Oughtibridge Primary School
Computing Long Term Plan

	Autumn Term	Spring Term	Summer Term
Foundation Stage	**Autumn 1** **We Control Technology** Children will learn to… • recognise a range of technology and what it is used for • identify which device to choose from a selection to fulfil a specific task • explore different technology in school e.g. iPad, computers and cameras • name the basic parts of a computer or tablet e.g. mouse, screen, keyboard Aim: to recognise and use a range of technology. **Online Safety** Children will learn to… • understand the use of passwords when logging onto a computer and the importance of keeping them private • responsibly use technology e.g. asking to use technology using the Smartie the Penguin story Aim: to use technology appropriately and understand the need to use a password.	**Spring 1** **Creating Media** Children will learn to… • create digital art using specific software • use basic tools to create an image in an art package • combine media to present information e.g. add text to artwork • record music and sound effects, create digital music and combine audio and images • use a digital camera/tablet camera to take photos and choose photos for a purpose Aim: use an iPad to take photographs of their learning. **Online Safety** Children will learn to… • understand about ownership of digital content e.g. 'Who does the artwork belong to?' • understand about who owns a piece of music • discuss getting permission when you take photos of other people Aim: to understand that items belong to certain people and how to gain permission to use these items.	**Summer 1** **Creating Media** Children will learn to… • access and create digital content • answer questions about data presented in pictures Aim: to make a photo journal of the lifecycle of chicks.

Foundation Stage	**Autumn 2** **We Control Technology** Children will learn to… • explore a range of hardware and software to make things happen • understand that we control computers by giving them instructions • tinker with cause and effect apps and programmes • follow instructions to control a device e.g. Beebot • create a short program to move a programmable toy Aim: to be able to use a programmable toy effectively. **Online Safety** Children will learn to… • understand online gaming, videos and adverts • understand online friends and being kind online Aim: to understand the importance of being safe online. **Creating Media** Children will learn to… • know how to change colours or pens on a drawing app Aim: to use a drawing app to design an alien.	**Spring 2** **Creating Media** Children will learn to… • control a video loaded on a web page or from the computer using play/stop control on screen • use everyday technology to record a video e.g. microphones and cameras • create a short film as a class or group to present information or tell a story • use common gestures or controls to move through an eBook • choose images, text and audio content to add to an eBook Aim: to use an iPad to record storytelling. **Online Safety** Children will learn to… • understand about personal information e.g. 'What should we keep private?' • recognise who to tell if something upsets them online • understand the number/letter on a DVD or at the cinema Aims: to understand what information is appropriate to share online. to understand how to tell an adult if something upsets them online. to understand why some films have ratings and how these help to keep them safe.	**Summer 2** **Data** Children will learn to… • sort objects according to key features • answer questions about groups of objects • understand how to keep personal information safe e.g. videos • recognise who to tell if they see something that upsets them online Aim: to understand ways of staying safe online.

Year 1	**Data** Children will learn to… • identify that objects can be counted • describe objects in different ways • count objects with the same properties • compare groups of objects Aim: to explore object labels, then use them to sort and group objects by properties. **Computing Systems and Networks** Children will learn to… • name a range of digital devices • identify a computer and its main parts • use a mouse in different ways • use a keyboard to type • use the keyboard to edit text • create rules for using technology responsibly Aim: to recognise technology in school and use it responsibly.	**Creating Media** Children will learn to… • understand that you can edit and change digital content • select basic options to change the appearance of digital content • design and create digital content for a specific purpose • combine media with support to present information Aim: to choose appropriate tools in a program to create art, and make comparisons with working non-digitally. **Programming** Children will learn to… • identify and list the steps of a known task in order • understand that we control computers by giving them instructions • create a simple program (e.g. to control a floor robot) • understand what an algorithm is • create a simple algorithm • debug an error in a simple algorithm or program (e.g. a floor robot) Aim: to be able to program a BeeBot using a simple algorithm and understand how to debug an error.	**Creating Media** Children will learn to… • design and create digital content for a specific purpose • select media to present information on a topic • use a keyboard to type • use the keyboard to edit text • understand that you can edit and change digital content • select basic options to change the appearance of digital content Aim: to use a computer to create and format text, before comparing to writing non-digitally. **Programming** Children will learn to… • identify and list the steps of a known task in order • understand that we control computers by giving them instructions • create simple programs • understand what an algorithm is • create a simple algorithm • debug an error in a simple algorithm or program Aim: to design and program the movement of a character on screen to tell stories.

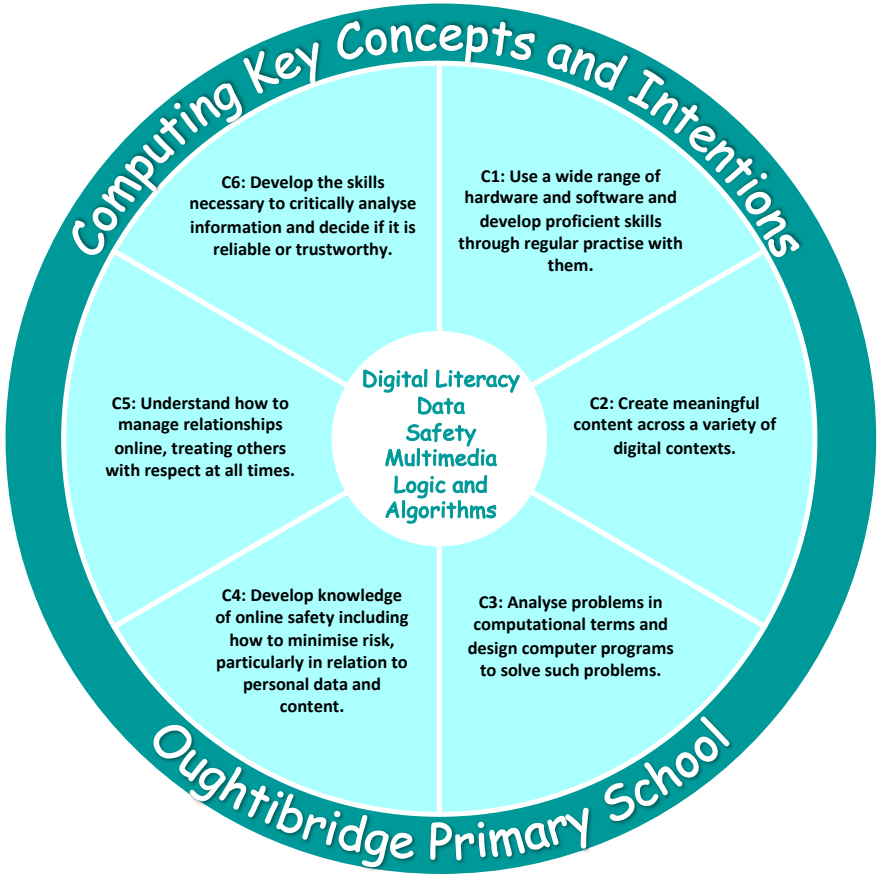
Year 2	**Computing Systems and Networks** Children will learn to... • be able to name the parts of a computer • identify what information technology (IT) is • recognise common uses for information technology (IT) in and beyond school • understand that content can be saved on digital devices Aim: to recognise the different types of information technology and their uses **Programming** Children will learn to... • understand algorithms are made of clear and precise instructions • understand the importance of an order of commands in a programme and how debugging is an important part of improving programmes Aims: To programme a Beebot correctly around a London map. To transfer computational thinking skills onto other software such as Scratch Jr.	**Creating Media** Children will learn to… • apply edits to digital content to achieve a particular effect • plan out digital content • present ideas and information by combining media independently • talk about what makes digital content good or bad • edit digital content to improve it Aim: to capture and change digital photographs for different purposes. **Data** Children will learn to… • recognise that we can count and compare objects using tally charts • recognise that objects can be represented as pictures • create a pictogram • select objects by attribute and make comparisons • understand that we can present information using a computer Aim: to collect data in tally charts and use attributes to organise and present data on a computer.	**Creating Media** Children will learn to… • apply edits to digital content to achieve a particular effect • plan out digital content • present ideas and information by combining media independently • talk about what makes digital content good or bad • edit digital content to improve it Aim: to use a computer as a tool to explore rhythms and melodies, before creating a musical composition. **Programming** Children will learn to… • understand that a sequence of commands has a start • understand that a sequence of commands has an outcome • create and debug a program • evaluate the success of an algorithm or program Aim: to design algorithms and programs that use events to trigger sequences of code to make an interactive quiz.

Year 3	**Computing Systems and Networks** Children will learn to… • explain how digital devices function • identify input and output devices • recognise how digital devices can change the way we work • explain how a computer network can be used to share information • explore how digital devices can be connected • recognise the physical components of a network Aim: to develop an understanding of digital devices and find the benefits of connecting devices in a network. **Creating Media** Children will learn to… • recognise how text and images convey information • choose appropriate page settings in desktop publishing • add content to a desktop publishing publication • consider how different layouts can suit different purposes Aim: to create a magazine front cover.	**Programming** Children will learn to… • explain that a program has a start • recognise that a sequence of commands can have an order • change the appearance of a project • create a project from a task description Aim: to create sequences in a block-based programming language to make music. **Data** Children will learn to… • create questions with yes/no answers • identify the object attributes needed to collect relevant data • create a branching database • identify objects using a branching database • understand why it is helpful for a database to be well structured • compare the information shown in a pictogram with a branching database Aim: to build and use branching databases to group objects using yes/no questions.	**Creating Media** Children will learn to… • explain that animation is a sequence of drawings or photographs • relate animated movement with a sequence of images • plan and create an animation • evaluate the impact of adding other media to an animation Aim: to use a range of techniques to create a stop-frame animation on an iPad. **Programming** Children will learn to… • adapt a program to a new context • develop a program by adding features • identify and fix bugs in a program • create a project from a task description Aim: to write algorithms and programs that use a range of events to trigger sequences of actions.

Year 4	**Computing Systems and Networks** Children will learn to... • describe how networks physically connect to other networks • recognise how networked devices make up the internet • understand how websites can be shared via the World Wide Web • describe how content can be added and accessed on the World Wide Web • recognise how the content of the World Wide Web is created by people • evaluate the consequences of unreliable content online Aim: to recognise the internet as a network of networks including the WWW, and understand why we should evaluate online content. **Creating Media** Children will learn to... • understand that sound can be digitally recorded • use a digital device to record sound • explain that a digital recording is stored as a file • explain that audio can be changed through editing • evaluate editing choices made to digital projects Aim: to capture and edit audio to produce a podcast, ensuring that copyright is considered.	**Programming** Children will learn to... • understand that accuracy in programming is important • create a program in a text-based language • explain what 'repeat' means • modify a count-controlled loop to produce a given outcome • decompose a program into parts • create a program that uses count controlled loops to produce a given outcome Aim: to use text-based programming language to explore repetition in games. **Data** Children will learn to... • explain that data gathered over time can be used to answer questions • use a digital device to collect data automatically • explain that a data logger collects 'data points' from sensors over time • use data collected over a long duration to find information • identify the data needed to answer questions • use collected data to answer questions Aim: to recognise how and why data is collected over time, before using data loggers to carry out an investigation.	**Creating Media** Children will learn to... • understand that digital images can be changed for a range of different uses • change the composition of an image • make good choices when selecting different tools • recognise that not all images are real • evaluate editing choices made to digital projects Aim: to manipulate digital images, and reflect on the impact of changes and whether the required purpose is fulfilled. **Programming** Children will learn to... • explain that in programming there are infinite loops and count controlled loops • modify an infinite loop in a given program • design and create a project that includes repetition Aim: to use a block-based programming language to explore count-controlled and infinite loops when creating a game.

Year 5	**Computing Systems and Networks** Children will learn to… • explain that computers can be connected together to form systems • recognise the role of computer systems in our lives • experiment with search engines • describe how search engines select results • explain how search results are ranked • recognise why the order of results is important, and to whom Aim: to recognise how the WWW can be used to communicate and be searched to find information. **Creating Media** Children will learn to… • recognise video as moving pictures, which can include audio • capture video using a digital device • recognise the features of an effective video • identify that video can be improved through reshooting and editing • consider the impact of the choices made when making and sharing a video Aim: to plan, capture, and edit video to produce a short film.	**Programming** Children will learn to… • explain how selection is used in computer programs • use selection in an infinite loop to check a condition • identify the condition and outcomes in an 'if… then… else…' statement • design a physical project that includes selection • create a controllable system that includes selection Aim: to explore selection using a programmable microcontroller. **Data** Children will learn to… • use a form to record information • compare paper and computer-based databases • outline how grouping and then sorting data allows us to answer questions • explain that tools can be used to select specific data • explain that computer programs can be used to compare data visually • apply knowledge of a database to ask and answer real-world questions Aim: to use a database to order data and create charts to answer questions.	**Creating Media** Children will learn to… • identify and use appropriate hardware and software to fulfil a specific task • identify that drawing tools can be used to produce different outcomes • use tools to achieve the desired effect • recognise that vector drawings consist of layers • group objects to make them easier to work with Aim: to create images in a drawing program by using layers and groups of objects. **Programming** Children will learn to… • explain how selection is used in computer programs • understand that a conditional statement connects a condition to an outcome • explain how selection directs the flow of a program • design a project that includes selection • create a program which uses selection Aim: to explore selection in programming to design and code an interactive quiz.

Year 6	**Computing Systems and Networks** Children will learn to… • identify how to use a search engine • describe how search engines select results • explain how search results are ranked • recognise why the order of results is important, and to whom • recognise how we communicate using technology • evaluate different methods of online communication Aim: to identify and explore how information is shared between digital systems. **Programming** Children will learn to… • define a 'variable' as something that is changeable • explain why a variable is used in a program • choose how to improve a game by using variables • design and create a project that builds on a given example Aim: to explore variables when designing and coding a game	**Creating Media** Children will learn to… • use a variety of hardware and software, making independent choices appropriate for the purpose, audience and aims of the digital content • plan the features of a web page • consider the ownership and use of images (copyright) • recognise the need to preview pages in webpage design • understand the need for a navigation path • recognise the implications of linking to content owned by other people Aim: to design and create webpages, giving consideration to copyright, aesthetics and navigation. **Data** Children will learn to… • identify questions which can be answered using data • explain that objects can be described using data • explain that formula can be used to produce calculated data • apply formulas to data, including duplicating • create a spreadsheet to plan an event • choose suitable ways to present data Aim: to answer questions by using spreadsheets to organise and calculate data.	**Programming** Children will learn to… • create a program to run on a controllable device • update a variable with a user input • use a conditional statement to compare a variable to a value • design a project that uses inputs and outputs on a controllable device • develop a program to use inputs and outputs on a controllable device Aim: to design and code a project that captures inputs from a physical device. **Creating Media** Children will learn to… • use a variety of hardware and software, making independent choices appropriate for the purpose, audience and aims of the digital content • use a computer to create and manipulate three-dimensional (3D) digital objects • construct a digital 3D model of a physical object • identify that physical objects can be broken down into a collection of 3D shapes • design a digital model by combining 3D objects • develop and improve a digital 3D model Aim: to plan, develop, and evaluate 3D computer models of physical objects.



Digital Literacy - How can we use information technology to find, store, use and share content?

Data - How is information stored, organised and shared across computer systems and devices?

Safety – What steps do we need to take to keep ourselves (and our data) safe?

Multimedia– How can we present information effectively?

Logic and Algorithms - What processes or sets of rules, need to be followed in order to solve a problem or complete a task?