Whole School Computing Scheme

EYFS Computing

In EYFS, the children explore technology across the 7 areas of learning. Children will consistently be exposed to taking photographs, searching for information as a class, using technology such as the interactive board, exploring interactive toys, using Beebots, watching video clips and listening to music.

Nursery		
	Development Matters Pathway	
Personal, Social and Emotional Development	**Physical Development**	**Understanding the World**
Remember rules without needing an adult to remind them.	*Match their developing physical skills to tasks and activities in the setting.*	*Explore how things work*
Reception		
	Development Matters Pathway	
Personal, Social and Emotional Development	**Physical Development**	**Understanding the World**
Show resilience and perseverance in the face of a challenge. *Know and talk about the different factors that support their overall health and wellbeing: -sensible amounts of 'screen time'*	*Develop their small motor skills so that they can use a range of tools competently, safely and confidently*	*Explore, use and refine a variety of artistic effects to express their ideas and feelings*
Early Learning Goal: **Personal, Social and Emotional Development: Managing Self** Children at the expected level of development will: • Be confident to try new activities and show independence, resilience and perseverance in the face of challenge. • Explain the reasons for rules, know right from wrong and try to behave accordingly.	**Early Learning Goal:** **Expressive Arts and Design: Creating with Materials** • Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.	

Year 1 Computing Content Coverage

Pupils should be taught about:	**1.1 Online Safety & Exploring Purple Mash**	**1.3 Pictograms**	**1.6 Animated Story Books**	**1.7 Coding**	**1.8 Spreadsheets**	**1.9 Technology outside school**
1. understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions				✓		
2. create and debug simple programs				✓		
3. use logical reasoning to predict the behaviour of simple programs				✓		
4. use technology purposefully to create, organise, store, manipulate and retrieve digital content		✓	✓	✓	✓	
5. recognise common uses of information technology beyond school						✓
6. use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.	✓					

Year 1 Computing ARE
Computer science I can explain that an algorithm is a set of instructions. I know that a computer program turns an algorithm into code that the computer can understand. I can work out what is wrong when the steps are out of order in instructions. I can say that if something does not work how it should it is because my code is incorrect. I can try and fix my code if it isn't working properly.

I can make good guesses of what is going to happen in a program. For example, where the turtle might go

Information Technology
I can sort sound, pictures and text.
I can add sound, pictures and text to a program such as 2Create a Story.
I can change content on a file such as text, sound and images.
I can name my work, save my work and find my work.

Digital literacy
I can say what technology is.
I can say what examples of technology are in school.
I can say what examples of technology are at home.
I know that a chair uses old technology and a smart phone uses new technology.
I can keep my login information safe.
I can save my work in a safe place such as 'My work' folder.

Year 1						
	Online safety	***Pictograms***	***Animated story books***	***Coding***	***Spreadsheets***	***Technology outside of school***
Key Question	**What is a password and why should we keep them safe?**	**How does a pictogram show information?**	**How can we make a story better?**	**How can you make a character move?**	**How does the count and speak tool improve a spreadsheet?**	**How does technology make our lives easier?**
Vocabulary	Login, username, password, log out, save	Pictogram, data	Animation, E-book	input	Algorithm, debug, instructions, cells, columns, rows	Technology
Skills	• To log in safely. • 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 become familiar with the icons and types of resources available in the Topics section. • To start to add pictures and text to work. • To explore the Tools and Games section of Purple Mash. • To learn how to open, save and print. • To understand the importance of logging out	• To understand that data can be represented in picture format. • To contribute to a class pictogram. • To use a pictogram to record the results of an experiment.	• To introduce e-books and the 2Create a Story tool. • To add animation to a story. • To add sound to a story, including voice recording and music the children have composed. • To work on a more complex story, including adding backgrounds and copying and pasting pages. • To share e-books on a class display board.	• To understand what instructions are and predict what might happen when they are followed. • To use code to make a computer program. • To understand what object and actions are. • To understand what an event is. • To use an event to control an object. • To begin to understand how code executes when a program is run. • To understand what backgrounds and objects are. • To plan and make a computer program.	• To know what a spreadsheet program looks like. • To locate 2Calculate in Purple Mash. • To enter data into spreadsheet cells. • To use 2Calculate image tools to add clipart to cells. • To use 2Calculate control tools: lock, move cell, speak and count	• To walk around the local community and find examples of where technology is used. • To record examples of technology outside school.
Knowledge and Understanding	• Children understand the importance of keeping information, such as their usernames and passwords, private and actively demonstrate this in lessons. Children take ownership of their work and save this in their	• Children are able to sort, collate, edit and store simple digital content e.g. children can name, save and retrieve their work and follow simple instructions to access online resources, use Purple Mash 2Quiz example (sorting shapes),	• Children are able to sort, collate, edit and store simple digital content e.g. children can name, save and retrieve their work and follow simple instructions to access online resources, use Purple Mash 2Quiz example (sorting shapes),	• Children are able to sort, collate, edit and store simple digital content e.g. children can name, save and retrieve their work and follow simple instructions to access online resources, use Purple Mash 2Quiz example (sorting shapes),	• Children are able to sort, collate, edit and store simple digital content e.g. children can name, save and retrieve their work and follow simple instructions to access online resources, use Purple Mash 2Quiz example (sorting shapes),	• Children understand what is meant by technology and can identify a variety of examples both in and out of school. They can make a distinction between objects that use modern technology and those that do not e.g. a microwave vs. a chair.

	own private space such as their My Work folder on Purple Mash.	2Code design mode (manipulating backgrounds) or using pictogram software such as 2Count.	2Code design mode (manipulating backgrounds) or using pictogram software such as 2Count.	2Code design mode (manipulating backgrounds) or using pictogram software such as 2Count. • Children understand that an algorithm is a set of instructions used to solve a problem or achieve an objective. They know that a computer program turns an algorithm into code that the computer can understand • Children can work out what is wrong with a simple algorithm when the steps are out of order, e.g. The Wrong Sandwich in Purple Mash and can write their own simple algorithm, e.g. Colouring in a Bird activity. Children know that an unexpected outcome is due to the code they have created and can make logical attempts to fix the code, e.g. Bubbles activity in 2Code. • When looking at a program, children can read code one line at a time and make good attempts to envision the bigger picture of the overall effect of the program. Children can, for example, interpret where the turtle in 2Go challenges will end up at the end of the program.	2Code design mode (manipulating backgrounds) or using pictogram software such as 2Count.	Children understand the importance of keeping information, such as their usernames and passwords, private and actively demonstrate this in lessons. Children take ownership of their work and save this in their own private space such as their My Work folder on Purple Mash.
Learning Beyond the Classroom	Visit from PCSO					To visit the local area to identify technology around us.

Whole School Computing Scheme

Year 2 Computing Content Coverage

Pupils should be taught about:	2.1 Coding	2.2 Online Safety	2.3 Spreadsheets	2.5 Effective Searching	2.6 Creating Pictures	2.7 Making Music
1. understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions	✓					
2. create and debug simple programs	✓					
3. use logical reasoning to predict the behaviour of simple programs	✓					
4. use technology purposefully to create, organise, store, manipulate and retrieve digital content	✓		✓	✓	✓	✓
5. recognise common uses of information technology beyond school				✓		
6. use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.		✓				

Year 2 Computing ARE

Computer science

I can explain an algorithm is a set of instructions to complete a task.
I know I need to carefully plan my algorithm so it will work when I make it into code.
I can design a simple program using 2Code that achieves a purpose.
I can find and correct some errors in my program.
I can say what will happen in a program.
I can spot something in a program that has an action or effect (does something)

Information Technology

I can organise data – for example, using a database such as 2Investigate.
I can find data using specific searches – for example, using 2Investigate.
I can use several programs to organise information – for example, using binary trees such as 2Question or spreadsheets such as 2Calculate.
I can edit digital data such as data in music composition software like 2Sequence.
I can name, save and find my work.
I can include photos, text and sound in my creations.

Digital literacy

I can find information I need using a search engine.
I know the consequences of not searching online safely.
I can share work and communicate electronically – for example using 2Email or the display boards.
I can report unkind behaviour and things that upset me online, to a trusted adult.
I can see where technology is used at school such as in the office or canteen.
I understand that my creations such as programs in 2Code, need similar skills to the adult world. e.g. The program used for collecting money for school trips.

Year 2						
	2.1 Coding	**2.2 Online Safety**	**2.3 Spreadsheets**	**2.5 Effective Searching**	**2.6 Creating Pictures**	**2.7 Making Music**
Key Question	**Why is an algorithm useful in coding?**	**What is meant by my digital footprint?**	**Why would you copy and paste when using a spreadsheet?**	**How can I search the internet?**	**Which tools are useful when creating digital art?**	**How can I change/ how my music sounds**
Vocabulary	Algorithm, debug, collision detection, predict, sequence	Search, internet, email, attachment	Copy and paste, columns, rows, cells	search-engine,	Save, share	Digitally, sound effect.
Skills	• To understand what an algorithm is. • To create a computer program using an algorithm. • To create a program using a given design. • To understand the collision detection event. • To understand that algorithms follow a sequence. • To design an algorithm that follows a timed sequence. • To understand that different objects have different properties. • To understand what different events do in code. • To understand the function of buttons in a program. • To understand and debug simple programs.	• To know how to refine searches using the Search tool. • 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 introduce Email as a communication tool using 2Respond simulations. • To understand how we should talk to others in an online situation. • To open and send simple online communications in the form of email. • To understand that information put online leaves a digital footprint or trail. • To identify the steps that can be taken to keep personal data and hardware secure.	• To use 2Calculate image, lock, move cell, speak and count tools to make a counting machine. • To learn how to copy and paste in 2Calculate. • To use the totalling tools. • To use a spreadsheet for money calculations. • To use the 2Calculate equals tool to check calculations. • To use 2Calculate to collect data and produce a graph.	• To understand the terminology associated with searching. • To gain a better understanding of searching on the Internet. • To create a leaflet to help someone search for information on the Internet.	• To learn the functions of the 2Paint a Picture tool. • To learn about and recreate the Impressionist style of art (Monet, Degas, Renoir). • To recreate Pointillist art and look at the work of pointillist artists such as Seurat. • To learn about the work of Piet Mondrian and recreate the style using the lines template. • To learn about the work of William Morris and recreate the style using the patterns template. • To explore surrealism and eCollage.	• To make music digitally using 2Sequence. • To explore, edit and combine sounds using 2Sequence. • To edit and refine composed music. • To think about how music can be used to express feelings and create tunes which depict feelings. • To upload a sound from a bank of sounds into the Sounds section. • To record and upload environmental sounds into Purple Mash. • To use these sounds to create tunes in 2Sequence.
Knowledge and Understanding	• Children can explain that an algorithm is a set of instructions to complete a task. When designing simple programs, children show an awareness of the need to be precise with their algorithms so that	• Children can effectively retrieve relevant, purposeful digital content using a search engine. They can apply their learning of effective searching beyond the classroom. They can share	• Children demonstrate an ability to organise data using, for example, a database such as 2Invesitigate and can retrieve specific data for conducting simple searches. Children are able to edit more complex digital data	• Children demonstrate an ability to organise data using, for example, a database such as 2Invesitigate and can retrieve specific data for conducting simple searches. Children are able to edit more complex digital data such as music compositions within 2Sequence.	• Children demonstrate an ability to organise data using, for example, a database such as 2Invesitigate and can retrieve specific data for conducting simple searches. Children are able to edit more complex digital data such as music compositions within 2Sequence.	• Children demonstrate an ability to organise data using, for example, a database such as 2Invesitigate and can retrieve specific data for conducting simple searches. Children are able to edit more complex digital data such as music compositions within

	they can be successfully converted into code • Children can create a simple program that achieves a specific purpose. They can also identify and correct some errors, e.g. Debug Challenges: Chimp. Children's program designs display a growing awareness of the need for logical, programmable steps. • Children can identify the parts of a program that respond to specific events and initiate specific actions. For example, they can write a cause and effect sentence of what will happen in a program.	this knowledge, e.g. 2Publish example template. Children make links between technology they see around them, coding and multimedia work they do in school e.g. animations, interactive code and programs. Children know the implications of inappropriate online searches. Children begin to understand how things are shared electronically such as posting work to the Purple Mash display board. They develop an understanding of using email safely by using 2Respond activities on Purple Mash and know ways of reporting inappropriate behaviours and content to a trusted adult.	such as music compositions within 2Sequence. Children are confident when creating, naming, saving and retrieving content. Children use a range of media in their digital content including photos, text and sound.	Children are confident when creating, naming, saving and retrieving content. Children use a range of media in their digital content including photos, text and sound. • Children can effectively retrieve relevant, purposeful digital content using a search engine. They can apply their learning of effective searching beyond the classroom. They can share this knowledge, e.g. 2Publish example template. Children make links between technology they see around them, coding and multimedia work they do in school e.g. animations, interactive code and programs. Children know the implications of inappropriate online searches. Children begin to understand how things are shared electronically such as posting work to the Purple Mash display board. They develop an understanding of using email safely by using 2Respond activities on Purple Mash and know ways of reporting inappropriate behaviours and content to a trusted adult.	Children are confident when creating, naming, saving and retrieving content. Children use a range of media in their digital content including photos, text and sound.	2Sequence. Children are confident when creating, naming, saving and retrieving content. Children use a range of media in their digital content including photos, text and sound.
Learning beyond the classroom		Visit from PCSO				

Year 3 Computing Content Coverage

Pupils should be taught about:	3.1 Coding	3.2 Online safety	3.3 Spreadsheets	3.5 Email (inc. email safety)	3.6 Branching Databases	3.9 Presenting
1. design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts	✓					
2. use sequence, selection, and repetition in programs; work with variables and various forms of input and output	✓					
3. use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs	✓					
4. understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration				✓		
5. use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content						
6. select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information	✓		✓	✓	✓	✓
7. use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact		✓		✓		✓

Year 3 Computing ARE

Computer science

I can make a real-life situation into an algorithm for a program.
I can design an algorithm carefully, thinking about what I want it to do and how I can turn it into code.
I can identify an error in my program and fix it.
I can experiment with timers in my programs.
I can identify the difference in using between the effect of a timer or repeat command in my code.
I know that a variable stores information while a program is running (executing).
I can identify 'If' statements, repetition and variables.
I can read programs with several steps and predict what it will do.
I can identify different ways that the internet can be used for communication.
I can use email such as 2Email to respond to others appropriately and attach files.

Information Technology

I can carry out searches to find digital content on a range of online systems, such as within Purple Mash or on an internet search engine.
I can collect data and input it into software.
I can analyse data using features within software to help such as, formula in 2Calculate (spreadsheets).
I can present data and information using different software such as 2Question (branching database) or 2Graph (graphing tool).
I can consider what the most appropriate software to use when given a task by my teacher.
I can create purposeful (appropriate) content and attach this to emails.

Digital literacy

I can create a secure password.
I can explain the importance of having a secure password and not sharing it with others.
I can explain the negative consequences of not keeping passwords safe and secure.
I understand the importance of keeping safe online and behaving respectfully.

Whole School Computing Scheme

I can use communication tools such as 2Email respectfully and use good etiquette.
I can report unacceptable content and contact online in more than one way to a trusted adult.

Year 3						
	3.1 Coding	**3.2 Online safety**	**3.3 Spreadsheets**	**3.5 Email (inc. email safety)**	**3.6 Branching Databases**	**3.9 Presenting**
Key Question	**What does repeat mean in computer programming?**	**Is everything I read on the internet true?**	**How can you use the spin tool to make a 3x table game?**	**What is an email?**	**What is a database?**	**Why would you use a presentation program?**
Vocabulary	Algorithm, debug, predict, sequence, test repeat	Search, internet, email, attachment, concept map.	Copy and paste, columns, rows, cells, equals tool, spin tool	Email, attachment, compose, send, save to drafts	Database, data,	Animation, presentation, Media, slide
Skills	To understand what a flowchart is and how flowcharts are used in computer programming. • To understand that there are different types of timers and select the right type for purpose. • To understand how to use the repeat command. • To understand the importance of nesting. • To design and create an interactive scene.	To know what makes a safe password. • To learn methods for keeping passwords safe. • To understand how the Internet can be used in effective communication. • To understand how a blog can be used to communicate with a wider audience. • To consider the truth of the content of websites. • To learn about the meaning of age restrictions symbols on digital media and devices.	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.	• To think about different methods of communication. • To open and respond to an email using an address book. • To learn how to use email safely. • To add an attachment to an email. • To explore a simulated email scenario.	To sort objects using just 'yes' or 'no' questions. • To complete a branching database using 2Question. • To create a branching database of the children's choice	To understand the purpose of the Slides tool. • To add slides to presentations. • To add media to presentations. • To format text appropriately. • To add shapes and lines to enhance a presentation. • To use the skills learnt to design and create an engaging presentation. To understand the uses of PowerPoint. • To create a page in a presentation. • To add media to a presentation. • To add animations to a presentation. • To add timings to a presentation. • To use the skills learnt to design and create an engaging presentation
Knowledge and Understanding	• Children can turn a simple real-life situation into an algorithm for a program by deconstructing it into manageable parts. Their design shows that they are thinking of the desired task and how this translates into code. Children can identify an error within their program that prevents it following the desired algorithm and then fix it. • Children demonstrate the ability to design and code a	• Children demonstrate the importance of having a secure password and not sharing this with anyone else. Furthermore, children can explain the negative implications of failure to keep passwords safe and secure. They understand the importance of staying safe and the importance of their conduct when using familiar communication tools such as 2Email in Purple Mash. They know more than one way to report unacceptable content	• Children can collect, analyse, evaluate and present data and information using a selection of software, e.g. using a branching database (2Question), using software such as 2Graph. Children can consider what software is most appropriate for a given task. They can create purposeful content to attach to emails, e.g. 2Respond.	• Children can collect, analyse, evaluate and present data and information using a selection of software, e.g. using a branching database (2Question), using software such as 2Graph. Children can consider what software is most appropriate for a given task. They can create purposeful content to attach to emails, e.g. 2Respond. • Children can list a range of ways that the internet can be used to provide different	• Children can collect, analyse, evaluate and present data and information using a selection of software, e.g. using a branching database (2Question), using software such as 2Graph. Children can consider what software is most appropriate for a given task. They can create purposeful content to attach to emails, e.g. 2Respond.	• Children can collect, analyse, evaluate and present data and information using a selection of software, e.g. using a branching database (2Question), using software such as 2Graph. Children can consider what software is most appropriate for a given task. They can create purposeful content to attach to emails, e.g. 2Respond. • Children demonstrate the importance of having a secure password and not sharing this

	program that follows a simple sequence. They experiment with timers to achieve repetition effects in their programs. Children are beginning to understand the difference in the effect of using a timer command rather than a repeat command when creating repetition effects. Children understand how variables can be used to store information while a program is executing. • Children's designs for their programs show that they are thinking of the structure of a program in logical, achievable steps and absorbing some new knowledge of coding structures. For example, 'if' statements, repetition and variables. They make good attempts to 'step through' more complex code in order to identify errors in algorithms and can correct this. e.g. traffic light algorithm in 2Code. In programs such as Logo, they can 'read' programs with several steps and predict the outcome accurately.	and contact.		methods of communication. They can use some of these methods of communication, e.g. being able to open, respond to and attach files to emails using 2Email. They can describe appropriate email conventions when communicating in this way. • Children demonstrate the importance of having a secure password and not sharing this with anyone else. Furthermore, children can explain the negative implications of failure to keep passwords safe and secure. They understand the importance of staying safe and the importance of their conduct when using familiar communication tools such as 2Email in Purple Mash. They know more than one way to report unacceptable content and contact.		with anyone else. Furthermore, children can explain the negative implications of failure to keep passwords safe and secure. They understand the importance of staying safe and the importance of their conduct when using familiar communication tools such as 2Email in Purple Mash. They know more than one way to report unacceptable content and contact.
Learning beyond the classroom		Visit from PCSO				

Year 4 Computing content coverage

Pupils should be taught about:	4.1 Coding	4.2 Online safety	4.3 Spreadsheets	4.6 Animation	4.7 Effective Searching	4.8 Hardware Investigators
1. design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts	✓					
2. use sequence, selection, and repetition in programs; work with variables and various forms of input and output	✓					
3. use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs	✓					
4. understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration		✓			✓	✓
5. use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content					✓	
6. select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information	✓		✓	✓		
use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact		✓				

Year 4 Computing ARE

Computer science

I can turn a real-life situation to solve into an algorithm, using a design that shows how I can accomplish this in code.
I can use repetition in my code. For example, using a loop that continues until a condition is met such as the correct answer being entered.
I can use timers within my program designs more accurately to create repetition effects. For example, I can create a counting machine.
I can use selection (decision) in my programming. For example, using an 'if statement' for a question being asked and the program takes one of two paths.
I can use variables within my program and know how to change the value of variables.
I can use the user inputs and output features within my program, such as 'Print to screen'.
I can identify errors in my code by using different methods, such as steeping through lines of code and fixing them.
I can read programs that contain several steps and predict the outcomes with increasing accuracy.
I recognise the main component parts of hardware which allow computers to join and form a network.
I understand that network and communication components can be found in many different devices which allow them to join the internet.

Information Technology

I understand the purpose of a search engine and the main features within it.
I can look at information on a webpage and make predictions about the accuracy of information contained within it.
I can create and improve my solutions to a problem based on feedback. For example, create a program using 2Code.
I can review solutions that others have created, using a checklist of criteria.
I can work collaboratively to create content and solutions.
I can share digital content using a variety of applications such as: 2Blog, 2Email and Display Boards.

Digital literacy

I have a good understanding of the online safety rules we learn at school.
I can demonstrate how to use different online technologies safely.
I can demonstrate how to use a few different online services safely.
I know I have a right to privacy both on and offline.
I recognise that my wellbeing can be affected by how I use technology.
I can report with ease any concerns with content and contact online and know immediate strategies to keep safe.

Year 4						
	4.1 Coding	**4.2 Online safety**	**4.3 Spreadsheets**	4.6 **Animation**	4.7 **Effective Searching**	4.8 **Hardware investigations**
Key Question	**Why must we debug after designing and coding?**	**What are SPAM emails?**	**How would you add a formula to make a cell show a percentage score for a test?**	**What is an animation?**	**What is a search engine?**	**What is the difference between hardware and software?**
Vocabulary	Algorithm, debug, predict, sequence, test, repeat, code block	Search, internet, email, attachment, spam, computer virus, cookies	Copy and paste, columns, rows, cells, equals tool, spin tool formula	Animation, onion skin, stop motion	Search-engine, spoof website, internet browser	Motherboard, monitor, speaker, keyboard, mouse
Skills	• To begin to understand selection in computer programming. • To understand how an IF statement works. • To understand how to use co-ordinates in computer programming. • To understand the 'repeat until' command. • To understand how an IF/ELSE statement works. • To understand what a variable is in programming. • To use a number variable. • To create a playable game.	• To understand how children can protect themselves from online identity theft. • To 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.	• To format cells as currency, percentage, decimal to different decimal places or fraction. • To use the formula wizard to calculate averages. • To combine tools to make spreadsheet activities such as timed times tables tests. • To use a spreadsheet to model a reallife situation. • To add a formula to a cell to automatically make a calculation in that cell.	• To discuss what makes a good animated film or cartoon. • To learn how animations are created by hand. • To find out how animation 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 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.
Knowledge and Understanding	• When turning a real-life situation into an algorithm, the children's design shows that they are thinking of the required task and how to accomplish this in code using coding structures for selection and repetition. Children make more intuitive attempts to debug their own programs. • Children's use of timers to achieve repetition effects are becoming more logical and are integrated into their	• Children recognise the main component parts of hardware which allow computers to join and form a network. Their ability to understand the online safety implications associated with the ways the Internet can be used to provide different methods of communication is improving. • Children are able to make improvements to digital	• Children are able to make improvements to digital solutions based on feedback. Children make informed software choices when presenting information and data. They create linked content using a range of software such as 2Connect and 2Publish+. Children share digital content within their community, i.e. using Virtual Display Boards.	• Children recognise the main component parts of hardware which allow computers to join and form a network. Their ability to understand the online safety implications associated with the ways the Internet can be used to provide different methods of communication is improving. • Children understand the function, features and layout of	• Children recognise the main component parts of hardware which allow computers to join and form a network. Their ability to understand the online safety implications associated with the ways the Internet can be used to provide different methods of communication is improving. • Children understand the function, features and layout of	• Children recognise the main component parts of hardware which allow computers to join and form a network. Their ability to understand the online safety implications associated with the ways the Internet can be used to provide different methods of communication is improving.

	program designs. They understand 'IF statements' for selection and attempt to combine these with other coding structures including variables to achieve the effects that they design in their programs. As well as understanding how variables can be used to store information while a program is executing, they are able to use and manipulate the value of variables. Children can make use of user inputs and outputs such as 'print to screen'. e.g. 2Code. • Children's designs for their programs show that they are thinking of the structure of a program in logical, achievable steps and absorbing some new knowledge of coding structures. For example, 'IF' statements, repetition and variables. They can trace code and use step-through methods to identify errors in code and make logical attempts to correct this. In programs such as Logo, they can 'read' programs with several steps and predict the outcome accurately. • Children are able to make improvements to digital solutions based on feedback. Children make informed software choices when presenting information and data. They create linked content using a range of software such as 2Connect and 2Publish+. Children share digital content within their community, i.e. using Virtual Display Boards. • Children can explore key concepts relating to online safety using concept mapping such as 2Connect. They can help others to understand the importance of online safety. Children know a range of ways of reporting inappropriate content and contact.	solutions based on feedback. Children make informed software choices when presenting information and data. They create linked content using a range of software such as 2Connect and 2Publish+. Children share digital content within their community, i.e. using Virtual Display Boards.		a search engine. They can appraise selected webpages for credibility and information at a basic level.	a search engine. They can appraise selected webpages for credibility and information at a basic level.	
Learning beyond the classroom		Visit from PCSO				

Whole School Computing Scheme

Year 5 Computing content coverage

Pupils should be taught about:	5.1 Coding	5.2 Online safety	5.3 Spreadsheets	5.4 Databases	5.5 Game Creator	5.8 Word Processing
1. design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts	✓				✓	
2. use sequence, selection, and repetition in programs; work with variables and various forms of input and output	✓					
3. use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs	✓					
4. understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration		✓				
5. use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content		✓				
6. select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information	✓		✓	✓	✓	✓
use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact		✓				

Year 5 Computing ARE

Computer science

I can make more complex real-life problems into algorithms for a program.
I can test and debug my programs as I work.
I can convert (translate) algorithms that contain sequence, selection and repetition into code that works.
I can use sequence, selection, repetition, and some other coding structures in my code.
I can organise my code carefully for example, naming variables and using tabs. I know this will help me debug more efficiently.
I can use logical methods to identify the cause of any bug with support to identify the specific line of code.
I know the importance of computer networks and how they help solve problems and enhance communication.
I recognise the main dangers that can be perpetuated via computer networks.
I can explain what personal information is and know strategies for keeping this safe.
I can use the most appropriate form of online communication according to the digital content. For example, use 2Email, 2Blog and display boards.

Information Technology

I can search precisely when using a search engine. For example, I know I can add additional words or removes words to help find better results.
I can explain in detail how accurate, safe and reliable the content is on a webpage.
I can make appropriate improvements to digital work I have created.
I can comment on how successful a digital solution is that I have created. For example, a program built in 2Code that sorts decimals numbers.
I can work collaboratively with others creating solutions to problems using appropriate software such as 2Code.
I can use collaborative modes such as within 2Connect to work with others and share it.

Digital literacy

I have a secure knowledge of online safety rules taught at school.
I can demonstrate the safe and respectful use of different online technologies and online services.
I always relate appropriate online behaviour to my right to have personal privacy.
I know how to not let my mental wellbeing or others be affected by use of online technologies and services.

Whole School Computing Scheme

Year 5						
	5.1 Coding	**5.2 Online safety**	**5.3 Spreadsheets**	**5.4 Databases**	**5.5 Game creator**	**5.8 Word Processing**
Key Question	**Describe how you would use variables to make a timer countdown or a scorepad for a game.**	**Why are passwords so important?**	**How would you add a formula so that the cell shows the product of two other cells?**	**In what ways can I sort information in a database?**	**Why is it important to continually evaluate your game?**	**What is a word processing tool used for?**
Vocabulary	Algorithm, debug, predict, sequence, test repeat, abstraction, co-ordinates, timer, variable.	Search, internet, email, attachment, smart rules,	Copy and paste, columns, rows, cells, equals tool, spin tool formula, average function	Database, data, binary tree, table, statistics and reports.	Animation, customise, image, computer game, interactive, screenshot	Copyright, document, font, word processing
Skills	• To begin to simplify code. • To create a playable game. • To understand what a simulation is. • To program a simulation using 2Code. • To know what decomposition and abstraction are in computer science. • To a take a real-life situation, decompose it and think about the level of abstraction. • To understand how to use friction in code. To begin to understand what a function is and how functions work in code. • To understand what the different variables types are and how they are used differently. • To understand how to create a string. • To understand what concatenation is and how it works.	• To gain a greater understanding of the impact that sharing digital content can have. • To review sources of support when using technology and 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. To ensure reliability through using different methods of communication	• To use formulae within a spreadsheet to convert measurements of length and distance. • To use the count tool to answer hypotheses about common letters in use. • To use a spreadsheet to model a reallife problem. • To use formulae to calculate area and perimeter of shapes. • To create formulae that use text variables. • To use a spreadsheet to help plan a school cake sale.	• To learn how to search for information in a database. • To contribute to a class database. • To create a database around a chosen topic.	• To plan a game. • To design and create the game environment. • To design and create the game quest. • To finish and share the game. • To self and peer evaluate.	• To know what a word processing tool is for. • To add and edit images to a word document. • To know how to use word wrap with images and text. To change the look of text within a document. • To add features to a document to enhance its look and usability. • To use the sharing capabilities in Google Docs. • To use tables within to present information. • To introduce children to templates. To know what a word processing tool is for. • To add and edit images to a word document. • To know how to use word wrap with images and text. • To change the look of text within a document. • To add features to a document to enhance its look and usability. • To use tables within MS Word to present information. • To introduce children to templates. • To consider page layout including heading and columns.
Knowledge and Understanding	•Children may attempt to turn more complex reallife situations into algorithms for a program by deconstructing it into manageable parts. Children are able to test and	•Children understand the value of computer networks but are also aware of the main dangers. They recognise what personal information is and can explain	•Children are able to make appropriate improvements to digital solutions based on feedback received and can confidently comment on the	•Children are able to make appropriate improvements to digital solutions based on feedback received and can confidently comment on the	•Children may attempt to turn more complex real-life situations into algorithms for a program by deconstructing it into manageable parts. Children	• Children are able to make appropriate improvements to digital solutions based on feedback received and can confidently comment on the

	debug their programs as they go and can use logical methods to identify the approximate cause of any bug but may need some support identifying the specific line of code. •Children can translate algorithms that include sequence, selection and repetition into code with increasing ease and their own designs show that they are thinking of how to accomplish the set task in code utilising such structures. They are combining sequence, selection and repetition with other coding structures to achieve their algorithm design. • When children code, they are beginning to think about their code structure in terms of the ability to debug and interpret the code later, e.g. the use of tabs to organise code and the naming of variables. •Children are able to make appropriate improvements to digital solutions based on feedback received and can confidently comment on the success of the solution. e.g. creating their own program to meet a design brief using 2Code. They objectively review solutions from others. Children are able to collaboratively create content and solutions using digital features within software such as collaborative mode. They are able to use several ways of sharing digital content, i.e. 2Blog, Display Boards and 2Email	how this can be kept safe. Children can select the most appropriate form of online communications contingent on audience and digital content, e.g. 2Blog, 2Email, Display Boards. •Children search with greater complexity for digital content when using a search engine. They are able to explain in some detail how credible a webpage is and the information it contains. •Children have a secure knowledge of common online safety rules and can apply this by demonstrating the safe and respectful use of a few different technologies and online services. Children implicitly relate appropriate online behaviour to their right to personal privacy and mental wellbeing of themselves and others.	success of the solution. e.g. creating their own program to meet a design brief using 2Code. They objectively review solutions from others. Children are able to collaboratively create content and solutions using digital features within software such as collaborative mode. They are able to use several ways of sharing digital content, i.e. 2Blog, Display Boards and 2Email	success of the solution. e.g. creating their own program to meet a design brief using 2Code. They objectively review solutions from others. Children are able to collaboratively create content and solutions using digital features within software such as collaborative mode. They are able to use several ways of sharing digital content, i.e. 2Blog, Display Boards and 2Email	are able to test and debug their programs as they go and can use logical methods to identify the approximate cause of any bug but may need some support identifying the specific line of code •Children are able to make appropriate improvements to digital solutions based on feedback received and can confidently comment on the success of the solution. e.g. creating their own program to meet a design brief using 2Code. They objectively review solutions from others. Children are able to collaboratively create content and solutions using digital features within software such as collaborative mode. They are able to use several ways of sharing digital content, i.e. 2Blog, Display Boards and 2Email.	success of the solution. e.g. creating their own program to meet a design brief using 2Code. They objectively review solutions from others. Children are able to collaboratively create content and solutions using digital features within software such as collaborative mode. They are able to use several ways of sharing digital content, i.e. 2Blog, Display Boards and 2Email
Learning beyond the classroom		Visit from PCSO				

Whole School Computing Scheme

Year 6 Computing content coverage

Pupils should be taught about:	**6.1 Coding**	**6.2 Online safety**	**6.3 Spreadsheets**	**6.4 Blogging**	**6.6 Networks**	**6.9 Spreadsheets**
1. design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts	✓					
2. use sequence, selection, and repetition in programs; work with variables and various forms of input and output	✓					
3. use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs	✓					
4. understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration		✓		✓	✓	
5. use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content		✓				
6. select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information	✓		✓	✓		✓
use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact		✓		✓		

Year 6 Computing ARE

Computer science

I can turn a complex programming task into an algorithm.
I can identify the important aspects of a programming task (abstraction).
I can decompose important aspects of a programming task in a logical way, identifying appropriate coding structures that would work.
I can test and debug my program as I work on it and use logical methods to identify a cause of a bug.
I can identify a specific line of code that is causing a problem in my program and attempt a fix.
I can translate algorithms that include sequence, selection and repetition into code and nest these structures within each other.
I can use inputs and outputs within my coded programs such as sound, movement and buttons and represent the state of an object
I can interpret (understand) a program in parts and can make logical attempts to put the separate parts together in an algorithm to explain the program as a whole.
I can explain the difference between the internet and the World Wide Web.
I can explain what a WAN and LAN is and describe the process of how access to the internet in school is possible.

Information Technology

I can use filters when searching for digital content.
I can explain in detail how accurate and reliable a webpage and its content is.
I can compare a range of digital content sources and rate them in terms of content quality and accuracy.
I can consider the intended audience carefully when I design and make digital content.
I can design and create my own online blogs.
I can use criteria to evaluate the quality of my own and others digital solutions, suggesting refinements.

Digital literacy

I can demonstrate safe and respectful use of a range of different technologies and online services.
I can identify more discrete inappropriate behaviours online. For example, someone who may be trying to groom me or someone else.
I can use critical thinking to help me stay safe online.
I know the value of protecting my privacy and others online.

Whole School Computing Scheme

Year 6						
	6.1 Coding	**6.2 Online safety**	**6.3 Spreadsheets**	**6.4 Blogging**	**6.6 Networks**	**6.9 Spreadsheets with Excel**
Key Question	**What is a function in coding?**	**What is meant by the term Digital Footprint?**	**If you were using a spreadsheet to plan a holiday, what data would you need to add?**	**What is a blog?**	**Who is Tim Berners Lee?**	**How do you calculate a multiplication calculation in Excel?**
Vocabulary	Algorithm, debug, predict, sequence, test repeat, abstraction, co-ordinates, timer, variable, alert	Search, internet, email, attachment, identity theft, smart rules, screen time, PEGI rating	Copy and paste, columns, rows, cells, equals tool, spin tool formula, average function, random tool	Audience, blog, collaborative	Internet, world wide web, wireless, router, network	Formula, cell, calculate, row, column, spreadsheet, chart
Skills	• To design a playable game with a timer and a score. • To plan and use selection and variables. • To understand how the launch command works. • To use functions and understand why they are useful. • To understand how functions are created and called. • To use flowcharts to create and debug code. • To create a simulation of a room in which devices can be controlled. • To understand how user input can be used in a program. • To understand how 2Code can be used to make a text-adventure game	•To identify benefits and risks of mobile devices broadcasting the location of the user/device. • To identify secure sites by looking for privacy seals of approval. • To identify the benefits and risks of giving personal information. • To review the meaning of a digital footprint. • To have a clear idea of appropriate online behaviour. • To begin to understand how information online can persist. • To understand the importance of balancing game and screen time with other parts of their lives. • To identify the positive and negative influences of technology on health and the environment.	•To use a spreadsheet to investigate the probability of the results of throwing many dice. • To use a spreadsheet to calculate the discount and final prices in a sale. • To use a spreadsheet to plan how to spend pocket money and the effect of saving money. • To use a spreadsheet to plan a school charity day to maximise the money donated to charity.	•To identify the purpose of writing a blog. • To identify the features of a successful blog. • To plan the theme and content for a blog. • To understand how to write a blog and a blog post. • To consider the effect upon the audience of changing the visual properties of the blog. • To understand how to contribute to an existing blog. • To understand how and why blog posts are approved by the teacher. • To understand the importance of commenting on blogs	•To learn about what the Internet consists of. • To find out what a LAN and a WAN are. • To find out how the Internet is accessed in school. • To research and find out about the age of the Internet. • To think about what the future might hold.	•To know what a spreadsheet looks like. • To navigate and enter data into cells. • To introduce some basic data formulae for percentages, averages and max and min numbers. • To demonstrate how the use of spreadsheets can save time and effort when performing calculations. • To use a spreadsheet to model a situation. • To demonstrate how a spreadsheet can make complex data clear by manipulating the way it is presented. • To create a variety of graphs in sheets. • To apply spreadsheet skills to solving problems.
Knowledge and Understanding	• Children are able to turn a more complex programming task into an algorithm by identifying the important aspects of the task (abstraction) and then decomposing them in a logical way using their knowledge of possible coding structures and applying skills from previous programs. Children test and debug their program as they go and use logical methods to identify the cause of bugs, demonstrating a systematic approach to try to identify a particular line of code	• Children understand and can explain in some depth the difference between the internet and the World Wide Web. Children know what a WAN and LAN are and can describe how they access the internet in school. • Children readily apply filters when searching for digital content. They are able to explain in detail how credible a webpage is and the information it contains. They compare a range of digital content sources	• Children make clear connections to the audience when designing and creating digital content. The children design and create their own blogs to become a content creator on the internet, e.g. 2Blog. They are able to use criteria to evaluate the quality of digital solutions and are able to identify improvements, making some refinements	• Children understand and can explain in some depth the difference between the internet and the World Wide Web. Children know what a WAN and LAN are and can describe how they access the internet in school. • Children make clear connections to the audience when designing and creating digital content. The children design and create their own blogs to become a content creator on the internet, e.g.	• Children understand and can explain in some depth the difference between the internet and the World Wide Web. Children know what a WAN and LAN are and can describe how they access the internet in school.	• Children make clear connections to the audience when designing and creating digital content. The children design and create their own blogs to become a content creator on the internet, e.g. 2Blog. They are able to use criteria to evaluate the quality of digital solutions and are able to identify improvements, making some refinements

	causing a problem. • Children translate algorithms that include sequence, selection and repetition into code and their own designs show that they are thinking of how to accomplish the set task in code utilising such structures, including nesting structures within each other. Coding displays an improving understanding of variables in coding, outputs such as sound and movement, inputs from the user of the program such as button clicks and the value of functions. • Children are able to interpret a program in parts and can make logical attempts to put the separate parts of a complex algorithm together to explain the program as a whole. • Children make clear connections to the audience when designing and creating digital content. The children design and create their own blogs to become a content creator on the internet, e.g. 2Blog. They are able to use criteria to evaluate the quality of digital solutions and are able to identify improvements, making some refinements.	and are able to rate them in terms of content quality and accuracy. Children use critical thinking skills in everyday use of online communication. • Children demonstrate the safe and respectful use of a range of different technologies and online services. They identify more discreet inappropriate behaviours through developing critical thinking, e.g. 2Respond activities. They recognise the value in preserving their privacy when online for their own and other people's safety.		2Blog. They are able to use criteria to evaluate the quality of digital solutions and are able to identify improvements, making some refinements. • Children demonstrate the safe and respectful use of a range of different technologies and online services. They identify more discreet inappropriate behaviours through developing critical thinking, e.g. 2Respond activities. They recognise the value in preserving their privacy when online for their own and other people's safety.		
Learning beyond the classroom		Visit from PCSO				