Computing Curriculum
Year 3 and 4 – Cycle B

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

Intent

At Caythorpe, we use Teach Computing, provided by the NCCE, as the basis of our sequence of learning.

All learning outcomes can be described through a high-level taxonomy of ten strands, ordered alphabetically as follows:

- Algorithms — Be able to comprehend, design, create, and evaluate algorithms
- Computer networks — Understand how networks can be used to retrieve and share information, and how they come with associated risks
- Computer systems — Understand what a computer is, and how its constituent parts function together as a whole
- Creating media — Select and create a range of media including text, images, sounds, and video
- Data and information — Understand how data is stored, organised, and used to represent real-world artefacts and scenarios
- Design and development — Understand the activities involved in planning, creating, and evaluating computing artefacts
- Effective use of tools — Use software tools to support computing work
- Impact of technology — Understand how individuals, systems, and society as a whole interact with computer systems
- Programming — Create software to allow computers to solve problems
- Safety and security — Understand risks when using technology, and how to protect individuals and systems

The taxonomy provides categories and an organised view of content to encapsulate the discipline of computing. Whilst all strands are present at all phases, they are not always taught explicitly.

Due to our mixed year groups, we have adapted the structure of the Teach Computing scheme. The 'Computing Systems and Networks' unit is combined for Year 1/2, Year 3/4, and Year 5/6. This is then repeated in each cycle; it is expected that children will be completely secure in their knowledge by the end of each phase. This approach allows all children in the class to learn the key knowledge which underpins all the other units. Some of the units have been reordered to ensure that prior knowledge that the children need is taught before moving onto more complex learning. Our use of flashbacks allows children to revisit knowledge regularly so that they can remember key knowledge more effectively and do not forget.

Our pedagogical approach allows children to work collaboratively towards a project-based goal. The sequence of learning is taught through key concepts and vocabulary. In the first instance, children are encouraged to unplug from technology and explore ideas in other familiar real-life contexts before applying this to the new technological context. Children are continually encouraged to work with physical computing to enhance learning. As well as this, they apply knowledge from the arts alongside computing to achieve a goal. In programming our sequence allows children to explore, read and comprehend block based and text base code; leading them to successfully being able to write code.

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.

Vocabulary: By the end of EYFS they will be able to *use the words…*		Outcomes for the end of EYFS: *Children will be able to:*
Tablet Phone Computer Keyboard Keys Touch screen Code/ coding A range of vocabulary linked to appliances such as tills, calculators, etc. Switch Safe Safety Online Internet Danger	Kind Respect Permission Personal information Swipe Technology App games	▪ Children will use and access a range of technology equipment in the learning environment. ▪ For pieces of equipment that the children are expected to use with regularity such as CD player or tablet, children need to be taught how to turn it on and use it as it is intended. ▪ Children will know how to take care of electronic equipment – away from water, not left on the floor et. ▪ Children will know that technology is used throughout the whole of our world and should discuss in class time instances of use such as tills, medical equipment, computers. ▪ Children will be able to verbalise and remember technology that is in their homes and familiar environments. ▪ Role play planning needs to enable pupils to use technology in play activities and observations should assess where they use them and the language and skills they reflect during their self-initiated activities -consider the 'Domestic Role-play' area to have an office, telephone, iPad. ▪ Children will know specific uses for computers. ▪ Children will know how to swipe on a screen and access an app that they a) self -elect b) are directed to select. ▪ Children will know how to access and use independently a range of appropriate apps that support learning in the class. ▪ Children will know that there are some very positive uses of computers however sometimes there are scary things that happen when you are on games or on the internet. ▪ Children will know that you are responsible for being kind to each other when online. ▪ Children will have watched an adult modelling the use of Scratch to do simple coding exercise. ▪ Children will have had experience of directing each other to create a sequence of instructions. ▪ Adults will have taught children to undertake a simple coding procedure on Scratch to do a simple action. ▪ Children need to learn a simple coding sequence and to explain how they completed it

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	
Topic	**Computer Systems and Networks – Connecting Computers and the Internet**	**Creating Media – Desktop Publishing**	**Programming B – Events and Actions**	**Data - Datalogging**	**Creating media – Photo editing**	**Programming B – Repetition in Games**
Progression	This combines the year 3 and year 4 units for 'computer systems and networks' from Teach Computing and the same pieces of procedural and declarative knowledge are taught in both cycles due to the importance of the knowledge: underpinning the rest of the computing curriculum. It is expected that by the end of year 4 all children will know and remember the key knowledge outlined.	This unit progresses learners' knowledge and understanding of using digital devices to combine text and images building on work from the following units; Digital Writing Year 1, Digital painting Year 1, and Digital Photography Year 2.	This unit assumes that learners will have some prior experience of programming. The key stage 1 National Centre for Computing Education units focus on floor robots and ScratchJr,	This unit progresses pupils' knowledge and understanding of data and how it can be collected over time to answer questions. The unit also introduces the idea of automatic data collection.	Learners should have experience of making choices on a tablet/computer. They should be able to navigate within an application. This unit progresses students' skills through editing digital images and considering the impact that editing can have on an image. Learners will also consider how editing can be used appropriately for different scenarios, and create and evaluate 'fake' images, combining all of their new skills.	This unit assumes that learners will have some prior experience of programming. The KS1 NCCE units cover floor robots and ScratchJr, and Scratch has been introduced earlier in the year and in the previous cycle for Year 4
Resources	Internet, Ipads, Laptops	Access to internet, laptops, iPads, Adobe Spark app, or other software such as Canva or Microsoft Publisher	Access to internet, laptops, iPads, Scratch,	Access to internet, laptops, iPads, Data loggers	Access to internet, laptops, paint.net, pixabay.com., www.getpaint.net/doc/latest/index.html	Access to internet, laptops, iPads, Scratch,
Vocabulary	Digital, devices, network, input, process, output (IPO), infrastructure, draw, fill, edit and undo, network switch, server, wireless access point, router, printer/copier Internet, World Wide Web, e-Safety, fake news, website,	Text, images, back space, delete, return, shift	Blocks, program, sprite, algorithm, events, actions	Data points, data logging, sensors, logging intervals, temperature, Celsius, light, lux, sound, decibels,	Image, digital, crop, editing, magic want tool, clone stamp, recolour tool,	Repeat, count-controlled loops,
Flashback	**IT stands for information technology and includes things such as computers, phones, tablets, printers, digital cameras, smart speakers, Beebots or games consoles.** **IT can be used for lots of different purposes and it is important to choose the right pieces of equipment for a particular purpose.** **We should always follow the rules given to use when using IT so that we can keep ourselves and others safe.**	**How to use letter, number and Space keys to input text into a computer.** **That you can use the shift key to change the output of the key press. They will use this to add punctuation such as question marks and exclamation marks.** **The appearance of text can be changed, including the size and font.**	**That an algorithm is a step by step set of instructions to achieve a goal.** **How to program their bee bots using an algorithm.** **How to debug a simple program by breaking it down into smaller chunks and looking at each part separately.**	**Groups of objects can be counted and then be compared with one another to answer questions.** **Data can be presented on a computer in a variety of forms including pictograms, block diagram and tally charts.** **That some data can be shared, and other data cannot. It is important that we ask permission before sharing information about others.**	**Photographs are taken on devices such as digital cameras, phones and tablets, they can be taken in landscape or portrait mode.** **Photographs are affected by the amount and type of light.** **Photos can be edited using a range of tools including cropping and colour filters.**	**How to sequence the movement of multiple sprites at once.** **How to create a sequence of commands to produce a given outcome** **How to use extension block within Scratch.**
Lesson 1	**WALT**: identify the input and output of digital devices. (Y3 L1-L2)	**WALT:** know how text and images convey information **Activities:** In this lesson, learners will become familiar with the terms 'text' and 'images' and understand that text	**WALT:** know how a sprite moves in an existing project **Activities:** In this lesson, learners will investigate how characters can be	**WALT:** explain that data gathered over time can be used to answer questions **Activities:** This lesson will set the scene for the unit of work. Pupils will consider	**WALT:** know digital images can be changed **Activities:** In this lesson, learners will be introduced to the online editor, and changes that can be made to images using a range of tools. They will look at changing the	**WALT:** develop the use of count-controlled loops in a different programming environment **Activities:** In the first lesson, learners look at real-life examples of repetition,

	Activities: Introduce the concepts of input, process, and output. These concepts are fundamental to all digital devices. Develop their knowledge of input, process, and output and apply it to devices and parts of devices that they will be familiar with in their everyday surroundings. Y4 - design a digital device **Children will know:** how to classify input and output devices how to model a simple process design a digital device	and images need to be used carefully to communicate messages clearly. Learners will be able to give advantages and disadvantages of using text, images, or both text and images to communicate messages effectively. **Children will know:** the difference between text and images that text and images can communicate messages clearly the advantages and disadvantages of using text and images	moved using 'events'. They will analyse and improve an existing project, and then apply what they have learned to their own projects. They will then extend their learning to control multiple sprites in the same project. **Children will know:** the relationship between an event and an action which keys to use for actions and explain my choices a way/ways to improve a program	what data can be collected and how it is collected. They will think about data being collected over time. Pupils will also think about questions that can and can't be answered using available data, and reflect on the importance of collecting the right data to answer questions. Later in the unit, pupils will put into practice the ideas that they have thought about in this lesson. **Children will know:** how to choose a data set to answer a given question questions that can be answered using a given data set data that can be gathered over time	composition of images using the 'crop' tool, and evaluate the effect that this can have on an image. **Children will know:** changes that we can make to an image how images can be changed in real life the effect that editing can have on an image	and identify which parts of instructions are repeated. Learners then use Scratch, a block-based programming environment, to create shapes using count-controlled loops. They consider what the different values in each loop signify, then use existing code to modify and create new code, and work on reading code and predicting what the output will be once the code is run. **Children will know:** how to list an everyday task as a set of instructions including repetition how to modify a snippet of code to create a given outcome how to predict the outcome of a snippet of code
Lesson 2	**WALT:** know how digital devices change the way we work and how a computer network can be used to share information. (Y3 L3-4) Activities: learners will apply their learning from lessons 1 by using programs in conjunction with inputs and outputs on a digital device. They will create two pieces of work with the same focus, using digital devices to create one piece of work, and non-digital tools to create the other. (Y4 to be given freedom of which digital tool they will use) Learners will then compare and contrast the two approaches. Learners will also be introduced to the concept of connections and moving information between connected devices. Learners will learn to explain how and why computers are joined together to form networks. **Children will know:** the similarities and differences between using digital and non-digital tools.	**WALT:** know how to edit text and layout **Activities:** This lesson will build on last week's lesson, in which we looked at using images and text to communicate a message effectively. In this lesson we will look at desktop publishing. Learners will think about how to make careful choices regarding font size, colour, and type in an invitation. The use of the Return, Backspace, and Shift keys will be explored and learners will be taught how to type age-appropriate punctuation marks. This will build on the typing skills learned in the Year 1 'Digital painting' unit. Learners will understand that once content has been added, it can be rearranged on the page. **Children will know:**	**WALT:** create a program to move a sprite in four directions **Activities:** In this lesson, learners will program a sprite to move in four directions: up, down, left, and right. They will begin by choosing a sprite and sizing it to fit in with a given background. Learners will then create the code to move the sprite in one direction before duplicating and modifying it to move in all four directions. Finally, they will consider how their project could be extended to prove that their sprite has successfully navigated a maze. **Children will know:** how to choose a character for my project a suitable size for a character in a maze program movement	**WALT:** use a digital device to collect data automatically **Activities:** This lesson will build on the idea of collecting data over time, and introduce the idea of collecting data automatically using computers. Computers can capture data from the physical world using input devices called 'sensors'. Sensors can be connected to data loggers, which can collect data while not attached to a computer. Data collected by a data logger can be downloaded for use later. **Children will know:** that sensors are input devices how to use data from a sensor to answer a given question that data from sensors can be recorded	**WALT:** change the composition of an image **Activities:** In this lesson, learners will identify changes that have been made to edited images. They will search for and save images from a copyright-free website. Learners will then use an image editor to make a new image composition linked to a cross-curricular theme. **Children will know:** what has changed in an edited image how to change the composition of an image why someone might want to change the composition of an image	**WALT:** know that in programming there are infinite loops and count-controlled loops **Activities:** In this lesson, learners look at different types of loops: infinite loops and count-controlled loops. They practise using these within Scratch and think about which might be more suitable for different purposes. **Children will know:** how to modify loops to produce a given outcome when to use a count-controlled and an infinite loop that some programming languages enable more than one process to be run at once

	messages can be passed through multiple connections what a network switch is and why we need it.	how to change font style, size, and colours for a given purpose how to edit text text can be changed to communicate more clearly				
Lesson 3	**WALT:** know how digital devices are connected and the physical components of a network. **Activities:** introduce key network components, including a server and wireless access points. Learners will examine each device's functionality and look at the benefits of networking computers.. They will see examples of network infrastructure in a real-world setting. Y4 – evaluate the benefits and draw backs of computer networks. **Children will know:** the role of a switch, server, and wireless access point in a network how devices in a network are connected with one another networked devices around me the benefits of computer networks	**WALT:** choose appropriate page settings **Activities:** Learners will be introduced to the terms 'templates', 'orientation', and 'placeholders' within desktop publishing software. The learners will create their own magazine template, which they will add content to during the next lesson. This lesson has been designed on a laptop using Adobe Spark and this is reflected in the screenshots and videos. Teachers may decide to use Microsoft Publisher. **Children will know:** the term 'page orientation' placeholders and say why they are important how to create a template for a particular purpose	**WALT:** adapt a program to a new context **Activities:** This lesson will introduce learners to extension blocks in Scratch using the **Pen** extension. Learners will use the pen down block to draw lines, building on the movement they created for their sprite in Lesson 2. Learners will then decide how to set up their project every time it is run. **Children will know:** how to use a programming extension they can consider the real world when making design choices they can choose blocks to set up my program	**WALT:** explain that a data logger collects 'data points' from sensors over time **Activities:** In this lesson, pupils will explore how data loggers work. Pupils will try recording data at set moments in time and draw parallels with the data points that a data logger captures at regular intervals. Pupils will use data loggers independently from a computer, then they will connect the loggers to a computer and download the data. **Children will know:** how to identify a suitable place to collect data how to identify the intervals used to collect data how to explain the data that I have captured	**WALT:** describe how images can be changed for different uses **Activities:** In this lesson, learners will look at the effect that different colours and filters can have on an image. They will choose appropriate effects to fit a scenario, and explain how they made their choices. They will then edit the same original image using different effects to suit two different scenarios, and compare the two versions. **Children will know:** about changes made to images how to choose effects why my choices fit a scenario	**WALT:** develop a design that includes two or more loops **Activities:** In this lesson, learners create designs for an animation of the letters in their names. The animation uses repetition to change the costume (appearance) of the sprite. The letter sprites will all animate together when the **event** block (**green flag**) is clicked. When they have designed their animations, the learners will program them in Scratch. After programming, learners then evaluate their work, considering how effectively they used repetition in their code. **Children will know:** which action will be repeated for each object what the outcome of the repeated action should be how to evaluate the effectiveness of the repeated sequences used in my program
Lesson 4	**WALT:** recognise how networks connect to other networks for the internet. **Activities**: Learners will explore how a network can share messages with another network to form the internet. They will consider some of the network devices involved in this, such as routers, and then discuss what we should keep in and out of a network to keep safe. They will describe parts of a network and how they connect to each other to form the internet. They will use this to help explain how the internet lets us view the World Wide Web and recognise that the World Wide Web is part of the internet which contains websites and web pages.	**WALT:** add content to a desktop publishing publication **Activities:** In this lesson, learners will add their own content (text and images) to the magazine templates they created in lesson 3. They will copy the information for the front of their magazine from a prewritten document and paste it into the chosen place on their magazine cover. Teachers could ask learners to	**WALT:** develop my program by adding features **Activities:** In this lesson, learners will be given the opportunity to use additional **Pen** blocks. They will predict the functions of new blocks and experiment with them, before designing features to add to their own projects. Finally, they will add these features to their projects and test their effectiveness.	**WALT:** use data collected over a long duration to find information **Activities:** In this lesson, pupils will open an existing data file and use software to find out key information. The data file is a five-hour log of hot water cooling to room temperature. **Note:** The logged activity can't be done safely in school due to the high starting temperature. Later in the unit, pupils may choose to complete a warming experiment, starting with ice and allowing it to warm to room temperature. **Children will know:**	**WALT:** make appropriate choices when selecting different tools **Activities:** This lesson is based on editing images by using retouching tools. Learners will consider why people may choose to retouch images, and the positive and negative effects that retouching can have on images. They will use retouching tools to improve images, and consider which tools are appropriate for retouching. **Children will know:** how an image has been retouched	**WALT:** modify an infinite loop in a given program **Activities:** In this lesson, learners look at an existing game and match parts of the game with the design. They make changes to a sprite in the existing game to match the design. They then look at a completed design, and implement the remaining changes in the Scratch game. They add a sprite, re-use and modify code blocks within loops, and explain the changes made. **Children will know:**

	Children will know: the internet is a network of networks that information is shared across a network needs protecting when connected to the internet the internet allows to view the World Wide Web which is the part that contains websites and web pages	gather copyright-free images from http://www.pixabay.com **Children will know:** how to choose the best locations for my content how to paste text and images to create a magazine cover how to make changes to content after I've added it	**Children will know:** additional features (from a given set of blocks) how to choose suitable keys to turn on additional features how to build more sequences of commands to make my design work	how to import a data set how to use a computer to view data in different ways how to use a computer program to sort data	the effects that retouching can have on an image how to choose appropriate tools to retouch an image	how to identify which parts of a loop can be changed the effect of their changes how to re-use existing code snippets on new sprites
Lesson 5	**WALT:** know how websites are shared across the World Wide Web and how these can be accessed or added to. **Activities:** Learners will explore what can be shared on the World Wide Web and where websites are stored. They will also explore how the World Wide Web can be accessed on a variety of devices. will analyse the contents of websites, before designing their own website, offline. They will consider the content they would like to include on a website of their own, and then decide how they could create that content**. Year 4** - They will then use an existing website to create some of their own content online, using tools introduced in Year 2. **Children will know:** types of media that can be stored on the WWW and how to access this how to add new content to the WWW new content can be created online	**WALT:** consider how different layouts can suit different purposes **Activities:** In this lesson, learners will think about the different ways information can be laid out on a page. They will look at a range of page layouts such as letters and newspapers, and begin to think about the purpose of each of these. **Children will know:** different layouts they can match a layout to a purpose how to choose a suitable layout for a given purpose	**WALT:** identify and fix bugs in a program **Activities:** This lesson explores the process of debugging, specifically looking at how to identify and fix errors in a program. Learners will review an existing project against a given design and identify bugs within it. They will then correct the errors, gaining independence as they do so. Learners will also develop their projects by considering which new setup blocks to use. **Children will know:** how to test a program against a given design how to match a piece of code to an outcome how to modify a program using a design	**WALT:** identify the data needed to answer questions **Activities:** In this lesson, pupils will think about questions that can be answered using collected data. Pupils will choose a question to focus on and then plan the data logging process that they need to complete. After they have completed their plan, they will set up the data loggers to check that their plan will work. This setting up is designed to ensure that the data collection will work, and that pupils will have data to use in Lesson 6. **Children will know:** a question that can be answered using logged data how to collect data using a data logger	**WALT:** know that not all images are real **Activities:** This lesson is based on the concept of fake images. Learners will sort images into 'fake' and 'real', and give reasons for their decisions. They will create their own fake images and reflect on how easy it is to digitally alter images, and what this might mean for the images that they see around them. **Children will know:** which images are 'fake' or 'real' and explain their choices how to combine parts of images to create new images about fake images around me	**WALT:** design a project that includes repetition **Activities:** In this lesson, learners look at a model project that uses repetition. They then design their own games based on the model project, producing designs and algorithms for sprites in the game. They share these designs with a partner and have time to make any changes to their design as required. **Children will know:** how to evaluate the use of repetition in a project how to select key parts of a given project to use in my own design how to develop my own design explaining what my project will do
Lesson 6	**WALT:** recognise that content online is created by people and evaluate the consequences of unreliable content. **Activities:** Learners will explore who owns the content on websites. They will explore a variety of websites, investigating what they can and cannot do with the content on them. They will also relate this to principles of ownership and sharing in the real world. Learners will gain an appreciation of the fact that not everything they see on the internet is true, honest, or accurate. They will	**WALT:** know the benefits of desktop publishing **Activities:** In this lesson, learners will explain what desktop publishing means in their own words. They will think about how desktop publishing is used in the wider world and	**WALT:** design and create a maze-based challenge **Activities:** In this lesson, learners will design and create their own projects. Using a template (which can be blank or partially completed), learners will complete projects to move a sprite around a maze, with the option to	**WALT:** use collected data to answer questions **Activities:** Learners will access and review the data that they have collected using a data logger. They will then use the data collected to answer the question that they selected in the previous	**WALT:** evaluate how changes can improve an image **Activities:** This lesson is the final lesson in the unit on photo editing. Learners will use the 'fake' image that they created in lesson 5 to make a publication designed to advertise their imaginary place. They will add elements such as text, shapes, and borders. They will design a survey for gaining	**WALT:** create a project that includes repetition **Activities:** In this lesson, learners build their games, using the designs they created in Lesson 5. They follow their algorithms, fix mistakes, and refine designs in their work as they build. They evaluate their work once

	review images and decide they may not be real, before conducting a web search which will return ambiguous and sometimes misleading results, looking for why this is the case. Finally, learners will complete a practical activity, demonstrating how quickly information can spread, beyond your own control. **Children will know:** who owns the content on websites that there are rules to protect content that not everything on the World Wide Web is true some information I find online may not be honest, accurate, or legal. why I need to think carefully before I share or reshare content (Y4)	consider the benefits of using desktop publishing applications. **Children will know:** the uses of desktop publishing in the real world why desktop publishing might be helpful they can compare work made on desktop publishing to work created by hand	leave a pen trail showing where the sprite has moved. Ideally, projects will include setup blocks to position the sprite at the start of the maze and clear any lines already on the screen. **Children will know:** how to make design choices and justify them how to implement my design evaluate a project	lesson. Learners will also reflect on the benefits of using a data logger. **Children will know:** how to interpret data that has been collected using a data logger how to draw conclusions from the data that I have collected the benefits of using a data logger	feedback on their work, and compare their completed publications with the original images. **Children will know:** how to compare the original image with my completed publication evaluate the impact of my publication on others through feedback the effect of adding other elements to my work	it is completed and showcase their games at the end. **Children will know:** how to refine the algorithm in my design how to build a program that follows my design how to evaluate the steps I followed when building my project
Key Knowledge	**Children will know:** Computers are made up of input devices, digital devices and output devices. A computer network is made of multiple devices that pass information between each other. Information can be shared through mobile networks, wifi (via wireless access points), a network switch and wired connections. A range of media can be added, shared and created on the World Wide Web. How to evaluate reliability of content and recognise the consequences of unreliable content	**Children will know:** DTP's can be structured with placeholders. How to add and remove text and images from place holders. How to resize and rotate images, as well as changing fonts and applying effects to text.	**Children will know:** How to sequence the movement of multiple sprites at once. How to create a sequence of commands to produce a given outcome How to use extension block within Scratch.	**Children will know:** Data can be logged over time, recorded in a table and used to answer questions. Data loggers capture data points from sensors over time. How to use sensors to collect information and choose how often data is automatically collected.	**Children will know:** Digital images can be manipulated for different purposes. How to crop, rotate and flip images for specific purposes. How to adjust colours, apply filters and effects to images for specific purposes.	**Children will know:** A loop can be programmed to stop after a specific number of times – this is called a count-controlled loop. (Scratch) How to plan a program that includes appropriate loops to produce a given outcome. Instructions need to be in certain order when creating a count controlled or infinite loop.