Thursby Primary School

Progression of Knowledge and Skills - Computing

	EYFS	Year 1 and 2	Year 3 and 4	Year 5 and 6
Information Technology	**Understanding the world:** Area of Learning: Technology. -Children will have some knowledge of how to log in to Purple Mash. -Children will create a simple digital project using drawing tool. -Children will know how to use the undo button. -Photography – Children will know how to use the camera function on an iPad. -Sounds – Children will know how to use Purple Mash to create music. -Recording – Children will know how to use Purple Mash to record sound. - Children will demonstrate the ability to operate a device using mouse skills and track pad skills	**Introduction to Purple Mash –** Children will know how to: Log in and out of Purple Mash. Keep passwords safe and understand why. Open and Save tasks set on 2Do. Communicate with the teacher via 2Do. Access Purple Mash homepage and understand that websites have a main page called a homepage. Navigate Purple Mash, understanding that you must close the current activity to be able to access another. Access own Purple Mash work area – opening and saving work. Use non-visible parts of the screen using scrolling. Use a physical or on-screen keyboard to type upper- and lower-case letters. **Creative computing** – Children will know that art can be created using digital tools. Children will know how to: select colours and painting effects in 2Paint, control a computer mouse and, use a mouse or finger (device dependent) to perform tasks. Children will know that digital tools can be used to play and make simple games. They will know how to: Use drag and drop methods to complete games, including 2DIY jigsaws and placing activities, how to use the image gallery to create jigsaw images and use hotspots in 2DIY placing games. Children will know that Purple Mash allows them to share work for others to use on digital display boards. Children will know how to: Share work to a Purple Mash Display Board, and access shared work on a Purple Mash Display Board. **Data Explorers –** Children will know that: Items can be grouped using a range of criteria, and a logical process should be used when doing so. Children will know how to identify criteria that can be used to sort items into groups, Sort items	**Unpacking hardware and software** – Children will know that the word 'technology' describes using scientific knowledge to design and make tools, systems or machines that help solve problems or make tasks easier. Children will know how to identify if an item is technology or not. Children will know that hardware describes the physical parts of a computer. Children will know how to define what is meant by hardware, components and peripherals, name hardware components of a computer system and describe the function of these different parts. Children will know that software describes the programs that instruct a computer to complete computational tasks. Children will know how to identify the functions and common components of different software tools and relate them to the tasks those tools perform. **Animation** – Children will know that animation software has specific functions that support the animation of still images such as static backgrounds, onion skinning and copying frames. Children will know how to use 2Animate to make simple animations using the specific animation functionality, and choose appropriate sound effects and speeds for animations. **Sound stories** – Children will know that an audiobook is a story or book read aloud and recorded for people to listen to. Children will know how to explain the differences between an audiobook and a physical book. Children will know that audiobooks can be made more interesting by adding expression, different voices, sound effects and background music. Children will know how to identify where a voice or sound effect might make a recorded story more exciting and engaging, create a range of	**Graphing** – Children will know that there are different types of graphs and that graphing helps to make sense of datasets and draw conclusions related to the collected data. Children will know how to create a variety of graph types and determine the best format to represent specified data, and be able to interpret these to draw conclusions. Children will know that comparative bar charts can be used to visually compare several data sets, pie charts represent data as parts of a whole and line graphs are used to represent the relationships between two variables as they change over time. Children will know how to create and compare these different types of graphs using relevant tools. **Spreadsheets** – (Microsoft, Apple & Google) Children will know that there are key features of a spreadsheet, and data can be entered into cells. Children will know how to talk about some uses of a spreadsheet, navigate around the front screen of their chosen program, navigate around a sheet using appropriate cell references, enter data into cells of the chosen program, and recall key vocabulary relating to spreadsheets. Children will know that a formula can be entered into a spreadsheet, this can save time and make working more efficient. Children will know how to define what is meant by a formula on a sheet, navigate around a sheet by clicking in a cell or typing cell reference, write simple formula related to the rules of calculation, use the series fill function and use formulae to change calculations automatically when data entered is changed. Children will know that using sorting and filtering tools can allow you to interrogate large amounts of data quickly and easily. Children will know how to sort data in a sheet by alphabetical or numerical order, use and apply a variety of text

Thursby Primary School

Progression of Knowledge and Skills - Computing

		using criteria, logically sort items into groups. Children will know that digital tools can be used to group images of items and know how to complete grouping questions in 2Quiz using given criteria. Children will know that sorting is a way to organise items and know how to complete sequencing questions in 2Quiz using given sorting criteria. Children will know that sorting and grouping have different meanings and how to decide whether it is better to sort or group items to organise them. Children will know that data is information that can be collected and used, and they will know how to identify items to be grouped or sorted as examples of data that can be organised and use data grouping and sorting to answer questions. Children will know that data can be represented digitally using pictures, and they will know how to create a pictogram using data from the class in 2Count, and answer questions about the class using a pictogram. Children will know that before collecting data, you must think about how it can be used and what information to collect. Children will know how to collect and record data, input the data into the 2Count tool, make a pictogram using 2Count, answer questions using the pictogram.	sound effects using everyday items, use the library of music and sound effects on 2Cast. **Composing beats** – Children will know that in digital music is made up of sample sounds. Children will know how to create simple rhythms on Busy Beats, and know how to adjust tempo and pitch. Children will know that a piece of music on Busy Beats is created with a range of samples and synths. **Touch typing** – Children will know and use basic touch-typing skills to become quicker and more efficient. Children will know, locate and use home, top and bottom row keys. **Introduction to AI** - Children will know that Artificial Intelligence is a type of technology that can make predictions, take actions, and create content, by learning from data. Children will know that there are specific behaviours that a user of AI should practise and use to become a good AI digital citizen. Children will know how to follow the four rules that make good digital citizens when using AI, and identify which digital citizen rules are being broken in AI based scenarios. Children will know that AI will continue to evolve, and they will know how to explain the ways AI may help in the future with regards to education, transport, travel and the environment. They will know how to explain the importance of human oversight when designing AI tools, and know how to design an AI tool of the future.	and number filters, explain that rows that do not meet the criteria are not deleted; they are temporarily hidden from view, and clear the filters after a search to make the hidden rows visible again. Children will know that a spreadsheet can be created to model a real-life situation and solve problems. Children will understand the advantages of using formulae when data is liable to change. They will plan an event using a spreadsheet, and use the skills gathered to solve a series of problems. **Word Processing** – Children will know that a word processing tool can be used to create a range of documents, that the layout can be altered and images can be inserted. Children will know how to recognise the different documents that can be produced using a word processor. They will know how to navigate and use the main toolbar and its functions including save, format, layout, download images, crop, resize, copy, paste and cut, insert tables, add columns and rows, change font and background. **Databases/ Data detectives** – Children will know that a database contains a set of data that can be searched and sorted to retrieve information. They will know that a table-based database contains records and fields, and will know how to identify, create and edit records and fields of a database. Children will know that database tools support interpreting data using functionality including sorting, filtering, grouping and searching. Children will know how to sort, group and arrange information in a database, search for information in a database and answer questions involving the interrogation of a database. Children will know that a database contains data organised in such a way that it can be queried to

Thursby Primary School

Progression of Knowledge and Skills - Computing

				find useful information. They will know that query tools exist to help users of a database find information from data stored within it. Children will know how to Identify tables, records and fields, explain the data types contained within each field on a record, identify any format types applied to fields and use query tools to find useful information. They will also know how to use the filter tool to create conditions, use the grouping tool to group related information together as part of a query, use the calculate tool to apply calculations to selected data that provides meaningful results and use the sort tool to change the order records are presented according the field selected and the value order (increase/decrease). Blogging – Children will know that a blog is a regularly updated webpage, written about a particular topic. They will know that blogs can consist of several blog posts, and that a well written blog post has certain features that make the blog clear and easy to understand and increase reader engagement. Children will know how to create a blog post, plan the 'hook', look and feel, conclusion and reader engagement. Children will know that moderation exists to make the blogging environment a safe place for its readership and authors. Children will know how to decide whether content conforms to appropriate netiquette guidance and report posts or comments that violate community or legal guidelines.
Computer Science	**Understanding the world:** Area of Learning: Technology. Coding – Children will practice sequencing steps when inputting simple instructions to floor bots. Coding – Children will practice inputting simple instructions on Purple Mash robot games.	**Coding** – Children will know that computer programs work by following instructions called algorithms, and these are written as computer code that the computer can interpret. Children will know how to create instructions in the form of simple algorithms with attention to the order and the	**Route Planners** – Children will know that the combination of a direction and a distance is known as a command in 2Go, and that commands can be input to control movement. Children will know how to input purposeful commands.	**Coding –** Children will know that the way that code is written and structured can improve the ability to debug it, simplify the code and run it more efficiently. Children will know how to use tags to write code for several objects in one block of commands facilitated by the computer-generated variables for tagged objects. They will

Thursby Primary School

Progression of Knowledge and Skills - Computing

		level of detail, and interpret what a piece of code means. Children will know that code view is the place in 2Code where you see and use the blocks of code. Children will know how to switch to code view, and code blocks are dragged into the coding area to create commands. Children will know that to make an algorithm happen, you must execute, or run, the code. Children will know how to execute the code to see the effect by clicking Run. Children will know that Debugging is the name for fixing code that isn't working how it was designed to work. Children will know how to begin to use logical reasoning to find where bugs in the code are, fix bugs in code, and test whether bugs have been fixed. Children will know that program design is the first stage to making a well thought out program and they will know how to plan what objects in a scene will do, recognise that this is the algorithm for the program, use own design to code a program and debug the program against the design specifications. **Creating & Following instructions –** Children will know that to achieve a specific effect when building something, accurate instructions must be followed. Children will know how to think carefully about how to word oral instructions to achieve a desired outcome, give clear, precise and concise instructions for someone to follow, test whether instructions have been followed by comparing the outcome to the instructions, and examine instructions to see where confusion might have arisen. Children will know that computer programs need precise instructions to follow and these are	Children will know that planning a route is important to ensure the correct commands are input, and that instructions for a route is called an algorithm. Children will know how to plan the route by first writing the algorithm and then inputting the code commands. Children will know that route can be programmed to perform more than one command in a sequence, and can also be programmed to repeat a sequence of commands a set number of times. Children will know how to input commands in a sequential algorithm and anticipate the effect. **Coding** – Children will know that there are object types in 2Code; these have different attributes (properties) that can be changed in code and design view. Children will know how to change object attributes in design view, choose object type with an understanding of the possible object attributes and actions. Children will know that a selection in a program means that it has a decision command that will run different procedures dependent on whether a condition is met or not. Children will know how to interpret flowcharts depicting selection and explain what happens if a condition is or isn't met within it. Children will know that co-ordinates are used in computer programming to determine the position of a point, shape or object and that these change according to where they are positioned on the screen. Children will know how to identify co-ordinates in Design view, and change the co-ordinates of objects within the code. Children will know that programs use different commands including repeat, repeat until and timers to make code loop in a program. Children will know how to use the 'Repeat' command to make a looping program, use the 'Repeat Until' command to make a looping program, make	know how to u se tabs to organise code and use functions to reduce the need to repeat blocks of code and make the program easier to read. Children will know that decomposition is a method of breaking down a task into manageable components. This makes coding easier as the components can then be coded separately and then brought back together in the program. Each part is known as a sub-routine. Children will know how to during planning, use decomposition to break down the plan into the key parts that are required to get the program functioning, use decomposition as a way to organise the code. For example, using tabs in 2Code and use 2Chart to create a flowchart that contains sub-routines. Children will know that a function is a named group of commands that a program can run when called by name; reducing the need to rewrite code repeatedly. Children will know how to create functions in 2Code and call these functions appropriately instead of repeating code, and refine existing code to include functions by recognising where code is repeated within the program. **Networks –** Children will know that a network describes a group of connected computers that can share information and hardware resources. Children will know how to identify types of computer networks locally and globally, and explain the hardware resources that a network might share. Children will know that LAN and WAN are different kinds of networks, and they will know how to explain the difference. Children will know that networks can be wired or wireless or a combination of both. They will know how to identify the terms Wi-Fi, mobile

Thursby Primary School

Progression of Knowledge and Skills - Computing

		called algorithms, that If instructions are vague, outcomes will vary for a given task. Children will know how to examine the outcomes of following instructions to check for differences in interpretation, and decide whether any differences were due to the clarity of the instructions or the end user. Children will know that the order of instructions for a task affects the results. Children will know how to Identify when a sequence of instructions is incorrect and why, and explore the possible outcomes of following incorrectly sequenced instructions. Children will know that correcting errors in an algorithm or program is called debugging. Children will know how to find errors in a simple algorithm, how to correct an algorithm sequence by reordering it, recognise when an algorithm has been debugged and apply learning about debugging an algorithm to other incorrectly sequenced instructions, such as baking cakes.	decisions about whether to use repeat or timers depending upon the program requirements. Children will know that variables are a place in computer memory that remains for the length of the program, and that variables have a name and a value. Children will know to create number variables and initialise their values, and that the values can be changed in the code. Children will know that variables are used in programming to keep track of things. Children will know how to change the value of variables within the program by using the 'Change Variable' command, use the value of variables within programs, and use the variable watch to monitor how a variable change as the program executes code. **Logo –** Children will know that Logo is a text-based coding that uses commands that include a direction and a distance in spaces or degrees. Children will know how to input directional and space commands correctly, and debug when errors occur. Children will know that a procedure is a named set of Logo commands that will be run in the program when referred to by name. Children will know how to write and save Logo procedures, call the procedures within their code and consider how best to use procedures to make their code efficient. Children will know that errors (bugs) occur because commands have been input incorrectly, and that fixing the errors is called debugging. Children will know how to make logical attempts to debug a code.	data and 5G as pertaining to wireless network connections. Children will know that internet filtering and censorship are both used to make parts of the internet less accessible for different reasons. Children will know how to explain the differences between internet filtering and censorship and why they are used.
Digital Literacy	**Understanding the world:** Area of Learning: Technology. Children will recognise that technology is all around us and it's use in everyday life.	**Technology Around us** – Children will know that technology is something that uses scientific knowledge to solve problems or invent useful tools. Children will know how to	**Email –** Children will know that emails are a form of digital communication which can be sent and received almost instantly. Children will know how to choose an appropriate communication	**Internet Safety** – 2BeSafe Children will know how to 'Respect yourself and others'. Respect others by being kind with your words, pictures and posts.

Thursby Primary School

Progression of Knowledge and Skills - Computing

	Children will identify and name parts of a computer/iPad. Children will have some understanding of how to keep safe in the digital world. 'Always ask an adult' before downloading or playing a new app or game, before you type your name, age or where you live, before you open messages, videos or images, and before sharing photos, drawing and stories.	recognise examples of technology and describe the purpose of common types of technology. Children will know that technology is used within many environments. Children will know how to identify technology within school, at home and in the wider world and explain how this technology is helpful. Children will know not all technology is digital technology. Digital Technology is a subset of technology for sharing information. Children will know how to give examples of digital technology and contrast this with technology. Children will know that the word hardware is used to describe the physical parts of a digital technology device. Children will know how to name examples of technology hardware including peripheral devices. Children will know that it is important to use technology safely and that there are some risks associated with the use of technology. Children will know how to use devices safely and to point out the risks of situations involving technology. Purple Mash 2BeSafe – 'Always ask an adult' before downloading or playing a new app or game, before you type your name, age or where you live, before you open messages, videos or images, and before sharing photos, drawing and stories.	method for a task. They will use 2Email to communicate within school, recognising the differences between digital and non-digital communication methods. Children will know that Common features of email software are the inbox, the 'To' address field, the sender email address, the subject, the message text, and the compose and reply functions. Children will know how to identify and use the feature of the email screen, including check alerts for new messages and respond to these, and using the attach icon responsibly. **Effective Searching** – Children will know that the internet is a global network of computers that share information from one device to another, anywhere in the world, and that we can search for information on the internet using a tool called a search engine. Children will know how to recognise and find a search engine on the internet and explain the uses of a search engine. Children will know that search engines send out programs called web crawlers or spiders to explore the web for information. They make a copy of it and store it on their database called an index. Children will know how to explain how information on webpages is gathered, copied and stored by a search engine's program known as web crawlers or spiders. Children will know that there are a range of techniques you can use to refine a search query, including using quotes, using the minus sign and using filters. Children will know how to Use techniques such as quotes, the minus sign and filters to refine a search query. Children will know that information can be put online by anyone so we should not take everything we read as fact. Children will be able to explain the importance of questioning where	Evaluate content by stopping to think if it is fact, opinion or fake. Share safely by keeping your personal details private. Protect yourself by using strong passwords and privacy settings. Explain your worries to a trusted adult if something online upsets you. Click wisely so you stay away from scams, viruses or unsafe websites. Take breaks so you can balance your screen time with other activities.

Thursby Primary School

Progression of Knowledge and Skills - Computing

			information online has actually come from, and the differences and identify examples of facts, opinions and beliefs. Children will know that Fake news is information that might look real but isn't. Sometimes people make fake news for fun, to make money or try and change the way people think. Children will know how to identify the difference between real news and 'fake news', understand the reasons why someone might want to put fake news online, and know how to check whether information online is reliable and true by checking if it sounds real, checking the source, checking the date and checking if the news is also reported by other sources. **Internet Safety** – 2BeSafe Children will know how to 'Respect yourself and others'. Respect others by being kind with your words, pictures and posts. Evaluate content by stopping to think if it is fact, opinion or fake. Protect yourself by using strong passwords and privacy settings. Share safely by keeping your personal details private. Explain your worries to a trusted adult if something online upsets you. Click wisely so you stay away from scams, viruses or unsafe websites. Take breaks so you can balance your screen time with other activities.	

- Internet Safety -