



## 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.

### 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 <i>use the words...</i>		Outcomes for the end of EYFS: <i>Children will be able to:</i>
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	<ul style="list-style-type: none"> <li>▪ Children will use and access a range of technology equipment in the learning environment.</li> <li>▪ 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.</li> <li>▪ Children will know how to take care of electronic equipment – away from water, not left on the floor et.</li> <li>▪ 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.</li> <li>▪ Children will be able to verbalise and remember technology that is in their homes and familiar environments.</li> <li>▪ 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.</li> <li>▪ Children will know specific uses for computers.</li> <li>▪ Children will know how to swipe on a screen and access an app that they a) self -elect b) are directed to select.</li> <li>▪ Children will know how to access and use independently a range of appropriate apps that support learning in the class.</li> <li>▪ 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.</li> <li>▪ Children will know that you are responsible for being kind to each other when online.</li> <li>▪ Children will have watched an adult modelling the use of Scratch to do simple coding exercise.</li> <li>▪ Children will have had experience of directing each other to create a sequence of instructions.</li> <li>▪ Adults will have taught children to undertake a simple coding procedure on Scratch to do a simple action.</li> <li>▪ Children need to learn a simple coding sequence and to explain how they completed it</li> </ul>

**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			
	<b>Non- Negotiables</b> 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.					
Topic	<u>Computer systems and networks – IT and Technology around us</u>	<u>Creating Media – Digital Painting</u>	<u>Programming A – Programming a robot</u>	<u>Data and information – Grouping data and Pictograms</u>	<u>Creating media – Digital Photography</u>	<u>Programming A – Robot Algorithms</u>
Progression	This combines the year 1 and year 2 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 2 all children will know and remember the key knowledge outlined.	Learners should be familiar with: How to switch their device on Usernames Passwords Learners have benefited from completing the Year 1 Computing Systems & Networks unit prior to this unit.	This unit helps to build 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 combines the year 1 and 2 Data and Information Units. Some of the year 1 objectives are covered within the EYFS White rose maths curriculum and have therefore been combined. To extend year 2 an additional WALT has been added to help move their learning forward further. The children will revisit the same key knowledge again in the next cycle with the aim that the children will know and remember the key knowledge by the end of year 2.	This unit begins the learners’ understanding of how photos are captured and can be manipulated for different purposes. Following this unit, learners will develop their photo editing further in KS2.	The lessons in this unit build upon Programming A – Programming a robot. Pupils have had some experience of creating short programs and predicting the outcome of a simple program. This unit progresses students’ knowledge and understanding of algorithms and how they are implemented as programs on digital devices. Pupils will spend time looking at how the order of commands affects outcomes. Pupils will use this knowledge and logical reasoning to trace programs and predict outcomes.
Resources	Laptops, iPads, paint program	Laptops, Paint Program	Bee-bots, beebot mats	Laptops, I pads j2e pictogram tool.	Laptops, Ipads, digital camera, This unit uses screenshots from the website <a href="https://pixlr.com/x/">https://pixlr.com/x/</a> , but you could also use the Pixlr app if you’re using tablets	Beebots
Vocabulary	Technology, computer, mouse, screen, keyboard, information technology, devices, app, program, click, drag, button, bar code, bank card	Media, Freehand tools	Command, robot, button, memory, program, direct, forwards, backwards, left, right, repeat,	Compare, tally, record, table, more than, less than, data,	Digital, photograph, photography, landscape, portrait, background, foreground, light, flash, image, object,	Sequence, algorithm, robot, command
Flashback	<ul style="list-style-type: none"> <li>Select technology for simple purposes</li> <li>They must be safe when using technology</li> </ul>	<ul style="list-style-type: none"> <li>How to use a keyboard to create and edit text.</li> <li>How to use a mouse to move the cursor, open a file and create a picture.</li> <li>IT can be used for a range of purposes</li> <li>We should always follow the rules given to use when using IT so that we can keep ourselves and others safe.</li> </ul>	<ul style="list-style-type: none"> <li>We should always follow the rules given to use when using IT so that we can keep ourselves and others safe.</li> <li>IT can be used for a range of purposes</li> <li>The undo button tool can be used to erase mistakes.</li> </ul>	<ul style="list-style-type: none"> <li>How to use a mouse to move the cursor, open a file and create a picture.</li> <li>IT can be used for a range of purposes</li> <li>We should always follow the rules given to use when using IT so that we can keep ourselves and others safe.</li> </ul>	<ul style="list-style-type: none"> <li>Computers can be used to create artwork.</li> <li>The undo button tool can be used to erase mistakes.</li> <li>How to combine a range of tools to create a piece of artwork. Including: shape and line tools (precision), fill colour and free hand tool.</li> </ul>	<ul style="list-style-type: none"> <li>A program is a set of commands that computer can run.</li> <li>How to combine commands to achieve a specific outcome.</li> <li>There are multiple ways to achieve the same outcome.</li> </ul>
Lesson 1	<p><b>WALT:</b> identify technology and recognise the uses and features (Y1 L1-2)</p> <p><b>Activities:</b> Look at examples of technology in the classroom, as well as identifying a computer and its main parts. They should practice logging into a computer and use a</p>	<p><b>WALT:</b> what different freehand tools do</p> <p><b>Activities:</b> This lesson introduces learners to the freehand tools available for digital painting.</p> <p><b>Children will know:</b></p>	<p><b>WALT:</b> know what a given command will do</p> <p><b>Activities:</b> This lesson introduces the learners to floor robots, also discuss a wider range of robots that children will know about. Learners will talk about what the buttons might do and then try the buttons out. Act out movements first</p>	<p><b>WALT:</b> label, group and count objects (Y1 L1-2)</p> <p><b>Activities:</b> Children will understand that we can use labels to put things into groups. They will also know that objects can fit into more than one group. In this lesson, pupils</p>	<p><b>WALT:</b> use a digital device to take a photograph</p> <p><b>Activities:</b> This lesson introduces the concept that many devices can be used to take photographs. In the lesson, learners begin to capture their own photographs.</p>	<p><b>WALT:</b> know a series of instructions as a sequence</p> <p><b>Activities:</b> In this lesson, pupils will follow instructions given to them and give instructions to others. Pupils will consider the language used to give instructions and how that language needs to be clear and precise. Pupils will combine several instructions into a sequence that can then</p>

	<p>mouse to click and drag. (Year 2 – recognise why we might need to drag objects)</p> <p><b>Children will know:</b> examples of technology and how they help us, including technology in the classroom.</p> <p>the main parts of a computer</p> <p>how to switch on and log on to a laptop</p> <p>how to use a mouse to click and drag</p>	<p>how to make marks on a screen and explain which tools I used</p> <p>how to draw lines on a screen and explain which tools I used</p> <p>how to use the paint tools to draw a picture</p> <p>how to use the undo tool to correct errors</p>	<p>before introducing robots. 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.</p> <p><b>Children will know:</b> how to predict the outcome of a command on a device</p> <p>how to match a command to an outcome</p> <p>how to run a command on a device</p>	<p>will begin to think about grouping objects based on what the objects are. They will 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. (E-safety – You are in control of what you put into a computer.)</p> <p><b>Children will know:</b> how to label and match objects to existing groups.</p> <p>how to group objects</p> <p>how to count groups of objects</p>	<p>A photograph can be taken in either portrait or landscape format. In this lesson, learners explore taking photographs in both portrait and landscape formats and explore the reasons why a photographer may favour one over the other.</p> <p><b>Children will know:</b> what devices can be used to take photographs</p> <p>photos can be taken in portrait or landscape</p> <p>how to take a photograph</p>	<p>be issued to another pupil to complete. Pupils will then consider this clear and precise set of instructions in relation to an algorithm, and they will think about how computers can only follow clear and unambiguous instructions. Y1- practice this physically with role play</p> <p><b>Children will know:</b> how to follow instructions given by someone else</p> <p>words that can be enacted as a sequence</p> <p>how to give clear instructions</p>
Lesson 2	<p><b>WALT:</b> recognise uses and features of technology at school (Y2 L1-2)</p> <p><b>Activities:</b> Learners will identify devices that are computers and consider how IT can help them both at school and beyond. They will identify examples of IT and be able to explain the purpose of different examples of IT in the school setting.</p> <p><b>Children will know:</b> examples of different types of computers and that it is part of a wide range of IT</p> <p>what school IT is used for</p> <p>some IT can be used in more than one way.</p>	<p><b>WALT:</b> use the shape tool and the line tools</p> <p><b>Activities:</b> This lesson introduces learners to the line and shape tools and revisits the fill and undo tools used for digital painting. Learners create their own digital painting in the style of an artist.</p> <p><b>Children will know:</b> how to make marks with the square and line tools</p> <p>how to use the shape and line tools effectively</p> <p>how to use the shape and line tools to create a picture</p> <p>how to use the undo tool to correct errors</p>	<p><b>WALT:</b>To act out a given instruction</p> <p><b>Activities:</b> During this lesson, learners will think about the language used to give directions and 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.</p> <p><b>Children will know:</b> how to follow more than one instruction</p> <p>how to give clear directions using words that can be acted out.</p>	<p><b>WALT:</b> To describe objects and count those with similar properties. (Y1 L3-4)</p> <p><b>Activities:</b> 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. Pupils will classify objects based on their properties. They will group objects that 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.</p> <p><b>Children will know:</b> how to find objects with similar properties</p> <p>how to group objects in more than one way</p> <p>how to count objects that share a property</p>	<p><b>WALT:</b> make choices when taking a photograph</p> <p><b>Activities:</b> A photograph can be taken in either portrait or landscape format. In this lesson, learners explore taking photographs in both portrait and landscape formats and explore the reasons why a photographer may favour one over the other.</p> <p><b>Children will know:</b> the process of taking a good photograph</p> <p>how to take photos in both landscape and portrait format</p> <p>why a photo looks better in portrait or landscape format</p>	<p><b>WALT:</b> explain what happens when we change the order of instructions</p> <p><b>Activities:</b> This lesson focuses on sequences, and guides pupils to consider the importance of the order of instructions within a sequence. Pupils will create several short sequences using the same commands in different orders. They will then test these sequences to see how the different orders affect the outcome. Y1 – look at a range of everyday scenarios about the effects of changing the order of instructions</p> <p><b>Children will know:</b> how to create different algorithms for a range of sequences (using the same commands)</p> <p>how to use an algorithm to program a sequence on a floor robot</p> <p>how to show the difference in outcomes between two sequences that consist of the same commands</p>

Lesson 3	<p><b>WALT:</b> identify technology beyond school and it can help us. (Y2 L3-4)</p> <p><b>Activities:</b> Learners will begin to explore IT in environments beyond school, including home and familiar places such as shops. They will talk about the uses of IT in these environments and be able to explain that IT is used in many workplaces. Learners will explore the benefits of using IT in the wider world. They will focus on the use of IT in a shop and how devices can work together. Learners will sort activities based on whether they use IT or not and will be able to say why we use IT.</p> <p><b>Children will know:</b> common types technology</p> <p>how IT devices work together</p> <p>common uses of IT</p>	<p><b>WALT:</b> make careful choices when painting a digital picture</p> <p><b>Activities:</b> This lesson introduces learners to a range of shape tools, allowing them to create a painting in the style of an artist.</p> <p><b>Children will know:</b> how to choose appropriate shapes how to make appropriate colour choices how to create a picture how to use the undo tool to correct errors</p>	<p><b>WALT:</b> combine forwards and backwards commands to make a sequence</p> <p><b>Activities:</b> 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. Use direction cards to support. 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.</p> <p><b>Children will know:</b> the difference between forwards and backwards movements that the sequence should start from the same place in order to predict its movements. how to predict the outcome of a sequence involving forwards and backwards commands</p>	<p><b>WALT:</b> compare and describe a group of objects and answer questions about these. (Y1 L5-6)</p> <p><b>Activities:</b> 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 what they find. They will then share what they have found with their peers.</p> <p><b>Children will know:</b> how to group objects to answer a question how to compare groups of objects how to record and explain what I have found</p>	<p><b>WALT:</b> describe what makes a good photograph</p> <p><b>Activities:</b> A photograph is composed by a photographer. In this lesson, learners discover what constitutes good photography composition and put this into practice by composing and capturing photos of their own.</p> <p><b>Children will know:</b> what steps are needed to take a good photograph what is wrong with a photograph how to improve a photograph by retaking it</p>	<p><b>WALT:</b> use logical reasoning to predict the outcome of a program (series of commands)</p> <p><b>Activities:</b> In this lesson, pupils will use logical reasoning to make predictions. They will follow a program step by step and identify what the outcome will be. y1 – Use direction cards to support reasoning</p> <p><b>Children will know:</b> how to follow a sequence how to predict the outcome of a sequence how to compare my prediction to the program outcome</p>
Lesson 4	<p><b>WALT:</b> use a mouse in different ways (Y1 L3)</p> <p><b>Activities:</b> Building on from last lesson. Learners will log in, open paint and practice using their mouse to draw lines. Learners need to understand that pressing the mouse and moving it will correlate on a line being drawn on the screen. (Year 2 will use the mouse to draw more complex/detailed images)</p> <p><b>Children will know:</b> how to log in how to use a mouse to open a program. that pressing the mouse and moving it will cause a line to be drawn in the same direction on the screen when in paint.</p>	<p><b>WALT:</b> explain why I chose the tools I used</p> <p><b>Activities:</b> This lesson increases learners' understanding of the available paint tools and encourages them to select the best tools to create a digital painting in the style of Wassily Kandinsky.</p> <p><b>Children will know:</b> that different paint tools do different jobs how to choose appropriate paint tools and colours to recreate the work of an artist how to say which tools were helpful</p>	<p><b>WALT:</b> To combine four or more direction commands to make sequences</p> <p><b>Activities:</b> In this lesson, learners will use left and right turn commands along with 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. Use direction cards to support. Learners will make their predictions by 'stepping through' the commands and matching the program steps to movements.</p> <p><b>Children will know:</b> the difference between left and right turns how to experiment with turn and move commands to move a robot how to predict the outcome of a sequence involving four or more commands</p>	<p><b>WALT:</b> know that we can count and compare using tally charts. (Y2 L1)</p> <p><b>Activities:</b> During this lesson learners will begin to understand the importance of organising data effectively for counting and comparing. They will create their own tally charts to organise data, and represent the tally count as a total. Finally, they will answer questions comparing totals in tally charts using vocabulary such as 'more than' and 'less than'.</p> <p><b>Children will know:</b> how to record data in a tally chart how to represent a tally count as a total they can compare totals in a tally chart</p>	<p><b>WALT:</b> decide how photographs can be improved</p> <p><b>Activities:</b> This lesson introduces the concepts of light and focus as further important aspects of good photography composition. In this lesson, learners investigate the effect that good lighting has on the quality of the photos they take, and explore what effect using the camera flash and adding an artificial light source have on their photos. They also learn how the camera autofocus tool can be used to make an object in an image stand out.</p> <p><b>Children will know:</b> the effect that light has on a photo how to experiment with different light sources why a picture may be unclear</p>	<p><b>WALT:</b> explain that programming projects can have code and artwork</p> <p><b>Activities:</b> In this lesson, pupils will design, create, and test a mat for a floor robot. This will introduce the idea that design in programming not only includes code and algorithms, but also artefacts related to the project, such as artwork and audio.</p> <p><b>Children will know:</b> how to explain the choices they made for my mat design different routes around their mat how to test their mat to make sure that it is usable</p>

Lesson 5	<p><b>WALT:</b> use a keyboard to write and edit text (Y1 L4 - L5)</p> <p><b>Activities:</b> Children will continue to practice learning to type, and learners will log in and open their word document from last lesson. They will then practice deleting letters and using the arrow keys to select a particular letter that they want to delete or change. . They will then open Word and write their name. They can save their work using the save icon as a next step (Year 2 can edit text in different ways if they have prior knowledge of digital writing)</p> <p><b>Children will know:'</b></p> <p>How to type letters on a keyboard how to delete letters</p> <p>how to open work from a file</p> <p>how to use arrow keys to move a cursor</p>	<p><b>WALT:</b> To use a computer on my own to paint a picture</p> <p><b>Activities:</b> Learners select appropriate colours, brush sizes, and brush tools to independently create their own image in the style of an artist.</p> <p><b>Children will know:</b> how to make dots of colour on the page</p> <p>how to change the colour and brush sizes</p> <p>how to use dots of colour to create a picture in the style of an artist on my own</p>	<p><b>WALT:</b> plan a program</p> <p><b>Activities:</b> In this lesson, learners will decide what their program will do. They will then create their program and test it on the robot. Use direction cards to support. Where needed, learners will also debug their programs.</p> <p><b>Children will know:</b></p> <p>what the program should do</p> <p>the order of commands in their sequence</p> <p>how to debug a program</p>	<p><b>WALT:</b> know that objects can be represented as pictures and to create a pictogram. (Y2 L2-3)</p> <p><b>Activities:</b> During this lesson learners will become familiar with the term 'pictogram'. They will create pictograms manually and then progress to creating them using a computer. Learners will begin to understand the advantages of using computers rather than manual methods to create pictograms and use this to answer simple questions. They will collect data to create a tally chart and use this to make a pictogram on a computer. Learners will explain what their finished pictogram shows by writing a range of statements to describe this.</p> <p><b>Children will know:</b> How to enter data and use pictograms to answer simple questions</p> <p>How to use a tally chart to create a pictogram</p> <p>explain what a pictogram shows</p>	<p><b>WALT:</b> use tools to change an image</p> <p><b>Activities:</b> This lesson introduces the concept of simple image editing. Learners are introduced to the Pixlr image editing software and use the 'Adjust' tool to change the colour effect of an image.</p> <p><b>Children will know:</b></p> <p>that images can be changed</p> <p>how to use a tool to achieve a desired effect</p> <p>how to explain their choices</p>	<p><b>WALT:</b> design an algorithm</p> <p><b>Activities:</b> In this lesson, pupils will design algorithms to move their robot around the mats that they designed in Lesson 4. As part of the design process, pupils will outline what their task is by identifying the starting and finishing points of a route. This outlining will ensure that pupils clearly understand what they want their program to achieve.</p> <p><b>Children will know:</b></p> <p>what an algorithm should achieve</p> <p>how to create an algorithm to meet my goal</p> <p>how to use their algorithm to create a program</p>
Lesson 6	<p><b>WALT:</b> explain how to use information technology safely and that choices can be made.</p> <p><b>Activities:</b> Learners will consider how they use different forms of information technology safely, in a range of different environments. They will list different uses of IT and talk about the different rules that might be associated with using them. Learners will then say how rules can help keep them safe when using IT. Learners will think about the choices that are made when using information technology, and the responsibility associated with those choices. They will use IT in different types of activities and explain that sometimes they will need to use IT in different ways.</p> <p><b>Children will know:</b></p> <p>rules for using IT and how these can keep them safe.</p>	<p><b>WALT:</b> compare painting a picture on a computer and on paper</p> <p><b>Activities:</b> Learners compare their preferences when creating paintings on computers and on paper.</p> <p><b>Children will know:</b></p> <p>that pictures can be made in lots of different ways</p> <p>the differences between painting on a computer and on paper</p> <p>whether they prefer painting using a computer or using paper</p>	<p><b>WALT:</b> find more than one solution to a problem</p> <p><b>Activities:</b> Learners will be encouraged to plan routes around a mat before they start to write programs for those routes. The activities in this lesson also introduce the concept of there being more than one way to solve a problem. This concept is valid for a lot of programming activities: the same outcome can be achieved through a number of different approaches, and there is not necessarily a 'right' approach. The lesson also introduces the idea of program design, where learners need to plan what they want their program to achieve before they start programming.</p> <p><b>Children will know:</b> there can be several possible solutions to a problem</p>	<p><b>WALT:</b> compare group of objects by attributes and recognise that people can be described by attributes.</p> <p><b>Activities:</b> During this lesson learners will think about ways in which objects can be grouped by attribute. They will then tally objects using a common attribute and present the data in the form of a pictogram. Learners will answer questions based on their pictograms using mathematical vocabulary such as 'more than'/'less than' and 'most'/'least'. Learners will understand that people can be described by attributes. They will practise using attributes to describe images of people and the other learners in the class. The learners will collect data needed to organise people using attributes and create a pictogram to show this pictorially. Finally, learners will draw conclusions from their pictograms and share their findings.</p> <p><b>Children will know:</b></p>	<p><b>WALT:</b> To recognise that photos can be changed</p> <p><b>Activities:</b> This lesson introduces the concept that images can be changed for a purpose. Learners are introduced to a range of images that have been changed in different ways and through this, develop an awareness that not all images they see are real. To start the lesson, learners are first challenged to take their best photograph by applying the photography composition skills that they have developed during the unit.</p> <p><b>Children will know:</b></p> <p>a range of photography skills to capture a photo</p> <p>which photos are real and which have been changed</p>	<p><b>WALT:</b> To create and debug a program that I have written</p> <p><b>Activities:</b> In this lesson, pupils will take on a larger programming task. They will break the task into chunks and create algorithms for each chunk. This process is known as 'decomposition' and is covered further in key stage 2. Pupils will also find and fix errors in their algorithms and programs. This is known as 'debugging'.</p> <p><b>Children will know:</b></p> <p>how to plan algorithms for different parts of a task</p> <p>how to test and debug each part of the program</p> <p>how to put together the different parts of my program</p>

	<p>the choices that are made when using IT and the responsibility associated with these.</p> <p>the need to use IT in different ways.</p>		<p>how to plan two programs</p> <p>How to use two different programs to get to the same place</p>	<p>how to answer 'more than'/'less than' and 'most/least' questions about an attribute</p> <p>how to collect the data I need</p> <p>how to create a pictogram and draw conclusions from it</p>		
				<p><b>Year 2 Extension</b>  <b>WALT:</b> to use a computer program to present information in different ways</p> <p><b>Activities:</b>  During this lesson learners will understand that there are other ways to present data than using tally charts and pictograms. They will use a pre-made tally chart to create a block diagram on their device. Learners will then share their data with a partner and discuss their findings. They will consider whether it is always OK to share data and when it is not OK. They will know that it is alright to say no if someone asks for their data, and how to report their concerns.</p> <p><b>Children will know:</b>  how to interpret what they have found out.</p> <p>simple examples of why information should not be shared.</p>		
Key Knowledge	<p><b>Children will know:</b>  IT stands for information technology and includes things such as computers, phones, tablets, printers, digital cameras, smart speakers, Beebots or games consoles.</p> <p>IT can be used for lots of different purposes and it is important to choose the right pieces of equipment for a particular purpose.</p> <p>How to use a keyboard to create and edit text.</p> <p>How to use a mouse to move the cursor, open a file and draw lines in a chosen direction.</p> <p>We should always follow the rules given to use when using IT so that we can keep ourselves and others safe.</p>	<p><b>Children will know:</b></p> <p>Computers can be used to create artwork.</p> <p>The undo button tool can be used to erase mistakes.</p> <p>How to combine a range of tools to create a piece of artwork. Including: shape and line tools (precision), fill colour and free hand tool.</p>	<p><b>Children will know:</b></p> <p>A program is a set of commands that computer can run.</p> <p>How to combine commands to achieve a specific outcome.</p> <p>There are multiple ways to achieve the same outcome.</p>	<p><b>Children will know:</b></p> <p>Groups of objects can be counted and then be compared with one another to answer questions.</p> <p>Data can be presented on a computer in a variety of forms including pictograms, block diagram and tally charts.</p> <p>That some data can be shared, and other data cannot. It is important that we ask permission before sharing information about others.</p>	<p><b>Children will know:</b></p> <p>Photographs are taken on devices such as digital cameras, phones and tablets, they can be taken in landscape or portrait mode.</p> <p>Photographs are affected by the amount and type of light.</p> <p>Photos can be edited using a range of tools including cropping and colour filters.</p>	<p><b>Children will know:</b></p> <p>That an algorithm is a step by step set of instructions to achieve a goal.</p> <p>How to program their bee bots using an algorithm.</p> <p>How to debug a simple program by breaking it down into smaller chunks and looking at each part separately.</p>

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