

The background is a light gray with a large white diamond shape in the center. There are several overlapping yellow and blue squares in the corners. A diamond-shaped inset in the top-left shows a bokeh of blue and yellow lights.

Computing at Peters Hill



RESEARCH

A SUMMARY OF Ofsted's Computing Research Review

A cartoon illustration of a young girl and a young boy standing side-by-side against a solid blue background. The girl on the left has dark hair in pigtails, rosy cheeks, and is wearing a red dress with white polka dots and red shoes. She is waving with her right hand. The boy on the right has dark hair, rosy cheeks, and is wearing a white long-sleeved shirt, dark shorts, and red shoes. He is also waving with his right hand.

Secondary



Workforce



Types of Knowledge



0	1	0	0
0	1	0	1
1	0	1	1
0	1	0	0



Digital Literacy



Block-based Programming

```

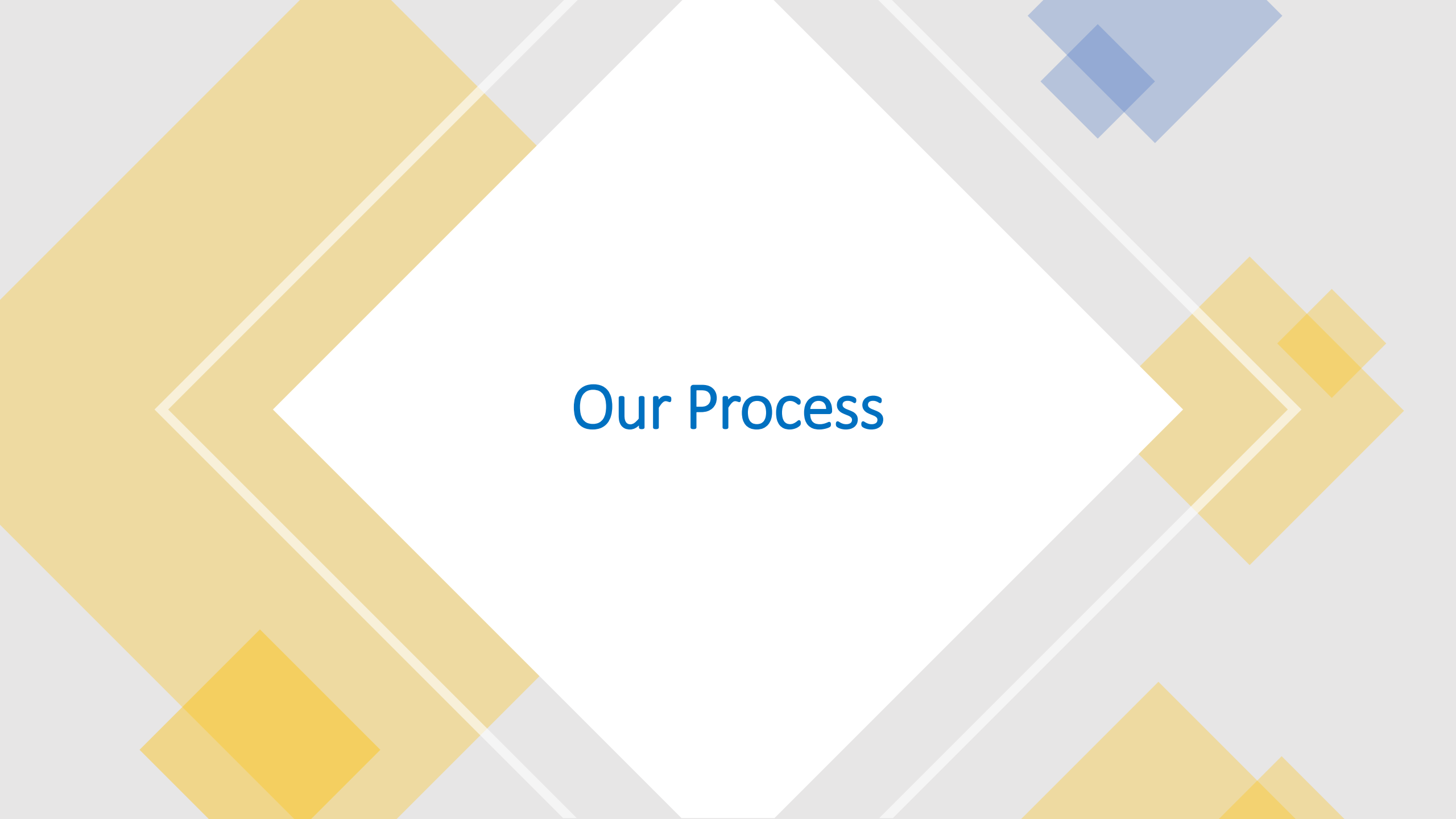
graph TD
    A[ ] --- B[ ]
    A --- C[ ]
    B --- D[ ]
    B --- E[ ]
    C --- F[ ]
    C --- G[ ]
    C --- H[ ]

```

Pedagogy



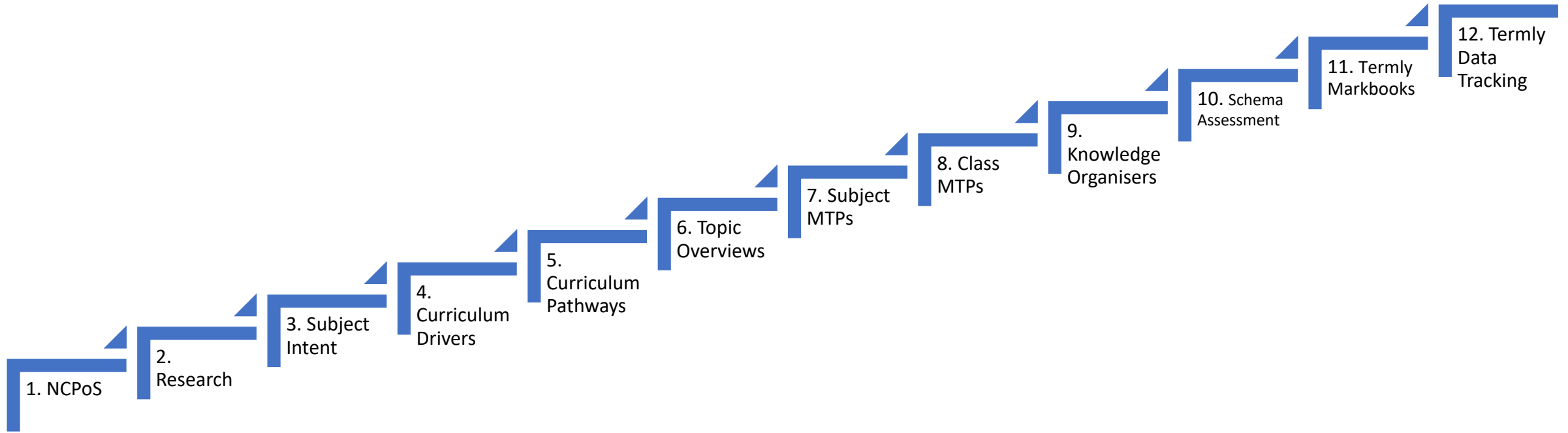
PAGE 1 OF 3

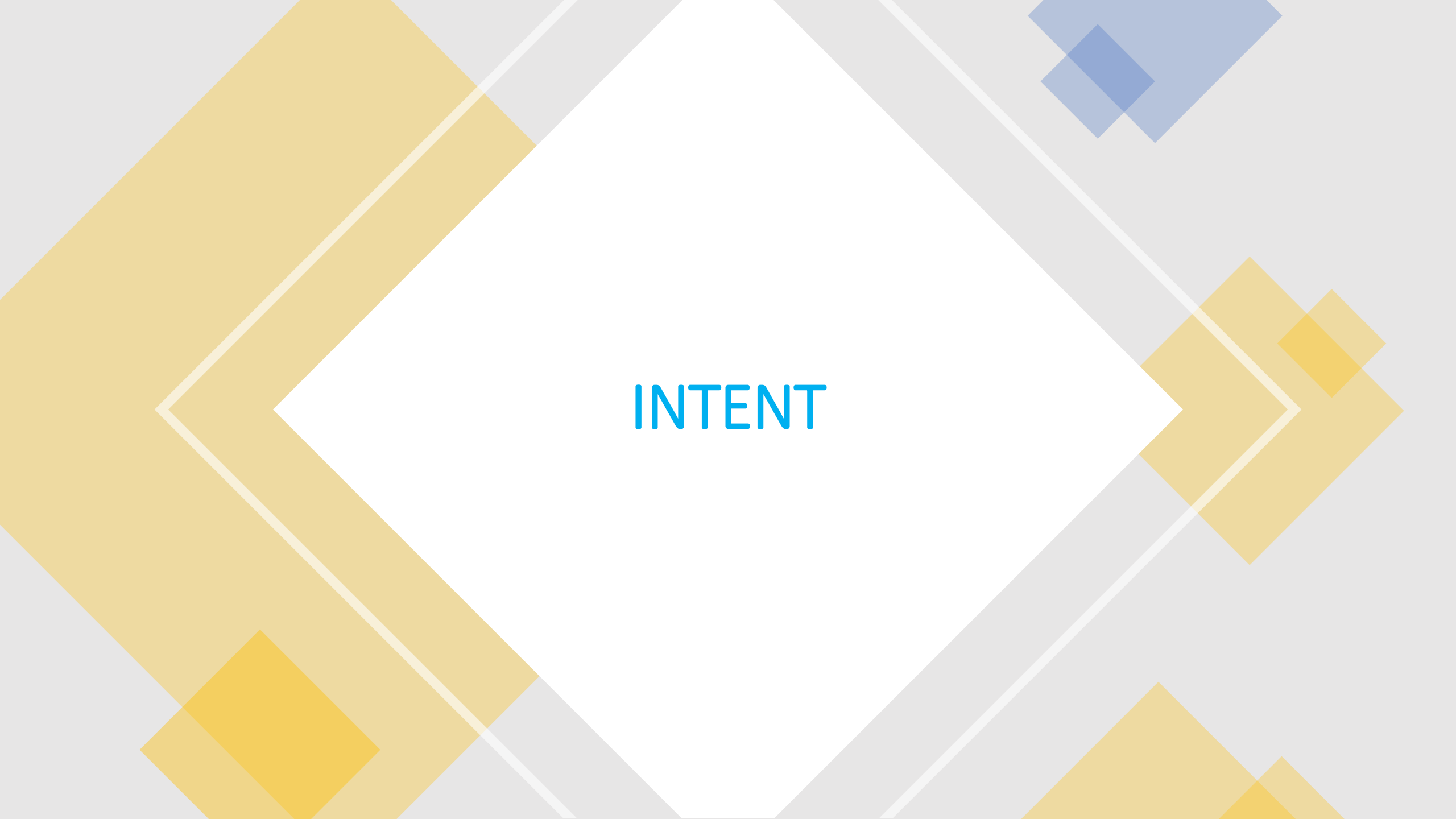


Our Process

The Process at Peters Hill

Our 12 step approach





INTENT

At Peters Hill, our Computing curriculum strives towards the following aims:

- To make concepts, hardware and software engaging and accessible to the pupils and enable them to progress.
- To develop a good understanding of the 4 key pathways, the key concepts and big ideas. These key concepts will help children to broaden their understanding and are essential to effective teaching.
- Make these concepts transparent and help children to think logically and to develop transferable computing understanding.
- To take children beyond learning a set of isolated facts and move them into the realms of informed thinking through a clearly linked approach to teaching.

We believe that in Computing, all children should:

- Deepen their understanding of programming and debugging.
- Develop their ability to collect and present data.
- Learn a variety of artistic and communicative media.
- Understand how to stay safe on the internet and develop a responsible use of technology.

Children become proficient in Computing through the development of the following pathways:

- Pathway 1 – Computer Science
Pathway 2 – Information Technology
Pathway 3 – Digital Literacy
Pathway 4 – E-Safety
- Knowledge is sequenced to ensure that learning is reviewed and built upon to enable gaps in understanding and experience to be closed.

Curriculum Drivers - How do our whole school values link to the subject?

- **AMBITION (Success)** – Knowledge organisers will be in place to ensure learning outcomes are ambitious for all pupils. Key knowledge will be clearly established and linked to previous learning. Lessons will aim for a depth of understanding through the subject 'deep ideas' themes. Children will have a desire for success as a digital citizen and be excited to transfer knowledge into larger projects and collaborations.
- **BELIEF (Confidence)** – All children will have the opportunity to reflect on learning and see how their knowledge is improving over time. Learning Logs and live screen recording will show pupils the progress they are making and give the self-belief that they can achieve well in computing. Children will have belief in their ability as a digital citizen, being able to show confidence in their understanding of computing concepts and their own innovation.
- **COMPASSION (Motivation)** – Children will be encouraged to find out about the world they live in and ask appropriate questions to deepen their understanding. They will be motivated to seek out further knowledge and self-improvements through strategies such as trial and error, debugging, troubleshooting and critical evaluation of their own and others' work. They will be motivated to show that they know more by the end of a topic. Children will be motivated by a 'hands on' approach to learning about computing.
- **PRIDE (Knowledge)** – Knowledge will be shared with all children through knowledge organisers and good teaching. All staff will teach computing with a clear understanding of what has come before and how this links to today's learning. Deep ideas will be developed for children on a regular basis.
- **RESPECT (Responsibility)** – Children will develop a responsibility for learning about the world around them and the role they play as digital citizens. They will work with a range of resources respectfully.

Key Competencies

- The following documents set out the key competencies developed across the range of topics in each year group.
- These key competencies are set out as pathways to demonstrate how they link and progress throughout the school.
- These competencies are then planned into each topic through the half termly medium term planning process.
- These competencies combine to make the total schema that teaching staff use to assess the children at the end of the topic. This generates assessment judgements as set out on the following slide and happens three times a year.
- These total judgements average throughout the term. This total will fall between 1 to 5 depending on the outcome of each topic.

Novice	Simple idea	Relational idea	Multiple Links	Expert understanding
1	2	3	4	5
The task is not attacked appropriately; the pupil hasn't really understood the point and uses too simple a way of going about it.	The pupil's response only focuses on one relevant aspect.	The pupil's response focuses on several relevant aspects but they are treated independently and additively. Assessment of this level is primarily quantitative.	The different aspects have become integrated into a coherent whole. This level is what is normally meant by an adequate understanding of some topic.	The previous integrated whole may be conceptualised at a higher level of abstraction and generalised to a new topic or area.
Well below - Has significant difficulties in successfully accessing the competencies	Below - Can access key competencies of the schema but need significant support to do so.	Emerging - Started to unlock key competencies of the schema but not yet secure. Support can be required.	Secure - Securely unlocked the key competencies of the schema. No support is required.	Mastered - Can apply the competencies of the schema with fluency in different contexts.

Key Competency Expectations

Well Below

Working well below the standard. Has significant difficulties in accessing the key competencies.

Below

Working below the standard. Can access key competencies of the schema but needs support to do so.

Emerging

Emerging towards the standard. Started to unlock key competencies of the schema but not yet secure. Support can be required.

Secure

Meeting the standard. Securely unlocked the key competencies of the schema. No support is required.

Mastered

High attaining within the standard. Can apply the competencies of the schema with fluency in different contexts.

Year 1 Computing Pathways

Year 1 Computing Pathways							
Computer Science				Information Technology		Digital Literacy	E-Safety
Statement	Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.	Create and debug simple programs.	Use logical reasoning to predict the behaviour of simple programs.	Use technology purposefully to create, organise, store, manipulate and retrieve digital content.	Recognise common uses of information technology beyond school.	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	Talk about good & bad choices in real life e.g. taking turns, saying kind things, helping others, telling an adult if something upsets you. Understand they need to follow certain rules to remain safe when visiting places online. Begin to understand that if you create something you own it.
	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	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), 2Code design mode (manipulating backgrounds) or using pictogram software such as 2Count.	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.	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.	Learn that many websites ask for information that is private & discuss how to responsibly handle such requests. Explore how email can be used to communicate with real people within their schools, families & communities.

Key Competencies

Year 2 Computing Pathways

Year 2 Computing Pathways							
Computer Science				Information Technology		Digital Literacy	E-Safety
Statement	Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.	Create and debug simple programs.	Use logical reasoning to predict the behaviour of simple programs.	Use technology purposefully to create, organise, store, manipulate and retrieve digital content.	Recognise common uses of information technology beyond school	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	Explore what cyber-bullying means & what to do when they encounter it. Stay safe online by choosing websites that are good for them to visit & not inappropriate sites. Know that if they put information online it leaves a digital footprint or "trail" & they need to manage it so it's not hurtful.
	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 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.	Children demonstrate an ability to organise data using, for example, a database such as 2Investigate 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 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	Understand that keyword searching is an effective way to locate online information & how to select keywords to produce the best search results. Realise that not all websites are equally good sources of information.

Key Competencies

Year 3 Computing Pathways

Year 3 Computing Pathways								
Computer Science					Information Technology	Digital Literacy	E-Safety	
Statement	Design, write and debug programs that accomplish specific goals, including controlling or stimulating physical systems; solve problems by decomposing them into smaller parts.	Use sequences, selection and repetition in programs; work with variables and various forms of input and output.	Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.	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.	Use search technology effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.	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 concern about content and contact.	Agree sensible e-safety rules for the classroom. Explore what cyber-bullying means & what to do when they encounter it. Stay safe online by choosing websites that are good for them to visit & not inappropriate sites. Choose a secure password for age-appropriate websites. Discuss what actions could be taken if they are uncomfortable or upset online e.g. Report Abuse button.
Outcome	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 transitions 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 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'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, repetition and use of timers. They make good attempts to 'step through' more complex code in order to identify errors in algorithms and can correct this. e.g. In programs such as Logo, they can 'read' programs with several steps and predict the outcome accurately.	Children can list a range of ways that the Internet can be used to provide different 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 can carry out simple searches to retrieve digital content. They understand that to do this, they are connecting to the internet and using a search engine such as Purple Mash search or internet-wide search engines.	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 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.	Talk about what games they enjoying playing and what good choices are when playing games e.g. content, screen time. Use a class blog to share information and talk about who can see it, and how to communicate safely and respectfully Comment and provide positive feedback on the work of classmates in school or online, or the work of others online.

Key Competencies

Year 4 Computing Pathways

Year 4 Computing Pathways								
Computer Science					Information Technology		Digital Literacy	E-Safety
Statement	Design, write and debug programs that accomplish specific goals, including controlling or stimulating physical systems; solve problems by decomposing them into smaller parts.	Use sequences, selection and repetition in programs; work with variables and various forms of input and output.	Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.	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.	Use search technology effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.	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 concern about content and contact.	Agree sensible e-safety rules for the classroom. Explore what cyber-bullying means & what to do when they encounter it. Choose a secure password for age-appropriate websites. Discuss what actions could be taken if they are uncomfortable or upset online e.g. Report Abuse button.
	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 affects are becoming more logical and are integrated into their 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 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 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 a search engine. They can appraise selected webpages for credibility and information at a basic level.	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.	Talk about what games they enjoying playing and what good choices are when playing games e.g. content, screen time. Use a class blog to share information and talk about who can see it, and how to communicate safely and respectfully' Comment and provide positive feedback on the work of classmates in school or online, or the work of others online.

Key Competencies

Year 5 Computing Pathways

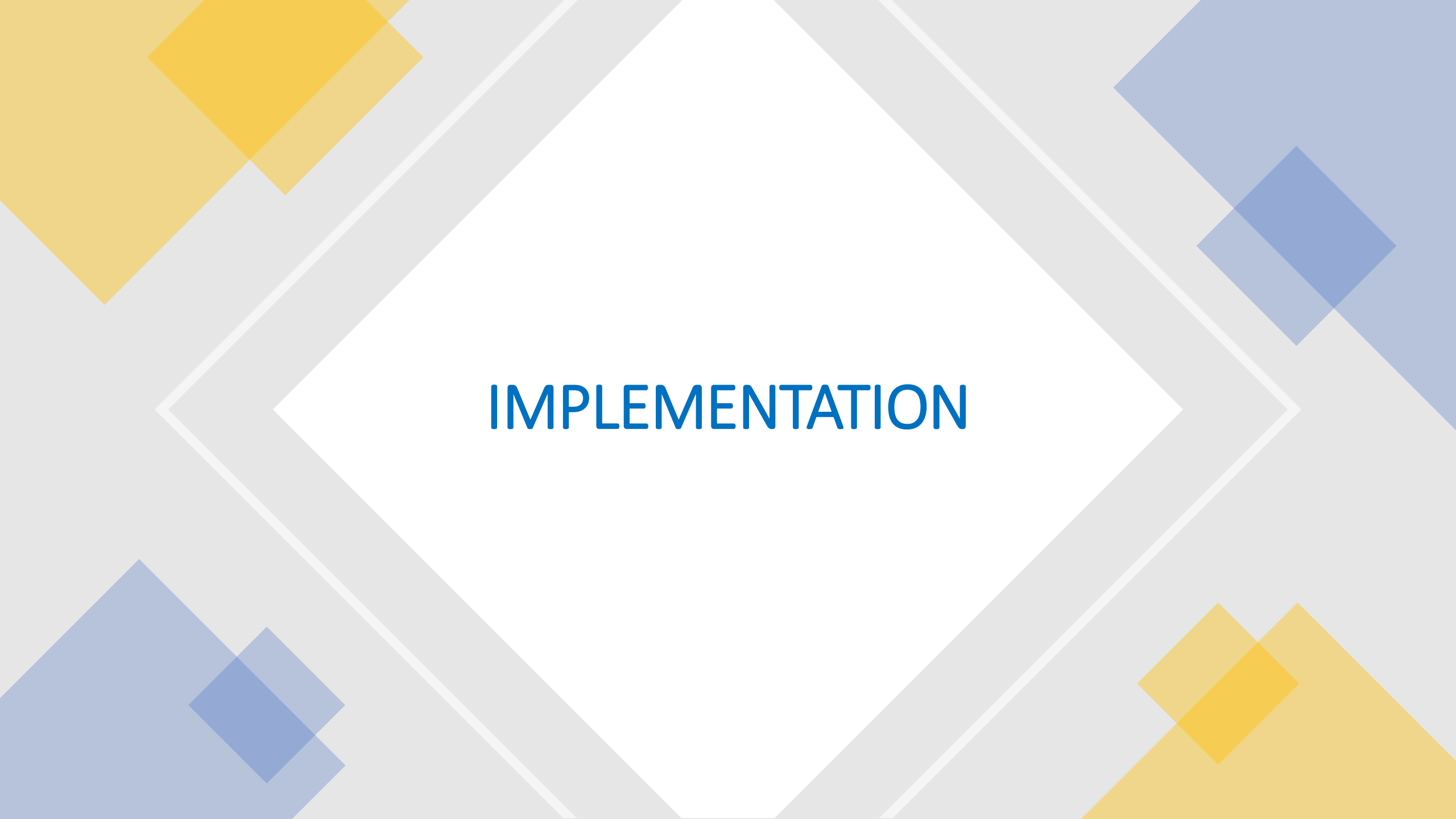
Year 5 Computing Pathways								
Computer Science					Information Technology		Digital Literacy	E-Safety
Statement	Design, write and debug programs that accomplish specific goals, including controlling or stimulating physical systems; solve problems by decomposing them into smaller parts.	Use sequences, selection and repetition In programs; work with variables and various forms of input and output.	Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.	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.	Use search technology effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.	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 concern about content and contact.	Agree sensible e-safety rules for the classroom. Explore what cyber-bullying means & what to do when they encounter it. Choose a secure password for age-appropriate websites. Discuss the importance of keeping an adult informed about what you're doing online, and how to report concerns.
	Children may attempt to turn more complex real-life situations into algorithms for a program by deconstructing it into manageable parts. Children 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 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 understand the value of computer networks but are also aware of the main dangers. They recognise what personal information is and can explain 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 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.	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.	Discuss their own personal use of the Internet and choices they make Discuss how to protect devices from virus threats. Explore using the safe and responsible use of online communication tools e.g. blogs, messaging.

Key Competencies

Year 6 Computing Pathways

Year 6 Computing Pathways								
Computer Science					Information Technology		Digital Literacy	E-Safety
Statement	Design, write and debug programs that accomplish specific goals, including controlling or stimulating physical systems; solve problems by decomposing them into smaller parts.	Use sequences, selection and repetition In programs; work with variables and various forms of input and output.	Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.	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.	Use search technology effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.	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 concern about content and contact.	Agree sensible e-safety rules for the classroom. Explore what cyber-bullying means & what to do when they encounter it. Choose a secure password for age-appropriate websites. Discuss the importance of keeping an adult informed about what you're doing online, and how to report concerns.
	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 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 function.	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 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 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 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 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.	Discuss their own personal use of the Internet and choices they make Discuss how to protect devices from virus threats. Explore using the safe and responsible use of online communication tools e.g. blogs, messaging.

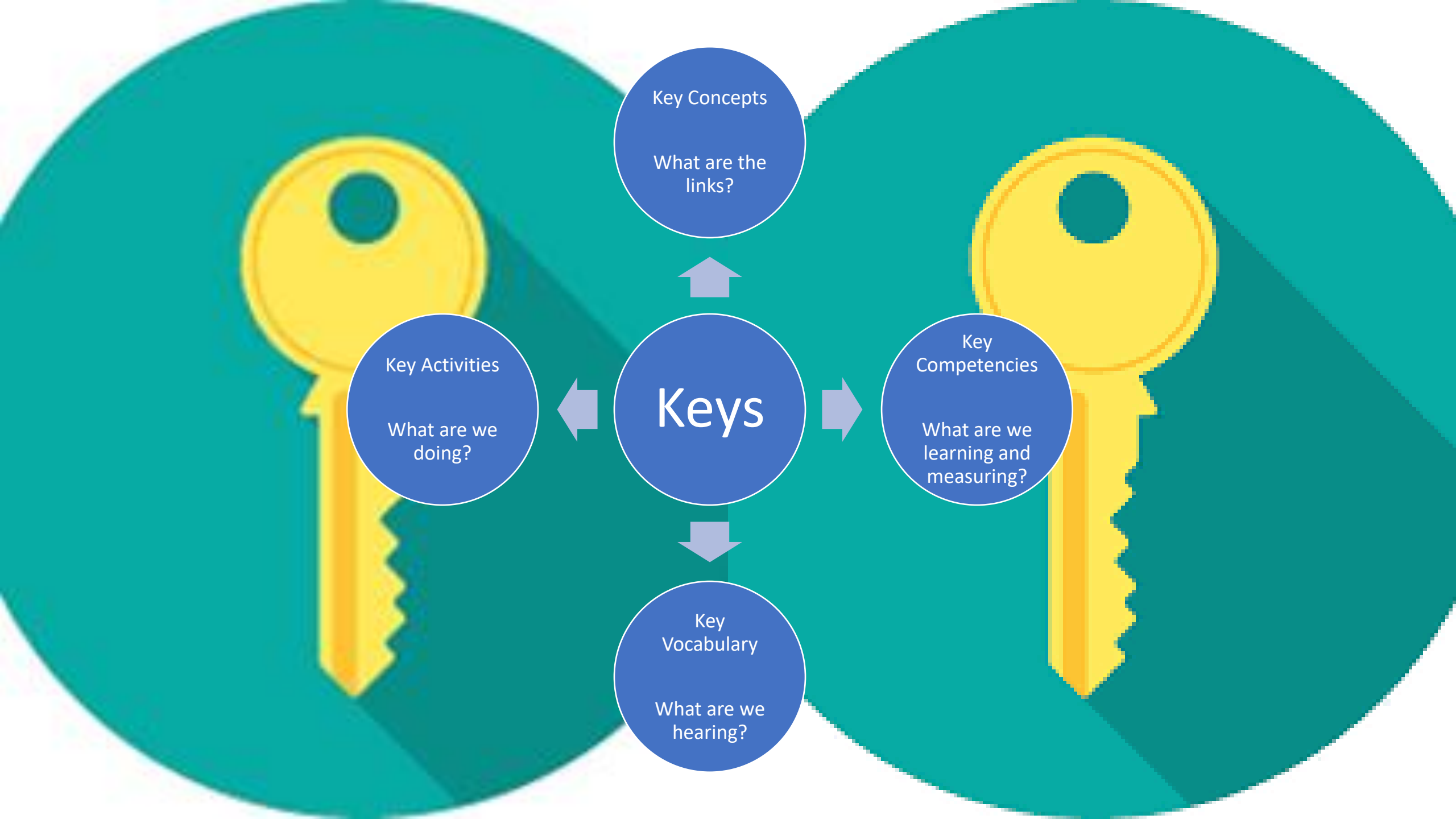
Key Competencies



IMPLEMENTATION

TOPIC OVERVIEW

Year 1	Year2	Year 3	Year 4	Year 5	Year 6
Autumn					
Unit 1.1 – E-Safety	Unit 2.1 – Coding	Unit 3.1 – coding	Unit 4.1 – Coding	Unit 5.1 – Coding	Unit 6.1 – Coding
Unit 1.2 – Sorting and Grouping	Unit 2.2 – E-Safety	Unit 3.2 – E Safety	Unit 4.2 – E-Safety	Unit 5.2 – E-Safety	Unit 6.2 – E-Safety
Unit 1.3 – Pictograms	Unit 2.3 – Spreadsheets	Unit 3.3 – Spreadsheets	Unit 4.3 – Spreadsheets	Unit 5.3 – Spreadsheets	Unit 6.3 – Spreadsheets
Unit 1.4 – Lego Builders					
Spring					
Unit 1.1 – E-Safety - recap	Unit 2.2 – E-Safety - recap	Unit 3.2 – E Safety - recap	Unit 4.2 – E Safety - recap	Unit 5.2 – E Safety - recap	Unit 6.2 – E Safety - recap
Unit 1.5 – Maze Explorers	Unit 2.5 – Effective Searching	Unit 3.4 – Touch Typing	Unit 4.4 – Writing for different audiences	Unit 5.4 – Databases	Unit 6.4 – Blogging
Unit 1.6 – Animated Story Books	Unit 2.4 – Questioning	Unit 3.5 – Email	Unit 4.5 – Logo	Unit 5.5 – Game Creator	Unit 6.5 – Text Adventures
Unit 1.8 – Spreadsheets	Unit 2.6 – Creating Pictures	Unit 3.6 – Branching databases			
Summer					
Unit 1.1 – E-Safety - recap	Unit 2.2 – E-Safety - recap	Unit 3.2 – E Safety - recap	Unit 4.2 – E Safety - recap	Unit 5.2 – E Safety - recap	Unit 6.2 – E Safety - recap
Unit 1.7 – Coding	Unit 2.7 – Making Music	Unit 3.7 – Simulations	Unit 4.6 – Animation	Unit 5.6 – 3D Modelling	Unit 6.6 – Networks
Unit 1.8 – Spreadsheets	Unit 2.8 – Presenting Ideas	Unit 3.8 – Graphing	Unit 4.7 – Animation	Unit 5.7 – Concept Maps	Unit 6.7 – Quizzing
Unit 1.9 – Technology Outside School			Unit 4.8 – Hardware Investigators		





Reception

Computing

Three and Four-Year-Olds	Personal, Social and Emotional Development		• Remember rules without needing an adult to remind them.
	Physical Development		• Match their developing physical skills to tasks and activities in the setting.
	Understanding the World		• Explore how things work.
Reception	Personal, Social and Emotional Development		• 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'.
	Physical Development		• Develop their small motor skills so that they can use a range of tools competently, safely and confidently.
	Expressive Arts and Design		• Explore, use and refine a variety of artistic effects to express their ideas and feelings.
ELG	Personal, Social and Emotional Development	Managing Self	• 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.
	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 I

Computing – Autumn 1

NC PoS	Key Concepts	Key Competencies	Key Vocabulary	Key Activities
- use technology purposefully to create, organise, store, manipulate and retrieve digital content - recognise common uses of information technology beyond school - 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.	Teachers will make concepts transparent and help children to think logically and to develop transferable computing understanding.	E-Safety Talk about good & bad choices in real life e.g. taking turns, saying kind things, helping others, telling an adult if something upsets you. Begin to understand if you create something you own it. Programming To explore outcomes when buttons are pressed in a sequence on a robot. Multimedia To use a video or still camera to record an activity. Data Handling Take photographs, video and record sound to record learning experiences. Look at how data is represented digitally. Contribute to and interpret a pictogram.	Safety – protecting yourself from any harm Code – when you program instructions Data - facts and statistics collected together for reference or analysis. Pictogram - pictorial representation of statistics on a chart, graph, or computer screen.	1. How does the computer know it is me? Children introduced to using a mouse or trackpad. Practice hand eye control and keyboard skills when logging in on the chrome books. Introduce SeeSaw and how to log into that on the Kindle Fire Tablets 2. How can we move a floor robot around the classroom? (National Coding Week) Children to draw their classroom layout on 2paint. Children to create and program an algorithm for the BeeBot to follow. Evaluate how successfully they completed the task.. 3. How can I stay safe when I use a computer or tablet? Children to explore Purple Mash and create an avatar of themselves. Explain about how they can do exciting things online but they need to follow rules and keep themselves safe. Discuss the rules of being online and how this could impact their experience. 4. How can I collect data accurately? Children to explore what data is and how it can be represented in a variety of ways. Introduce how to represent data in pictures. Create a class pictogram of the colours of Autumn leaves – outdoor learning record with camera/SeeSaw 5. How can I show my findings to other? Children to use the data collected in the previous lesson to create a pictogram in Purple Mash. Interpret data and present results.

Computing – Autumn 2

NC PoS	Key Concepts	Key Competencies	Key Vocabulary	Key Activities
- use technology purposefully to create, organise, store, manipulate and retrieve digital content - recognise common uses of information technology beyond school - 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.	Teaching will rely on a good grasp of the architecture of the subject, its key concepts and big ideas. Teachers will make these concepts transparent and help children to think logically The intention is to take children beyond learning a set of isolated facts	<u>Programming</u> Physically follow & give each other instructions to move around. Explore outcomes when buttons are pressed in sequences on a robot. Begin to use software to create movement & patterns on a screen. Begin to predict what will happen for a short sequence of instructions in a program Execute a program on a floor robot to achieve an algorithm Use the word debug to correct any mistakes when programming a floor robot. <u>E-Safety</u> Talk about good & bad choices in real life e.g. taking turns, saying kind things, helping others, telling an adult if something upsets you. Begin to understand that if you create something you own it. Understand they need to follow certain rules to remain safe when visiting places online.	Control - using computers to move or otherwise change ‘physical’ systems. The computer can be hidden inside the system or connected to it. Information – the meaning or interpretation given to a set of data by its users, or which results from data being processed. Internet – the global collection of computer networks and their connections, all using shared protocols (TCP/IP) to communicate. Program – a stored set of instructions encoded in a language understood by the computer that does some form of computation, processing input and/or stored data to generate output. For children: A sequence of instructions written to perform a specified task on the computer Algorithm – an unambiguous procedure or precise step by-step guide to solve a problem or achieve a particular objective. A set of instructions for achieving a goal or solving a problem. Data – a structured set of numbers, representing digitised text, images, sound or video, which can be processed or transmitted by a computer. Debug – to detect and correct the errors in a computer program. Sequence – to place programming instructions in order, with each executed one after the other.	<u>Unit 1.4 – Lego Builders</u> 1. What is an algorithm? Children explore following the instructions correctly, did they will get the correct result. .Children understand that an algorithm is a precise, step-by-step set of instructions used to solve a problem or achieve an objective. Challenge – Can the children create a set of instructions to move a friend around the classroom? . 2.How does the computer know what I want it to do? Children explain the effect of carrying out a task with no instructions. .Children can communicate to others that computers need precise instructions to follow. Children understand that an algorithm written for a computer to follow is called a program Enrich – Use Fun with Fish challenge activity to reinforce computing vocabulary and understanding 3. What happens when an algorithm doesn’t work? How can I fix it? Children can plan and organise instructions for a simple recipe. Children know that correcting errors in an algorithm or program is called ‘debugging’. Expand, Enrich, Broaden, Challenge, Extend

Computing – Spring 1

NC PoS	Key Concepts	Key Competencies	Key Vocabulary	Key Activities
- use technology purposefully to create, organise, store, manipulate and retrieve digital content - recognise common uses of information technology beyond school - 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.	Teaching will rely on a good grasp of the architecture of the subject Teachers will make these concepts transparent and help children to think logically and to develop transferable computing understanding. The intention is to take children beyond learning a set of isolated facts and move them into the realms of informed thinking through a clearly linked approach to teaching.	<u>Programming</u> Physically follow & give each other instructions to move around. Explore outcomes when buttons are pressed in sequences on a robot. Begin to use software to create movement & patterns on a screen. Begin to predict what will happen for a short sequence of instructions in a program Execute a program on a floor robot to achieve an algorithm Use the word debug to correct any mistakes when programming a floor robot. <u>E-Safety</u> Begin to understand that if you create something you own it. Understand they need to follow certain rules to remain safe when visiting places online.	Control - using computers to move or otherwise change ‘physical’ systems. The computer can be hidden inside the system or connected to it. Information – the meaning or interpretation given to a set of data by its users, or which results from data being processed. Internet – the global collection of computer networks and their connections, all using shared protocols (TCP/IP) to communicate. Program – a stored set of instructions encoded in a language understood by the computer that does some form of computation, processing input and/or stored data to generate output. For children: A sequence of instructions written to perform a specified task on the computer Algorithm – an unambiguous procedure or precise step by-step guide to solve a problem or achieve a particular objective. A set of instructions for achieving a goal or solving a problem. Data – a structured set of numbers, representing digitised text, images, sound or video, which can be processed or transmitted by a computer. Debug – to detect and correct the errors in a computer program. Sequence – to place programming instructions in order, with each executed one after the other.	1.Can I use directional keys to move a sprite on screen? Using the programme 2Go the children will investigate how to use directional keys to move a sprite around a given background. Each challenge builds on the children’s understanding and allows them to debug the algorithm as they go. 2.Can I create a simple algorithm? Using the directional keys the children complete a simple algorithm to move a sprite from point to another. Children will be taught how to debug their algorithm should it fail to work. 3.Can I create a complex algorithm? Children build on their understanding and create more complex algorithms using more precise instructions 4.Can I complete a challenge created by my partner? Children invite friends to complete the algorithm challenge they have created. Evaluate their success and see if friends can complete it correctly. How would they debug their algorithm if it failed? 5.E-Safety My Work Area – Children find their previous saved work and respond to the comments their teacher has left for them. Children taught how to search Purple mash for a specific resource

Computing – Spring 2

NC PoS	Key Concepts	Key Competencies	Key Vocabulary	Key Activities
- use technology purposefully to create, organise, store, manipulate and retrieve digital content - recognise common uses of information technology beyond school - 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.	Teaching will rely on a good grasp of the architecture of the subject Teachers will make these concepts transparent and help children to think logically and to develop transferable computing understanding. The intention is to take children beyond learning a set of isolated facts and move them into the realms of informed thinking through a clearly linked approach to teaching.	<u>Programming</u> Physically follow & give each other instructions to move around. Explore outcomes when buttons are pressed in sequences on a robot. Begin to use software to create movement & patterns on a screen. Begin to predict what will happen for a short sequence of instructions in a program Execute a program on a floor robot to achieve an algorithm Use the word debug to correct any mistakes when programming a floor robot. <u>E-Safety</u> Begin to understand that if you create something you own it. Understand they need to follow certain rules to remain safe when visiting places online.	Control - using computers to move or otherwise change ‘physical’ systems. The computer can be hidden inside the system or connected to it. Information – the meaning or interpretation given to a set of data by its users, or which results from data being processed. Internet – the global collection of computer networks and their connections, all using shared protocols (TCP/IP) to communicate. Program – a stored set of instructions encoded in a language understood by the computer that does some form of computation, processing input and/or stored data to generate output. For children: A sequence of instructions written to perform a specified task on the computer Algorithm – an unambiguous procedure or precise step by-step guide to solve a problem or achieve a particular objective. A set of instructions for achieving a goal or solving a problem. Data – a structured set of numbers, representing digitised text, images, sound or video, which can be processed or transmitted by a computer. Debug – to detect and correct the errors in a computer program. Sequence – to place programming instructions in order, with each executed one after the other.	1.Can I use directional keys to move a sprite on screen? Using the programme 2Go the children will investigate how to use directional keys to move a sprite around a given background. Each challenge builds on the children’s understanding and allows them to debug the algorithm as they go. 2.Can I create a simple algorithm? Using the directional keys the children complete a simple algorithm to move a sprite from point to another. Children will be taught how to debug their algorithm should it fail to work. 3.Can I create a complex algorithm? Children build on their understanding and create more complex algorithms using more precise instructions 4.Can I complete a challenge created by my partner? Children invite friends to complete the algorithm challenge they have created. Evaluate their success and see if friends can complete it correctly. How would they debug their algorithm if it failed? 5.E-Safety My Work Area – Children find their previous saved work and respond to the comments their teacher has left for them. Children taught how to search Purple mash for a specific resource

Computing – Spring 2

NC PoS	Key Concepts	Key Competencies	Key Vocabulary	Key Activities
- use technology purposefully to create, organise, store, manipulate and retrieve digital content - recognise common uses of information technology beyond school - 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.	computing teaching aims to make concepts, hardware and software engaging and accessible to the pupils and enable them to progress. The intention is to take children beyond learning a set of isolated facts and move them into the realms of informed thinking through a clearly linked approach to teaching.	Multimedia – Add text and images to a template document using an image & word bank. Explore the use of radio, animation & green screening. Use index fingers (left and right hand) on a keyboard to build words & sentences. Know when & how to use the SPACE BAR to make spaces between words. E-Safety – Begin to understand that if you create something you own it. Understand they need to follow certain rules to remain safe when visiting places online.	Animation – process of giving the illusion of movement to drawings and models. E-Book – a book that they can read on the computer or on a tablet. Font – the style of text used in a piece of writing on the computer or tablet. File – a piece of work on the computer. Sound Effect – a sound other than speech or music made for use in a play, film or computer file. Display Board – a way to share your work on Purple Mash.	1. Can I create a digital picture? Children use digital paint tools to create digital images to represent their story. Children explore the use of texture and experiment with the resizing tools. Children create short sentences to accompany their image. 2. Can I animate my digital image? Children predict what will happen to their image when using the animation tools. Children apply animation to key parts of their story to add emphasis and edit their sentences so that the book is complete. 3. Can I sound to my e-book? Children explore sounds within the programme and choose sounds that can accompany the animation of their story. Children have the opportunity to record their voice and apply this to their e-book. 4. Can I edit my book to improve it? Children share their book with a partner and explore ways to improve the images, sound and text. Children decide on 3 things that can be improved and work on each aspect, before sharing the result to their partner. 5. Can I publish my book for others to read? Children upload their books to Purple Mash Class Display Board. Children invited to read each others e-books and leave a positive comment.

Computing – Summer 1

NC PoS	Key Concepts	Key Competencies	Key Vocabulary	Key Activities
- use technology purposefully to create, organise, store, manipulate and retrieve digital content - recognise common uses of information technology beyond school - 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.	computing teaching aims to make concepts, hardware and software engaging and accessible to the pupils and enable them to progress. Teachers will make these concepts transparent and help children to think logically and to develop transferable computing understanding.	Programming – Physically follow & give each other instructions to move around. Use simple software to make things happen Press buttons on a floor robot and talk about the movements Explore options and make choices with toys, software and websites E-Safety – Begin to understand that if you create something you own it. Understand they need to follow certain rules to remain safe when visiting places online. Talk about good and bad choices when using websites – being kind, telling a grown up if something upsets us & keeping ourselves safe by keeping information private.	code – the arrangement of data and instructions programme – a collection of instructions that is executed to perform a task File – a piece of work on the computer. Sound Effect – a sound other than speech or music made for use in a play, film or computer file. Display Board – a way to share your work on Purple Mash.	1. What is coding? Children explore what it means to code. Children apply their understanding by giving instructions to make something happen. 2. Can I use a block of code? Children predict what will happen when a block of code is executed. Children experiment with using code blocks in a different order. 3. Can I design a background for my programme? Children explore design mode to make a background for their simple game. Children can add characters and make changes with the drop down menu. 4. Can I create a game using 2Code? Children share their design with a partner. Once they have talked through their idea they write a programme that will control how their characters move once clicked. 5. Can I change the code block so my character reacts in a different way? Children edit their code so that their character moves according to the variety of input events. 6. Can I add sound to my game? Children use collision detection to make objects interact and add a sound when an object collides.

Computing – Summer 2

NC PoS	Key Concepts	Key Competencies	Key Vocabulary	Key Activities
- use technology purposefully to create, organise, store, manipulate and retrieve digital content - recognise common uses of information technology beyond school - 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.	Teachers will make these concepts transparent and help children to think logically and to develop transferable computing understanding. The intention is to take children beyond learning a set of isolated facts and move them into the realms of informed thinking through a clearly linked approach to teaching.	Data Handling Look at how data is represented digitally. Multimedia Add text and images to a template document using an image & word bank. Technology in Our Lives Understand that there are online tools that can help them create and communicate. Recognise uses of technology in their homes and in their community	Data Spreadsheet Input Edit Toolbox Clipart Row Column Cell Backspace Delete Technology	1. How do I enter data into a spreadsheet? Using the 2Count app the children will discuss columns, rows and cells before entering simple data into a spreadsheet template. Children will create a simple spreadsheet that will find totals of calculations within 10. 2. How can I add an image to a spreadsheet? Using the 2Count app the children will insert images to spreadsheet template. The children will then learn how to lock and move cells to create a plan of a zoo. 3. Can I create a counting machine? Using the 2Count app the children will use images and their knowledge of cells to create a spreadsheet that can count. The children will explore adding 'values' to cells to enable accurate calculations. 4. How is technology used in my home? Children talk and compare different sorts of technology in their homes and how they are used. 5. How is technology used outside of school? Children walk around local area and look for examples of technology being used in the immediate area – pelican crossing, street lights with sensors etc.. Record examples for discussion and comparison.



Year 2

Computing - Autumn 1

NC PoS	Key Concepts	Key Competencies	Key Vocabulary	Key Activities
Pupils should be taught: - To understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions. -To create and debug simple programs. - To use logical reasoning to predict the behaviour of simple programs . - To use technology purposefully to create, organise, store, manipulate and retrieve digital content. - To recognise common uses of information technology beyond school. - To 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.	Guided research about specific materials, features and design of the product to be made. Research to be fed into planning to produce a prototype of product to be created. Prototype to be evaluated before producing final design/product. Create final product using evaluations to inform production. Use discussion to introduce technical vocabulary at appropriate stages throughout the design and production process.	Unit 2.1 Programming/Coding I can explain that an algorithm is a set of instructions. I can describe the algorithms I have created. I can recognise and physically follow instructions (forwards, backwards, turn, right angle) I can recall what an algorithm is To create a computer program using an algorithm. To create a program using a given design. To understand and explain that algorithms follow a sequence. To design an algorithm that follows a timed sequence I can plan and enter a sequence of instructions to achieve an algorithm (using a robot) To understand that different objects have different properties. To understand what different events do in code I can predict what will happen and test results To understand what an algorithm is. • To create a computer program using simple algorithms.	Algorithm Instructions Follow Steps Forwards, backwards, left, right, turn Trail Sequence Debug Predict Rsults	Can I follow and create simple instructions? Link to PE. Children to follow a set of simple instructions (forwards, backwards, turn, jump, direction). Assess who is able to do this easily-who needs support? Children to then work with a partner, take it in turns to give each other instructions-give children success criteria to follow. Introduce the word algorithm to children. National Coding Week-children-publish on class blogs. Use bebots to create a series of simple instructions. What is an algorithm? Assess vocab using quiz. Then, using Purple Mash,Air Traffic Control Final Stage as a 2Do for class. Build two models using two identical sets of lego - one that follows the instructions and one that does not and show these instructions on the board. Can the children follow the algorithm to create their own model? Discuss the process of making a computer program. Look at the plane taking off program. Children might remember this scene from Year 1. Tell them that this time you want them to concentrate on implementing this algorithm. Teach children how to save their code, discuss why it is important to save their coding regularly so that they have a working version to go back to. Refer back-what is an algorithm? Collision Detective! Children will plan an algorithm that includes collision detection, create a program that uses collision detection and read blocks of code and predict what will happen when it is run. Recap last lesson and set Princess and the Frog as a 2Do for class on chrome books. Ask children: When do we want the frog to turn into the prince? How will we make sure he turns into a prince only if the princess collides with him? Children to use timer and planned algorithm Using a Timer! What is a timer? Show different phsycial examples of timers (Sand, electronic) Collect children's thoughts. Children can create a program that uses a timer-after command after exploring Magician program. Children can explain what the timer-after command does in their program. Children can predict what will happen in a program that includes a timer-after command.

Computing - Autumn 2

NC PoS	Key Concepts	Key Competencies	Key Vocabulary	Key Activities
Pupils should be taught: - To understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions. -To create and debug simple programs. - To use logical reasoning to predict the behaviour of simple programs . - To use technology purposefully to create, organise, store, manipulate and retrieve digital content. - To recognise common uses of information technology beyond school. - To 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.	Guided research about specific materials, features and design of the product to be made. Research to be fed into planning to produce a prototype of product to be created. Prototype to be evaluated before producing final design/product. Create final product using evaluations to inform production. Use discussion to introduce technical vocabulary at appropriate stages throughout the design and production process. Gaps in Learning as Identified from June Mark Book 2021 Year 2 will need to address the gaps in: Multimedia Data handling	Unit 1.3 Pictograms and Data-Handling (not covered in Year 1) I understand that data can be represented in picture format. I can ask questions and consider how to collect data I can contribute to and interpret a pictgram-asking questions and considering how to collect data I can use a pictogram to record the results of an experiment (link to Science) I can explain how data is represented digitally I can create and explore paper and object decision trees and explore a branching database. I can take photographs, video and record sound to record learning experiences Unit 2.2 E-Safety I know how to stay safe online by choosing websites that are good for them to visit & not inappropriate sites. I can explore what cyber-bullying means & what to do when I encounter it. I understand that if they put information online it leaves a digital footprint or “trail” & they need	Algorithm Instructions Follow Steps Forwards, backwards, left, right, turn Trail Sequence Debug Predict Results	Lesson 1 – Pose the question-what is data? Use videos to support Collecting data - KS1 Maths - BBC Bitesize and pPurple Mash resources. Can children think of different real life scenarios where data is collected? Children can discuss and illustrate the transport used to travel to school. Children can contribute to the collection of class data. Children have used these illustrations to create a simple pictogram. Lesson 2 Children can contribute to a class pictogram. Children can discuss what the pictogram shows. What data would children like to collect themselves? What questions would they like to investigate? Lesson 3 - Children can collect data from rolling a die 20 times and recording the results. Children can represent the results as a pictogram. Invetsigate how data is saved on a computer How is data stored on a computer? - BBC Bitesize Lesson 4 – Children to create and explore paper and object decision trees and explore a branching database. Please refer to planning and resources document for more detail Unit 1.3 Pictograms.pdf (purplemash.com) E-Safety Lesson 1-Introduce the word Internet. What does it mean? What do we use it for?What is the internet? - BBC Bitesize What is the internet? Collect children's responses and use this as snapshot assessment. What does it mean to be safe on the internet? Why is this important? Explore safety online. Staying safe online – Year 1/2 & P2/3 Computing Topics - Home Learning with BBC Bitesize - BBC Bitesize Lesson 2-SHow Digital Footprint Slideshow. And complete Digital Footprint Quiz,at the end of the lesson. Can children create a digitla footprint poster? What is your digital footprint? - Safer Internet Day 2019 - Own It - BBC Staying safe online. School Radio - Together, Autumn 2014, Cracking code: Staying safe online (bbc.co.uk) <i>End of History topic reflection-Children to use ipads to take photographs, video and record sound to record learning experiences Explore how art can be created digitally</i> How do you make art on a computer? - BBC Bitesize

Computing – Spring 1

NC PoS	Key Concepts	Key Competencies	Key Vocabulary	Key Activities
Pupils should be taught: - To understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions. -To create and debug simple programs. - To use logical reasoning to predict the behaviour of simple programs . - To use technology purposefully to create, organise, store, manipulate and retrieve digital content. - To recognise common uses of information technology beyond school. - To 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.	Computing teaching aims to make concepts, hardware and software engaging and accessible to the pupils and enable them to progress. Teaching will rely on a good grasp of the architecture of the subject, its key concepts and big ideas. These are the concepts and ideas that are used to create the computing vision and are essential to effective teaching. Teachers will make these concepts transparent and help children to think logically and to develop transferable computing understanding. The intention is to take children beyond learning a set of isolated facts and move them into the realms of informed thinking through a clearly linked approach to teaching.	Unit 2.1 – E-Safety (Recap Key Concepts) Unit 2.4 – Questioning Unit 2.5 – Effective Searching To argue that the information provided on pictogram is of limited use beyond answering simple questions To apply YES or No questions to separate information. To construct a binary tree to separate different items. Use 2Question (a binary tree) to answer questions. To use a database to answer more complex search questions. To analyse the terminology associated with searching. To gain a better understanding about searching on the Internet. To create a leaflet to help someone search for information on the Internet.	Pictogram Data Variable Popular Collect Question Answer Avatar Information Binary tree Limitation Evaluation	Lesson 1 – How can information be presented ? This will be the first afternoon lesson children will complete after the Christmas holiday. Children to create a class tally of most popular Christmas presents (doll, figure, electronic game etc.). Chn to then record data in a pictogram. Children to ask and answer a set of questions following this data. Lesson 2 - Can pictograms help to answer more complicated questions? Children will be thinking about the house that the children living in and producing simple pictograms of the data Use Purple Mash to show the presentation ‘Types of Houses’-discuss the features. Chn to draw what their home looks like, and how many rooms it has etc. Collate info using the 2Calculate file and then design a simple pictogram using 2Count. Ask chn to use pictogram to answer simple questions-have a few they cannot answer from the data and discuss findings. Lesson 3 – Can children analyse data using yes/no questions? Show chn two different objects and show how we can use simple questions with a yes/no answer to separate them (eg-cube and sphere). Use Purple Mash avatars to model how to ask questions. Chn to work with a partner to play a ‘Guess who’ avatar like game = using yes/no answers. Lesson 4 – What is a binary tree and does it allow us to answer more complex questions? Using Purple Mash avatar pictures, discuss with class a yes/no question that could split the avatars into groups. Separate the avatars into groups, choosing one to think of a question to turn this into a smaller group (see Purple Mash planning for more detail). Children to then complete their own binary tree. Lesson 5 – Can children create their own binary tree? Following the Purple Mash scheme of work, children to use the 2Question database avatars to work out the names of the different children. Discuss with the class the limitations of the information in 2Question and discuss what could be made better. Lesson 6 – What is a database and can we use it to help us answer questions? Children to use 2Investigate-Avatars data base as a 2Do for the class. Children to use the database to answer a series of more complicated questions. Children to use the tool on the programme to search for multiple questions.

Computing - Spring 2

NC PoS	Key Concepts	Key Competencies	Key Vocabulary	Key Activities
Pupils should be taught: - To understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions. -To create and debug simple programs. - To use logical reasoning to predict the behaviour of simple programs . - To use technology purposefully to create, organise, store, manipulate and retrieve digital content. - To recognise common uses of information technology beyond school. - To 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.	Guided research about specific materials, features and design of the product to be made. Research to be fed into planning to produce a prototype of product to be created. Prototype to be evaluated before producing final design/product. Create final product using evaluations to inform production. Use discussion to introduce technical vocabulary at appropriate stages throughout the design and production process.	Unit 2.5 – Effective Searching Unit 2.6 – Creating Pictures To understand the terminology associated with searching. To gain a better understanding about searching on the Internet. To create a leaflet to help someone search for information on the Internet. To be introduced to 2Paint A Picture. (Link to art objectives) To evaluate the artwork of Yinka Shonibare To recreate artwork in the style of Yinka Shonibare by applying my knowledge of the lines template and eCollage.	Internet Data Computer networks Execute Input Output Software World Wide Web	Creating pictures: Cross-curricular lessons with the art medium term plan Lesson 1 - Introduction to creating pictures Children to describe the main features of Yinka Shonibare's artwork. Children to use 2Paint a Picture to create art based upon this style. Lesson 2 - Creating a repeated pattern within a piece of artwork Children to describe the main features of art that uses repeating patterns. Children to use 2Paint a Picture to create art by repeating patterns in a variety of ways. Children to combine more than one effect in 2Paint a Picture to enhance patterns. Effective Searching: Lesson 3 - Understanding the Internet and Searching Children to recall the meaning of key Internet and searching terms. Children to successfully complete a quiz about the Internet. Lesson 4- Searching the Internet Children to identify the basic parts of a web search engine search page. Children to learn to read a web search results page. Children can search the Internet for answers to a quiz. Lesson 5 - Sharing Knowledge of the Internet and Effective Searching Children have created a leaflet to consolidate knowledge of effective Internet searching

Computing – Summer 1

NC PoS	Key Concepts	Key Competencies	Key Vocabulary	Key Activities
Computer Science Information technology Digitally literate	Computing teaching aims to make concepts, hardware and software engaging and accessible to the pupils and enable them to progress. Teaching will rely on a good grasp of the architecture of the subject, its key concepts and big ideas. These are the concepts and ideas that are used to create the computing vision and are essential to effective teaching. Teachers will make these concepts transparent and help children to think logically and to develop transferable computing understanding. The intention is to take children beyond learning a set of isolated facts and move them into the realms of informed thinking through a clearly linked approach to teaching.	Summer – Year 2 Unit 2.2 – E-Safety - recap Unit 2.7 – Making Music (Summer 1) Unit 2.8 – Presenting Ideas (Summer 2) To use the search facility to refine searches on Purple Mash by year group and subject. To share the work they have created to a display board. To understand that the teacher approves work before it is displayed. 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. 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. To explore how a story can be presented in different ways. To make a quiz about a story or class topic. To make a fact file on a nonfiction topic. To make a presentation to the class.	Sequence Music Tune Pace Volume Background sounds Record Depict Express Emotions	Making Music: Summer 1 Lesson 1 – Introduce 2Simple Explain to the children what 2Sequence is and how it works. Children to use the different sounds within 2Sequence to create a tune. Children to explore how to speed up and slow down tunes. Children to explore what happens to the tune when sounds are moved. Lesson 2 – Making Music Children to add sounds to a tune they have already created (in lesson 1) to change it. Children to think about and discuss how music can be used to express feelings. Children to explore changing the volume of the background sounds. Children to create two tunes which depict two different feelings. Lesson 3 – Soundtracks Children to upload and use their own sounds chosen from a bank of sounds. Children to create, upload and use their own recorded sound in their soundtrack. Children to create their own soundtrack using some of the chosen sounds.

Computing – Summer 2

NC PoS	Key Concepts	Key Competencies	Key Vocabulary	Key Activities
Computer Science Information technology Digitally literate	Computing teaching aims to make concepts, hardware and software engaging and accessible to the pupils and enable them to progress. Teaching will rely on a good grasp of the architecture of the subject, its key concepts and big ideas. These are the concepts and ideas that are used to create the computing vision and are essential to effective teaching. Teachers will make these concepts transparent and help children to think logically and to develop transferable computing understanding. The intention is to take children beyond learning a set of isolated facts and move them into the realms of informed thinking through a clearly linked approach to teaching.	Unit 2.1 – E-Safety (Recap Key Concepts) Unit 2.8 – Presenting Ideas LO: To analyse how a story can be presented in different ways. LO: To create a quiz about a story or class topic. LO: To construct a fact file on a nonfiction topic. LO: To produce an deliver a presentation to the class. LO: To generate refined searches on Purple Mash using the search facility by year group and subject.	Control Information Internet Program Algorithm Data Debug Script Selection Sequence Computer networks Execute Input Output World Wide Web	1. Presenting a story three ways Children to explore the traditional tale of Goldilocks and the Three Bears, as well as a mind map, a quiz and create a riddle of 'who am I?' 2. Presenting ideas as a quiz Children to explore different types of questions in the quiz from last week, explore questions that can be added to a quiz and children to build their own quiz. Children to have a go at answering their peer's quiz. 3. Making a non-fiction fact file Explore information on mind map example about the UK. Children to create their own non-fiction mind map and add to their quizzes from last week (adding in additional questions). Discuss how everyone's non-fiction fact file looks slightly different, is there a clear way of presenting information? 4. & 5 Making a presentation Review different ways of presenting information. Children to create their own presentation using either 2Connect file or 2Create a story. Children to base their presentation on a 'Journeys' topic they have learned as part of their history lessons (The first flight or the Titanic). 6. E-safetey recap Children to review all the ways in which they can stay safe when using technology.



Year 3

Computing – Coding – Autumn 1

NC PoS	Key Concepts	Key Competencies	Key Vocabulary	Key Activities
design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts use sequence, selection, and repetition in programs; work with variables and various forms of input and output use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs 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 use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content 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	Success as a digital citizen Larger projects and collaborations Innovation Trial and error <i>Lessons will follow: Predict... what this code will do Run... the code to check your prediction Investigate... trace through the code to see if you were correct Modify... the code to add detail, change actions/outcome Make... a new program that uses the same ideas in a different way.</i>	To review coding vocabulary that relates to Object, Action, Output, Control and Event. To use the design to write the code for the program To use a variable to create a timer To use a timer to make characters repeat actions. 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.	Code Algorithm Command Input Output Object Action Event Debugging	Pupils retrieve coding knowledge from KS1, teacher review understanding to determine following activities. Pupils act as robots following teacher instructions, pupils then create their own symbol for instruction. Pupils view ‘Fun with Fish’ and predict as a class what it will do. Key vocabulary highlighted. As a class pupils complete stage 1 of ‘Fun with Fish’ adding code to an interactive screen saver. Pupils are challenged to debug prewritten code and then make their own program investigating the ‘when clicked’ event code block. Share investigation findings as whole class. <i>Challenge: Use when clicked event independently.</i> Retrieval quiz prior learning. Discuss the process of making a computer program: design > algorithm > code. Pupils view design of ‘Air Traffic Control’, identifying objects, actions and events. As a class pupils complete stage 1, following the algorithm. Pupils continue to complete the airport code following the algorithm, running and testing. Pupils investigate the use of ‘when collides’ ‘sound’ and ‘timer’ to follow remainder of the algorithm. Pupils to work with a partner to read through each other’s code and predict what will happen when they run the program. <i>Challenge: Debug pupils work.</i> Pupils are introduced to the ‘timer’ command. Pupils explore following a flow chart to understand sequences with delays. Pupils create own flowchart. As a whole class pupils complete stage 1 and 2 of ‘Magician’ using the ‘timer’ command. Pupils complete stages 1, 2, 3 and 4 independently. <i>Challenge: Create your own scene.</i> Pupils are introduced to the ‘repeat’ command. What does repeat mean in coding? Pupils are challenged to be able to make a turtle draw a square when it is clicked on. Pupils explore drawing a square and identify the steps to create an algorithm. Share with class. We can use the repeat command to shorten the code. Pupils explore this on Free Code Gibbon, some pupils will be guided by help sheet. <i>Extend: for pupils to innovate additional code to scene.</i> Pupils innovate their own interactive scene. Work saved to class display boards.

Computing – E-Safety and Spreadsheets – Autumn 2

NC PoS	Key Concepts	Key Competencies	Key Vocabulary	Key Activities
design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts use sequence, selection, and repetition in programs; work with variables and various forms of input and output use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs 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 use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content 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	Success as a digital citizen Larger projects and collaborations Innovation Trial and error	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.	Spreadsheet Columns Rows Cells Spin tool Equals tool Move cell tool < > = Advance mode	Purple Mash Unit 3.2 - E-Safety Purple Mash Unit 3.3 – Spreadsheets Pupils create a 'brain dump' of all that they know about passwords. Teacher uses this as assessment to recap/move on. Pupils share the story of the Princess's password and discuss what happens in the story (password focus). Pupils learn the password rap and retrieve the key rules for creating a strong password from the video clip. Pupils then sort and identify strong and weak passwords and justify why they think so. As a whole class the passwords are tested on a password cracker to check their strength. Pupils reply to an email from a child asking for some help with creating a password. Pupils are then quizzed on knowledge. Extend: What would you do if somebody found out your password? As a whole class pupils collect data in a tally chart for one of the following: how children get to school, favourite pet, favourite ice-cream. Pupils are introduced to the program 2Calculate on Purple Mash. Teacher models how to input the data that has been collected. Pupils then input the class data on their 2Do. Pupils are introduced to pie charts and bar graphs and how they can communicate data clearly and present information in different ways. Teacher models using the chart button to create a variety of charts, discussing axis and headings. Pupils then explore creating their own chart presenting the inputted data. Challenge: Which chart is most appropriate for the data? Which chart presents it clearly to the viewer? Pupils retrieve learning from previous lesson with mini quiz. In pairs pupils are given dice to record ‘How many times does a dice land on each number?’. Pupils record in a table using a tally then input their collected data on 2calculate and present it using an appropriate bar graph or pie chart. Pupils answer a series of questions on their database in their books. Challenge: Maths link, answer a range of questions about your data using your chart. Pupils recap the inequality symbols. Teacher introduces more than, less than and equal button to on 2calculate. When there are numbers either side, what happens to the button? As a class investigate what happens when different numbers are inputted into the cells. Pupils to make their own number line using the inequality button. Pupils are introduced to the 'spin' tool and how it makes numbers increase or decrease. How could we use this button to create a times table machine? Pupils jot thoughts as a group. Teacher models how to create times tables machines. Pupils use the step by step guide to create their own times tables machine. Pupils are introduced to the Advanced Mode of 2Calculate and it's use of coordinates. As a whole class pupils identify what cell has been clicked on using the coordinates e.g. E2, B8. Use mini-whiteboards to see who can identify correctly. As a whole class pupils follow the instructions to colour fill cells to create an image – can they guess what the image will be? Pupils complete the 2Do set following the instructions to colour the correct cells, using the coordinates. Extend: Complete the treasure map game. Autumn 2 Computing Learning Log Spreadsheets Assessment

Computing - E Safety and Touch Typing - Spring 1				
NC PoS	Key Concepts	Key Competencies	Key Vocabulary	Key Activities
design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts use sequence, selection, and repetition in programs; work with variables and various forms of input and output use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs 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 use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content 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	Success as a digital citizen Larger projects and collaborations Innovation Trial and error	E-Safety To understand what makes a good password for use on the Internet. Children are beginning to realise the outcomes of not keeping passwords safe. To contribute to a concept map of all the different ways they know that the Internet can help us to communicate. To contribute to a class blog with clear and appropriate messages. To understand that passwords help to limit who can see personal / private / confidential information Touch Typing To discuss the need for correct posture when typing. To introduce typing terminology. To practise and improve typing skills. To start to type words. To improve the speed and efficiency of typing skills	Username Password Communicate Face to Face Online Blog Posture Top Row Keys Bottom Row Keys Home Row Keys Space Bar	Purple Mash: Unit 3.1 – E-Safety (Recap Key Concepts) Unit 3.4 – Touch Typing Brain dump: what can you tell me about passwords? Pupils are given the opportunity to retrieve knowledge from password e-safety lesson in autumn. Teacher poses the questions: What could happen if someone logs in with your username and password? Why would the teacher still think it was you? Pupils contribute to a 2Connect to show all the different ways that you use the Internet both at home and at school, opportunity to discuss appropriate and inappropriate uses may arise. Pupils then create their own mind map to show ways we use the internet, which needs passwords and which don't. Pupils are introduced to the term blog: in a blog, you can share ideas including pictures and text. Other people with permission to see the blog, can comment or add their own ideas. Pupils participate in a class blog, pupils learn how to add a post to our class blog and upload their 2connect mind map to summarise what they have learned. Pupils are introduced to typing terminology, the correct way to sit at the keyboard and how to use the home, bottom and top rows. Children will identify their fingers and the different keys on the keyboard. Pupils will complete the activities in the following order: Home Row Keys 1-3, Bottom Row Keys 1-3, Top Row Keys 1-3. Pupils have a worksheet to record their scores to see if they have improved, pupils must try to use the correct finger. Children will rate how well they have achieved the success criteria at the end of the lesson. Pupils practice and improve typing for home, bottom and top rows. Pupils begin to use two hands to type the letters on the keyboard. What do you remember learning in the last lesson? Recap correct posture and finger position. Pupils spend some time practising the activities they found difficult from last lesson. Pupils consolidate these skills and work through the 'Mixed Keys' activities and record their scores on the worksheet. How did you find the activities? What did you find difficult? Did you find that your score increased on your second go? Pupils practice the keys typed with the left hand. Pupils recap the correct posture and finger position. Assess pupils understanding of finger names: Can you find your index finger on your left hand? Can you find your middle finger on your left hand? Can you find your little finger on your left hand? Pupils work through Left Keys activities set as 2Do's by teacher. Pupils record scores. Pupils reflect on their progress in the lesson and to whether they have met the learning outcome. Pupils practice the keys typed with the right hand. Pupils recap the correct posture and finger position. Assess pupils understanding of finger names: Can you find your index finger on your right hand? Can you find your middle finger on your right hand? Can you find your little finger on your right hand? Pupils work through Right Keys activities set as 2Do's by teacher. Pupils record scores. Pupils reflect on their progress in the lesson and to whether they have met the learning outcome.

Computing – Email – Spring 2

NC PoS	Key Concepts	Key Competencies	Key Vocabulary	Key Activities
design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts use sequence, selection, and repetition in programs; work with variables and various forms of input and output use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs 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 use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content 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	Success as a digital citizen Larger projects and collaboratio ns Innovation Trial and error	Email 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.	Communication 2Email Email Compose Folders Address Book Inbox Alerts Attachments	Purple Mash: Unit 3.5 Pupils will think about different methods of communication. Warm up game ‘Telephone’: Get into a circle and pass a message around by whispering to the person next to you until it reaches the original sender. What happened to the message when it got back to the sender of the message? What are the advantages of oral communication (speaking & Listening)? What are the disadvantages? How else can messages be sent? Teacher shows model 2connect map. Pupils partner talk, to think of a method of communication and add to the mind map. Pupils then produce their own 2Connect mind map detailing methods of communication and strengths and weaknesses about them. Compare mind maps in groups. Pupils are introduced to 2Email (internal and safe communication software) and key vocab. Pupils have time to explore 2Email and try to discover: How do you check to see if you have received an email? How do you create an email? What else can you find out? Teacher models key features of 2Email and how to compose and send an email. Teacher highlights use of ‘Report to Teacher’ button. Pupils create a reply to the email received from teacher. Pupils create and compose emails to friends in their class asking them a question. Pupils reply. Retrieval: Pupils label an image of 2Email and the key features/buttons. Teacher poses the question: why do we have rules? Teacher poses some scenarios of emails to pupils, in teams they discuss advice/rules to follow in these situations. Whole class create a list of rules for email safety. Pupils create and compose an email sharing these rules with 4 members of the class, using the address book. Retrieval: What E-Safety rules can you remember? Pupils play E-safety quiz in 4 teams. Pupils are introduced to adding attachments to an email. Why might we use attachments? Pupils attach a file and send to teacher using address book. Pupils receive an email from Caitlin (Automated character) in a difficult situation. Pupils discuss advice for the girl and create an email reply with it.

Computing – Project Week – Summer 1

NC PoS	Key Concepts	Key Competencies	Key Vocabulary
design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts use sequence, selection, and repetition in programs; work with variables and various forms of input and output use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs 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 use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content 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	Success as a digital citizen Larger projects and collaborations Innovation Trial and error	Multimedia Explore and begin to evaluate the use of multimedia to enhance communication. Create and begin to edit presentation documents. Use a range of effects in art programs, including brush sizes. Look at own work and consider how it can be improved for effectiveness. Explore the use of animation and green screening. Programming Plan and enter a sequence of instructions on a robot.	Week is split into carousel of activities for ‘Welcome to Year 3’ video. Stop Motion Animation Pupils are introduced to stop motion animation, using whiteboards and Stop Motion app on ipads. Pupils explore how to create a stop motion and evaluate the effectiveness of their groups first attempt. Pupils reflect on what they have learned and create a final stop motion communicating information about swimming in Year 3. Green Screen Pupils are introduced to green screen, using the cameras and app on ipads. Pupils create a script for their group. E.g. Newsround, Gameshow, Cooking Skit, Art show. Pupils have time to rehearse and practise their lines. Pupils consider the most effective background for their green screen and any other effects they wish to use. Pupils set up cameras on tripod/ipad on tripod and record their group creating their skit. Pupils apply background to the green screen. Teacher Portraits Pupils explore 2Paint on purple mash, creating a portrait of themselves. Pupils explore brush sizes, effects, symmetry tool and magnet tool. How can you move the items once placed? How can you make the lines thinner? Can you change the background? Teacher models how to use the circle tool to create a face shape. Pupils create a portrait of class teacher and Mrs Shergold and add a text caption of the image. Pupils save and hand in. Voice Overs Pupils plan a voice over for the teacher portraits with key information about their teacher. Pupils use voice record app on ipads to record message. Welcome Animation Pupils use 2Animate on purple mash to create a welcome animation for the video. Pupils explore adding letters one by one, duplicating frames, adding background colours. Pupils play animations and have a class critique. Floor Robots Pupils explore using floor robots, which have not been used since Reception. Pupils test buttons and create short sequences to move robot forward. Pupils are challenged to move robot from one side of the classroom to the other, avoiding obstacles.

Computing – Email – Carried over from Spring – Summer 1

NC PoS	Key Concepts	Key Competencies	Key Vocabulary	Key Activities
design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts use sequence, selection, and repetition in programs; work with variables and various forms of input and output use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs 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 use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content 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	Success as a digital citizen Larger projects and collaborations Innovation Trial and error	Email 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.	Communication 2Email Email Compose Folders Address Book Inbox Alerts Attachments	Purple Mash: Unit 3.5 Pupils are introduced to 2Email (internal and safe communication software) and key vocab. Pupils have time to explore 2Email and try to discover: How do you check to see if you have received an email? How do you create an email? What else can you find out? Teacher models key features of 2Email and how to compose and send an email. Teacher highlights use of ‘Report to Teacher’ button. Pupils create a reply to the email received from teacher. Pupils create and compose emails to friends in their class asking them a question. Pupils reply. Retrieval: Pupils label an image of 2Email and the key features/buttons. Teacher poses the question: why do we have rules? Teacher poses some scenarios of emails to pupils, in teams they discuss advice/rules to follow in these situations. Whole class create a list of rules for email safety. Pupils create and compose an email sharing these rules with 4 members of the class, using the address book. Retrieval: What E-Safety rules can you remember? Pupils play E-safety quiz in 4 teams. Pupils are introduced to adding attachments to an email. Why might we use attachments? Pupils attach a file and send to teacher using address book. Pupils receive an email from Caitlin (Automated character) in a difficult situation. Pupils discuss advice for the girl and create an email reply with it.

Computing – Simulations and Graphing – Summer 2

NC PoS	Key Concepts	Key Competencies	Key Vocabulary	Key Activities
Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts Use sequence, selection, and repetition in programs; work with variables and various forms of input and output Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs 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 Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content 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	Programming and Debugging Collecting and presenting data A variety of artistic & communicative media Staying safe on the internet Safe and responsible use of technology	Data Handling Find out information from a pre-prepared database, asking straightforward questions. Contribute towards a database. Construct and use a branching database. Record data in a variety of ways. Present data for others. Use a data logger to monitor changes and talk about the outcomes seen. E-Safety Agree sensible e-safety rules for the classroom. Explore what cyber-bullying means & what to do when they encounter it. Stay safe online by choosing websites that are good for them to visit & not inappropriate sites. Choose a secure password for age-appropriate websites. Discuss what actions could be taken if they are uncomfortable or upset online e.g. Report Abuse button. Talk about what games they enjoying playing and what good choices are when playing games e.g. content, screen time. Use a class blog to share information and talk about who can see it, and how to communicate safely and respectfully Comment and provide positive feedback on the work of classmates in school or online, or the work of others online. Technology In Our Lives Save work on the school network and on individual devices Talk about the parts of a computer. Use appropriate tools to collaborate on-line. Use appropriate tools to communicate on-line. Use simple search tools and find appropriate websites. Talk about the owner of information online. Multimedia Explore & begin to evaluate the use of multimedia to enhance communication.	Simulation Computer simulation Program Patterns Predict Graph Field Data Bar chart Block graph Line graph Pie chart Row Column Axis Online Internet Advertisements Customers Community Connect	Unit 3.7 – Simulations Unit 3.8 - Graphing Pupils know that a computer simulation can represent real and imaginary situations. They give some examples of simulations used for fun and for work. Pupils give suggestions of advantages and problems of simulations and complete Why Simulate? Table analyzing 4 examples of real life simulations. Work to be uploaded to Summer Display Boards. Pupils explore a simulation, trying out different options and to test predictions. Pupils begin to evaluate simulations by comparing them with real situations and considering their usefulness. Pupils set up a graph with a given number of fields. Pupils enter data for a graph. Pupils produce and share graphs made on the computer. Extension: Children can select most appropriate style of graph for their data and explain their reasoning. Pupils collect data on the rivers around the world. Groups: How long are rivers? How many rivers are there in Africa? Pupils create their own graph to display the data collected and share the information with the class. Geography linked lesson. Work to be uploaded to Summer Display Boards.



Year 4

Computing – Autumn 1

How are our video games made?

NC PoS	Key Concepts	Key Competencies	Key Vocabulary	Key Activities
Children should be taught to 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.	Pathway: Coding Curriculum concept: Develop transferable computing understanding. Children will have the opportunity to reflect on learning and see how their knowledge is improving over time.	1. LO: I can use sensors to 'trigger' an action using a Pro-Bot 2. LO: I can construct a program with a character 3. LO: I can construct a program which responds to the If/else command, using the value of the variable. 4. LO: I can create a programme with a character using the repeat command 5. LO: I can make timers and counting machines using variables to print a new number to the screen every second. Ongoing throughout all lessons- LO: I can use the design, code, test and debug process.	Algorithm Command Sequence Programme Gibbon Input Output Variable Selection Coding Dependent Script Character Events Debug If/else Statement	1. What is the difference between an algorithm, sequence and command? Mini quiz building on y3 knowledge of coding and programming. Discuss the term coding through context of games children play online at home. Ask the chn to programme the teacher to make a sandwich, can they give accurate instructions? Introduce the chn to the b-bots, discussing the features. Can chn programme the b-bot to make different shapes? Allow chn to create a course around the classroom using different equipment, can they programme the b-bot to move around their course without crashing? Take the quiz as a class and check for knowledge of vocabulary. 2. What happens if names of characters are not changed in a computer program? Talk chn through the activities of how to programme free code gibbon. Involving changing designs, inputting characters and creating a script so that the characters will move with a click of a mouse, click of a key and freely after the play button is pressed. Can chn get the fish to move but stop when in contact with a bubble? Give chn the opportunity to explore the programme to see their capabilities and extend from this. 3. Why is the if/else statement used in programming? What does it mean in real life? Discuss what 'selection' and 'variable' means in coding. Open the program Night and Day from the Gibbon activities. Watch the video for step 1 and do step 1 as a class. The variable 'day' will be set to 0 when it is night-time, and 1 when it is daytime. Move on to Step 2 where you must add a timer and an If/else statement. First remind everyone how to add a timer that is called every 5 seconds. 4. How can repetition be used to simplify coding? When have we used repetition in our lives? Open the example program Repeat and Sequence example activity. First, read the code and try to work out what the program will do. Then execute (run) the program. When the rocket is clicked, it will begin to blast off, then a flock of sheep appears, and the user must type in 'Hide' or 'Panic'. Look at Code View and point out the command. Can they 'read' the code to see what this command is doing? When the user clicks on Reginald (the rocket), a message is printed to the screen – Prepare for Launch – then Reginald will move right (adding 1 to the X property) this repeats until the X is greater than the X position of Terry. Challenge: plan a program, using the storyboards or 2Chart, with the following task specification: Create a short program that uses Repeat Until and If/else commands. 5. Why is timing important in coding? Recap use of timers in year three. After watching the timers within the programme and making predictions, children will experiment to create their own. Challenge to add visual effects.

Computing- Data handling – Autumn 2

NC PoS	Key Concepts	Key Competencies	Key Vocabulary	Key Activities
Children should be taught to 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.	Curriculum concept: Collecting and presenting data Staying safe on the internet Children will have the opportunity to reflect on learning and see how their knowledge is improving over time. Children will develop a responsibility for learning about the world around them and the role they play as digital citizens.	Pathway 2 – Data handling Purple Mash – unit 4.3 <u>Lesson 1: Formula Wizard and Formatting Cells</u> LO: To be able to use a data logger to record and compare individual readings. <u>Lesson 2: Using the Timer and Spin Buttons</u> LO: To apply formulae to a cell. <u>Lesson3: Line Graphs</u> LO: To outline data in an appropriate format for an audience. <u>Lesson 4: Using a Spreadsheet for Budgeting</u> LO: To identify different types of data. <u>Lesson 5: Exploring Place Value with a Spreadsheet</u> I can allocate values to images and use these to explore place value. LO: I can discuss what I should do if I feel uncomfortable or upset by what I have seen online.	Formula Calculation Formula wizard Percentage Decimal point Average Cells Random number tool Question mark icon Control panel Timer Base 10 Formula Place Value Data Trend	1. What is the benefit of recording data using a spreadsheet? Introduce Chn to the software 2calculate and explain to them what it is used for. Explain why spreadsheets are used in everyday life and the importance of them. Teach children the vocabulary they will need to use this software and direct them to key features such as clip art, how to change the colour of the cells and how to enlarge or reduce the size of the actual spreadsheet. Show the children how to change the spreadsheet to advancing. Explain the term co-ordinates and have a go at identifying specific cells based on key co-ordinates. Teach children how to create a formula on 2calculate that allows the software to do the calculation for them rather than working it out for themselves. Remind children of learning from mathematic lessons about decimal points and rounding. Show children how to set the calculation answer to 1dp 2dp and whole numbers. 2. How does formula wizard calculate sums? Continuing with their learning last week, children now use the number formatting tools within 2Calculate to appropriately format numbers. 3. Show chn an example of what they will be creating. A times table spreadsheet to test different times tables! Talk chn through the different icons they will need such as: the changing numbers button, the timer, calculator, question icon and how to create a formula so the times tables can change with the click of a button. Give chn time to create their own spreadsheet for times tables and then at the end of the lesson let chn swap with a partner to be tested on their spreadsheets against the timer! Can you create a formula to change the times tables? What can we learn from line graphs in comparison to other graphs? Share examples of line graphs to represent data e.g. weather/rain fall. Explain how we will be creating our own line graph for the playground temperature. Use the graph to answer specific questions e.g. at which time the playground was 20°C? What other questions can they create? 4. How can we use data loggers when budgeting and planning a party? Explain they will be planning a party with a budget using a spreadsheet. Launch the Party Price List file and explain that cells with prices in are formatted as currency using the format cell toolbox. Ask children to make their own budget sheet using the key requirements revealed on the slide e.g., formatting cells. Go through the sudden changes shown on the slide and ask children to modify their budget spreadsheets to accommodate these changes. Tell the children the budget has gone down to £100. Ask them to consider the changes they will make and justify why. 5. Which part of the spreadsheet needs a formula in order for the base 10 to be added together correctly? Show chn the purple mash place value chart and talk through the base 10 values. Remind chn what the purpose of the random number tool is and how it will be used in today's session. Show chn pictures that allows them to identify data and recreate this on their own spreadsheet. Teach chn the formula that is needed in order for the place value chart to identify the base 10 as value and calculate the amount chn input into the chart. Recap how to insert images and use the control panel to select the movement tool so that the base 10 blocks can be moved easily around the spreadsheet. 6. Is a good citizen in the real world a good citizen in the online world? Esafety- Chn to think about what makes a good citizen in the 'real world.' How does this compare to a good citizen in the online world? Are they the same? Read chn some scenarios which they have to form an opinion of by standing next to answer that reflects their own view. Discuss all scenarios with both points of view. Show chn a scenario letter to an agony aunt about accepting a friend request from someone unknown. Chn to create a thought alley to argue for and against accepting the request. Discuss as a class what they should do. Give chn agony aunt letters and allow them to feedback to the person their advice on what to do in their tricky situations.

Computing – Spring 1

NC PoS	Key Concepts	Key Competencies	Key Vocabulary	Key Activities
Children should be taught to 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.	A variety of artistic & communicative media Children will be motivated by a ‘hands on’ approach to learning about computing.	Pathway 3- Multimedia 1. LO: To recognise how font size and style can affect the impact of a text. 2. LO: To use a simulated scenario to acquire notes. 3 and 4 . LO: To use a simulated scenario to construct a news report about a community campaign.	Font Bold Italic Underlined Style Format Notes Communication Subheadings Facts Summarise Persuasion Information Control Communication Digital content Simulation	1. Explore different text types, what do you notice about the font and presentation? Compare similarities and differences. How does the font change the way the author perceives the text? Open the demo unformatted newspaper. Does it look like a newspaper front page? What is correct (columns, picture frame) and what needs to be improved (font styles and sizes)? Show children how to alter the font types and sizes. We can do this to make the page look like a newspaper front cover. Give children a 2Do and challenge them to edit the text to make it look like a proper newspaper front cover using photos in the gallery that children can add by clicking on the green cross in the picture box. Carousel feedback each other’s work. What went well, even better if? How can font size and style affect the impact of a text? 2. Use 2stimulate and watch the video of the newsroom. What is the purpose of the news? English link to newspaper report of Mount Vesuvius’ eruption. Why would the news have saved lives in Pompeii during the eruption of Mount Vesuvius? Teach children how to take notes and explain this is what reporters do. Model how to take key notes from various forms of communication. Pause and discuss the feelings of both sides – zoo and police. Debate/ conscience alley to record their feelings. Use planning sheet to use notes to plan their newspaper report. This will support their learning in English too. Edit and improve their report. Are newspapers effective forms of communication in 2022? 3 and 4. Share the five scenes on purple mash. Discuss the issues such as how the situation arose, safety and what the children should perhaps have done when the window was broken. Children can compare what happens in the scene to their own experiences. Use the 2Connect tool as a class to create a concept map of ideas. Children to work individually or in pairs on different materials focusing on either a letter or poster using the appropriate 2Publish template for this. How can I persuade the local community to change their mind?

Computing – Unit 4.5 Logo – Spring 2

NC PoS	Key Concepts	Key Competencies	Key Vocabulary	Key Activities
Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs. Use sequence, selection, and repetition in programs; work with variables and various forms of input and output.	They will be motivated to seek out further knowledge and self-improvements through strategies such as trial and error, debugging, troubleshooting and critical evaluation of their own and others' work. Knowledge is sequenced to ensure that learning is reviewed and built upon to enable gaps in understanding and experience to be closed.	Pathway 4 – Programming 1. LO: I can discuss the structure of the language of Logo. 2. LO: I can input simple instructions in Logo. 3. LO: I can create letter shapes using 2Logo. 4. LO: I can use the repeat function in Logo to create shapes. 5. LO: I can evaluate my algorithm and predict its outcomes.	Algorithm Control Programme Move Distance Units Degrees Turn BK (backwards) FD (forward) LT (left) RT (right) Repeat Instructions SETPC (set pen colour) SETPS (set pen thickness) PU (lift pen off screen) PD (places pen to draw)	1. Recap coding and programming from Autumn and Y3, why are instructions important? Introduce children to Logo and how it is text based. Look at common instructions in Logo and how to type them. Follow simple Logo instructions to create shapes on paper. Follow simple instructions to create shapes in Logo. How does this compare with following instructions in real life? What other systems might use instructions like these with algorithms? 2. Show children the letter E and explain that one square on the paper is equivalent to one square on 2Logo. Experiment with converting curved letter shapes into straight ones using 2Logo e.g. o c. Children to create own initials on Logo and then predict the commands for given letters. 3. Create Logo instructions to draw patterns of increasing complexity. Use the pu and pd commands. Write Logo instructions for a word of four letters. Were your instructions correct? Did you make any changes? How can you make it more complex/easier? 4. Children then to be given a variety of shapes, using their knowledge of the repeat command for the square, children need to predict what code the shape will create and then test it out. 5. Follow Logo code to predict the outcome. Create shapes using the Repeat function. Find an efficient way to draw shapes.

Computing – Summer 1

NC PoS	Key Concepts	Key Competencies	Key Vocabulary	Key Activities
Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs. Use sequence, selection, and repetition in programs; work with variables and various forms of input and output.	Pathway - Animation	LO: I can explain how computer animations work and how they can be recreated by hand. LO: I can use onion skinning in animation. LO: I can add backgrounds and sounds to animations. LO: I can understand what a stop-motion is and how to use it in my animation. LO: I can evaluate malware software and the effect it has on our computer.	Animation Flipbook Frame Onion skinning Background Sequence Algorithms Debug Output Input Variable Play Sound Stop motion Video clip	https://www.pixar.com/onward https://www.youtube.com/watch?v=BBgghnQF6E4 of the original Disney pixar animation and compare the difference with today. Open 2Animate and model how to create a moving picture using frames. Children to experiment by creating a ball moving across the screen and change speed Then move to creating a funny face. Children to use the Onion Skin tool to create an animated image. Then use backgrounds and sounds to make more complex and imaginative animations based on an image of their choice. How can we recreate a scene from a pixar animation? Model how to insert images and soundtracks that link with the animation. Evaluate poor choices, why aren't these successful? Consider audience and theme. Children to use ideas from existing 'stop motion' films to recreate their own animation. Children to share their animations and commented on each other's work. Explain what a virus is and explore some of the changes they make to computers and hardware. Using the class blog and purple mash, children to design their own antivirus software and advertise this on the blog encouraging others to purchase theirs.

Computing (Purple Mash Unit 4.8. Hardware Investigators and 4.7 Effective Searching) – Summer 2

NC PoS	Key Concepts	Key Competencies	Key Vocabulary	Key Activities
Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs. Use sequence, selection, and repetition in programs; work with variables and various forms of input and output.	Computing teaching aims to make concepts, hardware and software engaging and accessible to the pupils and enable them to progress. Teaching will rely on a good grasp of the architecture of the subject, its key concepts and big ideas. These are the concepts and ideas that are used to create the computing vision and are essential to effective teaching. Teachers will make these concepts transparent and help children to think logically and to develop transferable computing understanding. The intention is to take children beyond learning a set of isolated facts and move them into the realms of informed thinking through a clearly linked approach to teaching.	<u>Pathway 4 - E-Safety</u> <u>Pathway 5 - Technology in Our Lives</u> LO: I can locate information on the search results page. LO: I can use search effectively to find out information. LO: I can assess whether an information source is true and reliable. LO: I can name the different parts of a desktop computer. LO: I know what the function of the different parts of a computer is.	Modify Tool bar Spell check Accuracy Spoof False Scam Motherboard Circuit CPU RAM Graphics card Network Monitor Hardware Software Components Peripherals	Take the internet recap quiz and remind children about what it means to search effectively and safely online. Explain that some of the information we can find using Google includes weather forecasts, postcodes, answers to calculations, spellings, definitions and sports results. Experiment by searching for answers to particular questions and compare responses using the 'Finding Answers worksheet' Children can enter the search queries in the search bar at the top of the Google screen. How can I structure queries to locate information accurately? Explain that this lesson the children will be using effective search to answer questions. Remind children that when they search, they do not have to write full sentences but can use key words. For example, rather than typing 'how old is the footballer Wayne Rooney?' they can just type 'Wayne Rooney age'. Similarly, explain that it is not necessary to use capital letters and punctuation. Then children should complete the quiz. As an extension, they can write five questions for their classmates to answer. Can I use search to answer a series of questions? Can I create search questions for a friend to solve? (Various spoof websites: http://zapatopi.net/treeoctopus/ http://allaboutexplorers.com/) Ask children how they know if something is true – record answers to refer to later. Stress to the children that just because something is on the internet it does not mean it is true. Consider how can we check information on the internet is true? Give the children the activity. Look at the range of websites. Are these true or made up? How do the children know? Bring the children together to discuss their answers. What makes a source reliable? What can we look for to help us? What should we do if we encounter something that is not reliable? Ask children what they think makes up a computer – record answers to refer to later. Open the presentation Computer Parts slideshow and talk the children through it. After the presentation, ask the children to complete the Parts of a Computer pairs game. This is a pairs game where the children match the image to the description. Ask Ryan to look at a desktop in school. What are the different parts of a desktop computer? What is the function of the different parts of the computer? Show the children the file Computer Hardware leaflet. Draw their attention to the following features: • How to turn the pages and turn the leaflet over. • How to add text boxes and pictures. • If you click on the green cross on a picture box, it takes you to the photo gallery; click on an image to use it, or click to upload a picture from your computer. • There is a checklist to help them remember the different parts of the computer. Challenge: children are going to create a leaflet about the parts of a computer to show KS1.



Year 5

Computing – Autumn 1

Context- Solar system coding

NC PoS	Key Concepts	Key Competencies	Key Vocabulary	Key Activities
Coding	To represent a program design and algorithm. To create a program that simulates a physical system using decomposition. To explore string and text variable types so that the most appropriate can be used in programs. To use the Launch command in 2Code Gorilla. To program a playable game with timers and score pad.	LO: to deconstruct a program and analyse how to create a program using an algorithm. LO: to investigate how a program can simulate a physical system. LO: to formulate an explanation as to how to use the launch command in 2code. LO: to design a game program with timers and score pad.	Algorithm Command Output Sequence Variable Control Repeat Input	L1-Teach the different elements of how to create a program. Explain what an algorithm is and children to create their own algorithms for simple every day life such as how to make a cup of tea or how to write a story. Explain more complex algorithms with conditioning and loops. Deconstruct a program with an algorithm and look at the components. L2-Explain physical systems including robotics, motors and sensors. Examples: street lights coming on at night, remote controls, traffic lights, security systems, air conditioning systems and automatic doors. Explain that they enable us to explore places that humans can't work and simulate environments are not safe for us. Children to create a program to simulate a physical system e.g. a robot. L3-Children to use 2code gorilla to use the launch command to test and try out code. Children to improve their physical system from last week and launch on 2code and write an explanation for others to follow. L4-Children to apply everything from over the last few weeks to design their own game linked to the Solar System to create a game linked to our science topic.

NC PoS	Key Concepts	Key Competencies	Key Vocabulary	Key Activities
E-safety	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 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 methods of communication.	LO: to analyse the impact that sharing digital content can have. LO: to debate the importance of staying safe online and how to be responsible towards others. LO: to formulate an explanation about how to maintain secure passwords. LO: to debate the impact of altering an image digitally. LO: to create a poster to explain the importance of the validity of sources and references in work.	Plagiarism Citations Reference Bibliography Online safety Smart rules Password Reputable Encryption Identity theft Shared image	L1- Ask children whether sharing digital content is positive or negative. Use PMI (positive, minus and interesting) to analyse what life would be like without social media, email and sharing such as WhatsApp. Children to analyse whether it is always positive sharing digital content or whether there can be negative impacts to sharing digital content. Children to think critically about the information that they share online and debate whether they think it is always positive or what the negative impacts can be. L2- Ask children whose responsibility it is to stay safe online, is it solely theirs or should they look out for each other. Discuss how being unking in real life can feel. Ask children to debate whether they think it is different in the online world. Do they have the same responsibilities online? Discuss trolling and how some people act differently online. Children to debate why they think this is. L3- Explain to children that they are going to create a factfile explaining how to stay safe online by choosing secure passwords. Explain that the audience for their fact file is younger children who need to improve their password security and include hints and tips about password security. L4- Ask children whether they have ever seen or heard about images being manipulated. Debate how images can be airbrushed and changed to make others feel inadequate or without the permission of others. L5- Explain that when we do research and present work for homework etc we should cite our sources. Ask children to research Stephen Hawking for English lessons and cite all sources when researching and then explain the importance of this. Children select keywords and search techniques to find relevant information and increase reliability. Children to create a film informing others about the importance of validity in referencing sources in their work.

NC PoS	Key Concepts	Key Competencies	Key Vocabulary	Key Activities
Programming- game creator.	Explore procedures using repeat to achieve solutions to problems with Logo and a floor robot. Talk about procedures as parts of a program. Refine procedures to improve efficiency. Explore instructions to control software or hardware with an input and using ifthen Commands. Explore a computer model to control a physical system. analyse difficulties and articulate a solution for errors in a program. Group commands as a procedure to achieve a specific outcome within a program. Write down the steps required (an algorithm) to achieve the outcome that is wanted and refer to this when programming.	LO: to design, write and debug programs that accomplish specific goals. LO: to explore instructions to control software or hardware with an input. LO: to analyse how simple algorithms work and detect and correct errors in algorithms and programs.	Action - Types of commands, which are run on an object. They could be used to move an object or change a property. Alert - This is a type of output. It shows a pop-up of text on the screen. Algorithm - a precise step by step set of instructions used to solve a problem or achieve an objective. Code Design – Design what a program will look like and what it will do. Command - A single instruction in a computer program. Control - These commands determine whether parts of the program will run, how often and sometimes, when. Design Mode - Used to create the look of a 2Code computer program when it is run. Event – Something that causes a block of code to be run. Get Input - This puts the text that a user types into the computer's temporary memory to be used to control the program flow. If - A conditional command. This tests a statement. If the condition is true, then the commands inside the block will be run.	1. What is programming/coding? Ask children what their favourite games are to play. How do they think these are made? Collect ideas about how these are made. Show children how to use simple coding and build on last years work. Children to code a simple set of instructions in real life before then using a computer. Children to test their games against the original design brief. Children to debug programs that have issues and discuss how this can be problematic. 2. Can I apply my new knowledge? Give children a new design brief- they need to create a new Anglo-Saxon game. Children to debate ideas as to what needs to be in the game and what problems they might face. Children to create a plan and begin to code their game. 3. What is working well? Children to finish coding their game, test it and then upload to 2code for others to play. Are the games effective? Children to peer assess the games. Simulating a physical system. Children will design and write a program that simulates a physical system. They will reflect upon the effectiveness of their simulation. Text variables. Children will review the use of number variable in 2Code. They will explain what a variable is in programming. Children can set and change the variable values appropriately. A competitive game. Children will create a playable competitive game. They will combine the use of variables, if/else statements and repeats to achieve the desired affect in code. They will need to read code so that it can be adapted, personalised and improved. The Launch Command. The children will explore the launch command and use buttons within a program that launches other programs or open websites. They will then code a program that informs others about Anglo Saxons.

NC PoS	Key Concepts	Key Competencies	Key Vocabulary	Key Activities
Data handling	Collect and record information using spreadsheets and databases. Carry out complex searches using and/or <>. Solve problems and present answers using data tools. Identify poor quality data. Analyse information and question data. Select appropriate use of a data logger for an investigation and interpret the findings.	LO: to collect and record information using databases. LO: to carry out complex searches within databases. LO: to analyse information and data in a database.	<i>Spreadsheet</i> <i>Excel</i> <i>Formulate</i> <i>Add</i> <i>Divide</i> <i>Multiply</i> <i>Subtract</i> <i>Sum</i> <i>Average</i> <i>Data</i> <i>Formula</i>	Children to create databases linked to either geography- Paris or science- life cycles. Identify patterns and themes using the databases. Search for information within the database and create graphs. Children to then further their understanding by adding, dividing and multiplying data in order to reach an answer using the ‘sum’ feature (*/+/-). Children to gather data based on cross curricular (geography/science) and understand how to transfer that data and present it on an excel sheet using a pie chart or bar chart independently to show the data of where fruit and vegetables originate from.

Context- CAD

NC PoS	Key Concepts	Key Competencies	Key Vocabulary	Key Activities
Unit: 5.6 – 3D modelling	To be introduced to 2Design and Make and the skills of computer aided design. To explore the effect of moving points when designing. To understand designing for a purpose. To understand printing and making. SU1 WK5 23rd – 27th May	LO: to analyse the skills of CAD and to use 2Design LO: to explore the effect of moving points when designing. LO: to understand designing for a purpose and printing and making. -Computing week.	CAD – Computer aided Design – A CAD computer program or app allows you to design a 3D object or environment in 2D and visualise it in 3D on the screen from many angles. Modelling - The activity of making models. 3D – Something that has three dimensions; height, width and depth. Viewpoint - A person's opinion or point of view. Polygon - An object with at least three straight sides and angles, and typically five or more. 2D – Something that has only two dimensions; height and width. Net - A pattern that you can cut and fold to make a model of a solid shape. 3D Printing - The action or process of making a physical object from a three dimensional digital model, typically by laying down many thin layers of a material in succession. Points - An exact position or location on a 2D surface. Template - Something that serves as a model for others to copy	1. Introduce CAD and explain the use in everyday life e.g. jewellery. Explain that we are going to do our own version of CAD and use 2design. Explain that the children can decide what they would like to make linked to one of our topics during year five. 2. Revise last week's learning on CAD and the progress so far on 2design. Children to continue their designs, exploring what happens when they move points while designing. What effect does this have and why? 3. Children to create a prototype for their design linked to real life- linking purpose to their print making. Children to create a CAD design and then final prototype. Computing week- children to create a guide to year 5 using a range of media from lessons over the year so far. Purpose of guides is to be sent to year 4 children to introduce them to their new year group.

Computing – Summer 2				Context- CAD
NC PoS	Key Concepts	Key Competencies	Key Vocabulary	Key Activities
Unit: 5.6 – 3D modelling	To be introduced to 2Design and Make and the skills of computer aided design. To explore the effect of moving points when designing. To understand designing for a purpose. To understand printing and making.	LO: to analyse the skills of CAD and to use 2Design LO: to explore the effect of moving points when designing. LO: to understand designing for a purpose and printing and making. -Computing week.	CAD – Computer aided Design – A CAD computer program or app allows you to design a 3D object or environment in 2D and visualise it in 3D on the screen from many angles. Modelling - The activity of making models. 3D – Something that has three dimensions; height, width and depth. Viewpoint - A person's opinion or point of view. Polygon - An object with at least three straight sides and angles, and typically five or more. 2D – Something that has only two dimensions; height and width. Net - A pattern that you can cut and fold to make a model of a solid shape. 3D Printing - The action or process of making a physical object from a three dimensional digital model, typically by laying down many thin layers of a material in succession. Points - An exact position or location on a 2D surface. Template - Something that serves as a model for others to copy	1. Introduce CAD and explain the use in everyday life e.g. jewellery. Explain that we are going to do our own version of CAD and use 2design. Explain that the children can decide what they would like to make linked to one of our topics during year five. 2. Revise last week’s learning on CAD and the progress so far on 2design. Children to continue their designs, exploring what happens when they move points while designing. What effect does this have and why? 3. Children to create a prototype for their design linked to real life- linking purpose to their print making. Children to create a CAD design and then final prototype. Computing week- children to create a guide to year 5 using a range of media from lessons over the year so far. Purpose of guides is to be sent to year 4 children to introduce them to their new year group.



Year 6

NC PoS	Key Concepts	Key Competencies	Key Vocabulary	Key Activities
Pupils are taught the principles of information and computation, how digital systems work, and how to put this knowledge to use through programming. Use information technology to create programs, systems and a range of content	- Can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation - Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts - Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	LO: To demonstrate knowledge of how to stay safe online L.O: To To understand the risks of using WhatsApp and how to keep safe online LO: To develop and create a program using a character, a vehicle and a number object.	- Coding - Debug - Input device - Output device - Search engine - Algorithm - Security - Cyberbullying - E-Safety - Network - Program - Sequence	- Class discussion about online games and where children use them - Discuss dangers of being online through different scenarios - Purple mash digital footprint - Design a game that includes timing and scoring - Start with a simple version of the game that they can then enhance 'high level of abstraction' 2Do challenges – chimp and gibbon - Design a character, a vehicle and a number object - Create a program that controls or simulates a physical system

Computing – – Autumn 2

NC PoS	Key Concepts	Key Competencies	Key Vocabulary	Key Activities
Pupils are taught the principles of information and computation, how digital systems work, and how to put this knowledge to use through programming. Use information technology to create programs, systems and a range of content	- Children will operate 2Calculate as a tool for computational modelling and problem solving in the 'real world'. - Scenarios used can be easily extended to explore the practical application of a spreadsheet in more detail. - All of the themes can also be easily applied to actual scenarios that your year 6 children might be encountering this year and can therefore be used as part of the work they do for these situations e.g. organising an event for the end of the year, planning a school trip.	LO: I can create a spreadsheet to investigate the probability of multiple results. L.O: I can design a spreadsheet to formulate the discount and final prices in a sale. LO: I can construct a spreadsheet to plan how to spend pocket money and the effect of saving money. L.O: I can construct a spreadsheet to plan a school charity day to maximise the money donated to charity.	Average Advance mode Copy and Paste Columns Cells Charts Count (how many) tool Dice Equals tool Formula Formula Wizard Move cell tool Random tool Spin Tool Spreadsheet Timer	L.O 1 – Using 2Calculate (purple mash) use dice tool to generate dice rolls. Use copy/paste function to create 50 dice. ~Advanced mode~ Explain that we will create a sheet with 50 dice on using copy and paste shortcuts. You could use the 50 dice example to help model the steps. Create a table to record results (slide 7). Each result (1-6) having own column in table. Use slide 6 to help children to complete creating a sheet with 50 dice. Ask children to test highlighting all 50 dice and clicking one. This should make all the dice roll at the same time. Create running totals for each column. (slide 10) use graphing tool to create graph of results. Children to create a table similar to that shown on slide on the same sheet as the accumulator, then use graphing tool to create appropriate graph. Children discuss what the graph shows. L.O 2 – What is modelling? What ticket price is best? 2Calculate - Advanced mode Format cells. Enter provided data for ticket prices. Creating formula for discounts. Drag cells (copy) Reveal the steps for adding a formula to calculate total price of tickets without discount or booking fees. *Note percentages should be entered as decimal equivalents in the percentage formatted cells. Remind children using step 3 about dragging formula in order to copy formula quickly to other cells. Support the children in calculating the rest of the information from the other ticket suppliers about booking fees. Alter data based on new prices. Is table auto-generating new totals? Add booking fees. L.O 3 – 2Calculate - Advanced mode. Create a table with heading and subheadings based on pocket money (how it is earned). Ask the children to spend some time completing the details on the sheet, adding images of things they want to save up for, formatting cells correctly and researching the cost of items. Explore formulae to calculate totals. EXT - can we use a table to estimate how long it may take to earn an amount of money? L.O 4 – Create spreadsheet for a charity fundraising event at school. Display slide 5. Look at the activity ideas that the children at Purple House Primary came up with and the questions they have considered. Discuss with the children the considerations they need to think about when creating the spreadsheet. Children to create a spreadsheet showing the different activities and their costs. You might wish to open the Cupcake sale budget planner from year 5 lesson 5 to share example of planning costs.

Computing – E-Safety x2 sessions – Autumn 2

NC PoS	Key Concepts	Key Competencies	Key Vocabulary	Key Activities
Pupils are taught how to: - use technology safely, respectfully and responsibly; - recognise acceptable/unacceptable behaviour; - identify a range of ways to report concerns about content and contact	• Children gain an understanding of the benefits and risks of mobile devices broadcasting the location of the user/device, e.g., apps accessing location. • They can identify secure sites by looking for privacy seals of approval, e.g., https, padlock icon. • Children recognise benefits and risks of giving personal information and device access to different software. • Children will have a clear idea of appropriate online behaviour and how this can protect themselves and others from possible online dangers, bullying and inappropriate behaviour	LO: I can identify risks online and can explain the steps I can take to protect my digital footprint. L.O: I can outline appropriate online behaviour and apply this to my online activity.	• Digital footprint • Password • PEGI rating • Phishing • Screen time • Spoof website	LO1 – 2DIY3D Online Safety Game example, set this as a 2da. review the different symbols. ~Play the game, answering questions correctly to progress. Children should save their games to a Purple Mash Display board or a Class Blog. They could finish their games as homework if necessary. LO2 – Online behaviour Hand out the Digital Footprints Detectives sheets. Use slide 5 to direct the activity. Clicking reveals further actions. Use the writing frame to discuss and record the issues on slides 8-10. Children could make notes on the writing frame as they go or complete this afterwards. Select which of these topics are relevant to the individual circumstances of your class. At the end of the lesson, hand out the record-cards. Emphasise that you are not going to 'mark' individual responses and that children can choose to keep their information private if they wish.

Computing– Spring 1

NC PoS	Key Concepts	Key Competencies	Key Vocabulary	Key Activities
E-Safety – use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts	Blogging	L.O: I can identify and explain the features and purpose of a blog, and plan a theme for my own L.O: I can create a blog, considering effect on the audience by changing visual properties L.O: I can understand and apply skills to contribute to a blog through regular updates and the importance of commenting	Audience Blog Blog page Blog post Collaborative Icon Theme Commenting	Children introduced to blogging as a concept and where they may have seen them used before. Show children example blog on Purplemash and give them the opportunity to comment on the example post. Use group up with others who want to create a blog with a similar theme. Children to articulate and explain the features Introduce new vocabulary to children. By this point children should be in groups and have decided on the theme of their blog. Discuss a blank template and why this is ineffective for their audience. Children create their blog template and update its visual properties to suit their chosen audience Children are shown how to make blog posts and that they can now see them displayed on their blogs. They are given the opportunity to create their own and apply skills to update these regularly. Children are shown how to see other people's blogs and leave comments. Discuss that each comment needs to be approved and why children think this is. Does this happen outside of software like Purplemash?

Computing – E-Safety xl sessions – Spring 1

NC PoS	Key Concepts	Key Competencies	Key Vocabulary	Key Activities
Pupils are taught how to: - use technology safely, respectfully and responsibly; - recognise acceptable/unacceptable behaviour; - identify a range of ways to report concerns about content and contact	• Children gain an understanding of the benefits and risks of mobile devices broadcasting the location of the user/device, e.g., apps accessing location. • They can identify secure sites by looking for privacy seals of approval, e.g., https, padlock icon. • Children recognise benefits and risks of giving personal information and device access to different software. • Children will have a clear idea of appropriate online behaviour and how this can protect themselves and others from possible online dangers, bullying and inappropriate behaviour	L.O: I can compare and contrast the use of programs to stay safe online - E-safety day 8th February 2022 L.O: I can identify risks online and can explain the steps I can take to protect my digital footprint. L.O: I can outline appropriate online behaviour and apply this to my online activity.	• Digital footprint • Password • PEGI rating • Phishing • Screen time • Spoof website	L.O1 – 2DIY3D Online Safety Game example, set this as a 2da. review the different symbols. ~Play the game, answering questions correctly to progress. Children should save their games to a Purple Mash Display board or a Class Blog. They could finish their games as homework if necessary. Activity E-safety - children look at the laws of keeping safe online. Compare and contrast the advantages and disadvantages of the use of programs such as Whatsapp. 6AM – address issues with unkind messages and to think about others feel. Share age restrictions for certain apps and why they are there – for safety and protect. Online chat groups – be mindful of what you put online. (Class issue with children being unkind to one another) L.O2 – Online behaviour Hand out the Digital Footprints Detectives sheets. Use slide 5 to direct the activity. Clicking reveals further actions. Use the writing frame to discuss and record the issues on slides 8-10. Children could make notes on the writing frame as they go or complete this afterwards. Select which of these topics are relevant to the individual circumstances of your class. At the end of the lesson, hand out the record-cards. Emphasise that you are not going to 'mark' individual responses and that children can choose to keep their information private if they wish.

Computing - Text Adventures – Spring 2

NC PoS	Key Concepts	Key Competencies	Key Vocabulary	Key Activities
Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller Parts 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	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.	I can describe what a text adventure is and map out a 'Choose your own' story-based text adventure. I can create my own text-based adventure based upon a map. I can use 'Story Adventure' mode to create, test and debug using my plan. I can use if/else statements and repetition to code my game. I make logical attempts to debug my code when it does not work correctly.	Text-based adventure A computer game that uses text instead of graphics. Concept map A tool for organising and representing knowledge. They form a web of ideas which are all interconnected. Debug Identify and remove errors from (computer hardware or software). Sprite A computer graphic which may be moved on-screen. Function In this context, a section of code that gets run when it is called from the main code. A function in a program is usually a piece of code that gets run lots of times.	Activity 1 – Look at example story (Red Riding Hood) Share plan for RRH story and go through options idea to lead own story based on decisions. Children to plan their own 'Choose your own Adventure' type story, using the 2connect programme Activity 2 – Using RRH example, explore how the options work. Introduce buttons and links to control choices in story. Explain that pupils will be using their plans to make the adventure games using 2Create a Story Adventure mode. (Time to explore program) Activity 3 – Children to plan and create their own map and story. The rest of this lesson should be spent planning their scenario, planning the quest and drawing a map for the game. Activity 4 Pupils can use coding concepts of functions, if/else statements and repeats in conjunction with one another to code their game. Activity 5 Pupils make logical attempts to debug their code when it does not work correctly

Computing - Text Adventures – Summer I

NC PoS	Key Concepts	Key Competencies	Key Vocabulary	Key Activities
Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller Parts 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	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.	L.O: I can use 'Story Adventure' mode to create, test and debug using my plan. L.O: I can use if/else statements and repetition to code my game. L.O: I make logical attempts to debug my code when it does not work correctly.	Text-based adventure A computer game that uses text instead of graphics. Concept map A tool for organising and representing knowledge. They form a web of ideas which are all interconnected. Debug Identify and remove errors from (computer hardware or software). Sprite A computer graphic which may be moved on-screen. Function In this context, a section of code that gets run when it is called from the main code. A function in a program is usually a piece of code that gets run lots of times.	(Continued) Activity 3 – Children to plan and create their own map and story. The rest of this lesson should be spent planning their scenario, planning the quest and drawing a map for the game. Activity 4 Pupils can use coding concepts of functions, if/else statements and repeats in conjunction with one another to code their game. Activity 5 Pupils make logical attempts to debug their code when it does not work correctly

Computing week – Summer 2

NC PoS	Key Concepts	Key Competencies	Key Vocabulary	Key Activities
use sequence, selection, and repetition in programs; work with variables and various forms of input and output use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content 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.	To create a picture-based quiz for young children. To learn how to use the question types within 2Quiz. To explore the grammar quizzes. To make a quiz that requires the player to search a database. To make a quiz to test your teachers or parents.	Lesson 1 LO: I can recognise the advantages and disadvantage of social media (E-Safety) LO: I can create questions for a specific audience. LO: I can explore and select suitable questions types to best suit different questions. LO: I can build a quiz, using different question types, for a specific topic and audience.	<u>Audience</u> The people giving attention to something. <u>Collaboration</u> The action of working with someone to produce something. <u>Concept map</u> A tool for organising and representing knowledge. They form a web of ideas which are all interconnected. <u>Database</u> A structured set of data held in a computer, especially one that is accessible in various ways. <u>Quiz</u> A test of knowledge, especially as a competition between individuals or teams as a form of entertainment.	E-Safety: Ask children to consider how they use technology to communicate with other people. What devices/apps/games etc Focus on Phone Apps – Age limits, Safe use. Ask children to evaluate WhatsApp – what are the advantages/disadvantages of the app? How old should you be to use it? How do we use it safely? Report/Block etc 1 - Before making a quiz, have a brief go at the <u>science quiz</u> as a class on the whiteboard. (This will open in play mode, pressing stop will switch it to edit mode and allow for exploration of how the questions were made). Look at the different types of questions used in the quiz. In table groups, set task of creating 5 questions for a Year 5 class. (Remember back to Year 5 topics for inspiration). – Curriculum books 2/3- Children to use their devices and investigate the different types of questions in 2Quiz. <i>Encourage them to watch the help videos in the top right of the screen. Which of the questions are most suitable for quizzers of their age?</i> Set the children the challenge that will last for this lesson and the next one. They need to create a quiz of at least 10 questions, using a variety of question types, based around a <u>Year 6</u> topics learnt during the year. Quiz name: <u>Are you smarter than a 10 year old?</u> Children to find/select suitable images/diagrams to support question types selected.