Birchwood Computing Curriculum Map

Year Group	Substantive Knowledge	Disciplinary Knowledge	Vocabulary	Resources
Reception Autumn 1	Coding and Computational Thinking -Know that an algorithm is a sequence of instructions. -Know that debug means to find and correct errors.	Coding and Computational Thinking -Give instructions for Head, shoulders, Knees and Toes. -Order pictures and 'debug' when there are errors.	**instructions, algorithm**	Barefoot – Busy Bodies
	Online Safety Know that online or offline, that anyone can say 'no' / 'please stop' / 'I'll tell' / 'I'll ask' to somebody who makes them feel sad, uncomfortable, embarrassed or upset.	Online Safety - Discuss elements of online life that might make them feel sad, uncomfortable, embarrassed or upset. -Discuss scenarios and what you would do to make sure you were safe.	**online, safety**	Project Evolve – Self Image and Self Identity
Reception Autumn 2	Coding and Computational Thinking Garlands Galore -Know that patterns are a sequence that repeats.	Coding and Computational Thinking Garlands Galore -Describe patterns seen. -Identify different types of pattern (AB, AAB etc)	**pattern, repeating, sequence**	Barefoot - Awesome Autumn (Garlands Galore and Leaf Labyrinth)
	Leaf Labyrinth -Know that a maze can be navigated by giving directions. -Know that that there are multiple ways to travel through a maze. -Know that an algorithm is a sequence of instructions.	Leaf Labyrinth -Create a maze using autumn leaves. -Describe the position of the leaves using positional language. -Find the quickest route through a maze. -Give instructions to travel through a maze.	algorithm, debug, **maze, position, in front of, next to, behind,**	
	Online Safety -Know that online information is shared over the internet and can include apps, games and blogs. -Know that it can be unsafe to share personal information online.	Online Safety -Identify ways that you can put information on the internet. -Describe ways that some people can be unkind online. -Offer examples of how this can make others feel.	online, **internet, personal information**	Project Evolve – Online Reputation Project Evolve -Online Bullying
Reception Spring 1	Coding and Computational Thinking Snowman -Know that patterns have rules.	Coding and Computational Thinking Snowman -Continue a pattern. -Create patterns and explain the rule. -Make changes and fixes to the pattern if needed.	pattern, repeating, sequence, **fixes**	Barefoot – Winter warmers (All Snowman activities) Project Evolve -Online Relationships
	Online Safety -Know that work I create belongs to me. -Know ways in which the internet can be used to communicate.	Online Safety -Name my work so that others know it belongs to me. -Give examples of how I (might) use technology to communicate with people I know.	**communicate**	Project Evolve – Copyright and Ownership

Reception Spring 2	Coding and Computational Thinking Seed Sequences Know that algorithms can be broken down into steps. Scarecrows -Know that plans can be adapted to improve the outcome. Online Safety -Know rules that help keep us safe and healthy in and beyond the home when using technology.	Coding and Computational Thinking Seed Sequence -Sequence pictures to plant seeds. -Follow pictorial instructions to plant seeds. Scarecrows -Identify the main features of a scarecrow. -Design a scarecrow including key features. -Add labels. -Create a scarecrow following the plan. -Ignore information which is not important to the process. -Adapt plans if required. Online Safety -Give example of rules to stay safe when using technology (playing games with an adult, asking before downloading an app etc.	algorithm, debug, **order, instructions,** **rules, technology**	Barefoot – Springtime (Seed Sequences and Junk Scarecrows) Project Evolve – Health Wellbeing and Lifestyles
Reception Summer 1	Coding and Computational Thinking What is a boat? -Know that you can find out information from different sources (books, video, apps etc). -Know how to use an iPad to access apps. Boats Roleplay -Know how to record video and sound using an iPad. Online Safety -Know examples of my personal information (e.g. name, address, birthday, age, location). -Know that personal information can be shared with trusted people.	Coding and Computational Thinking What is a boat? -Find out about boats from a range of sources. -Identify similarities and differences between different boats. Boats Roleplay -Create a role play boat as a team. -Record creations and voice descriptions using an iPad Online Safety -Identify some simple examples of my personal information (e.g. name, address, birthday, age, location). -Describe who would be trustworthy to share this information with; I can explain why they are trusted.	**Sources, app, video, vice description** **personal information, trusted**	Barefoot - Boats Ahoy (What is a Boat? and Boat Roleplay) Project Evolve – Privacy and Security
Reception Summer 2	Coding and Computational Thinking Seaside Tangram -Know that designs can be changed and adapted to improve them. Colour Collection -Know that objects can be organised and sorted in different ways. -Know how to create a pictogram. Online Safety -Know that the internet can be used to find answers to questions. -Know that different devices can be used to find out information.	Coding and Computational Thinking Seaside Tangram -Combine shapes to create a seaside picture. -Arrange shapes and adapt design, testing and evaluating different outcomes. Colour Collection -collect, organise and group items. -Use items to create a pictogram. Online Safety *-Talk about how to use the internet as a way of finding information online.* *-Identify devices I could use to access information on the internet.*	**combine, tangram, adapt.** **Collect, organise, group, pictogram**. internet, online, **device**	Barefoot – Summer Fun (Seaside Tangram and Colour Collection) Project Evolve – Managing online information

Year 1 Autumn 1	Computing Systems and Networks -Know how to log in safely. -Know how to find saved work in the Online Work area and find teacher comments. -Know how to search Purple Mash to find resources. -Know how to add pictures and text to work. -Know how to open, save and print. -Know the importance of logging-out.	Computing Systems and Networks -Log into Purple Mash. -Add pictures and text to a document. -Save and print work. -Open a saved file. -Log out of Purple Mash. -Explore the Tools and Games section of Purple Mash.	**alert, avatar, button, device, filter, home screen, icon, login, logout, menu, notification, password, private, tools, saving, search, textbox, typing.**	Purple Mash – Exploring Purple Mash
	Online Safety -Know that there may be people online who could make someone feel sad, embarrassed or upset. -Know that trusted adults can help if you feel unsafe online.	Online Safety -Give examples of when and how to speak to a trusted adult and how they can help, if something happens that makes me feel sad, worried, uncomfortable or frightened.	**trusted adult**	Project Evolve – Self Image and Self Identity
Year 1 Autumn 2	Information Technology -Know that data can be represented in picture format. -Know that a pictogram is a type of graph that shows information using pictures.	Information Technology -Contribute to a class pictogram. -Use a pictogram to record the results of an experiment. - Interpret a pictogram saying what information is known. -Collect data and record results. -Record results in a pictogram.	**collect, compare, data, pictogram, results, title, totals, visual.**	Purple Mash – 1.3 Pictograms (3 lessons)
	Online Safety -Know that information can stay online and can be copied. -Know that personal information should not be shared online.	Online Safety -Describe what information I should not put online without asking a trusted adult first. -Describe how to behave online in ways that do not upset others and can give examples.	personal information	Project Evolve – Online Reputation Project Evolve -Online Bullying
Year 1 Spring 1	Coding and Computational Thinking -Know how to follow and create simple instructions on the computer. -Know that the order in which instructions are given may affect the results. -Know that debugging can be used to solve problems with an algorithm.	Coding and Computational Thinking -Log in to Purple Mash using their own login. -Add their name to a picture they created on the computer. -Consider how the order of instructions affects the result. -Use Monster Hop to follow algorithms, guiding a partner using precise instructions. -Debug errors. -Investigate routes through Path Puzzler, aiming to find the most precise route. -Save work into the My Work folder in Purple Mash. -Find their saved work in the Online Work area of Purple Mash. -Use the different icons to add pictures and text to their work. -Log out of Purple Mash when they have finished using it.	**algorithm, code, debugging, instructions, program.**	Coding and computational thinking activities (resources on shared area) Hokey Cokey song: https://www.youtube.com/watch?v=TMCthi3pFEQ https://apps.apple.com/gb/app/path-puzzler/id600530552
	Online Safety -I know we can encounter a range of things online including things we like and don't like as well as things which are real or make believe / a joke. -I know how to get help from a trusted adult if we see content that makes us feel sad, uncomfortable worried or frightened.	Online Safety -Give simple examples of how to find information using digital technologies, e.g. search engines, voice activated searching. -Give examples of when I should ask permission to do something online and explain why this is important. -Use the internet with adult support to communicate with people I know (e.g. video call apps or services). -Explain why it is important to be considerate and kind to people online and to respect their choices. -Explain why things one person finds funny or sad online may not always be seen in the same way by others.	**digital technology, search engine, voice activation**	https://apps.apple.com/us/app/cupcake-doodle/id681277169 Project Evolve -Online Relationships Project Evolve – Copyright and Ownership

Year 1 **Spring 2**	Information Technology -Know what a spreadsheet program looks like. -Know how to enter data into spreadsheet cells. -Know how to use 2Calculate image tools to add clipart to cells. -Know how to use 2Calculate control tools: lock, move cell, speak and count.	Information Technology -Add clipart to a spreadsheet. -Use the 'move cell' tool so that images can be dragged around the spreadsheet. -Use the 'lock' tool to prevent changes to cells. -Give images a value that the spreadsheet can use to count them. -Add the count tool to count items. -Add the speak tool so that the items are counted out loud.	**calculate, cell,** **Clip-Art, column,** **count tool, data,** **delete, image,** **lock cell, row,** **select,** **spreadsheet,** **value.**	Purple Mash – 1.8 Spreadsheets (3lessons)
	Online Safety -Know that rules may change depending on where you are, who you are with and what you are doing.	Online Safety -Explain rules to keep myself safe when using technology both in and beyond the home.	rules, technology	Project Evolve – Health Wellbeing and Lifestyles
Year 1 **Summer 1**	Coding and Computational Thinking -Know what the buttons on a floor robot do (directions, clear memory and run). -Know that algorithms need to be 'precise' in order for them to work correctly. -Know that a robot moves a fixed distance for an individual command. -Know that 'debugging' means to find and fix errors in an algorithm. -Know that there is more than one solution to a problem but some will be more efficient.	Coding and Computational Thinking -Explain what a given command will do. -Combine 'forwards' and 'backwards' commands to make a sequence. -Combine four direction commands to make sequences. -Plan a simple program. -Find more than one solution to a problem.	algorithm, program, **Bee-** **Bot/Blue-Bot,** **forwards,** **backwards, turn,** **clear, go,** **commands,** **instructions,** **directions, left,** **right, route, plan,**	Teach Computing – 1.3 - Programming [A] Moving a Robot (6 lessons) Bluebots/Beebots
	Online Safety -Know that passwords are used to protect information, accounts and devices.	Online Safety -Recognise more detailed examples of information that is personal to someone (e.g. where someone lives and goes to school, family names). -Explain why it is important to always ask a trusted adult before sharing any personal information online, belonging to myself or others.	trusted adult, password. personal information	Project Evolve – Privacy and Security
Year 1 **Summer 2**	Information Technology -Know how to add animation to a story. -Know how to add sound to a story, including voice recording and music the children have composed. -Know how to add backgrounds and copy and paste pages.	Information Technology -Use the different drawing tools to create a picture on the page. add text to a page. -Add an animation to a page. -Play the pages created. add a sound to the page. add voice recording to the page. create music for a page. add a background to the page change the font style and size.	save, text, **animation,** **background, Clip-** **Art, gallery, copy,** **drop-down menu,** **E-book, edit,** **eraser, font,** **overwrite, paste,** **redo, undo.**	Purple Mash 1.6 Animated Stories (5 lessons)
	Online Safety -Know that work I create using technology belongs to me. -Know that work created by others does not belong to me even if I save a copy. -Know that saving using an appropriate file name will make work easier to find in the future.	Online Safety -Explain why work belongs to me (e.g. 'I designed it' or 'I filmed it''). -Save my work under a suitable title / name so that others know it belongs to me (e.g. filename, name on content).	belong, **file name**	Project Evolve – Managing online information

Year 2 Autumn 1	Computing Systems and Networks -Know what information technology (IT) is. -Know how IT can help them at school and beyond. -Know the purpose of different IT in school (printer, computer, sign in system etc). -Know uses of IT in environments beyond school (adverts, receipts, parking tickets).	Computing Systems and Networks -Recognise the uses and features of information technology. -Identify the uses of information technology in the school. -Identify information technology beyond school. -Explain how information technology helps us. -Explain how to use information technology safely.	**information technology, barcode, scanner**	Teach Computing -Computer Systems and Networks – IT Around Lessons 1-4 only
	Online Safety -Know that identity online can be copied, modified or altered.	Online Safety -Demonstrate how to make responsible choices about having an online identity, depending on context.	**online identity, copied, modified, altered**	Project Evolve – Self Image and Self Identity
Year 2 Autumn 2	Information Technology (Link to Y1 Summer 2 animated story books) -Know how to make music digitally using 2Sequence. -Know how to edit and combine sounds using 2Sequence. -Know how to upload a sound from a bank of sounds into the Sounds section. -Know how to record and upload environmental sounds into Purple Mash.	Information Technology -Use the different sounds within 2Sequence to create a tune. -Explore how to speed up and slow down tunes. -Understand what happens to the tune when sounds are moved. -Consider how music can be used to express feelings. -Change the volume of the background sounds. -Edit and refine composed music. -Create, uploaded and used their own recorded sound.	**beat, compose, note, tune, sound effect, speed, tempo, volume, soundtrack**	Purple Mash – 2.7 Making Music (3 lessons)
	Online Safety Know who to talk to if something has been put online without consent or if it is incorrect. -Know that information shared online can last a long time. -Know that information shared online can be seen by others.	Online Safety -Describe how anyone's online information could be seen by others. -Explain what bullying is, how people may bully others and how bullying can make someone feel. -Explain why anyone who experiences bullying is not to blame. -Talk about how anyone experiencing bullying can get help.	bullying, shared	Project Evolve – Online Reputation Project Evolve -Online Bullying
Year 2 Spring 1	Coding and Computational Thinking -Know what an algorithm is. -Know how to create a computer program using an algorithm. -Know that algorithms follow a sequence. -Know that different objects have different properties. -Know what different events do in code. -Know the function of buttons in a program. -Know how to debug simple programs.	Coding and Computational Thinking -Plan an algorithm that includes collision detection. -Create a program using a given design. -Design an algorithm that follows a timed sequence. -Create a program using collision detection. -Read blocks of code and predict what will happen when it is run. -Create a program that uses a timer-after command. -Predict what will happen in a program that includes a timer-after command. -Use different events in their program to make objects move. -Create a computer program that includes different object types. -Modify the attributes (properties) of a button to fit their program design. -Use a design document to start debugging a program.	instructions, action, algorithm, background, button, **command, collision detection, debug object, output, run, sequence, test, timer.**	Purple Mash – 2.1 Coding (CRASH CORSE) (6 lessons) Project Evolve -Online Relationships
	Online Safety -Know that content on the internet may belong to other people. -Know who I should ask before sharing things about myself or others online. -Know can help me if something happens online without my consent.	Online Safety -Give examples of how someone might use technology to communicate with others they don't also know offline and explain why this might be risky. (e.g. email, online gaming, a pen-pal in another school / country). -Describe different ways to ask for, give, or deny my permission online and can identify who can help me if I am not sure. -Explain why I have a right to say 'no' or 'I will have to ask someone'. I can explain who can help me if I feel under pressure to agree to something I am unsure about or don't want to do. -Explain how it may make others feel if I do not ask their permission or ignore their answers before sharing something about them online. -Explain why I should always ask a trusted adult before clicking 'yes', 'agree' or 'accept' online.	**permission, consent**	Project Evolve – Copyright and Ownership

Year 2 Spring 2	Information Technology (Link to Year 1 Autumn 2 Pictograms and Year 1 Spring 2 spreadsheets) Know how to use 2Calculate image, lock, move cell, speak and count tools -Know how to copy and paste in 2Calculate. Know how to use the totalling tools. -Know how to produce graphs using 2calculate. Online Safety -Know how those rules / guides can help anyone accessing online technologies. -Know that rules for accessing technologies may be different in different places (public networks and home networks).	Information Technology -Create a money counting spreadsheet. -Copy and paste equations. -Calculate totals using formulas. -Use the 2Calculate equals tool to check calculations. -Create graphs to show information. Online Safety -Explain simple guidance for using technology in different environments and settings e.g. accessing online technologies in public places and the home environment.	row, cell, column, **block graph, coins, copy, count tool, cut, data, drag, equals, value, label, paste, price, table, toolbox, total.** **network**	Purple Mash – 2.3 Spreadsheets (4 lessons) Project Evolve – Health Wellbeing and Lifestyles
Year 2 Summer 1	Coding and Computational Thinking (link to Year 1 Autumn 1 exploring Purple Mash and Year 1 Summer 2 Animated stories) -Know that computers can only follow clear and unambiguous instructions. -Know the importance of the order of instructions within a sequence. -Know that design in programming not only includes code and algorithms, but also artefacts related to the project, such as artwork. -Know that a program needs to have a set outcome. -Know that decomposition is breaking a task down into different chunk. Online Safety Know that passwords can be used to protect information, accounts and devices. -Know what makes a good password. -Know that people may have devices in their homes connected to the internet (lights, toys, televisions)	Coding and Computational Thinking 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. To explain that programming projects can have code and artwork. To design an algorithm. To create and debug a program that I have written. Online Safety -Explain and give examples of what is meant by 'private' and 'keeping things private'. -Describe and explain some rules for keeping personal information private (e.g. creating and protecting passwords). -Explain how some people may have devices in their homes connected to the internet and give examples (e.g. lights, fridges, toys, televisions).	instruction, sequence, **clear, unambiguous,** algorithm, program, **order, prediction, artwork, design, route, mat, debugging, decomposition** password, device	Teach Computing – 1.3 - Programming [A] Robot Algorithms (6 lessons) Beebots/Bluebots Project Evolve – Privacy and Security
Year 2 Summer 2	Information Technology -Know the functions of the 2Paint a Picture tool. -Know that art can be created in the style of famous artists using digital technologies. Online Safety -Know how to use key words to generate results in a search engine. -Know how to navigate a simple webpage to get to information I need (e.g. home, forward, back buttons; links, tabs and sections). Know what voice activated searching is and how it might be used, and know it is not a real person (e.g. Alexa, Google Now, Siri). -Know that some information I find online may not be real or true.	Information Technology -Use 2Paint a Picture to art based upon an artist. -Use 2Paint a Picture to create art by repeating patterns in a variety of ways. -Combine more than one effect in 2Paint a Picture to enhance patterns -Use the eCollage function in 2Paint a Picture to create surrealist art using drawing and clipart. Online Safety -Use simple keywords in search engines. -Navigate a webpage to get required information. -Explain the difference between things that are imaginary, 'made up' or 'make believe' and things that are 'true' or 'real'.	**clip-art, eCollage, fill, horizontal, line, palette, rotated, stamps, style, symmetry, vertical** **search engines, voice activated searching**	Purple Mash -2.6 Creating Pictures (5 lessons) Project Evolve – Managing online information

Year 3 Autumn 1	Computing Systems and Networks (Links to Y2 Autumn 1 -IT around us) -Know the relationship between input, process and output. -Know when is most appropriate to complete a task digitally or non-digitally. -Know the benefit of connecting digital devices to allow information to be shared between users and systems. -Know the key components of a network (server, wireless access points).	Computing Systems and Networks -Explain how digital devices function. -Identify input and output devices. -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.	device, network, **process, input, output, component, server, wireless access point**	Teach Computing -Computer Systems and Networks -Connecting Computers
	Online Safety -Now that people might change their identity online.	Online Safety -Explain what is meant by the term 'identity'. -Explain how people can represent themselves in different ways online. -Explain ways in which someone might change their identity depending on what they are doing online (e.g. gaming; using an avatar; social media) and why.	avatar, online, identity, **social media**	Project Evolve – Self Image and Self Identity
Year 3 Autumn 2	Information Technology -Know correct way to sit at the keyboard. -Know how to use the home, top and bottom row keys. -Know that touch typing is an efficient way to record.	Information Technology -Begin to touch type the home, bottom, and top rows. -Use two hands to type the letters on the keyboard. -Touch type using the left hand. -Touch type using the right hand. -Practise typing with the left and right hand.	**Keys, posture, space bar, typing**.	Purple Mash -3.4 – Touch Typing (4 lessons)
	Online Safety -Know what online bullying may look like. -Know that knowing someone online might be different to knowing someone offline. -Know that it is important to gain permission before sharing things online.	Online Safety -Describe appropriate ways to behave towards other people online and why this is important. -Give examples of how bullying behaviour could appear online and how someone can get support. -Describe ways people who have similar likes and interests can get together online. -Explain what it means to 'know someone' online and why this might be different from knowing someone offline. -Explain why someone may change their mind about trusting anyone with something if they feel nervous, uncomfortable or worried. -Explain the importance of giving and gaining permission before sharing things online; how the principles of sharing online is the same as sharing offline e.g. sharing images and videos.	Bullying, online, offline, permission	Project Evolve – Online Reputation Project Evolve -Online Bullying
Year 3 Spring 1	Coding and Computational Thinking (Links to Y2 Spring 1 Coding) -Know what a flowchart is and how flowcharts are used in computer programming. -Know that there are different types of timers and select the right type for purpose. -Know how to use the repeat command. -Understand the importance of nesting. -Know how to design and create an interactive scene.	Coding and Computational Thinking -Use a flowchart to create a computer program -Create a program that uses a timer-after command and timer-every command. -Create a computer program that includes use of the repeat command. -Run, test and debug their programs. -Plan their scene and code before they create their program.	Algorithm, code, debug, collision detection event, command, action, input, output, run, **alert, events, flowchart, implement, interval, nest, repeat, right-angle**	Purple Mash – 3.1 -Coding (6 lessons) Project Evolve -Online Relationships
	Online Safety -Know how to search for information about others online. -Know the need to be careful about sharing personal information online. -Know that copying someone else's work from the internet without permission may break rules.	Online Safety -Give examples of what anyone may or may not be willing to share about themselves online. -Explain the need to be careful before sharing anything personal. -Explain who someone can ask if they are unsure about putting something online. -Explain why copying someone else's work from the internet without permission isn't fair and can explain what problems this might cause.	share, copy, permission, internet	Project Evolve – Copyright and Ownership

	Information Technology	Information Technology		
Year 3 Spring 2	Information Technology (Links to Y2 Spring 2 Spreadsheets) To use the symbols more than, less than and equal to, to compare values. To use 2Calculate to collect data and produce a variety of graphs. To use the advanced mode of 2Calculate to learn about cell references.	Information Technology create a table of data on a spreadsheet. create charts and graphs from data. use the 'more than', 'less than' and 'equals' tools to compare different numbers describe a cell location in a spreadsheet using the notation of a letter for the column followed by a number for the row.	Data, equals, **bar graph, cell address, less than, more than, pie chart, quiz tool, spinner tool, table.**	Purple Mash – 3.3 Spreadsheets (3lessons)
	Online Safety -Know that spending too much time on technology can have a negative impact. -Know that online activities can have age restrictions to keep users safe.	Online Safety -Explain why spending too much time using technology can sometimes have a negative impact on anyone, e.g. mood, sleep, body, relationships; I can give some examples of both positive and negative activities where it is easy to spend a lot of time engaged (e.g. doing homework, games, films, videos). -Explain why some online activities have age restrictions, why it is important to follow them and know who I can talk to if others pressure me to watch or do something online that makes me feel uncomfortable (e.g. age restricted gaming or web sites).	**impact, age restrictions**	Project Evolve – Health Wellbeing and Lifestyles
Year 3 Summer 1	Information Technology (Links to Year 1 Autumn 1 -Exploring Purple Mash) -Know how to pen and respond to an email using an address book. -Know how to add an attachment to an email. -Know what CC and BCC mean and how to use it.	Information Technology -Open an email and respond to it. -Use the search option in the address book to find a contact when sending an email. -Attach work to an email. -Read and respond to a series of email communications.	password, personal information, **address book, attachment, BCC, CC, email, inbox, trusted contact.**	Purple Mash- 3.5 Email (6 lessons)
	Online Safety -Know simple strategies for creating and keeping passwords private. -Know how connected devices can collect and share anyone's information with others.	Online Safety -Give reasons why someone should only share information with people they choose to and can trust. -Explain that if they are not sure or feel pressured then they should tell a trusted adult.	Private, password, trusted adult, **connected device**	Project Evolve – Privacy and Security
Year 3 Summer 2	Information Technology (Links to Year 2 Spring 2 spreadsheets) - Know that databases can be used to sort information and answer questions. -Know how to sort objects using just 'yes' or 'no' questions. -Know how to complete a branching database using 2Question.	Information Technology -Use YES/NO questioning to play a simple game with a friend. -Explain why they choose a particular question to split their database. -Contributed to a class branching database. -Create and debug a branching database.	data, database, debugging. **binary tree, branching database,**	Purple Mash 3.6 Branching Databases (4 lessons)
	Online Safety -Know what autocomplete is. -Know that the internet can be used to sell and buy things. -Know that not all opinions shared may be accepted as true or fair by others (e.g. monsters under the bed).	Online Safety -Demonstrate how to use key phrases in search engines to gather accurate information online. - Explain how to choose the best suggestion from autocomplete. -Explain the difference between a 'belief', an 'opinion' and a 'fact. and can give examples of how and where they might be shared online, e.g. in videos, memes, posts, news stories etc. -Describe and demonstrate how we can get help from a trusted adult if we see content that makes us feel sad, uncomfortable worried or frightened.	trusted adult, search engine, **key phrase, autocomplete**	Project Evolve – Managing online information

Year 4 Autumn 1	Computing Systems and Networks Links to Year 3 Autumn 1 Connecting Computers) -Know networks physically connect to other networks. -Know that websites can be shared via the World Wide Web (WWW). -Know content of the WWW is created by people. Online Safety -Know strategies for positive interaction online. -Know reasons why someone might pretend to be someone else online.	Computing Systems and Networks -Recognise how networked devices make up the internet. -Describe how content can be added and accessed on the World Wide Web (WWW). Online Safety -Explain how my online identity can be different to my offline identity. -Describe positive ways for someone to interact with others online and understand how this will positively impact on how others perceive them. -Explain that others online can pretend to be someone else, including my friends, and can suggest reasons why they might do this.	Internet, network, **world wide web, content** online, offline, identity, impact.	Teach Computing -Computer Systems and Networks -The Internet – lessons 1-5 only. Project Evolve – Self Image and Self Identity
Year 4 Autumn 2	Information Technology (Links to Year 2 Summer 2 Creating Pictures) -Know how animations are created by hand. -Know how animation can be created in a similar way using the computer. -Know how to add backgrounds and sounds to animations. Online Safety -I can describe ways people can be bullied through a range of media (e.g. image, video, text, chat). -Know ways that some of the information about anyone online could have been created, copied or shared by others.	Information Technology -Make a simple animation using 2Animate. -Use the Onion Skin tool to create an animated image. -Use backgrounds and sounds to make more complex and imaginative animations. -Use ideas from existing 'stop motion' films to recreate their own animation. -Share animation on the class display board and by blogging. Online Safety -Recognise when someone is upset, hurt or angry online. -Explain why people need to think carefully about how content they post might affect others, their feelings and how it may affect how others feel about them (their reputation).	animation, **FPS, frame, onion skinning, pause, stop-motion** **media, reputation**	Purple Mash -4.6 Animation (3 lessons) Project Evolve – Online Reputation Project Evolve -Online Bullying
Year 4 Spring 1	Coding and Computational Thinking (Links to Year 3 Spring 1 Coding) -Know how an IF statement works. -Know how to use co-ordinates in computer programming. -Know how to use the 'repeat until' command. -Know how an IF/ELSE statement works. -Know what a variable is in programming. -Know how to use a number variable. -Know how to create a playable game. Online Safety -Know strategies for safe and fun experiences in a range of online social environments (e.g. livestreaming, gaming platforms).	Coding and Computational Thinking -Plan an algorithm for a scene and use 2Code to program it. -Create a program that includes an IF statement. -Use the X and Y attributes (properties) of objects in their coding -Create and use variables when programming. -Read code that includes repeat until and IF/ ELSE and explain how it works. Online Safety -Give some simple examples of content which I must not use without permission from the owner, e.g. videos, music, images. -Give examples of how to be respectful to others online and describe how to recognise healthy and unhealthy online behaviours. -Explain how content shared online may feel unimportant to one person but may be important to other people's thoughts feelings and beliefs.	action, alert, algorithm, background, button, command, debug flowchart, input, nest, implement, run, repeat, **code blocks, co-ordinates, execute, sequence, timer, variable, value.** permission, content, **live streaming**	Purple Mash – 4.1 Coding (6 lessons) Project Evolve -Online Relationships Project Evolve – Copyright and Ownership

Year 4 Spring 2	Information Technology (Links to Year 3 Spring 2 Spreadsheets and Year 3 Summer 2 Branching databases) -Know how to format cells as currency, percentage, decimal to different decimal places or fraction. -Know how to use the formula wizard to calculate averages. -Know how to combine tools to make spreadsheet activities such as timed times tables tests. -Know how to use a spreadsheet to model a real-life situation. -Know how to add a formula to a cell to automatically make a calculation in that cell.	Information Technology -Use the number formatting tools within 2Calculate to format numbers. -Add a formula to a cell to automatically make a calculation in that cell. -Use the timer, random number and spin button tools. -Use a series of data in a spreadsheet to create a line graph. -Use the currency formatting in 2Calculate.	column, row, data, spinner tool, timer, **average, budget, equals to tool, format cell, formula, line graph, resize, set image, totals**.	Purple Mash – 4.3 Spreadsheets (5 lessons)
	Online Safety -Know how using technology can be a distraction from other things, in both a positive and negative way.	Online Safety -Identify times or situations when someone may need to limit the amount of time they use technology e.g. I can suggest strategies to help with limiting this time.	technology, **distraction**	Project Evolve – Health Wellbeing and Lifestyles
Year 4 Summer 1	Coding and Computational Thinking *-Know the structure of the coding language of Logo.* *-Know how to input simple instructions in Logo.* *-Know how to use the pu and pd commands* *- Know how to use the Repeat function in Logo to create shapes.* *-Know how to use and build procedures in Logo.*	Coding and Computational Thinking -Follow simple 2Logo instructions. -Write 2Logo instructions for a word of four letters. -Follow 2Logo code to predict the outcome. -Create shapes using the Repeat command. -Use the Procedure feature.	*prediction, procedure, repeat, debugging, grid, logo, logo commands, multi-line mode, run speed, SETPC, SETPS.*	Purple Mash -4.5 Logo (4 lessons)
	Online Safety *-Know that internet use is never fully private and is monitored, e.g. adult supervision.* *-Know how some online services may seek consent to store information about me;* *-Know how to respond appropriately and who I can ask if I am not sure.* *-Know what the digital age of consent is and the impact this has on online services asking for consent.*	Online Safety -Explain how the internet may be monitored in and out of school. - Discuss why there is a digital age of consent and how this impacts online life.	monitored, **consent**	Project Evolve – Privacy and Security
Year 4 Summer 2	Information Technology (Links to Year 3 Autumn 2 touch typing and Year 3 Summer 1 Email) -Know how font size and style can affect the impact of a text. -Know how to use a simulated scenario to produce a news report.	Information Technology -Use text formatting to make a piece of writing fit for its audience and purpose. -Use the incoming information to write their own newspaper report. -Use 2Connect to mind-map ideas. -Assess their texts using criteria to judge their suitability for the intended audience. -Use a simulated scenario to write for a community campaign.	**campaign, format, font, genre, opinion, reporter, viewpoint.**	Purple Mash -4.4 Writing for Different Audiences (4 lessons)
	Online Safety -Know how to search for information within a wide group of technologies and make a judgement about the probable accuracy (e.g. social media, image sites, video sites). -Know some of the methods used to encourage people to buy things online (e.g. advertising offers; in-app purchases, pop-ups) Know that technology can be designed to act like or impersonate living things (e.g. bots) and describe what the benefits and the risks might be. Know what is meant by fake news e.g. why some people will create stories or alter photographs and put them online to pretend something is true when it isn't.	Online Safety -Analyse information to make a judgement about probable accuracy and I understand why it is important to make my own decisions regarding content and that my decisions are respected by others. -Recognise advert/in-app purchasing and pop ups of these when they appear online. -Explain why lots of people sharing the same opinions or beliefs online do not make those opinions or beliefs true. -Identify examples of fake news.	opinion, **accuracy, in app purchase pop up, bots, fake news**	Project Evolve – Managing online information

Year 5 Autumn 1	Computing Systems and Networks (Links to Year 4 Autumn 1 The Internet) Know the role of computer systems in our lives. Know how search engines select results. Know how search results are ranked. Know why the order of results is important, and to whom.	Computing Systems and Networks -Use search engines, explaining select results and result ranking.	Search engine, **select results, result ranking**	Teach Computing -Computer Systems and Networks – Systems and Sensing
	Online Safety -Know how identity online can be copied, modified or altered. -Know how to make responsible choices about online identity	Online Safety -Demonstrate how to make responsible choices about having an online identity, depending on context.	Identity, **context**	Project Evolve – Self Image and Self Identity
Year 5 Autumn 2	Information Technology (links to Year 4 Autumn 2 Animation) -Know how to plan a game. -Know how to design and create the game environment. -Know how to design and create the game quest. -Know how to finish and share the game. -Know how to self and peer evaluate.	Information Technology -Describe some of the elements that make a successful game. -Upload images or use the drawing tools to create the walls, floor, and roof. design characters for their game. -Decide upon, and change, the animations and sounds that the characters make write informative instructions for their game so that other people can play it. -Evaluate their own and peers' games to help improve their design for the future.	evaluation, image, instructions, **promotion, quest, scene, screenshot, texture, theme**	Purple Mash -5.5 – Game Creator (5 lessons)
	Online Safety -Know that information about anyone online can be used by others to make judgments about an individual and why these may be incorrect. -Know that online bullying can be different to bullying in the physical world and can describe some of those differences. -Know how anyone can get help if they are being bullied online and identify when to tell a trusted adult. -Know how to block abusive users. -Know the helpline services which can help people experiencing bullying, and how to access them (e.g. Childline or The Mix).	Online Safety -Search for information about an individual online and summarise the information found. -Describe how what one person perceives as playful joking and teasing (including 'banter') might be experienced by others as bullying. -Identify a range of ways to report concerns and access support both in school and at home about online bullying.	bullying, report **abusive user, helpline services**	Project Evolve – Online Reputation Project Evolve -Online Bullying
Year 5 Spring 1	Coding and Computational Thinking (Links to Year 4 Autumn 2 Animation, Year 4 Spring 1 Coding and Year 4 Summer 1 Logo) -Know how to begin to simplify code. -Know how to create a playable game. -Know what a simulation is. -Know how to program a simulation using 2Code. -Know what decomposition and abstraction are in computer science. -Know how to take a real-life situation, decompose it and think about the level of abstraction. -Know how to use friction in code. -Know what the different variables types are and how they are used differently. -Know how to create a string. -Know what concatenation is and how it works.	Coding and Computational Thinking -Use variables in their code. -Select the right images to reflect the simulation they are making. -Create a program which represents a physical system. -Create and use functions in their code to make their programming more efficient. -Create and use strings in programming.	algorithm, command co-ordinates, debug, flowchart input, nest, object, output, repeat, selection, sequence, simplify, simulation, string, tabs, timer, variable. **abstraction, concatenation, decomposition, friction, function, random**	Purple Mash – 5.1 Coding (6 lessons)
	Online Safety - Know when it is acceptable to use the work of others. -Know that there are some people I communicate with online who may want to do me or my friends harm. -Know some of the ways people may be involved in online communities and describe how they might collaborate constructively with others and make positive contributions. (e.g. gaming communities or social media groups). -Know how to support others (including those who are having difficulties) online.	Online Safety -Assess and justify when it is acceptable to use the work of others. -Give examples of content that is permitted to be reused and know how this content can be found online.	**online communities, permitted**	Project Evolve -Online Relationships Project Evolve – Copyright and Ownership

Year 5 Spring 2	Information Technology Links to Year 4 Spring 2 Spreadsheets) -Know how to use formulae within a spreadsheet to convert measurements of length and distance. -Know how to use the count tool to answer hypotheses about common letters in use. -Know how to use a spreadsheet to model a real-life problem. -Know how to use formulae to calculate area and perimeter of shapes. -Know how to create formulae that use text variables. -Know how to use a spreadsheet to help plan a school cake sale.	Information Technology -Create a formula in a spreadsheet -Use the 'how many' tool. -Use calculations to solve a real-life problem. -Create simple formulae that use different variables. -Use a spreadsheet to model a real-life situation.	budget, columns, data, **computational model, format cell, formula, formula bar, formula wizard, profit, rows, spreadsheet, totalling tool, variable.**	Purple Mash – 5.3 Spreadsheets (5 lessons)
	Online Safety -Know ways technology can affect health and well-being both positively (e.g. mindfulness apps) and negatively. Know how and why some apps and games may request or take payment for additional content (e.g. in-app purchases, loot boxes).	Online Safety -Describe some strategies, tips or advice to promote health and wellbeing with regards to technology. -Recognise the benefits and risks of accessing information about health and well-being online and how we should balance this with talking to trusted adults and professionals. -Explain the importance of seeking permission from a trusted adult before purchasing.	in- app purchase, permission, content	Project Evolve – Health Wellbeing and Lifestyles
Year 5 Summer 1	Coding and Computational Thinking (Links to Year 4 Spring 1 Coding, Year 5 Spring 1 Coding and Year 4 Summer 1 Logo) -Know a device can be programmed to be used as a game controller. -Know how to create a simple quiz program that can be answered using an external device. - Know how to create a program in which an external device can be used to monitor real world conditions.	Coding and Computational Thinking -Adapt and test code using the emulator and then upload it to an external device -Make a program that responds to an external device being tilted or shaken. -Write a program that uses the sounds and motion sensors of an external device to trigger a response on the computer. -Design, code, test and debug a program that makes use of the Purple Chip functionality. -Explore the functions available for the Purple Chip and appraise their uses.	algorithm, debug, event, function, input, output, variable, sensor, **print to screen code view, design view, emulator/simulat or, external device, host, QR Code, URL**	Purple Mash 5.9 External Devices (6 lessons) Purple Chip app Project Evolve – Privacy and Security
	Online Safety -Know what a strong password is. -Know many free apps or services may read and share private information (e.g. friends, contacts, likes, images, videos, voice, messages, geolocation) with others. -Know what app permissions are.	Online Safety -Demonstrate how to create a strong password. -Give examples of app permissions	password, private information, **app permission**	
Year 5 Summer 2	Information Technology (Links to Year 4 Autumn 2 Animation) -Know that computer aided design can be used as part of design process. -Know the effect of moving points when designing. -Know how to design a 3D Model to fit certain criteria. -Know how to print a model.	Information Technology -adapt a model by moving the points to alter the shape of the while still maintaining its form. -edit the polygon 3D models to design a 3D model for a purpose. -print their design as a 2D net and then create it as a 3D model.	**2D, 3D, 3D printing, CAD, design brief, net, pattern fill, points, template.**	Purple Mash -5.6 3D Modelling (4 lessons)
	Online Safety -Know how some technology can limit the information I aim presented with e.g. voice-activated searching giving one result. -Know what is meant by 'being sceptical'. -Know the internet can draw us to information for different agendas, e.g. website notifications, pop-ups, targeted ads.	Online Safety -Explain the benefits and limitations of using different types of search technologies e.g. voice-activation search engine. -Give examples of when and why it is important to be 'sceptical'. -Evaluate digital content and can explain how to make choices about what is trustworthy e.g. differentiating between adverts and search results. -Explain key concepts including: information, reviews, fact, opinion, belief, validity, reliability and evidence.	technologies, adverts, fact, opinion, **belief, validity, reliability, evidence, sceptical**	Project Evolve – Managing online information

Year 6 Autumn 1	Computing Systems and Networks (Links to Year 5 Autumn 1 Systems and Sensing) -Know the importance of internet addresses. -Know how data is transferred across the internet. Information technology -Know the purpose of writing a blog. -Know the features of a successful blog. -Know how to write a blog and a blog post. -Know how to contribute to an existing blog. -Know how and why blog posts are approved by the teacher. -Know the importance of commenting on blogs. Online Safety -Know that there can be inappropriate representations online relating to gender, race, religion, disability and culture. -Know issues online that could make someone feel uncomfortable.	Computing Systems and Networks Online Safety -Explain how data is transferred across the internet. Information technology -Plan the theme and content for a blog -Consider the effect upon the audience of changing the visual properties of the blog. -Compose, edit and publish a blog post. Online Safety -Identify and critically evaluate online content relating to gender, race, religion, disability, culture and other groups, and explain why it is important to challenge and reject inappropriate representations online. -Describe issues online that could make anyone feel sad, worried, uncomfortable or frightened. I know and can give examples of how to get help, both on and offline. -Explain the importance of asking until I get the help needed.	data, transferred, internet address decomposition **approval, archive, blog, collaborate, commenting, connections, nodes, vlog.** Evaluate, **inappropriate representations**	Teach Computing -Computer Systems and Networks – Communication and Collaboration – Lessons 1 and 2 only Purple Mash -6.4- blogging (4 lessons) Project Evolve – Self Image and Self Identity
Year 6 Autumn 2	Information Technology -Know how to find out what a text adventure is. -Know how to use 2Connect to plan a story adventure. -Know how to make a story-based adventure using 2Create a Story. -Know how to introduce an alternative model for a text adventure which has a less sequential narrative. -Know how to use written plans to code a map-based adventure in 2Code. Online Safety -Know how to capture bullying content as evidence (e.g. screen-grab, URL, profile) to share with others who can help me. -Know how someone would report online bullying in different contexts.	Information Technology -Map out a story-based text adventure. -Split their adventure game design into appropriate sections (decomposition)to facilitate creating it -Contrast a map-based game with a sequential story-based game. -Create their own text-based adventure based upon a map. -Use coding concepts of functions, two-way selection (if/else statements) and repetition in conjunction with one another to code their game. Online Safety -Explain the ways in which anyone can develop a positive online reputation. -Explain strategies anyone can use to protect their 'digital personality' and online reputation, including degrees of anonymity.	debug, function, repeat, variables, link, QR code, sprite, selection Reputation, **digital personality, anonymity, screen grab, URL, profile**	Purple Mash -6.5 -Text Adventure (4 lessons) Project Evolve – Online Reputation Project Evolve -Online Bullying
Year 6 Spring 1	Coding and Computational Thinking (Links to Year 5 Spring 1 Coding) -Know how to plan a program including a timer. -Know how to follow flowcharts to create and debug a program. Online Safety -Know how to be kind and show respect for others online including the importance of respecting boundaries regarding what is shared about them online and how to support them if others do not. -Know that things shared privately online can have unintended consequences for others. e.g. screen-grabs.	Coding and Computational Thinking -Plan a program which includes a timer and a score. -Create a program that makes use of functions. -Follow flowcharts to create and debug code. -Attribute variables to user input. -design their own text-based adventure game based on one they have played. Online Safety -Demonstrate the use of search tools to find and access online content which can be reused by others. -Demonstrate how to make references to and acknowledge sources I have used from the internet. -Explain that taking or sharing inappropriate images of someone (e.g. embarrassing images), even if they say it is okay, may have an impact for the sharer and others; and who can help if someone is worried about this.	action, algorithm, command, coordinate, decomposition, execute, run, event, debug, flowchart, input, output, sequence, timer, variable **simulation** sharing, images, source, **unintended consequences**	Purple Mash – 6.1 Coding (6 lessons) Project Evolve -Online Relationships Project Evolve – Copyright and Ownership

Year 6 Spring 2	Information Technology (Links to Year 5 Spring 2 Spreadsheets) -Know how to use a spreadsheet to investigate the probability of the results of throwing many dice. -Know how to use a spreadsheet to calculate the discount and final prices in a sale. -Know how to use a spreadsheet to plan how to spend pocket money and the effect of saving money.	Information Technology -Create a spreadsheet to answer a mathematical question relating to probability. -Use the formula wizard to create formulae. -Use a spreadsheet to model a real-life situation and come up with solutions.	spreadsheet budget, data, chart, columns, **count tool, dice tool, expense, format cell, formula, percentage, probability, profit, rows**	Purple Mash – 5.3 Spreadsheets (5 lessons)
	Online Safety -*Know common systems that regulate age-related content (e.g. PEGI, BBFC, parental warnings)* -*Know features of persuasive design and how they are used to keep users engaged (current and future use).*	Online Safety -Explain the purpose of age regulation. -*Recognise and can discuss the pressures that technology can place on someone and how / when they could manage this.* -*Assess and action different strategies to limit the impact of technology on health (e.g. night-shift mode, regular breaks, correct posture, sleep, diet and exercise).*	age-regulation, **persuasive design**	Project Evolve – Health Wellbeing and Lifestyles
Year 6 Summer	Coding and Computational Thinking -Know that a micro: bit is an input, process and output device that can be programmed. -Know how IF/THEN/ELSE statements are used to direct the flow of a program. -Know that a variables value remains the same after it has been checked by the program. -Know the function of the different sensors of the micro: bit.	Coding and Computational Thinking -*Create a program to run on a controllable device.* -*Explain that selection can control the flow of a program.* 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.*	Input, output, device, flowchart, variables, **sensors, micro: bit, controllable device**	Teach Computing 6.6 Programming [B] – Sensing Movement (6 lessons) Micro: bits
	Online Safety -*Know ways people can manage passwords (e.g. storing them securely or saving them in the browser).* -*Know what to do if a password is shared, lost or stolen* -*Know ways in which some online content targets people to gain money or information illegally; I can describe strategies to help me identify such content (e.g. scams, phishing).* -*Know that online services have terms and conditions that govern their use.* -*Define the terms 'influence', 'manipulation' and 'persuasion'.*	Online Safety -*Describe simple ways to increase privacy on apps and services that provide privacy settings.* -*Explain how and why some people may present 'opinions' as 'facts'; why the popularity of an opinion or the personalities of those promoting it does not necessarily make it true, fair or perhaps even legal.* *Explain how someone might encounter 'influence', 'manipulation' and 'persuasion'. online (e.g. advertising and 'ad targeting' and targeting for fake news).*	Password, privacy, browser, content, identity, **phishing, influence, manipulation, persuasion**	Project Evolve – Privacy and Security Project Evolve – Managing online information