers need to know that the definition of technology is something that has been made with a specific purpose to help other people. Teachers should familiarise themselves with objects which are and are not examples of technology. Teachers will need to be aware that typing is the process of using a keyboard to write words, letters or numbers on a screen Y2 **Lesson 1:** You should have a clear understanding of devices which can be described as information technology (IT). For younger learners, IT can be seen as computers, devices with computers inside, or things made to work with computers. **Lesson 2:** You should have a clear understanding of devices which can be described as IT. For younger learners, IT can be seen as computers, devices with computers inside, or things made to work with computers. **Lesson 3:** You will need to understand where technology can be found in shops and how it can be used. You should also know which devices can work together, for example: Barcode, barcode scanner, till Bank card, chip and PIN card reader, till Traffic light, crossing button, crossing signal **Lesson 4:** You can find some useful information and a short video about barcodes at www.waspbarcode.com/buzz/barcode **Lesson 5:** You should know your school's rules regarding the safe use of technology and be familiar with Education for a Connected World. **Lesson 6:** You will need to be familiar with the Digital 5 a Day: www.childrenscommissioner.gov.uk/our-work/digital/5-a-day **Enhance your subject knowledge to teach this unit through the following training opportunities:** **Online training courses** Raspberry Pi online training courses **Face-to-face courses** NCCE face-to-face training courses	Before teaching this unit, you should ensure you are familiar with the following: Lesson 1: The freehand painting tools in Microsoft Paint or the online app Paintz (paintz.app), or another appropriate digital painting program Lesson 2: The style of Piet Mondrian (or another appropriate artist); primary colours; and the line, shape, fill, and undo tools in the digital painting program you've chosen Lesson 3: The style of Henri Matisse (or another appropriate artist); the shape, fill, and undo tools in the digital painting program you've chosen Lesson 4: The following painting tools in the digital painting program: paintbrush, pencil, fill, erase, undo, shape, and brush styles (e.g. spray can) if available Lesson 5: The following painting tools in the digital painting program: paintbrush, undo, brush sizes, and brush styles if available Lesson 6: The following painting tools in the digital painting program: paintbrush, pencil, fill tool, eraser, undo, shape tool, and brush styles if available Enhance your subject knowledge to teach this unit through the following free training opportunities: **Online training courses** Raspberry Pi online training courses **Face-to-face courses** NCCE face-to-face training courses	**All lessons:** You will need to be familiar with the word processing software used in your school (Google Docs, Microsoft Word, or other) and the layout of the computer keyboard. **Lesson 2:** You will also need to be familiar with the vocabulary used when talking about adding and removing text, including discussing the text cursor. **Lesson 3:** You will also need to be familiar with what a number of the keys on a computer keyboard do. You will also need to be familiar with using the bold, italic, and underline toolbar buttons to format text on a computer. **Lesson 4:** You will also need to be familiar with how to use the 'click and drag' method to select text. You will also need to be familiar with changing the font. **Lesson 5:** You will also need to be familiar with what each toolbar button changes in the text. Enhance your subject knowledge to teach this unit through the following training opportunities: **Online training courses** Raspberry Pi Foundation online training courses **Face-to-face courses** National Centre for Computing Education face-to-face training courses	You will need to be aware that labelling, grouping, and searching are important aspects of data and information. Searching is a common operation in many applications, and requires an understanding that to search data, it must have labels. This unit of work focuses on assigning data (images) with different labels in order to demonstrate how computers are able to group and present data. You will also need to be familiar with the term 'property'. A property is used to describe an object. For example, a ball will have a colour, which might be red; 'colour' is the property name, and 'red' is a specific property of the ball. Pupils will be introduced to the term 'attribute' in Year 2 – 'Pictograms'. The terms 'property' and 'attribute' are interchangeable, however, 'property' has been used with younger pupils to make it more accessible. A key concept throughout this unit is the understanding that computers are not intelligent. Though they may seem like they are able to complete tasks autonomously, they are using input from humans, for example, searching for images that have been labelled by a human, or 'counting' data that has been grouped by humans. Throughout the unit, the term 'object' is used to describe anything that can be labelled with properties, eg animals, pencils, or trees. When talking about objects, they are named to make it easier for humans to know what other humans are talking about, eg 'tree'. The name may change depending on context (sometimes 'tree' is enough, but sometimes 'oak tree' may be required), but it is always a property that an object can be labelled with. A label is a property used to describe an object, eg 'green'. This is the data that is collected about the object. You will also need to be aware that a collection of data is called a 'data set'. Enhance your subject knowledge to teach this unit through the following training opportunities: **Online training courses** Raspberry Pi Foundation online training courses **Face-to-face courses** National Centre for Computing Education face-to-face training courses	This unit focuses on developing learners' understanding of computer programming. It highlights that algorithms are a set of clear, precise and ordered instructions and that a computer program is the implementation of an algorithm on a digital device. The unit also introduces reading 'code' to predict what a program will do. Learners will engage in aspects of program design, including outlining the project task and creating algorithms. When programming, there are four levels that can help describe a project, known as levels of abstraction. Research suggests that this structure can support learners in understanding how to create a program and how it works: Task – what is needed Design – what it should do Code – how it is done Running the code – what it does Spending time at the task and design levels before engaging in code writing aids learners in assessing the achievability of their programs and reduces a learner's cognitive load during programming. Learners will move between the different levels throughout the unit, and this is highlighted within each lesson plan. **Enhance your subject knowledge to teach this unit through the following training opportunities: Online training courses** Raspberry Pi Foundation online training courses **Face-to-face courses** National Centre for Computing Education face-to-face training courses	The unit focuses on developing learners' understanding of computer programming. It highlights that algorithms are a set of clear, precise, and ordered instructions, and that a computer program is the implementation of an algorithm on a digital device. The unit also introduces reading 'code' to predict what a program will do. Learners will engage in aspects of program design, including outlining the project task and creating algorithms. When programming, there are four levels that can help describe a project, known as levels of abstraction. Research suggests that this structure can support learners in understanding how to create a program and how it works: Task – what is needed Design – what it should do Code – how it is done Running the code – what it does Spending time at the 'task' and 'design' levels before engaging in code writing aids learners in assessing the achievability of their programs, and reduces a learner's cognitive load during programming. Learners will move between the different levels throughout the unit. Enhance your subject knowledge to teach this unit through the following training opportunities: **Online training courses** Raspberry Pi Foundation online training courses **Face-to-face courses** National Centre for Computing Education face-to-face training courses