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Computing
Whole School Overview
2020-2021

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	Year 1		

Year 1 TT Objectives
Pupils will:
- Understand where to go for help and support when he/she has concerns about content or contact on the internet or other online technologies
- Use technology purposefully to create digital content
- Recognise common uses of information technology in the home and school environment
- Understand what algorithms are and how they are implemented on digital devices

Weeks	Autumn (12)	Spring (9)	Summer (12)
	Unit 1.1 Online Safety Weeks – 4	**Unit 1.5 Maze Explorers Weeks** – 4	**Unit 1.7 Coding Weeks** – 6
1	To log in safely. To start to understand the idea of ownership' of their creative work.	To understand the functionality of the basic direction keys in Challenges 1 and 2. To be able to use the direction keys to complete the challenges successfully.	1: Introduction to Coding • To understand what coding means in computing. • To create unambiguous instructions like those required by a computer. • To build one- and two-step instructions using the printable code cards
2	To learn how to find saved work in the Online Work area and find teacher comments. To learn how to search Purple Mash to find resources.	To understand the functionality of the basic direction keys in Challenges 3 and 4. To understand how to create and debug a set of instructions (algorithm).	2: Block coding • To introduce 2Code. • To use the 2Code program to create a simple program.
3	To become familiar with the types of resources available in the Topics section. To become more familiar with the icons used in the resources in the Topics section. To start to add pictures and text to work	To use the additional direction keys as part of their algorithm. To understand how to change and extend the algorithm list. To create a longer algorithm for an activity.	3: Backgrounds and Characters • To use Design Mode to add and change backgrounds and characters. They will use the Properties table to change the look of the objects. • To use the Properties table to change the look

4	To explore the Tools section of Purple Mash and to learn about the common icons used in Purple Mash for Save, Print, Open, New. To explore the Games section on Purple Mash. To understand the importance of logging out when they have finished.	To provide an opportunity for the children to set challenges for each other. To provide an opportunity for the teacher to set these new challenges as 2Dos for all the class to try.	of the objects. 4: Moving characters • To design a scene for a program. • To use code blocks to make the characters move automatically when the green Play button is clicked. • To add an additional character who moves when clicked. 5: More actions • To explore the When Key and When Swiped commands (on tablets if available). • To use the Stop button to make characters stop when the background is clicked. 6: Collision Detection • To explore a method to code interactivity between objects. • To use Collision Detection to make objects perform actions. • To use the sound property
Weeks	**Unit 1.2 Grouping & Sorting Weeks -2**	**Unit 1.6 Animated Story Books Weeks – 5**	**Unit 1.8 Spreadsheets Weeks – 4**
1 **2**	To sort items using a range of criteria. To sort items on the computer using the 'Grouping' activities in Purple Mash.	To introduce e-books and 2Create a Story. To continue a previously saved story. To add animation to a story. To add sound to a story, including voice recording and music the children have created. To work on a more complex story, including	1 Introduction to spreadsheets 2 Adding images to a spreadsheet and using the image toolbox 3 Using the 'speak' and 'count' tools in 2Calculate to count items 4. Incorporate maths in creating spreadsheet

		adding backgrounds and copying and pasting pages. To use additional features to enhance their stories. To share their e-books on a class display board.	
Weeks	**Unit 1.3 Pictograms Weeks – 3**		**Unit 1.9 -Technology outside school Weeks – 2**
1	To understand that data can be represented in picture format.		To walk around the local community and find examples of where technology is used.
2	To contribute to a class pictogram.		To record examples of technology outside school.
3	To use a pictogram to record the results of an experiment.		
Weeks	**Unit 1.4 -Lego Builders Weeks** – 3		
1	To emphasise the importance of following instructions.		
2	To follow and create simple instructions on the computer.		
3	To consider how the order of instructions affects the result.		
	Year 2 TT Objectives Pupils will: • Use technology safely and keep personal information private • Use technology purposefully to create digital content comparing the benefits of different programs • Recognise common uses of information technology beyond school • Use logical reasoning to predict the behaviour of simple programs • Create simple programs • Create and debug simple programs • Debug simple programs by using logical reasoning to predict the actions instructed by the code • Understand that programs execute by following precise and unambiguous instructions		

Year 2	Autumn (12 Weeks)	Spring (13 Weeks)	Summer (7 Weeks)
Weeks	**Unit 2.2 – Online Safety Weeks-3**	**Unit 2.4 – Questioning Weeks-5**	**Unit 2.7 – Making Music Weeks-3**
1	To know how to refine searches using the Search tool. To know how to share work electronically using the display boards. To use digital technology to share work on Purple Mash to communicate and connect with others locally. To have some knowledge and understanding about sharing more globally on the Internet.	To show that the information provided on pictogram is of limited use beyond answering simple questions. To use YES or No questions to separate information. To construct a binary tree to separate different items.	To be introduced to making music digitally using 2Sequence. To explore, edit and combine sounds using 2Sequence. To add sounds to a tune they've already created to change it. To think about how music can be used to express feelings and create tunes which depict feelings.
2	To introduce Email as a communication tool using 2Respond simulations. To understand how we talk to others when they aren't there in front of us. To open and send simple online communications in the form of email.	Use 2Question (a binary tree) to answer questions. To use a database to answer more complex search questions. To use the search tool to find information.	To upload a sound from a bank of sounds into the Sounds section. To record their own sound and upload it into the Sounds section. To create their own tune using the sounds which they have added to the Sounds section.
3	To understand that information put online leaves a digital footprint or trail. To begin to think critically about the information they leave online. To identify the steps that can be taken to keep personal data and hardware secure.		
Weeks	**Unit 2.1 – Coding Weeks-5**	**Unit 2.5 – Effective Searching Weeks –3**	**Unit 2.8 – Presenting Ideas Weeks -4**
1	To understand what an algorithm is. To create a computer program using simple algorithms.	To understand the terminology associated with searching. To gain a better understanding of searching on the Internet.	To explore how a story can be presented in different ways. To make a quiz about a story or class topic.
2	To compare the Turtle and Character objects. To use the button object. To understand how use the Repeat command. To understand how to use the Timer command.	To create a leaflet to help someone search for information on the Internet.	To make a fact file on a non-fiction topic. To make a presentation to the class.

3	To know what debugging means. To understand the need to test and debug a program repeatedly. To debug simple programs.		
4	To create programs using different kinds of objects whose behaviours are limited to specific actions. To predict what the objects will do in other programs, based on their knowledge of what the object is capable of. To discuss how logic helped them understand that they could only predict specific actions, as that is what the objects were limited to.		
5	To use all the coding knowledge, they have learned throughout their programming lessons to create a more complex program that tells a story.		
Weeks	**Unit 2.3 – Spreadsheets Weeks -4**	**Unit 2.6 Creating Pictures Weeks** – 5	
1 2 3 4	Reviewing prior use of spreadsheets Copying and Pasting Totalling tools Using a spreadsheet to add amounts Creating a table and block graph	To be introduced to 2Paint a Picture. To look at the impressionist style of art (Monet, Degas, Renoir). To recreate pointillist art and look at the work of pointillist artists such as Seurat. To look at the work of Piet Mondrian and recreate it using the Lines template.	

		To look at the work of William Morris and recreate it using the Patterns template. To explore surrealism and eCollage	

Year 3 TT Objectives
Pupils will:
- Use technology safely and respectfully, keeping personal information private
- Use technology safely and recognise acceptable and unacceptable behaviour
- With support select and use a variety of software to accomplish goals
- Recognise familiar forms of input and output devices and how they are used
- Make efficient use of familiar forms of input and output devices
- Understand that computer networks enable the sharing of data and information
- Understand that the internet is a large network of computers and that information can be shared between computers
- Use simple search technologies
- Use simple search technologies and recognise that some sources are more reliable than others
- Design, write and debug programs that control or simulate virtual events
- Use logical reasoning to explain how some simple algorithms work

Year 3	Autumn (12 Weeks)	Spring (10)	Summer (10)
	Unit 3.2 Online Safety Weeks – 3	**Unit 3.4 Touch-Typing Weeks** – 4	**Unit 3.6 Branching Databases Weeks** – 4
	To know what makes a safe password, how to keep passwords safe and the consequences of giving your passwords away. To understand how the Internet can be used to help us to communicate effectively. To understand how a blog can be used to help us communicate with a wider audience. For children to consider if that they read on websites is true? To look at some 'spoof' websites. To create a 'spoof' webpage. To think about why these sites might exist and how to check that the information is accurate. To learn about the meaning of age restrictions	To introduce typing terminology. Understand the correct way to sit at the keyboard. To learn how to use the home, top and bottom row keys. To practise and improve typing for home, bottom and top rows. To practise the keys typed with the left hand. To practise the keys typed with the right hand.	To sort objects using just YES/NO questions. To complete a branching database using 2Question. To create a branching database of the children's choice. (3&4)

	symbols on digital media and devices. To discuss why PEGI restrictions exist. To know where to turn for help if they see inappropriate content or have inappropriate contact from others.		
	Unit 3.1 Coding Weeks – 6	**Unit 3.5 Email Weeks** – 6 (including email safety)	**Unit 3.7 Simulations Weeks** – 3
	To review coding vocabulary that relates to Object, Action, Output, Control and Event. To use 2Chart to represent a sequential program design. To use the design to write the code for the program To design and write a program that simulates a physical system. To look at the grid that underlies the design and relate this to X and Y properties. To introduce selection in their programming by using the if command. To combine a timer in a program with selection. To understand what a variable is in programming. To use a variable to create a timer To create a program with an object that repeats actions indefinitely. To use a timer to make characters repeat actions.	To think about the different methods of communication. To open and respond to an email. To write an email to someone, using an address book. To learn how to use email safely. To learn how to use email safely. To add an attachment to an email. To explore a simulated email scenario.	To look at what simulations are. To explore a simulation. To analyse and evaluate a simulation.

	To explore the use of the repeat command and how this differs from the timer. To know what debugging means. To understand the need to test and debug a program repeatedly. To debug simple programs. To understand the importance of saving periodically as part of the code development process.		
	Unit 3.3 Spreadsheets Weeks – 3		**Unit 3.8 Graphing Weeks** – 3
	To create pie charts and bar graphs. To use the 'more than', 'less than' and 'equals' tools. To introduce the Advanced Mode of 2Calculate and use coordinates.		To enter data into a graph and answer questions. To solve an investigation and present the results in graphic form. (2&3)
	Year 4 TT Objectives Pupils will: - Use technology responsibly and understand that communication online may be seen by others - Understand where to go for help and support when he/she has concerns about content or contact on the internet or other online technologies - With support select and use a variety of software on a range of digital devices - With support select, use and combine a variety of software on a range of digital devices to accomplish given goals - Use other input devices such as cameras or sensors - Understand what servers are and how they provide services to a network - Understand how results are selected and ranked by search engines - Decompose programs into smaller parts - Use logical reasoning to detect and correct errors in algorithms and programs - Select, use and combine a variety of software, systems and content that accomplish given goals		
Year 4	**Autumn (13 Weeks)**	**Spring (12)**	**Summer (11 Weeks)**
	Unit 4.2 Online Safety Weeks – 4	**Unit 4.3 Spreadsheets Weeks** – 5	**Unit 4.5 Logo Weeks** – 4
	To understand how children can protect themselves from online identity theft.	Using the formula wizard in the advanced mode to add formulae and explore	To learn the language of Logo. To input simple instructions on Logo.

	Understand that information put online leaves a digital footprint or trail and that this can aid identity theft. To Identify the risks and benefits of installing software including apps. To understand that copying the work of others and presenting it as their own is called 'plagiarism' and to consider the consequences of plagiarism. To identify appropriate behaviour when participating or contributing to collaborative online projects for learning. To identify the positive and negative influences of technology on health and the environment. To understand the importance of balancing game and screen time with other parts of their lives.	formatting cells Timer and spin button Line graphs Using a spreadsheet for budgeting Exploring Place Value with a spreadsheet	For the children to use Logo to create letters. To use the Repeat function in Logo to create shapes. To use the Build feature in Logo.
	Unit 4.1 Coding Weeks – 6	**Unit 4.4 Writing for Different Audiences Weeks** – 5	**Unit 4.6 Animation Weeks** – 3
	To review coding vocabulary. To use a sketch or storyboard to represent a program design and algorithm. To use the design to create a program. To introduce the If/else statement and use it in a program. To create a variable. To explore a flowchart design for a program with an if/else statement To create a program which responds to the If/else command, using the value of the variable.	To explore how font size and style can affect the impact of a text. To use a simulated scenario to produce a news report. (2&3) To use a simulated scenario to write for a community campaign. (4&5)	To discuss what makes a good animated film or cartoon and what their favourites are. To learn how animations are created by hand. To find out how 2Animate can be created in a similar way using the computer. To learn about onion skinning in animation. To add backgrounds and sounds to animations. To be introduced to stop motion animation.

			To share animation on the class display board and by blogging.
	To create a program with a character that repeats actions. To use the Repeat Until command to make characters repeat actions. To program a character to respond to user keyboard input. To make timers and counting machines using variables to print a new number to the screen every second. To explore how 2Code can be used to investigate control by creating a simulation. To know what decomposition and abstraction are in computer science. To take a real-life situation, decompose it and think about the level of abstraction. To design a decomposed feature of a real-life situation.		
	Unit 4.7 Effective Searching Weeks – 3	**Unit 4.8 Hardware Investigators Weeks** – 2	**Unit 4.9 Making Music** (Optional Unit) **Number of Lessons** – 4
	To locate information on the search results page. To use search effectively to find out information. To assess whether an information source is true and reliable.	To understand the different parts that make up a computer. To recall the different parts that make up a computer.	To identify and discuss the main elements of music: Pulse, Rhythm, Tempo, Pitch, Texture. To understand and experiment with rhythm and tempo. To create a melodic phrase. To compose a piece of music.
	Year 5 TT Objectives		

Pupils will:
- Understand the need to only select age appropriate content
- Independently select and use appropriate software for a task
- Independently select, use and combine a variety of software to design and create content for a given audience
- Begin to use internet services to share and transfer data to a third party
- Use filters in search technologies effectively
- Use filters in search technologies effectively and appreciates how results are selected and ranked
- Design, input and test an increasingly complex set of instructions to a program or device
- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems
- Design, write and test simple programs that follow a sequence of instructions or allow a set of instructions to be repeated
- Design write and test simple programs with opportunities for selection, where a particular result will happen based on actions or situations controlled by the user
- Use logical reasoning to explain how increasingly complex algorithms work to ensure a program's efficiency

Year 5	Autumn (14 Weeks)	Spring (9 Weeks)	Summer (8 Weeks)
	Unit 5.2 Online Safety Weeks – 3	**Unit 5.4 Databases Weeks – 4**	**Unit 5.6 3D Modelling Weeks – 4**
	To gain a greater understanding of the impact that sharing digital content can have. To review sources of support when using technology. To review children's responsibility to one another in their online behaviour. To know how to maintain secure passwords. To understand the advantages, disadvantages, permissions and purposes of altering an image digitally and the reasons for this. To be aware of appropriate and inappropriate text, photographs and videos and the impact of sharing these online. To learn about how to reference sources in their work To search the Internet with a consideration for the reliability of the results of sources to check validity and understand the impact of incorrect information. Ensuring reliability through using different	To learn how to search for information on a database. To contribute to a class database. To create a database around a chosen topic. (3&4)	To be introduced to 2Design and Make. To explore the effect of moving points when designing. To understand designing for a purpose. To understand printing and making.

	methods of communication		
	Unit 5.1 Coding Weeks – 6	**Unit 5.5 Game Creator Weeks – 5**	**Unit 5.7 Concept Maps Weeks – 4**
	To review coding vocabulary. To use a sketch or storyboard to represent a program design and algorithm. To use the design to create a program. To design and write a program that simulates a physical system. To review the use of number variables in 2Code. To explore text variables. To create a playable, competitive game. To combine the use of variables, If/else statements and Repeats to achieve the desired effect in code. To read code so that it can be adapted, personalised and improved. To explore the launch command and use buttons within a program that launch other programs or open websites. To create a program to inform others.	To set the scene. To create the game environment. To create the game quest. To finish and share the game To evaluate their and peers' games.	To understand the need for visual representation when generating and discussing complex ideas. To understand and use the correct vocabulary when creating a concept map. To create a concept map. To understand how a concept map can be used to retell stories and information. To create a collaborative concept map and present this to an audience.
	Unit 5.3 Spreadsheets Weeks – 5		
	Conversions of measurements. Novel use of the count tool. Formulae including the advanced mode.		

	Using text variables to perform calculations. Using a spreadsheet to plan an event.		
	Year 6 TT Objectives Pupils will: • Use technology respectfully and responsibly • Independently select, use and combine a variety of software to design and create content for a given audience, including collecting, analysing, evaluating and presenting data and information • Design and create a range of programs, systems and content for a given audience • Independently select, use and combine a variety of software to collect, analyse, evaluate and present data and information • Independently select, use and combine a variety of software to design and create content for a given audience, including collecting, analysing, evaluating and presenting data and information • Understand how computer networks enable computers to communicate and collaborate • Begin to use internet services within his/her own creations to share and transfer data to a third party • Be discerning when evaluating digital content • Use filters in search technologies effectively and is discerning when evaluating digital content • Include use of sequences, selection and repetition with the hardware used to explore real world systems • Solves problems by decomposing them into smaller parts • Create programs which use variables • Use variables, sequence, selection, and repetition in programs • Use logical reasoning to explain how increasingly complex algorithms work and to detect and correct errors in algorithms and programs efficiently		
Year 6	**Autumn (12)**	**Spring (9 Weeks)**	**Summer (15 Weeks)**
	Unit 6.2 Online Safety Weeks – 3	**Unit 6.3 Spreadsheets Weeks – 5**	**Unit 6.5 Text Adventures Weeks – 5**
	Identify benefits and risks of mobile devices broadcasting the location of the user/device, e.g. apps accessing location. Identify secure sites by looking for privacy seals of approval, e.g. https, padlock icon. Identify the benefits and risks of giving personal information and device access to different software. To review the meaning of a digital footprint and understand how and why people use their information and online presence to create a virtual	Exploring Probability Use of spreadsheets in 'real life' Creating a computational model Use a spreadsheet to plan pocket money spending Planning a school event (4&5	To find out what a text adventure is. To plan a story adventure. To make a story-based adventure. To introduce map-based text adventures. To code a map-based text adventure.

image of themselves as a user.
To have a clear idea of appropriate online behaviour and how this can protect themselves and others from possible online dangers, bullying and inappropriate behaviour.
To begin to understand how information online can persist and give away details of those who share or modify it.

To understand the importance of balancing game and screen time with other parts of their lives, e.g. explore the reasons why they may be tempted to spend more time playing games or find it difficult to stop playing and the effect this has on their health.
To identify the positive and negative influences of technology on health and the environment.

Unit 6.1 Coding Weeks – 6	**Unit 6.4 Blogging Weeks – 4**	**Unit 6.7 Quizzing Weeks – 6**
To review good planning skills. To design programs using their choice of objects, attributing specific actions to each using their new programming knowledge. To use variables within a game to keep track of the properties of objects. (1&2) To use functions and understand why they are useful in 2Code. To debug a program and organise the code into tabs. To organise code into functions and Call functions to eliminate surplus code in the program.	To identify the purpose of writing a blog. To identify the features of successful blog writing. To plan the theme and content for a blog. To understand how to write a blog. To consider the effect upon the audience of changing the visual properties of the blog. To understand the importance of regularly updating the content of a blog. To understand how to contribute to an existing blog. To understand how and why blog posts	To make a picture quiz for young children. To learn how to use the question types within 2Quiz. (2&3) To explore the grammar quizzes. To make a quiz that requires the player to search a database. Are you smarter than a 10- (or 11-) year-old? To make a quiz to test your teachers or parents.

To explore the options for getting text input from the user in 2Code. How to include interactivity in programming. To use flowcharts to test and debug a program. To create a simulation of a room in which devices can be controlled. To explore how 2Code can be used to make a text-based adventure game.	are approved by the teacher. To understand the importance of commenting on blogs. To peer-assess blogs against the agreed success criteria.	
Unit 6.6 Networks Weeks – 3		**Unit 6.8 – Understanding Binary Weeks 4(Optional)**
To discover what the children know about the internet. To find out what a LAN and a WAN are. To find out how we access the internet in school. To research and find out about the age of the internet. To think about what the future might hold.		Recognising that digital systems represent all types of data using number codes that ultimately are patterns of 1s and 0s (called binary digits, which is why they are called digital systems). Understand that binary represents numbers using 1s and 0s and these represent the on and off electrical states respectively in hardware and robotics. Recognising that the numbers 0, 1, 2 and 3 could be represented by the patterns of two binary digits of 00, 01, 10 and 11

			Representing whole numbers in binary, for example counting in binary from zero to 15, or writing a friend's age in binary.
			Representing whole numbers in binary, for example counting in binary from zero to 15, or writing a friend's age in binary. Exploring how division by two can be used as a technique to determine the binary representation of any whole number by collecting remainder terms
			Representing the state of an object in a game as active or inactive using the respective binary values of 1 or 0
			Are you smarter than a 10- (or 11-) year-old? To make a quiz to test your teachers or parents.