

ICT Teaching Sequences Reception:

Autumn 2	Spring		Summer	
Key concepts: Computing systems and Networks- Using a computer	Key concepts: Programming- All about Instructions	Key concepts: Computing systems and networks- Exploring hardware	Key concepts: Programming- Beebots	Key concepts: Data Handling- Introduction to data.
Teaching sequences: <ul style="list-style-type: none"> - To know what a keyboard is and how to locate relevant keys. - To know how to log in and log out. - To develop basic mouse skills such as moving and clicking. - To use a mouse to click and drag. 	Teaching sequences: <ul style="list-style-type: none"> - To follow instructions practically. - To learn to give simple instructions. - To follow practical instructions and to learn to debug when things go wrong. - To predict outcomes and order instructions. 	Teaching sequences: <ul style="list-style-type: none"> - To explore computing hardware to develop familiarity. - To recognise that a range of technology is used in places such as homes and schools. - To learn how to operate an iPad and use it to take photographs. - To know how to take clear photographs of specific objects. - To know how to 'flip' a camera and take a photograph of myself. 	Teaching sequences: <ul style="list-style-type: none"> - To follow a simple sequence of instructions and understand directional arrows. - To experiment with programming a Beebot. - To program a Beebot and debug instructions. - To follow an algorithm. 	Teaching sequences: <ul style="list-style-type: none"> - To sort and categorise objects. - To sort objects and explain how items have been sorted and categorised. - To explore the concept of branch databases. - To understand how to read a simple pictogram.

ICT Teaching Sequences KS1 Cycle A:

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p>Key Concepts:</p> <p>Computing systems and network- Improving mouse skills</p>	<p>Key Concepts:</p> <p>Programming- Algorithms unplugged</p>	<p>Key Concepts:</p> <p>Creating media- Digital Imagery</p>	<p>Key Concepts:</p> <p>Programming- BeeBots</p>	<p>Key Concepts:</p> <p>Data handling- Introduction to data</p>	<p>Key Concepts:</p> <p>systems and network – Online Safety</p>
<p>Teaching Sequences: Model using a mouse and how it is useful. - LO: To log in to a computer and access a website. Children developing their mouse skills on 'sketchpad'. - LO: To develop mouse skills. Click and drag images. - LO: To use mouse skills to draw and edit shapes. Drag and drop shapes to create paintings in Kandinsky style. Creating layers of shapes.</p>	<p>Teaching Sequences: LO: To understand what an algorithm is. LO: To follow instructions precisely to carry out an action. LO: To understand and be able to explain what decomposition is. LO: To know how to debug an algorithm.</p>	<p>Teaching Sequences: Look at online picture stories -LO: To understand and create a sequence of pictures. Story board plan a pictorial story. - LO: To take clear photos. Taking photos of small toys to tell planned story from L1. - LO: To edit photos. Editing images: Cropping Changing colour-effects.</p>	<p>Teaching Sequences: -LO: To explore a new device. Completing challenges using Beebots using predict, test and review. Lo: To plan and follow a set of instructions precisely. LO: To program a device. Make simple 'programs' that involve one or more steps, to navigate their Bee-Bot. LO: To create a program. Programming Beebot to move from character to character on 'Three Little Pigs' mat.</p>	<p>Teaching Sequences: Look at how data is displayed on pictograms. - LO: To show data in different ways. Using different ways to represent the number of animals at the zoo e.g drawings, cubes. - LO: To use technology to represent data. Using online pictogram (JIT5) site to create a pictogram of the number of diff animals at the zoo. - LO: To collect and record data. Minibeast hunt. Counting how many they find. Representing their data on JIT5 in different ways. - LO: To sort data. Using JIT5 to sort animals by branching based on shared characteristics.</p>	<p>Teaching Sequences: LO: To know what the internet is and how to use it safely. Reading a class story about problems that ca be encountered online. Chrn to come up with 3 top tips. LO: To understand different feelings when using the internet. Look at online scenarios and answer questions about what they would do. LO: To understand how to treat others, both online and in-person. Learning how to be kind and considerate. Role playing scenarios and thinking about how actions can affect the feeling of others. LO: To understand the importance of being careful about what we post and share online. children will learn about digital footprint.</p>

					LO: To discuss ways to balance time spent online and offline.
National curriculum links: <ul style="list-style-type: none"> • Use technology purposefully to create, organise, store, manipulate and retrieve digital content <ul style="list-style-type: none"> • Recognise common uses of information technology beyond school • Use technology safely and respectfully, keeping personal information private' 	National curriculum links: <ul style="list-style-type: none"> • 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. 	National curriculum links: <ul style="list-style-type: none"> • 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 	National curriculum links: <ul style="list-style-type: none"> • 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. • 	National curriculum links: <ul style="list-style-type: none"> • Use technology purposefully to create, organise, store, manipulate and retrieve digital content. • 	National curriculum links: <ul style="list-style-type: none"> • 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. •

ICT Teaching Sequences KS1 Cycle B:

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p>Key concepts:</p> <p>Computing systems and networks : What is a computer?</p>	<p>Key concepts:</p> <p>Programming : Algorithms and debugging</p>	<p>Key concepts:</p> <p>Computing systems and networks : Word processing</p>	<p>Key concepts:</p> <p>Programming: Scratch Jr</p>	<p>Key concepts:</p> <p>Creating Media: Stop Motion</p>	<p>Key concepts:</p> <p>Data Handling: International Space Station</p>
<p>Teaching Sequences: Hardware hunt around school. - LO: To recognise the parts of a computer. Chrn learning about the items of hardware in the classroom. Drawing and labelling a laptop. - LO: To recognise how technology is controlled. Exploring input and output. Designing a robot and labelling inputs and outputs. - LO: To understand the role of computers. Learning about computers in the real world. (shopping technology)</p>	<p>Teaching Sequences:</p> <p>- LO: To decompose a game to predict the algorithms that are used. Chrn to look at a Scratch dinosaur game and how to improve it by adding algorithms.</p> <p>- LO: To understand that computers can use algorithms to make predictions (machine learning). Writing instructions to make a model out of blocks. Testing each others instructions.</p> <p>- LO: To plan algorithms that will solve problems. Constructing an algorithm using paper coding blocks. Testing their algorithm on 'coding carrots'.</p> <p>- LO: To understand what abstraction is. Learning that abstraction is removing unnecessary details. Making a plan of a location e.g school, using simple shapes.</p>	<p>Teaching Sequences: Model using word. Discuss why it is useful. - LO: To begin to learn to touch type. Opening word and typing answers to 'keyboard detective' quiz. Chrn learning keyboard short cuts.</p> <p>- LO: To understand how to use a word processor. Practising typing a paragraph. Learning how to select capital letters, use keyboard shortcuts and change text.</p> <p>- LO: To understand how to add images to a text document. Typing sentences about a known story and changing font, size ect. Inserting an image into word, changing size and position.</p> <p>- LO: To create a poetry book using sources from the internet. Copy and pasting poems from 'Ken Nesbitt's Poetry4Kids' onto word.</p>	<p>Teaching Sequences: Watch a programmed character on Scratch Jr. - LO:To explore a new application. Creating programs on Scratch Jr. Chrn encouraged to use the blocks on the 'Tinkering sheet' and identify what it does.</p> <p>- LO:To create an animation. Introduced to 'loops' and 'forever' blocks. Chrn to program the animal characters move in a realistic way.</p> <p>- LO:To follow an algorithm. Programming two characters to share a joke by using voice record.</p> <p>- LO:To plan and use code to create an algorithm. Following code to create a version of 'Three Little Pigs' on Scratch.</p>	<p>Teaching Sequences: Look at examples of animations e.g. Tom and Jerry and how Disney animations are made. Show the children a flipbook. - LO:To understand what animation is. Creating and assembling flipbooks.</p> <p>-LO:To understand what stop motion animation is. Learning how the onion skinning feature works in the J2E animation software. Creating a basic space animation.</p> <p>- LO:To create a stop motion animation. Creating space animation on StopMotion app using a paper space background and rocket.</p>	<p>Teaching Sequences: Look at how data is displayed on a spreadsheet. - LO: To understand how computers can help humans survive in space. Virtual tour of the ISS. Draw or write about the interesting things that they discovered about the ISS, noting down where they found the things.</p> <p>- LO: To understand the role of sensors on the ISS. Measuring temperatures of places around school and record on spreadsheet. Designing computer display of everything the sensors on ISS monitor.</p> <p>- LO: To interpret data. NASA's International Space Station Live Stream'. Interpreting planet data from a spread sheet and creating a fact file on a chosen planet.</p>

	<p>- LO: To understand what debugging is. Refining instructions to achieve a goal.</p>				
<p>National Curriculum links:</p> <ul style="list-style-type: none"> Recognise common uses of information technology beyond school Use technology purposefully to create, organise, store, manipulate and retrieve digital content' Use logical reasoning to predict the behaviour of simple programs 	<p>National Curriculum links:</p> <ul style="list-style-type: none"> 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 	<p>National Curriculum links:</p> <ul style="list-style-type: none"> Use technology purposefully to create, organise, store, manipulate and retrieve digital content Use technology safely and respectfully, keeping personal information private Recognise common uses of information technology beyond school. Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. 	<p>National Curriculum links:</p> <ul style="list-style-type: none"> Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions Use logical reasoning to predict the behaviour of simple programs Create and debug simple programs 	<p>National Curriculum links:</p> <ul style="list-style-type: none"> Use technology purposefully to create, organise, store, manipulate and retrieve digital content Use technology safely and respectfully, keeping personal information private Recognise common uses of information technology beyond school 	<p>National Curriculum links:</p> <ul style="list-style-type: none"> Use technology purposefully to create, organise, store, manipulate and retrieve digital content Recognise common uses of information technology beyond school

ICT Teaching Sequences Y3/4- Cycle A

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p>Key Concepts:</p> <p>Computer systems and networks: networks and the internet</p>	<p>Key Concepts:</p> <p>Data handling: Comparison cards databases</p>	<p>Key Concepts:</p> <p>Computing systems and networks 3: Journey inside a computer</p>	<p>Key Concepts:</p> <p>Computing systems and networks: Collaborative Learning</p>	<p>Key Concepts:</p> <p>Data Handling: Investigating Weather</p>	<p>Key Concepts:</p> <p>HTML Skills showcase</p>
<p>Teaching sequence: Show the children the school network connection on teacher laptop settings. - LO:To recognise what a network is. understanding computer networks. Network safari around school to find the devices in the school network. - LO:To demonstrate how a website works. Drawing a map of the journey of you tube to our computers/ipads. -LO:To identify the role of packet data. Understanding that websites are sent in parts (packets).</p>	<p>Teaching sequence: Begin the unit by showing the children an excel spreadsheet and how it displays data. -LO:To understand the terminology around databases. Learn the meaning of Records, fields and data and what a spreadsheet is. - LO:To compare paper and computerised databases. Comparing and contrasting computerised and paper databases. -LO: To sort, filter and interpret data. Children inputting data onto a spreadsheet and learning how to filter it. -LO:To represent data in different ways. Use the spreadsheet to create a graph to represent the data in a different way. - LO:To sort data for a purpose. children use the 'sort' and 'filter' functions on the website to find a holiday that meets their criteria.</p>	<p>Teaching sequence: -LO: To recognise basic inputs and outputs. Role play how the computer sends and receives messages from input devices to output devices. Creating a poster on Sketchpad. -LO: To decompose a laptop. Learn what a laptop needs to work and create a paper laptop that includes everything it needs to function. -LO: To decompose a tablet computer. Learn how a tablet works and how it is different to a laptop. Draw the different parts of a tablet onto a template and label it.</p>	<p>Teaching sequence: Show the children a powerpoint and what it looks like out of slide show. -LO: To understand that software can be used to work online collaboratively. Typing onto a Google Docs collaboratively. Discuss rules for working collaboratively. -LO: To understand how to create effective presentations. Learning the basics of how to use Google Slides. -LO: To understand how to create and share Google Forms. Using Google forms to write down questions to ask people about exercise in prep for their spreadsheet next lesson. -LO: To understand how to use a shared spreadsheet to explore data. Collecting data and inputting it into their spreadsheets.</p>	<p>Teaching sequence: Show the children a spreadsheet and how it organises data so that it is easier to interpret. -LO: To log data taken from online sources in a spreadsheet. Searching online for the weather in countries and record the temperature data using spreadsheet. -LO: To design an automated machine to respond to sensor data. Using Sketchpad to draw and annotate their automated machines and note down an algorithm explaining how the machine works to collect info about the weather. -LO: To understand how weather forecasts are made. Children to search what the weather will be like tomorrow. Looking at various weather forecast and inputting the info into a spreadsheet under the headings: temperature, wind speed, chance of rain, general weather conditions.</p>	<p>Teaching sequence: - LO: To understand and identify examples of HTML tags. children to go on a HTML hunt and find as many tags as they can. - LO: To change HTML code for a specific purpose. Children to tinker with the existing HTML code and see what tags they can adapt or change using their knowledge of HTML. - LO: To change the HTML and CSS to alter the appearance of an object on the web. Children to create their own storyboard by altering the text and image in the first box and then adding two or three further boxes. - LO: To understand and explore complex components of a web page. Inspecting HTML to spot fake news. Children to choose one of the websites displayed and create a 'fake version' of a</p>

				<p>-LO: To use tablets or digital cameras to present a weather forecast. Filming each other presenting a weather forecast on iMovie.</p>	<p>web page by altering the code. - LO: To alter key elements on a web page including text and images. Learning how to change images on a webpage.</p>
<p>National Curriculum links:</p> <ul style="list-style-type: none"> 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. 	<p>National Curriculum links:</p> <ul style="list-style-type: none"> 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. 	<p>National Curriculum links:</p> <p>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. 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.</p>	<p>National Curriculum links:</p> <ul style="list-style-type: none"> Understand computer networks, including the internet; how they can provide multiple services, such as the world wide web, and the opportunities they offer for communication and collaboration. Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information. Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. 	<p>National Curriculum links:</p> <ul style="list-style-type: none"> 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. 	<p>National Curriculum links:</p> <ul style="list-style-type: none"> Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. Solve problems by decomposing them into smaller parts.

ICT Teaching Sequences Y3/4- Cycle B

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p>Key Concepts:</p> <p>Computer systems and networks: emails</p>	<p>Key Concepts:</p> <p>Programming: Scratch</p>	<p>Key Concepts:</p> <p>Creating media: Video trailers</p>	<p>Key Concepts:</p> <p>Creating media: Website design</p>	<p>Key Concepts:</p> <p>Programming: Further coding with Scratch</p>	<p>Key Concepts:</p> <p>Programming: Computational Thinking</p>
<p>Teaching sequence: Model writing an email and sending it to another class teacher. -LO: To understand how we communicate with technology. Learn the different devices used to communicate and be taught about emails. Children will be shown how to send an email. - LO: To understand what emails are and how to send one. Sign into Gmail and write and send an email. - LO: To know how to create an email with an attachment. Attach an attachment to an email and send it.</p>	<p>Teaching sequence: Listen to a soundtrack and identify the loops. -LO: To explore a programming application. Explore Scratch using planned cycle of predict, explore and explain. -LO: To use repetition (a loop) in a program. Using loops to program music. -LO: To program an animation. Remix an animation, which means to create a copy of the program and change it to do what they want. -LO: To program a game. Writing code to control sprites in Scratch.</p>	<p>Teaching sequence: Show the children a video trailer and discuss its purpose. -LO: To plan a book trailer. Create a storyboard of the key parts of their chosen book. -LO: To take photos or videos that tell a story. Filming/taking pictures using their story board. -LO: To edit a video. Use iMovie to create their video trailers. Importing videos and clips and adding music/voiceovers. -LO: To add text and transitions to a video. Edit transitions and add text to their book trailers.</p>	<p>Teaching sequence: Show the children a web page and navigate it together on the IWB. -LO: To explore the features of Google Sites. Using Google Sites to create a webpage and follow a check list to add content. Using Google Sites to create a webpage and follow a check list to add content. -LO: To plan content for a collaborative webpage. Planning their book review for content for their webpages. Adding a page to the collaborative site and start creating page, adding the features from L1. -LO: To create a webpage as part of a collaborative class website. - LO: To plan and create a website. Plan a website in detail, considering the Google Sites feature. Build website based on designs. - LO: To create and evaluate a website. Build website with four pages and use a range of</p>	<p>Teaching sequence: Allow the children to play on a Scratch game. -LO: To understand how a Scratch game works by using decomposition to identify key features. Children will decompose the quiz game into its parts to determine what code blocks might have been used. -LO: To understand what a variable is and how to make one. Using the 'ask' block in Scratch. Store an answer to a question as a variable. -LO: To understand how to make a variable in Scratch. Creating a variable within their maths program on Scratch to record scores.</p>	<p>Teaching sequence: -LO: To understand that computational thinking is made up of four key strands. Identifying the four strands of computational thinking; decomposition, pattern recognition, abstraction, algorithm design. Carousel of activities linking to each strand. -LO: To understand what decomposition is and how to apply it to solve problems. Decomposing a problem to figure out which code blocks might have been used in Scratch. -LO: To understand what pattern recognition and abstraction mean. Recognising patterns in code and then children to create their own copy of the Scratch project and modify the code. -LO: To understand how to create an algorithm and what it can be used for. Using their algorithm to write a script using Scratch.</p>

			features on Google sites. Evaluate website.		Then using pattern recognition to modify their script to draw different shapes.
<p>National Curriculum links:</p> <ul style="list-style-type: none"> • Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. • 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. 	<p>National Curriculum links:</p> <ul style="list-style-type: none"> • Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs. • Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. <p>Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.</p>	<p>National Curriculum links:</p> <ul style="list-style-type: none"> • 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. <p>Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.</p>	<p>National curriculum links</p> <ul style="list-style-type: none"> • 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 technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. 	<p>National curriculum links</p> <ul style="list-style-type: none"> • Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. • Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs. • Use sequence, selection, and repetition in programs; work with variables and various forms of input and output. 	<p>National curriculum links</p> <ul style="list-style-type: none"> • Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs. • Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.

ICT Teaching Sequences Y5/6- Cycle A

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p>Key Concepts:</p> <p>Programming 1: Music</p>	<p>Key Concepts:</p> <p>Creating media: Stop Motion</p>	<p>Key Concepts:</p> <p>Computing systems and networks: Search engines</p>	<p>Key Concepts:</p> <p>Data handling: Big data 1</p>	<p>Key Concepts:</p> <p>Data handling: Big data 2</p>	<p>Key Concepts:</p> <p>Programming: Introduction To Python</p>
<p>Teaching Sequences:</p> <p>Listen to a soundtrack and identify pitch, rhythm, tempo and timbre.</p> <p>-LO: To tinker with Scratch music elements. Tinkering with the sound options in Scratch.</p> <p>-LO: To plan a soundtrack program. Planning a sound track for a part of a book and consider 'Pitch', 'Rhythm', 'Tempo' and 'Timbre'</p> <p>-LO: To program a soundtrack. Coding their music and scene on Scratch using 'loops'.</p>	<p>Teaching Sequences:</p> <p>Watch various animations, such as Tom and Jerry and the making of Disney movies.</p> <p>-LO: To understand what animation is. Understanding animation and exploring thaumatrope/ flip book/ zoetrope.</p> <p>-LO: To understand what stop motion animation is. Looking at a Wallace and Gromit animation and learning how it was made.</p> <p>Learning about frames and how to take a good picture.</p> <p>-LO: To plan my stop motion video, thinking about the characters I want to use. Creating a storyboard for an alien adventure animation.</p> <p>-LO: To create a stop motion animation. Creating their alien adventure Stopmotion.</p>	<p>Teaching Sequences:</p> <p>-LO: To understand what a search engine is and how to use it. Using Google search engine to find the answers to questions and record them using word.</p> <p>-LO: To be aware that not everything online is true. Researching and checking information online by using two websites.</p> <p>-LO: To search effectively. Researching a question on the internet and deciding which website to use by checking 'title, author, summary, is it for kids?'</p>	<p>Teaching Sequences:</p> <p>-LO: To identify how barcodes and QR codes work. Identify and collect data from QR codes on QR code treasure hunt.</p> <p>-LO: To recognise how RFID is used. Encode data which mimics bank account details so they cannot be hacked. They will write a four or eight-digit number in the first cell of a spreadsheet and create a two-stage encoding and decoding process.</p> <p>-LO: To input and analyse real-world data. Input the Kapowland data into a spreadsheet and then create a graph to analyse. Make conclusions.</p> <p>-LO: To analyse and evaluate data. I can sort and compare data within a spreadsheet. Filtering.</p>	<p>Teaching Sequences:</p> <p>Look at how data is displayed on a spreadsheet.</p> <p>- LO: To explain how data can be safely transferred. Recognising that data can become corrupted within a network and explaining how data sent in 'packets' is more robust.</p> <p>- LO: To investigate the data usage of online activities. Looking at the data usage of various activities and that they will create a spreadsheet to show how much they can use the internet for various activities.</p> <p>- LO: To identify how data analysis can improve city life. children are going to use what they have learnt about using data to help plan for city development. The children will make a list of all of the new features they would like to add to their own smart city.</p> <p>- LO: To design a system for turning a school into a smart school. Children devise a plan to turn their school into a</p>	<p>Teaching Sequences:</p> <p>- LO: To tinker with a new piece of software. Tinkering with Logo and hand out devices with internet access. Children will be learning to use the speed and precision of a computer to create complicated artistic patterns with only a few simple lines of code.</p> <p>-LO: To understand nested loops. Exploring drawing repeating patterns with nested loops.</p> <p>- LO: To understand basic Python commands. Copying and typing code into Python Turtle. Children to remix the code to produce alterations to the house. Decomposition.</p> <p>- LO: To use loops when programming. Children to decompose repeated codes. Then children to input their own code into Trinket to create their own tinkered version of the repeated circles.</p>

				<p>smart school. Explain that they will need to develop a pitch to persuade the headteacher of how and why Big Data and the Internet Of Things could help improve the school. Present on PPT.</p> <p>- LO: To present ideas for turning a school into a smart school.</p> <p>Present to the class their ideas on turning their school into a smart school. Peer evaluating.</p>	
<p>National curriculum links:</p> <ul style="list-style-type: none"> 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 	<p>National curriculum links:</p> <ul style="list-style-type: none"> 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 	<p>National curriculum links:</p> <p>Use technologies effectively, evaluate how results are selected, and be discerning in using digital content.</p> <p>Use and combine a variety of digital devices and systems (including internet services) to create content that accomplish given goals, including collecting data and information.</p> <ul style="list-style-type: none"> Use 	<p>National curriculum links:</p> <ul style="list-style-type: none"> Understand computer networks including the internet; how they can provide multiple services, such as the world-wide web; and the opportunities they offer for communication and collaboration. Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information. 	<p>National curriculum links:</p> <ul style="list-style-type: none"> 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. 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. 	<p>National curriculum links:</p> <ul style="list-style-type: none"> Use sequence, selection, and repetition in programs; work with variables and various forms of input and output Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts

ICT Teaching Sequences Y5/6- Cycle B

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p>Key Concepts:</p> <p>Programming 2: Micro:bit</p>	<p>Key Concepts:</p> <p>Data Handling: Mars Rover</p>	<p>Key Concepts:</p> <p>Skills showcase: Mars Rover 2</p>	<p>Key Concepts:</p> <p>Computing systems and networks: Bletchley Park</p>	<p>Key Concepts:</p> <p>Creating media: History of computers</p>	<p>Key Concepts:</p> <p>Skills showcase: Inventing a product</p>
<p>Teaching Sequences: See a microbit in action and the different things that can be done using one. -LO: To tinker with a new piece of software. Learning how to use a microbit with an ipad. -LO: To program an animation. Planning and programming an animation on the micro:bit. -LO: To recognise coding structures. creating a program with a 'variable'. -LO: To create a program for a specific task. Programming a microbit to be a pedometer.</p>	<p>Teaching Sequences: - LO: To identify how and why data is collected from space. Researching the distance from Earth to Mars based on the length of other objects. - LO: To read and calculate numbers using binary code. Learning about the 8-bit binary system which sends up to 255 different signals, with only eight different on or offs. - LO: To identify the computer architecture of the Mars Rovers. Learning about input and output. Children to complete their Mars Rover sequence of instructions. -LO: To use simple operations to calculate bit patterns. Solving binary number problems from the spreadsheet. - LO: To represent binary as text. Children using the the link: ASCII Table. The children can use this table to create</p>	<p>Teaching Sequences: -LO: To recognise how bit patterns represent images as pixels. Learning how photographic data is transmitted by the Mars Rover. Designing a pixel image. -LO: To explain how the data for digital images can be compressed. Learning about JPEG and how large pixels are compressed to be sent. -LO: To identify and explain the fetch, decode, execute cycle. Learn about the function of working memory and storage memory in computers. Children giving instructions using fetch, decode and execute. -LO: To create a safe online profile and tinker with 3D design software. Using 3D design software, TinkerCAD to design a tyre for the Mars Rover.</p>	<p>Teaching Sequences: Show children an example of a poster made on word/ppt. - LO: To understand there are many different types of secret codes. Children will attempt to break different cipher codes in pairs. - LO: To understand the importance of having a secure password. Children to experiment with the existing code on 'brute force emulator' to create their emulator and explore both making a password easier to guess and a more secure password. - LO: To understand the importance of Bletchley Park to the World War II war effort. Create an information poster about Bletchley Park WW2. Use a range of software to create their posters. Options in the Microsoft Office package include Microsoft Word and Microsoft Powerpoint. Alternatively, Google Docs</p>	<p>Teaching Sequences: Show children pictures/videos of how computers have changed over time. - LO: To understand how computers have changed and the impact this has had on the modern world. create a timeline of the different computers using a medium of their choice, i.e. a slide presentation. - LO: To research one of the computers that changed the world and present information about it to the class. In pairs, children to research and present information about one of the machines they found out about. - LO: To design a computer of the future. Using their research into historic computers and modern computers, they are going to design the computer of the future.</p>	<p>Teaching Sequences: Look at designs made on CAD and how it works. - LO: To design an electronic product. Plan and code their own project and note down an algorithm that would achieve their idea using Micro:bit. - LO: To code and debug a program. Coding program in sections. Test their code and identify any errors or bugs they have found. If they find any, they should isolate the section it could be found in and pinpoint what is causing the issue before trying to rectify it. - LO: To use CAD to design a product. - LO: To create a website. Desingiong their product on CAD. Creating website to advertise their product. - LO: To create and edit a video. Using the link: WeVideo to create a video advertisement for their product.</p>

	their own messages using a series of 8-bit binary codes.		or Google Slides could be used instead.		- LO: To understand the techniques used in advertising a product.
<p>National curriculum links:</p> <ul style="list-style-type: none"> 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. 	<p>National curriculum links:</p> <ul style="list-style-type: none"> 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. 	<p>National curriculum links:</p> <ul style="list-style-type: none"> Understand computer networks including the internet; how they can provide multiple services, such as the world-wide web, and the opportunities they offer for communication and collaboration. Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information. Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. 	<p>National curriculum links:</p> <ul style="list-style-type: none"> Solve problems by decomposing them into smaller parts. Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs. Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. 	<p>National curriculum links:</p> <ul style="list-style-type: none"> Explain and discuss their understanding of what they have read, including through formal presentations and debates, maintaining a focus on the topic and using notes where necessary. Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. 	<p>National curriculum links:</p> <ul style="list-style-type: none"> Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. Use sequence, selection, and repetition in programs; work with variables and various forms of input and output. Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs. Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.

Computing systems and networks

Programming

Data handling

Creating media