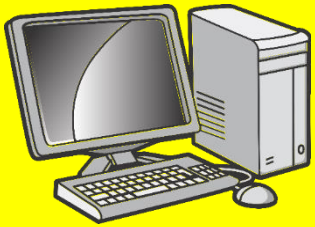
Templenewsam Halton Primary
Computing Long Term Plan



	Autumn	Spring	Summer
Early Years	**Nursey** **Busy Bodies** ***Children will learn to:*** Follow instructions Decide what the most important things to include in their work are. Create models by breaking the task into smaller parts to make it manageable. Create their own algorithm (sequence) by deciding the order in which to create their model. **Awesome Autumn** ***Children will learn to:*** Talk about and identify the patterns around them. Extend and create ABAB patterns (e.g. stick, leaf, stick, leaf).	**Nursey** **Winter Warmers** ***Children will learn to:*** Create an algorithm to create an item, such as a bird feeder. Follow instructions to create an item, such as a bird feeder. Suggest improvements to their design. Collaborate their ideas and thoughts. Use tinkering to refine ideas. **Reception** **Winter warmer** ***Children will learn to:*** Create an algorithm to create an item, such as a bird feeder.	**Nursery** **Summer Fun** ***Children will learn to:*** Creating pictograms, check their work, and make changes or fixes where needed. Organise objects into colour or shape categories to provide opportunities to spot patterns amongst the different groups. **Reception** ***Children will learn to:*** Use different digital devices. Recognise that you can access content on a digital device. Use a mouse or touchscreen to target and select options on a screen.

	Notice and correct an error in a repeating pattern. Make prints or use the images provided and create repeating patterns Check their work, making changes or fixes where needed. Talk about similarities and differences they can see. Predict what comes next in the pattern, and complete and check. Build up a picture of the pattern and further refine their understanding based on new information they find. Create routes, journeys and describe a sequence of events using words like 'in front of', 'behind', 'first', 'then.' Use logical reasoning to predict which route through the maze will be quickest / best and explain their reasons. **Reception** **Awesome Autumn** ***Children will learn to:*** Continue, copy and create repeating patterns. Make and continue patterns with varying rules (including AB, ABB and ABBC). Notice and correct an error in a repeating pattern.	Follow instructions to create an item, such as a bird feeder. Suggest improvements, test and debug their design. Use logical reasoning through tinkering to refine their understanding based on new information they find. Collaborate their ideas and thoughts. Use recording resources to order a task **Springtime** ***Children will learn to:*** Use logical reasoning through tinkering to predict what might work and to understand when things go wrong. Understand how recording during creating may help with improving ideas. Begin to record their own algorithms using pictures and symbols to plan a route, spot mistakes in their algorithms and debug (find and fix) their mistake.	Recognise a selection of digital devices. Recognise the basic parts of a computer – mouse, screen, keyboard. Select a digital device to fulfil a specific task – take a photo.

	Checking their work, making changes or fixes where needed. Talk about similarities and differences they can see. Predict what comes next in the pattern, and complete and check. Build up a picture of the pattern and further refine their understanding based on new information they find. Create routes, journeys and describe a sequence of events using words like 'in front of', 'behind', 'first', 'then.' Use logical reasoning to predict which route through the maze will be quickest / best and explain their reasons.		
Year 1	**Computing systems and networks – Technology around us** ***Children will learn:*** To identify technology. To identify a computer and its main parts. To use a mouse in different ways. To use a keyboard to type on a computer. To use the keyboard to edit text. To create rules for using technology responsibly. **Creating media – digital painting** ***Children will learn:*** To describe what different freehand tools do.	**Creating media – digital writing** ***Children will learn:*** To use a computer to write. To add and remove text on a computer. To identify that the look of text can be changed on a computer. To make careful choices when changing text. To explain why I used the tools that I chose. To compare writing on a computer with writing on paper. **Data and information – grouping data** ***Children will learn:*** To label objects. To identify that objects can be counted.	**Programming A – moving a robot** ***Children will learn:*** To explain what a given command will do To act out a given word. To combine forwards and backwards commands to make a sequence. To combine four direction commands to make sequences. To plan a simple program. To find more than one solution to a problem. **Programming B – introduction to animation** ***Children will learn:***

	To use the shape tool and line tool. To make careful choices when painting a digital picture. To explain why I used the tools I did. To use a computer on my own to paint a picture.	To describe objects in different ways. To count objects with the same properties. To compare groups of objects. To answer questions about groups of objects.	To choose a command for a given purpose. To show that a series of commands can be joined together. To identify the effect of changing a value. To explain that each sprite has its own instructions. To design the parts of a project. To use my algorithm to create a program.
Year 2	**Computing systems and networks – IT around us** ***Children will learn:*** To recognise the uses and features of information technology. To identify information technology in the home. To identify information technology beyond school. To explain how information technology benefits us. To show how to use information technology safely. To recognise that choices are made when using information technology. **Creating media – digital photography** ***Children will learn:*** To know what devices can be used to take photographs. To use a digital device to take a photograph. To describe what makes a good photograph.	**Creating media – making music** ***Children will learn to:*** To say how music can make us feel (not a computing related progression step). To identify that there are patterns in music. To describe how music can be used in different ways. To show how music is made from a series of notes. To create music for a purpose. To review and refine our computer work. **Data and information – pictograms** ***Children will learn:*** To recognise that we can count and compare objects using tally charts. To recognise that objects can be represented as pictures. To create a pictogram. To select objects by attribute and make comparisons. To recognise that people can be described by attributes.	**Programming A – robot algorithms** ***Children will learn:*** To describe a series of instructions as a sequence. To explain what happens when we change the order of instructions. To use logical reasoning to predict the outcome of a program (series of commands). To explain that programming projects can have code and artwork. To design an algorithm. To create and debug a program that I have written. **Programming B – An introduction to quizzes** ***Children will learn:*** To explain that a sequence of commands has a start. To explain that a sequence of commands has an outcome. To create a program using a given design

	To decide how photographs can be improved. To use tools to change an image. To recognise that images can be changed.	To explain that we can present information using a computer.	To change a given design. To create a program using my own design.
Year 3	**Computing systems and networks – connecting computers** ***Children will learn:*** To explain how digital devices function. To identify input and output devices. To recognise how digital devices can change the way we work. To explain how a computer network can be used to share information. To explore how digital devices can be connected. To recognise the physical components of a network. **Creating media – animation** ***Children will learn:*** To explain that animation is a sequence of drawings or photographs. To relate animated movement with a sequence of images. To plan an animation. To identify the need to work consistently and carefully. To review and improve an animation. To evaluate the impact of adding other media to an animation.	**Creating media – desktop publishing** ***Children will learn:*** To recognise how text and images convey information. To recognise that text and layout can be edited. To choose appropriate page settings. To add content to a desktop publishing publication. To consider how different layouts can suit different purposes. To consider the benefits of desktop publishing. **Data and information – branching databases** ***Children will learn:*** To create questions with yes/no answers. To create a branching database. To explain why it is helpful for a database to be well structured. To identify objects using a branching database. To identify the object attributes needed to collect relevant data.	**Programming A – sequence in music** ***Children will learn:*** To explore a new programming environment. To identify that each sprite is controlled by the chosen commands. To explain that a program has a start. To recognise that a sequence of commands can have an order. To change the appearance of their project. To create a project from a task description. **Programming B - events and actions** ***Children will learn:*** To explain how a sprite moves in an existing project. To create a program to move a sprite in four directions. To adapt a program to a new context. To develop my program by adding features. To identify and fix bugs in a program. To design and create a maze based (given) challenge.

		To compare the information shown in a pictogram with a branching database.	
Year 4	**<u>Computing systems and networks – The internet</u>** ***Children will learn:*** To describe how networks physically connect to other networks. To recognise how networked devices make up the internet. To outline how websites can be shared via the World Wide Web. To describe how content can be added and accessed on the World Wide Web. To recognise how the content of the WWW is created by people. To evaluate the consequences of unreliable content. **<u>Creating media – audio editing</u>** ***Children will learn:*** To identify that sound can be digitally recorded. To use a digital device to record sound. To explain that a digital recording is stored as a file. To explain that audio can be changed through editing. To show that different types of audio can be combined and played together. To evaluate editing choices made.	**<u>Creating media – photo editing</u>** ***Children will learn:*** To explain that digital images can be changed. To change the composition of an image. To describe how images can be changed for different uses. To make good choices when selecting different tools. To recognise that not all images are real. To evaluate how changes can improve an image. **<u>Data and information – data logging</u>** ***Children will learn:*** To explain that data gathered over time can be used to answer questions. To use a digital device to collect data automatically. To explain that a data logger collects 'data points' from sensors over time. To use data collected over a long duration to find information. To identify the data needed to answer questions. To use collected data to answer questions.	**<u>Programming A – repetition in shapes</u>** ***Children will learn:*** To identify that accuracy in programming is important. To create a program in a text-based language. To explain what 'repeat' means. To modify a count-controlled loop to produce a given outcome. To decompose a program into parts. To create a program that uses count-controlled loops to produce a given outcome. **<u>Programming B – repetition in games</u>** ***Children will learn:*** To develop the use of count-controlled loops in a different programming environment. To explain that in programming there are infinite loops and count controlled loops. To develop a design which includes two or more loops which run at the same time. To modify an infinite loop in a given program. To design a project that includes repetition. To create a project that includes repetition.

Year 5	**Computing systems and networks – Systems and searching** ***Children will learn:*** To explain that computers can be connected together to form systems. To recognise the role of computer systems in our lives. To recognise how information is transferred over the internet. To explain how sharing information online lets people in different places work together. To contribute to a shared project online. To evaluate different ways of working together online. **Creating media – vector drawing** ***Children will learn:*** To identify that drawing tools can be used to produce different outcomes. To create a vector drawing by combining shapes. To use tools to achieve a desired effect. To recognise that vector drawings consist of layers. To group objects to make them easier to work with. To evaluate my vector drawing.	**Creating media – video editing** ***Children will learn:*** To recognise video as moving pictures, which can include audio. To identify digital devices that can record video. To capture video using a digital device. To recognise the features of an effective video. To identify that video can be improved through reshooting and editing. To consider the impact of the choices made when making and sharing a video. **Data and information – flat-file databases** ***Children will learn:*** To use a form to record information. To compare paper and computer-based databases. To apply my knowledge of a database to ask and answer real-world questions. To explain that tools can be used to select data to answer questions. To apply my knowledge of a database to ask and answer real-world questions. To apply my knowledge of a database to ask and answer real-world questions.	**Programming A – selection in physical computing** ***Children will learn:*** To control a simple circuit connected to a computer. To write a program that includes count-controlled loops. To explain that a loop can stop when a condition is met, e.g. number of times. To conclude that a loop can be used to repeatedly check whether a condition has been met. To design a physical project which includes selection. To create a controllable system which includes selection. **Programming B – selection in quizzes** ***Children will learn:*** To explain how selection is used in computer programs. To relate that a conditional statement connects a condition to an outcome. To explain how selection directs the flow of a program. To design a program which uses selection. To create a program which uses selection. To evaluate my program.

Year 6	**Computing systems and networks – Communication and collaboration** ***Children will learn:*** To explain the importance of internet addresses. To explain how data is transferred across the internet. To explain how sharing information online can help people work together. To evaluate different ways of working together online. To recognise how we communicate using technology. To evaluate different methods of online communication. **Creating media – 3D modelling** ***Children will learn:*** To recognise that you can work in 3D on a computer. To identify that digital 3d objects can be modified. To recognise that objects can be combined in a 3d model. To create a 3d model for a given purpose. To plan my own 3d model.	**Creating media – web page creation** ***Children will learn:*** To review an existing website and consider its structure. To plan the features of a web page. To consider the ownership and use of images (copyright). To recognise the need to preview pages. To outline the need for a navigation path. To recognise the implications of linking to content owned by other people. **Data and information – spreadsheets** ***Children will learn:*** To create a data set in a spreadsheet. To build a data set in a spreadsheet. To explain that formulae should be used to produce calculated data. To apply formulae to data. To create a spreadsheet to plan an event. To choose suitable ways to present data.	**Programming A – variables in games** ***Children will learn:*** To define a 'variable' as something that is changeable. To explain why a variable is used in a program. To choose how to improve a game by using variables. To design a project that builds on a given example. To use my design to create a project. To evaluate my project. **Programming B – sensing** ***Children will learn:*** To create a program to run on a controllable device. To explain that selection can control the flow of a program. To update the variable with a user input. To use a conditional statement to compare a variable to a value. To design a project that uses inputs and outputs on a controllable device. To develop a program to use inputs and outputs on a controllable device.
All classes	**Online Safety**		

	Online safety will be taught throughout the year in addition to the curriculum in the above long-term plan. All year groups from Nursey to Year Six will follow the following eight online safety strands. These strands will be taught in the order deemed appropriate for each class and the curriculum objectives for each term. • Self-image and identity • Online relationships • Online reputation • Online bullying • Managing online information • Health, well-being and lifestyle • Privacy and security • Copywrite and ownership.