Nourishing the fitrah of each unique child

Computing Policy

"It is He, Who has created you with hearing, sight and hearts …."
(Saheeh Bukhari: 23:78)

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Computing Policy

In an increasingly digital world, computing plays a crucial role in developing skills, improving communication, sharing information and of course, enhancing learning.

At Unique Academy, it is our aim to help prepare our children for life in a world where technology plays an ever more significant role.

Aims

We aim for children to:

- Enjoy working with computing
- Be able to express themselves and their learning using technology
- Have the opportunity to use computing to enhance and support learning
- Be able to communicate confidently using computing
- Be helped to develop practical computing skills and the ability to apply these skills
- Use computing to develop independent and collaborative skills
- Recognise the power and importance of computing in the world around them
- Understand risks and how to stay safe online
- Have opportunities to use computing resources across the curriculum.
- Learn to respect and look after the equipment available to them and how to store it safely.

We believe that as teachers and support staff, it is our responsibility to:-

- Make our children aware of the benefits and opportunities of using technology, especially to communicate and undertake research
- Enhance and develop our own computing capabilities and knowledge
- Use computing to enhance the quality of teaching and learning across the whole curriculum
- Select and use computing resources appropriately
- Use computing to release any constraints on a pupil's creativity
- Understand the role computing will play in our pupils' lives in the future
- Highlight online risks and model responsible online behaviour

Intent

At Unique Academy, our computing curriculum offers structured lessons to ensure that pupils acquire the knowledge and skills that they need to meet the aims of the national curriculum. Our curriculum content allows for a broad, deep understanding of computing and how it links to children's lives. It offers a range of opportunities for consolidation, challenge and variety. This allows children to apply the fundamental principles and concepts of computer science. They develop analytical problem-solving skills and learn to evaluate and apply information technology. It also enables them to become responsible, competent, confident and creative users of information technology.

Implementation

Our computing lessons follow the Purple Mash Schemes of Work, which help to ensure that there is opportunity for revision, analysis and problem-solving computing activities for pupils. Through our sequence of lessons, we intend for pupils to be inspired and see computing as the future. Cross-curricular links between computing and other subject disciplines are also important in supporting other areas of learning.

Our lesson plans and resources help children to build on prior knowledge at the same time as introducing new skills and challenges, which increase as they transition from EYFS, followed by Key Stage 1, Lower Key Stage 2 and then Upper Key Stage 2.

Key vocabulary is used to show progression of the specific language involved in children's learning so that teachers can also assess understanding and progress through vocabulary.

Computing aims to develop children to become digital citizens (who are safe and responsible), digital communicators (who are digitally literate) and digital creators (who are logical and creative).

Impact

We aim for computing to help our pupils develop a range of knowledge and skills. Pupils will use digital and technological vocabulary, alongside a progression in their technical skills. They will be confident using a range of hardware and software and will produce high-quality purposeful products. Children will see the digital world as part of their world, extending beyond school, and understand that they have choices to make. We aim for our pupils to understand the importance of being respectful digital citizens and leading healthy digital lives, now and in the future.

National Curriculum

UA aims to embed computing into the curriculum, and although some skills are taught separately, most will develop through the use of computing in other curricular activities. Our computing long-term objectives are mainly taken from the Computing Scheme of Work overview. These are mapped across each year-group to ensure that any skills taught are progressive. Basic skills are monitored using non-negotiables given to each class, displayed in class and incorporated into lessons.

Assessment outcomes and Record Keeping

Teachers use Cornerstones Maestro and Purple Mash, which forms the basis for Assessment outcomes and progress tracking every half term and exemplar projects or pieces of assessed work are kept for moderation purposes.

Resources

Unique Academy has laptops in the classroom to support pupils in carrying out Computing in class.

Health and Safety issues

All hardware within the school undergoes regular PAT testing. Hardware is monitored to ensure that they are in good and safe working order.

All staff and pupils must adhere to the Unique Academy's Acceptable Use policy.

The school administrator also keeps a list of children who are not permitted to be photographed.

Security

The school administrator will be responsible for regularly updating antivirus software.
The use of ICT and computing will be in line with the school's 'acceptable use policy as well as 'Online safety policy'.

Parents will be made aware of the schools 'acceptable use policy, which outlines the schools rules for responsible ICT use, the internet as well as the consequences of misuse. This information is detailed in the school's home school agreement.

Cross curricular links

Computing should be incorporated into all subjects, where possible. Computing should be used to support learning in other core and foundation subjects as well as develop computing skills.

Parental involvement

Parents are encouraged to support the implementation of computing where possible by encouraging use of ICT and computing skills at home during home-learning tasks and through the school website. They will be made aware of e-safety and encouraged to promote this at home.

Computing Curriculum Map

Class	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
EYFS	**Digital Literacy** Technology around us	**Digital Literacy** Hardware **IT** Keyboard skills	**Digital Literacy** Safety and Privacy **IT** Drawing skills	**Computer Science** Robots **IT** Quizzes	**Information Technology** Sounds **Digital Literacy** Using Purple Mash with an individual login	**Information Technology** Photography
Cycle A Year 1 / 2	**Digital Literacy** Unit 1.1 Online Safety & Exploring Purple Mash Programs – Various	**Digital Literacy** Unit 2.5 Effective Searching Programs – Browser **Computer Science** Unit 1.4 Lego Builders Programs – 2DIY	**Digital literacy** Unit 1.9 Technology outside school Programs – Various **Computer Science** Unit 1.2 Grouping & Sorting Programs – 2DIY **IT** Unit 2.6 Creating Pictures Programs – 2PaintAPicture	**IT** Unit 2.6 Creating Pictures Programs – 2PaintAPicture **IT** Unit 1.8 Spreadsheets Programs – 2Calculate	**Computer Science** Unit 1.7 Coding Programs – 2Code	**Computer Science** Unit 2.1 Coding Programs – 2Code
Cycle B Year 1 / 2	**Digital literacy** Unit 1.1 Online Safety & Exploring Purple Mash Programs – Various	**Compter science** Unit 1.5 Maze Explorers Programs – 2Go **IT** Unit 2.4 Questioning Programs – 2 Question, 2Investigate	**IT** Unit 2.4 Questioning Programs – 2 Question, 2Investigate **Digital literacy** Unit 2.2 Online Safety Programs – Various	**IT** Unit 1.6 Animated Story Books Programs – 2Create A Story	**IT** Unit 2.3 Spreadsheets Programs – 2Calculate **IT** Unit 1.3 Pictograms Programs – 2Count	**IT** Unit 2.8 Presenting Ideas Programs – Various
Cycle A Year 3 / 4	**Computer science** Coding Programs – 2Code	**Digital literacy** Unit 3.2 Online safety Programs – Various **IT** Unit 3.3 Spreadsheets Programs – 2Calculate	**IT** Unit 3.4 Touch Typing Programs – 2Type	**Digital literacy** Unit 3.5 Email (including email safety) Programs – 2Email, 2Connect, 2DIY	**IT** Unit 3.6 Branching Databases Programs – 2Question	**IT** Unit 3.7 Simulations Programs – 2Simulate, 2Publish **IT** Unit 3.8 Graphing Programs – 2Graph
Cycle B Year 3 / 4	**Computer Science** Coding Programs – 2Code	**Digital literacy** Unit 4.2 Online safety Programs – Various **IT** Unit 4.3 Spreadsheets Programs – 2Calculate	**IT** Unit 4.3 Spreadsheets Programs – 2Calculate **IT** Unit 4.4 Writing for different audiences Programs – 2Email, 2Connect, 2DIY	**IT** Unit 4.4 Writing for different audiences Programs – 2Email, 2Connect, 2DIY **Computer science** Unit 4.5 Logo Programs – Logo	**Computer science** Unit 4.5 Logo Programs – Logo **IT** Unit 4.6 Animation Programs – 2Animate	**IT** Unit 4.7 Effective Search Programs – Browser **Computer science** Unit 4.8 Hardware Investigators
Cycle A Year 5 /6	**Computer science** Coding (Purple Mash) Programs – 2Code	**Digital literacy** Unit 5.2 Online safety Programs - Various **IT** Unit 5.3 Spreadsheets Programs – 2Calculate	**IT** Unit 5.3 Spreadsheets Programs – 2Calculate **IT** Unit 5.4 Databases Programs – 2Question, 2Investigate	**IT** Unit 5.4 Databases Programs – 2Question, 2Investigate **Computer science** Unit 5.5 Game Creator Programs – 2DIY 3D	**Computer science** Unit 5.5 Game Creator Programs – 2DIY 3D **IT** Unit 5.6 3D Modelling Programs – 2Design and Make 12	**IT** Unit 5.6 3D Modelling Programs – 2Design and Make **IT** Unit 5.7 Concept Maps Programs – 2Connect

Cycle B **Year 5 / 6**	**Computer science** Coding Programs – 2Code	**Digital literacy** Unit 6.2 Online safety Programs - Various **IT** Unit 6.3 Spreadsheets Programs – 2Calculate	**Digital literacy** Unit 6.4 Blogging Programs – 2Blog	**Computer science** Unit 6.5 Text Adventures Programs – 2Code, 2Connect	**Computer science** Unit 6.6 Networks	**IT** Unit 6.7 Quizzing Programs – 2Quiz, 2DIY, Text Toolkit, 2Investigate

Progression Map

EYFS 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.
	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.

Key Stage 1 National Curriculum Expectations	Key Stage 2 National Curriculum Expectations
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; • 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.	Pupils should be taught to: • 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.

Year 1					
Computer Science			**Information Technology**	**Digital Literacy**	
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.
Outcome: 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.	Outcome: 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.	Outcome: 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.	Outcome: 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.	Outcome: 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.	Outcome: 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.
Year 2					
Computer Science			**Information Technology**	**Digital Literacy**	
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.

Outcome: 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	Outcome: 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.	Outcome: 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	Outcome: 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.	Outcome: 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.	Outcome: 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.

Year 3						
Computer Science				**Information Technology**		**Digital Literacy**
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 concern about content and contact.
Children can turn a simple real-life situation into an algorithm for a program by deconstructing it into manageable parts. Their design shows that they are thinking of the desired task and how this translates into code. Children can identify an error within their program that prevents it following the desired algorithm and then fix it	Children demonstrate the ability to design and code a 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	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.

		the outcome accurately				

Year 4						
Computer Science				**Information Technology**		**Digital Literacy**
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 concern about content and contact.
Outcome: 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.	Outcome: Children's use of timers to achieve repetition effects 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 use of user inputs and outputs such as 'print to screen'. e.g. 2Code.	Outcome: 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	Outcome: 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	Outcome: Children understand the function, features and layout of a search engine. They can appraise selected webpages for credibility and information at a basic level.	Outcome: 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.	Outcome: 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.

Year 5						
Computer Science				**Information Technology**		**Digital Literacy**
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 concern about content and contact.
Outcome: Children may attempt to turn more complex reallife situations into algorithms for a program by deconstructing it into manageable parts. Children are able to test and 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.	Outcome: 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.	Outcome: 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.	Outcome: 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.	Outcome: 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.	Outcome: 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.	Outcome: 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.

Year 6						
Computer Science				**Information Technology**		**Digital Literacy**
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 concern about content and contact.
Outcome: 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.	Outcome: Children translate algorithms that include sequence, selection and repetition into code and their own designs show that they are thinking of how to accomplish the set task in code utilising such structures, including nesting structures within each other. Coding displays an improving understanding of variables in coding, outputs such as sound and movement, inputs from the user of the program such as button clicks and the value of functions.	Outcome: 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.	Outcome: 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.	Outcome: 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.	Outcome: 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.	Outcome: 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.

Unit Number	Title	No. of Lessons	Tools
1.1	Online Safety & Exploring Purple Mash	4	Various
2.5	Effective Searching	3	Internet Browser
1.4	Lego Builders	3	2DIY
1.9	Technology outside school	2	Various
1.2	Grouping & Sorting	2	2DIY
2.6	Creating Pictures	5	2PaintAPicture
1.7	Coding	6	2Code
2.1	Coding	6	2Code

Cycle B
Year 1\2 Schemes of Work

Unit Number	Title	No. of Lessons	Tools
1.1	Online Safety & Exploring Purple Mash	4	Various
1.5	Maze Explorers	3	2Go
2.4	Questioning	5	2Question, 2Investigate
2.2	Online Safety	3	Various
1.6	Animated Story Books	5	2Create A Story
2.7	Making Sounds	3	2Sequence
2.3	Spreadsheets	6	2Calculate
1.3	Pictograms	3	2Count
2.8	Presenting Ideas	4	Various

Cycle A

Year 3\4 Schemes of Work

Unit Number	Title	No. of Lessons	Tools
3.1	Coding	6	2Code
3.2	Online safety	3	Various
3.3	Spreadsheets	6	2Calculate
3.5	Email	6	2Email, 2Connect, 2DIY
3.6	Branching Databases	4	2Question
3.7	Simulations	3	2Simulate, 2Publish
3.8	Graphing	2	2Graph
3.10	micro:bits	4	Free code micro:bit

Cycle B
Year 3\4 Schemes of Work

Unit Number	Title	No. of Lessons	Tools
4.1	Coding	6	2Code
4.2	Online safety	4	Various
4.4	Writing for different audiences	5	2Email, 2Connect, 2DIY
4.5	Logo	4	2Logo
4.6	Animation	3	2Animate
4.7	Effective Search	3	Internet Browser
4.8	Hardware Investigators	2	
3.9	Presenting (with Microsoft PowerPoint or Google Slides	5 or 6	MS PowerPoint or Google Slides

Cycle A
Year 5\6 Schemes of Work

Unit Number	Title	No. of Lessons	Tools
5.1	Coding	6	2Code
5.2	Online safety	3	Various
5.3	Spreadsheets	6	2Calculate
5.4	Databases	4	2Investigate
5.5	Game Creator	5	2DIY 3D
5.6	3D Modelling	4	2Design and Make
5.7	Concept Maps	4	2Connect

Cycle B
Year 5\6 Schemes of Work

Unit Number	Title	No. of Lessons	Tools
6.1	Coding	6	2Code
6.2	Online safety	2	Various
6.4	Blogging	4	2Blog
5.9	Using External Devices	6	2Code Purple Chip
6.6	Networks	3	
6.7	Quizzing	6	2Quiz, 2DIY, Text Toolkit, 2Investigate, 2Survey

English National Curriculum Objectives (Key Stage 1)

National Curriculum Objective	Strand	Units
Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.	Computer Science	1.2 1.4 1.5 1.7
Create and debug simple programs	Computer Science	1.5 1.7
Use logical reasoning to predict the behaviour of simple programs.	Computer Science	1.5 1.7
Use technology purposefully to create, organise, store, manipulate and retrieve digital content	Information Technology	1.3 1.6 1.7
Recognise common uses of information technology beyond school	Digital Literacy	1.9
National Curriculum Objective	Strand	Units
Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.	Computer Science	2.1
Create and debug simple programs	Computer Science	2.1
Use logical reasoning to predict the behaviour of simple programs.	Computer Science	2.1
Use technology purposefully to create, organise, store, manipulate and retrieve digital content	Information Technology	2.3 2.4 2.5 2.6 2.7 2.8
Recognise common uses of information technology beyond school	Digital Literacy	2.5*
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.	Digital Literacy	2.2*

Year 1 /2

Unit Overview

Unit 1.1 – Online Safety & Exploring Purple Mash

Lesson	Title	Aims (Objectives)	Success Criteria
1	Safe Logins	• To log in safely and understand why that is important. • To create an avatar and to understand what this is and how it is used. • To be able to create a picture and add their own name to it. • To start to understand the idea of 'ownership' of creative work. • To save work to the My Work area and understand that this is private space.	• Children can log in to Purple Mash using their own login. • Children have created their own avatar and understand why they are used. • Children can add their name to a picture they created on the computer. • Children are beginning to develop an understanding of ownership of work online. • Children can save work into the My Work folder in Purple Mash and understand that this is a private saving space just for their work.
2	My Work Area	• To learn how to find saved work in the Online Work area. • To learn about what the teacher has access to in Purple Mash. • To learn how to see messages left by the teacher on their work. • To learn how to search Purple Mash to find resources.	• Children can find their saved work in the Online Work area of Purple Mash. • Children can find messages that their teacher has left for them on Purple Mash. • Children can search Purple Mash to find resources.
3	Purple Mash Topics	• To become familiar with the types of resources available in the Topics section. • To become more familiar with the icons used in the resources in the Topics section. • To start to add pictures and text to work.	• Children will be able to use the different types of topic templates in the Topics section confidently. • Children will be confident with the functionality of the icons in the topic templates. • Children will know how to use the different icons and writing cues to add pictures and text to their work.
4	Purple Mash Tools	• To explore the Tools area of Purple Mash and to learn about the common icons used in Purple Mash for Save, Print, Open, New. • To explore the Games area on Purple Mash. • To understand the importance of logging out when they have finished.	• Children have explored the Tools section on Purple Mash and become familiar with some of the key icons: Save, Print, Open and New. • Children have explored the Games section and looked at Table Toons (2x tables). • Children can log out of Purple Mash when they have finished using it and know why that is important.

Unit 1.2 – Grouping & Sorting

Lesson	Title	Aims (Objectives)	Success Criteria
1	Sorting Away from the Computer	• To begin to think logically about the steps of a process. • To sort items using a range of criteria.	• Children can sort various items offline using a variety of criteria. • Children can follow a logical process to categorise objects.
2	Sorting on the Computer	• To sort items on the computer using the 'Grouping' activities in Purple Mash. • To bring together logical thinking and the use of technology. • To introduce the term 'algorithm' to describe logically following a process.	• Children have used Purple Mash activities to sort various items online using a variety of criteria. • Children have experienced logical sorting using technology where items either fit a category or do not.

Unit 1.3 – Pictograms

Lesson	Title	Aims (Objectives)	Success Criteria
1	Data in Pictures	• To understand that data can be represented in picture format.	• 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.
2	Class Pictogram	• To contribute to a class pictogram.	• Children can contribute to a class pictogram. • Children can discuss what the pictogram shows.
3	Recording Results	• To use a pictogram to record the results of an experiment.	• Children can collect data from rolling a die 20 times and recording the results. • Children can represent the results as a pictogram.

Unit 1.4 – Lego Builders

Lesson	Title	Aims (Objectives)	Success Criteria
1	Following Instructions	• To emphasise the importance of following instructions.	• Children know that to achieve the effect they want when building something, they need to follow accurate instructions. • Children know that by following the instructions correctly, they will get the correct result. • Children know that an algorithm is a precise, step-by-step set of instructions used to solve a problem or achieve an objective.
2	Following and Creating Simple Instructions on the Computer.	• To follow and create simple instructions on the computer.	• Children can follow instructions in a computer program. • Children can explain the effect of carrying out a task with no instructions. • Children know that computers need precise instructions to follow. • Children know that an algorithm written for a computer to follow is called a program.
3	To consider how the order of instructions affects the result.	• To consider how the order of instructions affects the result.	• Children understand how the order in which the steps of a recipe are presented affects the outcome. • Children can organise instructions for a simple recipe. • Children know that correcting errors in an algorithm or program is called 'debugging'.

Unit 1.5 – Maze Explorers

Lesson	Title	Aims (Objectives)	Success Criteria
1	Challenges 1 and 2	• To understand the functionality of the basic direction keys in Challenges 1 and 2. • To be able to use the direction keys to complete the challenges successfully.	• Children know how to use the direction keys in 2Go to move forwards, backwards, left and right. • Children know how to add a unit of measurement to the direction in 2Go Challenge 2. • Children know how to undo their last move. • Children know how to move their character back to the starting point.
2	Challenges 3 and 4	• To understand the functionality of the basic direction keys in Challenges 3 and 4. • To understand how to create and debug a set of instructions (algorithm).	• Children can use diagonal direction keys to move the characters in the right direction. • Children know how to create a simple algorithm. • Children know how to debug their algorithm.

3	Challenges 5 and 6	● To use the additional direction keys as part of their algorithm. ● To understand how to change and extend the algorithm list.	● Children can use the additional direction keys to create a new algorithm. ● Children can challenge themselves by using the longer algorithm to complete challenges.

		• To create a longer algorithm for an activity.	
4	Setting More Challenges	• To provide an opportunity for the children to set challenges for each other. • To provide an opportunity for the teacher to add these challenges to a display board for the class to try.	• Children can change the background images in their chosen challenge and save their new challenge. • Children have tried each other's challenges.

Unit 1.6 – Animated Story Books

Lesson	Title	Aims (Objectives)	Success Criteria
1	Drawing and Creating	• To understand the differences between traditional books and e-books. • To explore the tools of 2Create a Story's My Simple Story level. • To save the page they have created.	• Children know the difference between a traditional book and an e-book. • Children can use the different drawing tools to create a picture on the page. • Children can add text to a page.
2	Animation	• To add animation to a picture. • To play the pages created so far. • To save the additional changes and overwrite the file.	• Children can open previously saved work. • Children can add an animation to a page. • Children can play the pages created. • Children can save changes and overwrite the file.
3	Sounds and More!	• To add a sound effect to a picture. • To add a voice recording to the picture. • To add created music to the picture.	• Children can add a sound to the page. • Children can add voice recording to the page. • Children can create music for a page.
4	Making a Story	• To add a background to the story. • To demonstrate a good understanding of all the tools they have used in 2Create a Story and use these successfully to create their own story.	• Children can add a background to the page. • Children can use the additional drawing tools on My Story mode. • Children can change the font style and size.
5	Copy and Paste	• To use the copy and paste feature to create additional pages. • To continue and complete an animated story. • To create a class display board of the story books created by the class.	• Children can use the copy and paste function to add more pages to their animated e-book. • Children can share their e-books on a class story book display board.

Unit 1.7 – Coding

Lesson	Title		Success Criteria
1	Instructions	• To understand what instructions are. • To predict what will happen when instructions are followed. • To understand that computer programs work by following instructions called code.	• Children can give and follow instructions. • Children can draw symbols to represent instructions. • Children can arrange code blocks to create a set of instructions.
2	Objects and Actions	• To use code to make a computer program. • To understand what objects and actions are.	• Children can create a program using code blocks. • Children can use object and action code blocks.
3	Events	• To understand what an event is. • To use an event to control an object.	• Children can create a simple program using code blocks. • Children can use event, object and action code blocks.
4	When Code Executes	• To understand what an event is. • To begin to understand how code executes when a program is run.	• Children can create a simple program using code blocks. • Children can use event, object and action code blocks. • Children can notice when their code executes when their program is run.
5	Setting the Scene	• To understand what backgrounds and objects are. • To understand how to use the scale property.	• Children can edit a scene by adding, deleting and moving objects. • Children can change the size of objects using the properties table.
6	Using a Plan	• To plan a computer program. • To make a computer program.	• Children can create a design plan for their Free Code Scene program. • Children can use code to make the program they have designed work.

Unit 1.9 – Technology outside school

Lesson	Title	Aims (Objectives)	Success Criteria
1	What is Technology?	• To find and understand examples of where technology is used in the local community	• Children understand what is meant by 'technology'. • Children have considered types of technology used in school and out of school.
2	Technology outside school.	• To record examples of technology outside school.	• Children have recorded 4 examples of where technology is used away from school.

Year 1 / 2 Unit Overview

Unit 2.1 – Coding

Lesson	Title	Aims (Objectives)	Success Criteria
1	Algorithms	• To understand what an algorithm is. • To create a computer program using an algorithm.	• Children can explain that an algorithm is a set of instructions. • Children can describe the algorithms they created. • Children can explain that for the computer to make something happen, it needs to follow clear instructions.
2	Collision Detection	• To create a program using a given design. • To understand the collision detection event.	• Children can plan an algorithm that includes collision detection. • Children can create a program using collision detection. • Children read blocks of code and predict what will happen when it is run.
3	Using a Timer	• To understand that algorithms follow a sequence. • To design an algorithm that follows a timed sequence.	• Children can create a program that uses a timer-after command. • 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.
4	Different Object Types	• To understand that different objects have different properties. • To understand what different events do in code.	• Children can create a computer program that includes different object types. • Children can modify the properties of an object. • Children can use different events in their program to make objects move.
5	Buttons	• To create a program using a given design. • To understand the function of buttons in a program.	• Children can create a computer program that includes a button object. • Children can explain what a button does in their program. • Children can modify the properties of a button to fit their program design.

6	'Smelly Code' Debugging	• To know what debugging means. • To understand the need to test and debug a program repeatedly. • To debug simple programs.	• Children can explain what debug (debugging) means. • Children can use a design document to start debugging a program. • Children can debug simple programs.

Unit 2.2 – Online Safety

Lesson	Title	Aims (Objectives)	Success Criteria
1	Searching and Sharing	• To know how to refine searches using the Search tool. • To know how to share work electronically using the display boards. • To use digital technology to share work on Purple Mash to communicate and connect with others locally. • To have some knowledge and understanding about sharing more globally on the Internet.	• Children can use the search facility to refine searches on Purple Mash by year group and subject. • Children can share the work they have created to a display board. • Children understand that the teacher approves work before it is displayed. • Children are beginning to understand how things can be shared electronically for others to see both on Purple Mash and the Internet.
2	Email Using 2Respond	• To introduce Email as a communication tool using 2Respond simulations. • To understand how we talk to others when they are not there in front of us. • To open and send simple online communications in the form of email.	• Children know that Email is a form of digital communication. • Children understand how 2Repond can teach them how to use email. • Children can open and send an email to a 2Respond character. • Children have discussed their own experiences and understanding of what email is used for. • Children have discussed what makes us feel happy and what makes us feel sad.
3	Digital Footprint	• To understand that information put online leaves a digital footprint or trail. • To begin to think critically about the information they leave online. • To identify the steps that can be taken to keep personal data and hardware secure	• Children can explain what a digital footprint is. • Children can give examples of things that they would not want to be in their digital footprint.

Unit 2.3 – Spreadsheets

Lesson	Title	Aims (Objectives)	Success Criteria
1	Introduction to Spreadsheets	• To understand what a spreadsheet is used for. • To understand what a spreadsheet looks like. • To be able to navigate around a spreadsheet and enter data. • To learn new vocabulary related to spreadsheets.	• Children can navigate around a spreadsheet. • Children can enter data into cells. • Children can explain what rows and columns are.
2	Adding Images to a Spreadsheet	• To add different types of images to a spreadsheet. • To use image as calculation aids. • To use the 'move cell' tool to make images draggable.	• Children can use the menu buttons to add different types of images. • Children can use the apparatus images to solve maths questions. • Children can use the 'move cell' tool so that images can be dragged around the spreadsheet.
3	Exploring images and values	• To use clipart images in a spreadsheet. • To assign values to images. • To use assigned values in calculations.	• Children can use the clipart gallery to add images to a spreadsheet. • Children can give images a value. • Children can make use of the assigned values in calculations.
4	Totalling tools	• To use 2Calculate totalling tools. • To use 2Calculate to solve a simple puzzle.	• Children can use tools in a spreadsheet to automatically total rows and columns. • Children can use a spreadsheet to solve a mathematical puzzle.
	Using a Spreadsheet to add amounts	• To explore the capabilities of a spreadsheet in adding up coins to match the prices of objects	• Children can use images in a spreadsheet. • Children can work out how much they need to pay using coins by using a spreadsheet to help calculate.
	Creating a table and block graph	• To add and edit data in a table layout. • To find out how spreadsheet programs can automatically create graphs from data.	• Children can create a table of data on a spreadsheet. • Children can use a spreadsheet program to automatically create charts and graphs from data.

Unit 2.4 – Questioning

Lesson	Title	Aims (Objectives)	Success Criteria
1	Using and Creating Pictograms	• To show that the information provided on pictograms is of limited use beyond answering simple questions	• Children understand that the information on pictograms cannot be used to answer more complicated questions.
2	Asking Yes / No Questions	• To use yes/no questions to separate information	• Children have used a range of yes/no questions to separate different items.
3	Binary Trees	• To construct a binary tree to separate different items.	• Children understand what is meant by a binary tree. • Children have designed a binary tree to sort pictures of children.
4	Using 2Question - a Computer-Based Binary Tree Program	• Use 2Question (a binary tree) to answer questions	• Children understand that questions are limited to 'yes' and 'no' in a binary tree. • Children understand that the user cannot use 2Question to find out answers to more complicated questions. • Children have matched 2Simple item pictures to names using a binary tree.
5	Using 2Investigate : a Non-Binary Database.	• To use a database to answer more complex search questions. • To use the Search tool to find information.	• Children understand what is meant by a database. • Children have used a database to answer simple and more complex search questions.

Unit 2.5 – Effective Searching

Lesson	Title	Aims (Objectives)	Success Criteria
1	Understanding the Internet and Searching	• To understand the terminology associated with the Internet and searching.	• Children can recall the meaning of key Internet and searching terms. • Children have completed a quiz about the Internet.

2	Searching the Internet	• To gain a better understanding of searching the Internet.	• Children can identify the basic parts of a web search engine search page. • Children have learnt to read a web search results page. • Children can search the Internet for answers to a quiz.

3	Sharing Knowledge of the Internet and Effective Searching	• To create a leaflet to help someone search for information on the Internet.	• Children have created a leaflet to consolidate knowledge of effective Internet searching.

Unit 2.6 – Creating Pictures

Lesson	Title	Aims (Objectives)	Success Criteria
1	Introduction and Impressionism	• To explore 2Paint A Picture. • To look at the work of Impressionist artists and recreate them using the Impressionism template.	• Children can describe the main features of impressionist art. • Children can use 2Paint a Picture to create art based upon this style.
2	Pointillist Art	• To look at the work of pointillist artists such as Seurat. • To recreate pointillist art using the Pointillism template.	• Children can explain what pointillism is. • Children can use 2Paint a Picture to create art based upon this style.
3	Piet Mondrian	• To look at the work of Piet Mondrian and recreate it using the Lines template.	• Children can describe the main features of Piet Mondrian's work. • Children can use 2Paint a Picture to art based upon his style.
4	William Morris and Pattern	• To look at the work of William Morris and recreate it using the Patterns template.	• Children can describe the main features of art that uses repeating patterns. • Children can use 2Paint a Picture to create art by repeating patterns in a variety of ways. • Children can combine more than one effect in 2Paint a Picture to enhance patterns.
5	Surrealism and eCollage	• To look at some surrealist art and create your own using the eCollage function in 2Paint A Picture.	• Children can describe surrealist art. • Children can use the eCollage function in 2Paint a Picture to create surrealist art using drawing and clipart.

Unit 2.7 – Making Sounds

Lesson	Title	Aims (Objectives)	Success Criteria
1	Introducing 2Sequence	• To be introduced to making music digitally using 2Sequence. • To explore, edit and combine sounds using 2Sequence.	• Children understand what 2Sequence is and how it works. • Children have used the different sounds within 2Sequence to create a tune. • Children have explored how to speed up and slow down tunes. • Children understand what happens to the tune when sounds are moved.
2	Making Sounds	• To add sounds to a tune to improve it. • To think about how music can be used to express feelings and create tunes which depict feelings.	• Children have added sounds to a tune they have already created to change it. • Children have considered how music can be used to express feelings. • Children can change the volume of the background sounds. • Children have created two tunes which depict two feelings.
3	Soundtracks	• 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.	• Children have uploaded and used their own sound chosen from a bank of sounds. • Children have created, uploaded and used their own recorded sound. • Children have created their own tune using some of the chosen sounds.


2simple

Unit 2.8 – Presenting Ideas

Lesson	Title	Aims (Objectives)	Success Criteria
1	Presenting a Story Three Ways	• To explore how a story can be presented in different ways.	• Children have examined a traditional tale presented as a mind map, as a quiz, as an e-book and as a fact file. • Children know that digital content can be represented in many forms.
2	Presenting Ideas as a Quiz	• To make a quiz about a story or class topic.	• Children have made a quiz about a story using 2Quiz. • Children can talk about their work and make improvements to solutions based on feedback received.
3	Making a Non-Fiction Fact File	• To make a fact file on a non-fiction topic.	• Children have extracted information from a 2Connect file to make a publisher fact file on a non-fiction topic. • Children have added appropriate clipart. • Children have added an appropriate photo. • Children know that data can be structured in tables to make it useful.
4	Making a Presentation	• To make a presentation to the class.	• Children can use a variety of software to manipulate and present digital content and information. • Children can collect, organise and present data and information in digital content. • Children can create digital content to achieve a given goal by combining software packages.

English National Curriculum Objectives (Key Stage 2)

National Curriculum Objective	Strand	Units
Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.	Computer Science	3.1 3.10
Use sequence, selection and repetition in programs; work with variables and various forms of input and output.	Computer Science	3.1 3.10
Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs	Computer Science	3.1 3.10
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.	Computer Science	3.5
Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.	Information Technology	
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.	Information Technology	3.3 3.4 3.5 3.6 3.7 3.8 3.9
Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	Digital Literacy	3.2 3.5 3.9

National Curriculum Objective	Strand	Units
Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.	Computer Science	4.1 4.5 4.11
Use sequence, selection and repetition in programs; work with variables and various forms of input and output.	Computer Science	4.1 4.5 4.11
Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs	Computer Science	4.1 4.5 4.11
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.	Computer Science	4.2 4.7 4.8
Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.	Information Technology	4.7
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.	Information Technology	4.1 4.4 4.6 4.9 4.10
Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. ***And discussed in other units**	Digital Literacy	4.2*

Year 3 / 4 Unit Overview

Unit 3.1 – Coding

Lesson	Title	Aims (Objectives)	Success Criteria
1	Using Flowcharts	• To review previous coding knowledge. • To understand what a flowchart is and how flowcharts are used in computer programming.	• Children can read and explain a flowchart • Children can use a flowchart to create a computer program. • Children can create a computer program that uses click events and timers.
2	Using Timers	• To understand that there are different types of timers. • To be able to select the right type of timer for a purpose.	• Children can create a program that uses a timer-after command • Children can create a program that uses a timer-every command • Children understand there can be different ways to solve a problem.
3	Using Repeat	• To understand how to use the repeat command.	• Children understand how the turtle object moves. • Children can use the repeat command with an object. • Children can create a computer program that includes use of the repeat command.
4	Code, Test and Debug	• To use coding knowledge to create a range of programs. • To understand the importance of nesting.	• Children can create computer programs using prior knowledge. • Children can run, test and debug their programs. • Children can consider nesting when debugging their programs.
5 & 6	Design and Make an Interactive Scene	• To design and create an interactive scene.	• Children can use the properties table to set the properties of objects. • Children can plan their scene and code before they create their program. • Children can confidently make several different things happen in a program.

Unit 3.2 – Online Safety

Lesson	Title	Aims (Objectives)	Success Criteria
1	Safety in Numbers	• To know what makes a safe password, how to keep passwords safe and the consequences of giving your passwords away. • To understand how the Internet can be used to help us to communicate effectively. • To understand how a blog can be used to help us communicate with a wider audience.	• Children understand what makes a good password for use on the Internet. Children are beginning to realise the outcomes of not keeping passwords safe. • Children can contribute to a concept map of all the different ways they know that the Internet can help us to communicate. • Children have contributed to a class blog with clear and appropriate messages. • Extension: Children understand that passwords help to limit who can see personal / private / confidential information.
2	Fact or Fiction?	• To consider if what can be read on websites is always true. • To look at a 'spoof' website. • To create a 'spoof' webpage. • To think about why these sites might exist and how to check that the information is accurate.	• Children understand that some information held on websites may not be accurate or true. • Children are beginning to understand how to search the Internet and how to think critically about the results that are returned. • Children have accessed and assessed a 'spoof' website. • Children have created their own 'spoof' webpage mock-up. • Children have shared their 'spoof' web page on a class display board. • Extension: Children evaluate facts from a website and explain how they fact checked the information that was presented.
3	Appropriate Content & Ratings	• To learn about the meaning of age restrictions symbols on digital media and devices. • To discuss why PEGI restrictions exist. • To know where to turn for help if they see inappropriate content or have inappropriate contact from others.	• Children can identify some physical and emotional effects of playing/watching inappropriate content/games. • Children relate cyberbullying to bullying in the real-world and have strategies for dealing with online bullying including screenshot and reporting.

Unit 3.3 – Spreadsheets

Lesson	Title	Aims (Objectives)	Success Criteria
1	Creating pie charts and bar graphs	• To add and edit data in a table layout. • To find out how spreadsheet programs can automatically create graphs from data.	• Children can create a table of data on a spreadsheet. • Children can use a spreadsheet program to automatically create charts and graphs from data.
2	Advanced mode and cell addresses	• To introduce the Advanced mode of 2Calculate. • To learn about describing cells using their addresses.	• Children can describe a cell location in a spreadsheet using the notation of a letter for the column followed by a number for the row. • Children can find specified locations in a spreadsheet.
3	The formula bar	• To learn about the formula wizard in 2Calculate Advanced mode. • To learn about the formula bar in 2Calculate Advanced mode. To use formulae to complete calculations.	• Children can follow the steps of the formula wizard to perform calculations. • Children can enter formulae into the formulae bar. • Children can create formulae to complete calculations.
4	Using and combining tools in 2Calculate	• To explore how tools can be combined to use 2Calculate to make number games. • To explore the use of the timer, random number and spin button tools.	• Children can use the timer, random number and spin button tools. • Children can combine tools to make fun ways to explore number.
5	Line graphs	• To use the line graphing tool in 2Calculate with appropriate data. • To interpret a line graph to estimate values between data readings.	• Children can use a series of data in a spreadsheet to create a line graph. • Children can use a line graph to find out when the temperature in the playground will reach 20°C.
6	Using a spreadsheet for budgeting	• To use the range notation in 2Calculate. • To use 2Calculate to create a model of a real-life situation. • To create a spreadsheet file with more than one sheet.	• Children can describe a group of cells using range notation. • Children can use a spreadsheet to plan a party budget. • Children can add multiple sheets to a spreadsheet file.

Unit 3.4 – Touch-typing

Lesson	Title	Aims (Objectives)	Success Criteria
1	Home, Top and Bottom Row Keys	• To introduce typing terminology. • To understand the correct way to sit at the keyboard. • To learn how to use the home, top and bottom row keys.	• Children understand the names of the fingers. • Children understand what is meant by the home, bottom, and top rows. • Children have developed the ability to touch type the home, bottom, and top rows.
2	Home, Top and Bottom Row Keys (Consolidation)	• To practice and improve typing for home, bottom, and top rows.	• Children can use two hands to type the letters on the keyboard.
3	Left Keys	• To practice the keys typed with the left hand.	• Children can touch type using the left hand.
4	Right Keys	• To practice the keys typed with the right hand.	• Children can touch type using the right hand.

Unit 3.5 – Email

Lesson	Title	Aims (Objectives)	Success Criteria
1	Communication	• To think about the different methods of communication.	• Children can list a range of different ways to communicate. • Children can use 2Connect to highlight the strengths and weaknesses of each method. • Extension: Children can order the various types of communication that have been used through history.
2	Composing Emails	• To open and respond to an email. • To write an email to someone from an address book.	• Children can open an email and respond to it. • Children have sent emails to other children in the class. • Extension: Children can use the search option in the address book to find a classmate when sending an email.
3	Using Email Safely: Part 1	• To learn how to use email safely.	• Children have written rules about how to stay safe using email. • Children have contributed to classmates' rules. • Extension: Children understand the importance of draft.

4	Using Email Safely: Part 2	• To learn how to use email safely.	• Children have created a quiz about email safety which explores scenarios that they could come across in the future.

			• Extension: Children create title screens for their quizzes explaining what the quiz is about, and how to play it.
5	Attachments	• To add an attachment to an email.	• Children can attach work to an email. • Children know what CC means and how to use it.
6	Email Simulations	• To explore a simulated email scenario.	• Children can read and respond to a series of email communications. • Children can attach files appropriately and use email communication to explore ideas. • Extension: Children know why the terms CC and BCC are used • Children understand when to use CC or BCC

Unit 3.6 – Branching Databases

Lesson	Title	Aims (Objectives)	Success Criteria
1	Introducing Databases	• To sort objects using just YES/NO questions.	• Children understand how YES/NO questions are structured and answered. • Children have used YES/NO questioning to play a simple game with a friend. • Children can explain why they choose a particular question to split their database. • Extension: Children can begin to use 'or more' and 'or less' in their questioning
2	Branching Databases	• To complete a branching database using 2Question.	• Children have contributed to a class branching database about fruit. • Children have completed a branching database about vegetables. • Extension: Children can edit and adapt a branching database to accommodate new entries.

3 and 4	Creating a branching database on the computer	• To create a branching database of the children's choice.	• Children can choose a suitable topic for a branching database. • Children can select and save appropriate images. • Children can create a branching database. • Children know how to use and debug their own and others branching databases.

Unit 3.7 – Simulations

Lesson	Title	Aims (Objectives)	Success Criteria
1	What Are Simulations?	• To find out what a simulation is and understand the purpose of simulations.	• Children know that a computer simulation can represent real and imaginary situations. • Children can give some examples of simulations used for fun and for work. • Children can give suggestions of advantages and problems of simulations.
2	Exploring a Simulation	• To explore a simulation, making choices and discussing their effects.	• Children can explore a simulation. • Children can use a simulation to try out different options and to test predictions. • Children can begin to evaluate simulations by comparing them with real situations and considering their usefulness. • Children can analyse choices made using a branching database.
3	Analysing and Evaluating a Simulation	• To work through and evaluate a more complex simulation.	• Children can recognise patterns within simulations and make and test predictions. • Children can identify the relationships and rules on which the simulations are based. • Children can evaluate a simulation to determine its usefulness for purpose. • Children can create their own simple simulation (extension).

Unit 3.8 – Graphing

Lesson	Title	Aims (Objectives)	Success Criteria
1	Introducing 2Graph	• To enter data into a graph and answer questions.	• Children can set up a graph with a given number of fields. • Children can enter data for a graph. • Children can produce and share graphs made on the computer. • Extension: Children can select most appropriate style of graph for their data and explain their reasoning.
2	Using 2Graph in an Investigation	• To investigate in order to answer a question. • To present the results in graphic form	• Children have solved a maths question using graphing. • Children can present the results in a range of graphical formats. • Children can use the sorting option to make analysis of their data easier. • Extension: Children can select most appropriate style of graph for their data and explain their reasoning.

Unit 3.9 – Presenting (with Microsoft PowerPoint)

Downloaded Version of MS PowerPoint

Lesson	Title	Aims (Objectives)	Success Criteria
1	Making a Presentation from a Blank Page	• To create a page in a presentation.	• Children know what PowerPoint is. • Children can open PowerPoint. • Children can add text to a page and format it. • Children can add shapes to a page.
2	Adding Media	• To add media to a presentation	• Children can change the design of the slides. • Children can insert a new slide. • Children can insert pictures. • Children can edit pictures. • Children can insert video and audio.
3	Adding Animation	• To add animations into a presentation	• Children can use animations in a presentation. • Children can use transitions in a presentation.
4	Presenting with Timings	• To add timings into a presentation.	• Children can add timings to a presentation. • Children can present effectively using PowerPoint.
5 & 6	Create a Presentation	• To use the skills learnt in previous weeks to design and present an effective presentation.	• Children can create a presentation including formatted text. • Children can include different media. • Children can add transitions and animations. • Children can add timings to the presentation. • Children can present effectively.

Online Version of MS PowerPoint

Lesson	Title	Aims (Objectives)	Success Criteria
1	Making a Presentation from a Blank Page	• To create a page in a presentation.	• Children know what PowerPoint is. • Children can open PowerPoint. • Children can add text to a page and format it. • Children can add shapes to a page.
2	Adding Media	• To add media to a presentation	• Children can change the design of the slides. • Children can insert a new slide. • Children can insert pictures. • Children can edit pictures. • Children can insert video and audio.
3	Adding Animation	• To add animations into a presentation	• Children can use animations in a presentation. • Children can use transitions in a presentation.

4 & 5	Create a Presentation	• To use the skills learnt in previous weeks to design and present an effective presentation.	• Children can create a presentation including formatted text. • Children can include different media. • Children can add transitions and animations.

			• Children can add timings to the presentation. • Children can present effectively.

Tablet Version of MS PowerPoint

Lesson	Title	Aims (Objectives)	Success Criteria
1	Starting with a blank slide	• To create a slide in a presentation.	• Children know what PowerPoint is. • Children can open PowerPoint. • Children can add text to a slide and format it. • Children can add shapes to a slide.
2	Adding Media	• To add media to a presentation	• Children can change the design of the slides. • Children can insert a new slide. • Children can insert pictures. • Children can edit pictures. • Children can insert video (extension).
3	Adding Animation	• To add animations into a presentation	• Children can use animations in a presentation. • Children can use transitions in a presentation.
4 & 5	Create a Presentation	• To use the skills learnt in previous weeks to design and present an effective presentation.	• Children can create a presentation including formatted text. • Children can include different media. • Children can add transitions and animations. • Children can add timings to the presentation. • Children can present effectively.

Unit 3.9 – Presenting (with Google Slides)

PC\Mac Version of Google Slides

Lesson	Title	Aims (Objectives)	Success Criteria
1	Making a Presentation from a Blank Page	• To create a page in a presentation.	• Children know what Google Slides is. • Children know how to open Google Slides. • Children can add text and format it.
2	Adding Media	• To add media to a presentation	• Children can change the design of the slides. • Children can insert a new slide. • Children can insert pictures. • Children can edit pictures. • Children can insert video (extension).
3	Adding Shapes and Lines	• To add shapes and lines to a presentation.	• Children can add shapes to a presentation. • Children can add lines into a presentation.
4	Adding Animation	• To add animations into a presentation.	• Children can use animations in a presentation. • Children can use transitions in a presentation.
5 & 6	Create a Presentation	• To use the skills learnt in previous weeks to design and present an effective presentation.	• Children can add text to a presentation. • Children can add objects including text and pictures to their presentation. • Children can add animation and transitions to their presentation. • Children can present their work on Slides.

Tablet App for Google Slides

Lesson	Title	Aims (Objectives)	Success Criteria
1	Making a Presentation from a Blank Page	• To create a page in a presentation.	• Children know what Google Slides is. • Children know how to open Google Slides. • Children know how to add text and format it.
2	Adding Images	• To add images to a presentation.	• Children can change the design of the slides. • Children can insert a new slide. • Children can insert pictures.
3	Adding Shapes and Lines	• To add shapes and lines to a presentation.	• Children can add shapes to a presentation. • Children can add lines into a presentation.

4 & 5	Creating a Presentation	• To use the skills learnt in previous weeks to design and present an effective presentation.	• Children can create a presentation including formatted text. • Children can add objects including text and pictures. • Children can present their work on Slides.

Unit 3.10 – micro:bits

Lesson	Title	Aims (Objectives)	Success Criteria
1	Name Badge	• To Understand the micro:bit is a tiny computer which needs instructions in code to make it work. • To use Free Code micro:bit to create instructions in code that the micro:bit can understand and then transfer them to the micro:bit. • To know the micro:bit has an LED display output which it can use to show words (as well as numbers and pictures).	• Children can explain that the micro:bit is a tiny computer. • Children can give the micro:bit instructions in code to make a name badge using the LED display output.
2	Beating Heart	• To understand that sequence and timing is important when making an animation. • To understand that animations create an illusion of movement by showing a sequence of still images. • To code the micro:bit to show simple animations on its LED display output.	• Children can create a micro:bit animation using a sequence of images in a loop. • Children can explain that the order or sequence of instructions is important.
3	Emotion Badge	• To code the micro:bit to make different outputs happen depending on different inputs. • To understand that inputs and outputs involve the flow of data in and out of computers. • To apply this knowledge using the micro:bit's button inputs and display output.	• Children can make the micro:bit show different pictures on the LED display output depending on which button input is pressed. • Children can explain that inputs are data sent to a computer. • Children can explain that outputs are data sent from a computer.
4	Sounds and Gestures	• To understand how sensor inputs from the accelerometer can be used to detect movement. • To understand how to create sounds and music using the music editor. • To apply this knowledge using the micro:bit's gesture inputs and sound output.	• Children can use the music editor to create sounds and music. • Children can explain that accelerometer is a sensor, an input that senses movement. • Children can create code that makes sounds play using different movement gestures.

Year 3 / 4 Unit Overview

Unit 4.1 – Coding

Lesson	Title	Aims (Objectives)	Success Criteria
1	Design, Code, Test and Debug	• To review coding vocabulary and knowledge. • To create a simple computer program.	• Children can explore different object types in 2Code. • Children can use a background and objects to create a scene. • Children can plan an algorithm for their scene and use 2Code to program it.
2	IF Statements	• To begin to understand selection in computer programming. • To understand how an IF statement works.	• Children can create a program that includes an IF statement. • Children can interpret a flowchart that depicts an IF statement.
3	Co-ordinates	• To understand how to use co-ordinates in computer programming. • To understand how an IF statement works.	• Children can make use of the X and Y properties of objects in their coding. • Children can create a program that includes an IF statement.
4	Repeat Until and IF/ELSE Statements	• To understand the Repeat until command. • To begin to understand selection in computer programming. • To understand how an IF/ELSE statement works.	• Children can read code that includes repeat until and IF/ ELSE and explain how it works. • Children can create a program that includes an IF/ ELSE statement. • Children can interpret a flowchart that depicts an IF/ ELSE statement.
5	Number Variables	• To understand what a variable is in programming. • To use a number variable.	• Children can explain what a variable is in programming. • Children can create and use variables when programming.

6	Making a Playable Game	• To review vocabulary and concepts learnt in Year 4 Coding. • To create a playable game.	• Children can read code that includes repeat until and IF/ ELSE and explain how it works. • Children can create a program that includes and IF/ ELSE statement. • Children can interpret a flowchart that depicts an IF/ ELSE statement.

Unit 4.2 – Online Safety

Lesson	Title	Aims (Objectives)	Success Criteria
1	Going Phishing	• To understand how children can protect themselves from online identity theft. • To understand that information put online leaves a digital footprint or trail and that this can aid identity theft.	• Children know that security symbols such as a padlock protect their identity online. • Children know the meaning of the term 'phishing' and are aware of the existence of scam websites. • Children can explain what a digital footprint is and how it relates to identity theft. • Children can give examples of things that they would not want to be in their digital footprint.
2	Beware Malware	• To identify the risks and benefits of installing software including apps.	• Children can identify possible risks of installing free and paid for software. • Children know that malware is software that is specifically designed to disrupt, damage, or gain access to a computer. • Children know what a computer virus is.
3	Plagiarism	• To understand that copying the work of others and presenting it as their own is called 'plagiarism' and to consider the consequences of plagiarism. • To identify appropriate behaviour when participating or contributing to collaborative online projects for learning.	• Children can determine whether activities that they undertake online, infringe another's' copyright. They know the difference between researching and using information and copying it • Children know about citing sources that they have used.
4	Healthy Screen-Time	• To identify the positive and negative influences of technology on health and the environment. • To understand the importance of balancing game and screen time with other parts of their lives.	• Children can take more informed ownership of the way that they choose to use their free time. They recognise a need to find a balance between being active and digital activities. • Children can give reasons for limiting screen time.

Unit 4.4 – Writing for Different Audiences

Lesson	Title	Aims (Objectives)	Success Criteria
1	Font Styles	• To explore how font size and style can affect the impact of a text.	• Children can look at and discuss a variety of written material where the font size and type are tailored to the purpose of the text. • Children can use text formatting to make a piece of writing fit for its audience and purpose.
2 & 3	Using a Simulated Scenario to Produce a News Report	• To use a simulated scenario to produce a news report.	• Children can role-play the job of a journalist in a newsroom. • Children can interpret a variety of incoming communications and use these to build up the details of a story. • Children can use the incoming information to write their own newspaper report.
4 & 5	Writing for a Campaign	• To use a simulated scenario to write for a community campaign.	• Children can use 2Connect to mind-map ideas for a community campaign. • Children can use these ideas to write a persuasive letter or poster as part of the campaign. • Children can assess their texts using criteria to judge their suitability for the intended audience.

Unit 4.5 – Logo

Lesson	Title	Aims (Objectives)	Success Criteria
1	Introduction to 2Logo	• To learn the structure of the language of 2Logo. • To input simple instructions in 2Logo	• Children know what the common instructions are in 2Logo and how to type them. • Children can follow simple 2Logo instructions to create shapes on paper. • Children can follow simple instructions to create shapes in 2Logo.

2	Creating Letters using 2Logo	● To use 2Logo to create letter shapes.	● Children can create 2Logo instructions to draw patterns of increasing complexity. ● Children understand the pu and pd commands. ● Children can write 2Logo instructions for a word of four letters.

3	Using the 'Repeat' Command in 2Logo	• To use the Repeat command in 2Logo to create shapes.	• Children can follow 2Logo code to predict the outcome. • Children can create shapes using the Repeat command. • Children can find the most efficient way to draw shapes.
4	Using Procedures	• To use and build procedures in 2Logo.	• Children can use the Procedure feature. • Children can create 'flowers' or 'crystals' using 2Logo.

Unit 4.6 – Animation

Lesson	Title	Aims (Objectives)	Success Criteria
1	Animating an Object	• To decide what makes a good, animated film or cartoon and discuss favourite animations. • To learn how animations are created by hand. • To find out how 2Animate animations can be created in a similar way using technology.	• Children have put together a simple animation using paper to create a flick book. • Children understand animation frames. • Children have made a simple animation using 2Animate.
2	2Animate Tools	• To learn about onion skinning in animation. • To add backgrounds and sounds to animations.	• Children know what the Onion Skin tool does in animation. • Children can use the Onion Skin tool to create an animated image. • Children can use backgrounds and sounds to make more complex and imaginative animations.
3	Stop Motion Animation	• Introducing 'stop motion' animation. • To share animation the class blog.	• Children know what 'stop motion' animation is and how it is created. • Children have used ideas from existing 'stop motion' films to recreate their own animation. • Children have shared their animations and commented on each other's work using display boards and blogs in Purple Mash.

Unit 4.7 – Effective Searching

Lesson	Title	Aims (Objectives)	Success Criteria
1	Using a Search Engine	• To locate information on the search results page.	• Children can structure search queries to locate specific information.
2	Use Search Effectively to Answer Questions	• To use search effectively to find out information.	• Children have used search to answer a series of questions. • Children have written search questions for a friend to solve.
3	Reliable Information Sources	• To assess whether an information source is true and reliable.	• Children can analyse the contents of a web page for clues about the credibility of the information.

Unit 4.8 – Hardware Investigators

Lesson	Title	Aims (Objectives)	Success Criteria
1	Hardware	• To understand the different parts that make up a desktop computer.	• Children can name the different parts of a desktop computer. • Children know what the function of the different parts of a computer is.
2	Parts of a Compute r	• To recall the different parts that make up a computer.	• Children have created a leaflet to show the function of computer parts.

Unit 4.9 – Making Sounds

Lesson	Title	Aims (Objectives)	Success Criteria
1	Understanding Sounds	• To identify and discuss the main elements of music: Pulse, Rhythm, Tempo, Pitch, Texture	• Children can use appropriate musical language to discuss a piece of music. • Children can identify sounds in a piece of music. • Children can explain how a piece of music makes them feel.

2	Rhythm and Tempo.	• To understand and experiment with rhythm and tempo.	• Children can identify and recall a simple rhythm. • Children can explain what tempo is, and how changing it can change the mood of a piece of music. • Children can create their own simple rhythm using Busy Beats.
3	Melody and Pitch	• To create a melodic phrase.	• Children can show an understanding of melody.

			• Children can create a simple melodic pattern using 2Sequence and Busy Beats. • Children can use a variety of notes, experimenting with pitch.
4	Creating Music	• To compose a piece of electronic music.	• Children can explore and understand how music is created. • Children can experiment with pitch, rhythm, and melody to create a piece of house music on Busy Beats.

Unit 4.10 – Artificial Intelligence

Lesson	Title	Aims (Objectives)	Success Criteria
1	What is Artificial Intelligence?	• To understand the basic concept of artificial intelligence. • To identify real-life examples of artificial intelligence. • To recognise the impact of artificial intelligence in daily life.	• Children can define artificial intelligence in their own words. • Children can identify at least three examples of artificial intelligence.
2	How Artificial Intelligence can help us	• To recap what is meant by the terminology artificial intelligence. • To explore how artificial intelligence can assist and benefit us in various aspects of daily life.	• Children can define artificial intelligence. • Children can understand where AI can help us in our daily lives.
3	The future of Artificial Intelligence	• To understand the potential applications and impact of AI in the future. • To encourage critical thinking and creativity when thinking about the future of AI.	• Children can use critical thinking and creativity in envisioning the future of AI. • Children can express their ideas about the future of AI in a creative manner. • Children can collaborate effectively in paired activities.
4	Artificial Intelligence in action	• To understand how artificial intelligence is being used to create music and art. • To use artificial intelligence to create music and art.	• Children can try and establish which creative compositions are done by humans and which are done by artificial intelligence. • Children can use artificial intelligence to create images and music.

Unit 4.11 – Physical Devices – micro:bits

Lesson	Title	Aims (Objectives)	Success Criteria
1	Step Counter	• To understand how sensor inputs from the accelerometer can be used to detect movement, such as when a step is taken. • To understand that variables are used to keep track of the current step count. • To apply this learning to build a practical, real-world project.	• Children can turn a micro:bit into a step counter using the accelerometer and variables. • Children can explain that accelerometer is a sensor, an input that senses movement. • Children can explain that variables are containers for storing data which can be accessed and updated.
2	Night Light	• To Understand how inputs, outputs, and computer code work together to make control systems. • To understand how logic (conditional 'IF/ELSE' instructions) is used to make different outputs happen depending on changes in data from a sensor. • To use 'repeat forever' infinite loops to keep control systems responding to changes in the environment.	• Children can code a micro:bit to make a light that switches on when it gets dark using sensors and logic. • Children can explain that sensors are inputs that sense things in the real world, such as movement and light. • Children can explain that logic is how computers make decisions in code based on whether things are true or false.
3	Rock, Paper, Scissors	• To use the accelerometer via the 'when gesture: shake' block to start the code running. • To make use of logical 'IF' conditional instructions. • To apply these concepts to make a computer simulation of a real-world game.	• Children can code a micro:bit rock, paper, scissors game using inputs, random numbers, variables and logic. • Children can explain how combining inputs, random numbers, variables, and logic can make a computer simulation of a real-world game.
4	Making a Dice	• To use the accelerometer via the 'when gesture: shake' command to start the code running. • To make use of more complex logical 'IF' conditional instructions. • To apply these concepts to make a computer simulation of a real-world tool.	• Children can code a micro:bit dice using inputs, random numbers, variables and logic. • Children can explain how combining inputs, random numbers, variables, and logic can make a computer simulation of a real dice.

English National Curriculum Objectives (Key Stage 2)

National Curriculum Objective	Strand	Units
Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.	Computer Science	5.1 5.5 5.9 5.10
Use sequence, selection and repetition in programs; work with variables and various forms of input and output.	Computer Science	5.1 5.9 5.10
Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.	Computer Science	5.1 5.9 5.10
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.	Computer Science	5.2
Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.	Information Technology	Various Search technologies are taught more specifically in unit 4.7. Children will utilize this knowledge in many Internet based sessions in all areas of the curriculum.
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.	Information Technology	5.1 5.3 5.4 5.5 5.6 5.7 5.8 5.9 5.10

Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	Digital Literacy	5.2 and discussed in other units

National Curriculum Objective	Strand	Units
Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.	Computer Science	6.1 6.5 6.8
Use sequence, selection and repetition in programs; work with variables and various forms of input and output.	Computer Science	6.1
Use sequence, selection and repetition in programs; work with variables and various forms of input and output.	Computer Science	6.5
Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.	Computer Science	6.1 6.5 6.8
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.	Computer Science	6.2
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.	Computer Science	6.4
Understand computer networks, including the Internet; how they can provide multiple services, such as the World Wide Web; and the opportunities they offer for communication and collaboration.	Computer Science	6.6
Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.	Information Technology	6.2
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.	Information Technology	6.1 6.4 6.5 6.7 6.8 6.9
Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact*.	Digital Literacy	6.2 6.4

Year 5 / 6 Unit Overview

Unit 5.1 – Coding

Lesson	Title	Aims (Objectives)	Success Criteria
1	Coding Efficiently	• To review existing coding knowledge. • To begin to be able to **simplify** code. • To create a playable game.	• Children can use simplified code to make their programming more efficient. • Children can use variables in their code. • Children can create a simple playable game.
2	Simulating a Physical System	• To understand what a simulation is. • To program a simulation using 2Code.	• Children can plan an algorithm modelling the sequence of traffic lights. • Children can select the right images to reflect the simulation they are making. • Children can use their plan to program the simulation to work in 2Code.
3	Decomposition and Abstraction	• To know what decomposition and abstraction are in Computer Science. • To take a real-life situation, decompose it and think about the level of abstraction. • To use decomposition to make a plan of a real-life situation.	• Children can make good attempts to break down their task into smaller achievable steps. • Children recognise the need to start coding at a basic level of abstraction to remove superfluous details from their program that do not contribute to the aim of the task.
4	Friction and Functions	• To understand how to use friction in code. • To begin to understand what a function is and how functions work in code.	• Children can create a program which represents a physical system. • Children can create and use functions in their code to make their programming more efficient.
5	Introducing Strings	• To understand what the different variable types are and how they are used differently. • To understand how to create a string.	• Children can create and use strings in programming. • Children can set/change variable values appropriately. • Children know some ways that text variables can be used in coding.

6	Text Variables and Concatenation	• To begin to explore text variables when coding. • To understand what concatenation is and how it works.	• Children can create a string and use it in their program. • Children can use strings to produce a range of outputs in their program.

Unit 5.2 – Online Safety

Lesson	Title	Aims (Objectives)	Success Criteria
1	Responsibilities and Support when Online	• To gain a greater understanding of the impact that sharing digital content can have. • To review sources of support when using technology. • To review children' responsibility to one another in their online behaviour.	• Children critically about the information that they share online both about themself and others. • Children know who to tell if they are upset by something that happens online. • Children can use the SMART rules as a source of guidance when online.
2	Protecting Privacy	• To know how to maintain secure passwords. • To understand the advantages, disadvantages, permissions, and purposes of altering an image digitally and the reasons for this. • To be aware of appropriate and inappropriate text, photographs and videos and the impact of sharing these online.	• Children think critically about what they share online, even when asked by a usually reliable person to share something. • Children have clear ideas about good passwords. • Children can see how they can use images and digital technology to create effects not possible without technology. • Children have experienced how image manipulation could be used to upset them or others even using simple, freely available tools and little specialist knowledge.
3	Citing Sources	• 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.	• Children can cite all sources when researching and explain the importance of this. • Children select keywords and search techniques to find relevant information and increase reliability.

4	Reliability	• Ensuring reliability through using different methods of communication.	Children show an understanding of the advantages and disadvantages of different forms of communication and when it is appropriate to use each.

Unit 5.3 – Spreadsheets

Lesson	Title	Aims (Objectives)	Success Criteria
1	Conversions of Measurements	• To use formulae within a spreadsheet to convert measurements of length and distance.	• Children can create a formula in a spreadsheet to convert m to cm. • Children can apply this to creating a spreadsheet that converts miles to km and vice versa.
2	Using Formulae	• To use a spreadsheet to model a real-life problem. • To use formulae to calculate area and perimeter of shapes.	• Children can use a spreadsheet to work out the area and perimeter of rectangles. • Children can use these calculations to solve a real-life problem.
3	Exploring Probability	• To use a spreadsheet to investigate the probability of the results of throwing many dice.	• Children can create a spreadsheet to answer a mathematical question relating to probability. • Children can take copy and paste shortcuts. • Children can problem solve using the count tool.
4 & 5	Computational Modelling	• To use spreadsheets to model real-life situations. • To use the created spreadsheet to make decisions about these situations.	• Children can use spreadsheets to model real-life situations and produce solutions that can be practically applied.
6	Testing a hypothesis	• To use the count tool to answer hypotheses about common letters in use.	• Children can use a spreadsheet to work out which letters appear most often. • Children can use the count tool.

Unit 5.4 – Databases

Lesson	Title	Aims (Objectives)	Success Criteria
1	Searching a Database	• To learn how to search for information in a database.	• Children understand the different ways to search a database. • Children can search a database to answer questions correctly.
2	Creating a Class Database	• To contribute to a class database.	• Children can design an avatar for a class database. • Children can successfully enter information into a class database.
3 & 4	Creating a Topic Database	• To create a database around a chosen topic.	• Children can create their own database on a chosen topic. • Children can add records to their database. • Children know what a database field is and can correctly add field information. • Children understand how to word questions so that they can be effectively answered using a search of their database.

Unit 5.5 – Game Creator

Lesson	Title	Aims (Objectives)	Success Criteria
1	Setting the scene.	• To Introduce the 2DIY 3D tool. • To begin planning a game.	• Children can review and analyse a computer game. • Children can describe some of the elements that make a successful game. • Children can begin the process of designing their own game.
2	Creating the Game Environment	• To design the game environment.	• Children can design the setting for their game so that it fits with the selected theme. • Children can upload images or use the drawing tools to create the walls, floor, and roof.

3	The Game Quest	• To design the game quest to make it a playable game.	• Children can design characters for their game. • Children can decide upon, and change, the animations and

			sounds that the characters make.
4	Finishing and Sharing	• To finish and share the game.	• Children can make their game more unique by selecting the appropriate options to maximise the playability. • Children can write informative instructions for their game so that other people can play it.
5	Evaluation	• To self- and peer-evaluate. •	• Children can evaluate my their own and peers' games to help improve their design for the future.

Unit 5.6 – 3D Modelling

Lesson	Title	Aims (Objectives)	Success Criteria
1	Introducing 2Design and Make	• To be introduced to the 2Design and Make tool.	• Children know what the 2Design and Make tool is for. • Children can explore the different viewpoints in 2Design and Make whilst designing a building.
2	Moving Points	• To explore the effect of moving points when designing.	• Children can adapt one of the vehicle models by moving the points to alter the shape of the vehicle while still maintaining its form.
3	Designing for a Purpose	• To design a 3D model to fit certain criteria.	• Children can explore how to edit the polygon 3D models to design a 3D model for a purpose.

4	Printing and Making	• To refine and print a model.	• Children can refine one of their designs to prepare it for printing. • Children can print their design as a 2D net and then created a 3D model. • Children can explore the possibilities of 3D printing.

Unit 5.7 – Concept Maps

Lesson	Title	Aims (Objectives)	Success Criteria
1	Introduction to Concept Mapping	• To understand the need for visual representation when generating and discussing complex ideas. • To understand the uses of a 'concept map'.	• Children can make connections between thoughts and ideas. • Children can see the importance of recording concept maps visually.
2	Using 2Connect	• To understand and use the correct vocabulary when creating a concept map. • To create a concept map.	• Children understand what is meant by 'concept maps', 'stage', 'nodes' and 'connections.' • Children can create a basic concept map.
3	2Connect Story Mode	• To understand how a concept map can be used to retell stories and information.	• Children have used 2Connect Story Mode to create an informative text.
4	Collaborative Concept Maps	• To create a collaborative concept map and present this to an audience.	• Children have used 2Connect collaboratively to create a concept map. • Children have used Presentation Mode to present their concept maps to an audience.

Unit 5.8 – Word Processing (with Microsoft Word – Desktop and Online version)

Lesson	Title	Aims (Objectives)	Success Criteria
1	Making a Document from a Blank Page	• To know what a word processing tool is for.	• Children know what a word processing tool is for. • Children will be able to create a word processing document altering the look of the text and navigating around the document.
2	Inserting Images: Considering Copyright	• To add and edit images to a word document.	• Children know how to add images to a word document. • Children can edit images to reduce their file size. • Children know the correct way to search for images that they are permitted to reuse. • Children know how to attribute the original artist of an image.
3	Editing Images in Word	• To know how to use word wrap with images and text.	• Children can edit their images within Word to best present them alongside text. • Children understand wrapping of images and text.
4	Adding the Text	• To change the look of text within a document.	• Children can add appropriate text to their document, formatting in a suitable way. • Children can use a style set in Word. • Children can use bullet points and numbering.
5	Finishing Touches	• To add features to a document to enhance its look and usability.	• Children can add text boxes and shapes. • Children can consider paragraph formatting such as line spacing, drop capitals. • Children can add hyperlinks to an external website. • Children can add an automated contents page.

6	Presenting Information Using Tables	● To use tables within MS Word to present information.	● Children can add tables to present information. ● Children can edit properties of tables including borders, colours, merging cells, adding and removing rows and columns. ● Children can add word art for a heading.

7	Writing a Letter Using a Template	• To introduce children to templates.	• Children can use a Word template and edit it appropriately.
8	Presenting Information - Newspaper	• To consider page layout including heading and columns.	• Children can format a page using a combination of images, headers and columns.

Unit 5.8 – Word Processing (with Microsoft Word – Tablet App)

Lesson	Title	Aims (Objectives)	Success Criteria
1	Creating a Document	• To know what a word processing tool is for.	• Children know what a word processing tool is for. • Children will be able to create a word processing document altering the look of the text and navigating around the document.
2	Inserting Images: Considering Copyright	• To add and edit images to a word document.	• Children know how to add images to a word document. • Children know the correct way to search for images that they are permitted to reuse. • Children know how to attribute the original artist of an image.
3	Editing Images	• To know how to use word wrap with images and text.	• Children can edit their images within Word. • Children understand wrapping of images and text.
4	Adding the Text	• To change the look of text within a document.	• Children can add appropriate text to their document, formatting in a suitable way. • Children can style text. • Children can use bullet points and numbering.
5	Finishing Touches	• To add features to a document to enhance its look and usability.	• Children can add text boxes and shapes. • Children can add hyperlinks to an external website.

6	Using Tables	● To use tables within MS Word to present information.	● Children can add tables to present information. ● Children can edit properties of tables including borders, colours, merging cells, adding and removing rows and columns. ● Children can add word art for a heading.
7	Writing a Letter Using a Template	● To introduce children to templates.	● Children can use a Word template and edit it appropriately.

Unit 5.8 – Word Processing (with Google Docs)

Lesson	Title	Aims (Objectives)	Success Criteria
1	Making a Document from a Blank Page	• To know what a word processing tool is for.	• Children know what a word processing tool is for. • Children will be able to create a word processing document, altering the look of the text and navigating around the document.
2	Inserting Images: Considering Copyright	• To add and edit images to a document.	• Children know how to add images to a document. • Children know the correct way to search for images that they are permitted to reuse. • Children know how to attribute the original artist of an image.
3	Editing Images	• To know how to use word wrap with images and text.	• Children can edit their images within Docs to best present them alongside text. • Children understand wrapping of images and text.
4	Adding the Text	• To change the look of text within a document.	• Children can add appropriate text to their document, formatting in a suitable way. • Children can use styles to format a document. • Children can use bullet points and numbering.
5	Finishing Touches	• To add features to a document to enhance its look and usability.	• Children can add text boxes and shapes. • Children can use page breaks, headers and footers. • Children can add hyperlinks to places in the document and to an external website. • Children can add an automated contents page.
6	Sharing Files	• To use the sharing capabilities in Google docs	• Children can share their documents with selected users. • Children understand the different permissions when sharing in Google docs. • Children can share using a share link.

7	Presenting Information Using Tables	• To use tables within Google Docs to present information.	• Children can create a vector drawing in their document. • Children can add tables to present information.

			• Children can edit properties of tables including borders, colours, merging cells, adding and removing rows and columns.
8	Writing a Letter Using a Template	• To introduce children to templates.	• Children can use a template and edit it appropriately. • Children can use the spelling and grammar tools built into Google docs. • (Optional) Children know how to save a document as a pdf and the reasons for doing this. • (Optional) Children know how to print their documents and can print ranges of pages.

Unit 5.9 – Using External Devices – Purple Chip

Lesson	Title	Aims (Objectives)	Success Criteria
1	Introducing Purple Chip	• To understand what Purple Chip is. • To be able to upload a program to an external device. • To adapt a program and operate it using Purple Chip	• Children can upload programs to Purple Chip. • Children can adapt code, test it using the emulator and then upload it to an external device.
2	Operating a program using device movement and actions	• To understand how a device can be programmed to be used as a game controller.	• Children can make a program that responds to an external device being tilted and shaken with visual effects and sounds.
3	Text functions with an external device	• To explore the text functions available and appraise their uses. • To create a simple quiz program that can be answered using an external device.	• Children understand how they can program in text-based interactions between a program and an external device. • Children can adapt a simple quiz.
4	Interacting with the 'real world'	• To create a program in which an external device can be used to monitor real world conditions.	• Children can write a program that uses the sounds and motion sensors of an external device to trigger a response on the computer.

5	Extended Project (1)	• To design a program for the Purple Chip	• Children can design a program of their choosing that make use of the Purple Chip functionality.
6	Extended Project (2)	• To code, test, debug and share a program for the Purple Chip	• Children can design, code, test and debug a program of their choosing

			that make use of the Purple Chip functionality.

Unit 5.10 – Using External Devices – micro:bit

Lesson	Title	Aims (Objectives)	Success Criteria
1	1. Tell me a Story	• Use the accelerometer via the 'when gesture: shake' event to start the code running. • Make use of logical 'IF/THEN' conditional instructions. • Apply these concepts to tell a story.	• Children can code a story telling game using a 'when gesture' event, random numbers, **variables** and logic IF/THEN commands. • Children can explain how a computer uses IF/THEN logic statements to select which image to display.
2	2. Measuring Temperature	• Use input from the micro:bit sensor to display temperature on the LED display. • To understand how IF/THEN statements introduce selection in a program to make things happen based on conditions. • Apply these concepts to make a computer **simulation** of a real-world system.	• Children can program a micro:bit to display the temperature measured by the sensor. • Children can explain that **sensors** are inputs that sense things in the real world, such as movement, temperature and light. • Children can program IF/THEN statements to introduce **selection** in their code to make things happen based on changing temperature.
3	3. Magic 8 Ball	• Use **input** from the accelerometer **sensor** as the event to start the code running. • Understand that **variables** are used to choose from a set of Magic 8 Ball answers. • Make use of more complex **logical** 'IF' conditional instructions. • Apply these concepts to make a computer **simulation** of a real-world tool.	• Children can program the 'when gesture: faceup' command to start the code running. • Children can code a micro:bit Magic 8 Ball using gesture **inputs**, random numbers, **variables** and logic. • Children can explain that **variables** are named areas in device memory and are used in programming to keep track of data.

4	4. GOAL!!	• Use **input** from the micro:bit **pins** to display a goal score on the LED display. • Understand that **variables** are used to keep track of goals scored.	• Children can program a simulation of a football match using a 'when pin' event command, **variables** and **text** output commands to update and display goals scored.

		• Apply these concepts to make a computer **simulation** of football match.	• Children can explain that **variables** are named areas in device memory and are used in programming to keep track of data. The data can be accessed and updated.

Year 6 Unit Overview

Unit 6.1 – Coding

Lesson	Title	Aims (Objectives)	Success Criteria
1 &2	Designing and making a more complex program	• To design a playable game with a **timer** and a **score**. • To plan and use **selection** and **variables**. • To understand how the **launch command** works.	• Children can plan a program which includes a timer and a score. • Children can follow their plans to create a program. • Children can debug when things do not run as expected.
3	Using functions	• To use **functions** and understand why they are useful. • To understand how **functions** are created and **called**.	• Children can create a program that makes use of functions. • Children can create a program that uses multiple functions with the code arranged in tabs. • Children can explain how their code executes when their program is run.
4	Flowcharts and control simulations	• To use **flowcharts** to test and **debug** a program. • To create a **simulation** of a room in which devices can be controlled.	• Children can follow flowcharts to create and debug code. • Children can create flowcharts for procedures. • Children can be creative with the way they code to generate novel visual effects.

5	User input	• To understand the different options of generating **user input** in 2Code. • To understand how **user input** can be used in a program.	• Children can code programs that take text input from the user and use this in the program. • Children can attribute variables to user input. • Children are aware of the need to code for all possibilities when using user input.

6	Using text-based adventures	• To understand how 2Code can be used to make a text-based adventure game.	• Children can follow through the code of how a text adventure can be programmed in 2Code. • Children can design their own text-based adventure game based on one they have played. • Children can adapt an existing text adventure so it reflects their own ideas.

Unit 6.2 – Online Safety

Lesson	Title	Aims (Objectives)	Success Criteria
1	Message in a game	• To identify benefits and risks of mobile devices broadcasting the location of the user/device, e.g., apps accessing location. • To identify secure sites by looking for privacy seals of approval, e.g., https, padlock icon. • To identify the benefits and risks of giving personal information and device access to different software.	• Children have used the example game and further research to refresh their memories about risks online including sharing location, secure websites, spoof websites, phishing, and other email scams. • Children have used the example game and further research to refresh their memories about the steps they can take to protect themselves including protecting their digital footprint, where to go for help, smart rules and security software.
2	Online behaviour	• To review the meaning of a digital footprint and understand how and why people use their information and online presence to create a virtual image of themselves as a user. • To have a clear idea of appropriate online behaviour and how this can protect themselves and others from possible online dangers, bullying and inappropriate behaviour. • To begin to understand how information online can persist and give away details of those who share or modify it.	• Children understand how what they share impacts upon themselves and upon others in the long-term. • Children know about the consequences of promoting inappropriate content online and how to put a stop to such behaviour when they experience it or witness it as a bystander. • **Extension:** Children' actions demonstrate that they also feel a responsibility to others when communicating and sharing content online.
3	Screen time	• To understand the importance of balancing game and screen time with other parts of their lives, e.g., explore the reasons why they may be tempted to spend more time playing games or find it difficult to stop playing and the effect this has on their health. • To identify the positive and negative influences of technology on health and the environment.	• Children can take more informed ownership of the way that they choose to use their free time. They recognise a need to find a balance between being active and digital activities. • Children can give reasons for limiting screen time. • Children can talk about the positives and negative aspects of technology and balance these opposing views. • **Extension:** Children have an internalised in-depth understanding of the risks and benefits of an online presence.

Unit 6.4 – Blogging

Lesson	Title	Aims (Objectives)	Success Criteria
1	What is a Blog?	• To identify the purpose of writing a blog. • To identify the features of successful blog writing.	• Children understand how a blog can be used as an informative text. • Children understand the key features of a blog.
2	Planning a Blog	• To plan the theme and content for a blog.	• Children can work collaboratively to plan a blog.
3	Writing a Blog	• To understand how to write a blog and a blog post. • To consider the effect upon the audience of changing the visual properties of the blog. • To understand how to contribute to an existing blog.	• Children can create a blog or blog post with a specific purpose. • Children understand that the way in which information is presented has an impact upon the audience.
4	Sharing Posts and Commenting	• To understand the importance of commenting on blogs. • To peer-assess blogs against the agreed success criteria. • To understand how and why blog posts and comments are approved by the teacher.	• Children can post comments and blog posts to an existing class blog. • Children understand the approval process that their posts go through and demonstrate an awareness of the issues surrounding inappropriate posts and cyberbullying. • Children can assess the effectiveness and impact of a blog. • Children understand that content included in their blog carefully considers the end user.

Unit 6.5 – Text Adventures

Lesson	Title	Aims (Objectives)	Success Criteria
1	What Is a Text Adventure? Planning a Story Adventure	• To find out what a text-based adventure game is and to explore an example made in 2Create a Story. • To use 2Connect to plan a 'Choose your own Adventure' type story.	• Children can describe what a text adventure is. • Children can map out a story-based text adventure. • Children can use 2Connect to record their ideas. • **Extension:** Children can turn a simple story with 2 or 3 levels of decision making into a logical design
2	Making a Story-based Adventure Game	• To use 2Connect plans for a story adventure to make the adventure using 2Create a Story.	• Children can use the full functionality of 2Create a Story Adventure mode to create, test and debug using their plan. • Children can split their adventure- game design into appropriate sections to facilitate creating it.
3	Coding Comprehension of Text Adventure Game	• To read and understand given code for a text adventure game.	• Children can explain the features and purpose of code within a given text adventure. • Children are able to step through each line of code and follow the flow of execution.
4	Debugging and Improving a Text Adventure.	• To debug a text adventure. • To independently design and implement improvements to a text adventure game.	• Children can make logical attempts to debug more complex code involving a combination of functions, variables and a loop. • Children can suggest and implement ideas to further develop the program.

Unit 6.6 – Networks

Lesson	Title	Aims (Objectives)	Success Criteria
1	The World Wide Web and the Internet	• To discover what the children know about the Internet.	• Children know the difference between the World Wide Web and the internet. • **Extension:** Children can provide examples of the difference between the World Wide Web and the Internet.
2	Our School Network and Accessing the Internet	• To find out what a LAN and WAN are. • To find out how we access the internet in school.	• Children know about their school network. • **Extension:** Children can explain the differences between more than two network types such as: LAN, WAN, WLAN and SAN.
3	Research	• To research and find out about the age of the internet. • To think about what the future might hold.	• Children have researched and found out about Tim Berners-Lee. • Children have considered some of the major changes in technology which have taken place during their lifetime and the lifetime of their teacher/another adult.

Unit 6.7 – Quizzing

Lesson	Title	Aims (Objectives)	Success Criteria
1	Introducing 2DIY	• To create a picture-based quiz for young children.	• Children have used the 2DIY activities to create a picture-based quiz. • Children have considered the audience's ability level and interests when setting the quiz. • Children have shared their quiz and responded to feedback.
2 & 3	Using 2Quiz	• To learn how to use the question types within 2Quiz.	• Children understand the different question types within 2Quiz. • Children have ideas about what sort of questions are best suited to the different question types. • Children have used 2Quiz to make and share a science quiz (or another subject). • Children have considered the audience's ability level and interests when setting the quiz. • Children have shared their quiz with peers. • Children have given and responded to feedback.
4	Exploring Grammar Quizzes	• To explore the grammar quizzes.	• Children have tried out the different types of grammar games. • Children have chosen an appropriate tool to make their own grammar game(s).
5	A Database Quiz	• To make a quiz that requires the player to search a database.	• Children have used a 2Investigate quiz to answer quiz questions. • Children have designed their own quiz based on one of the 2Investigate example databases.
6	Using a survey	• To develop skills in creating surveys and questionnaires. • To use a survey to gain information rather than	• Children have used their knowledge of quiz types to create a quiz show quiz based on a curriculum area.

		scores.	

Unit 6.8– Understanding Binary

Lesson	Title Examine how whole numbers are used as the basis for representing all types of data in digital systems through:	Aims (Objectives)	Success Criteria Children understand binary as a number system and its purpose and application in computing.
1	What is Binary?	• To examine how whole numbers are used as the basis for representing all types of data in digital systems. • To recognise that digital systems represent all types of data using number codes that ultimately are patterns of 1s and 0s (called binary digits, which is why they are called digital systems). • To understand that binary represents numbers using 1s and 0s and these represent the on and off electrical states respectively in hardware and robotics.	• Children can explain how all data in a computer is saved in the computer memory in a binary format. • Children can explain that binary uses only the integers 0 and 1. • Children can relate 0 to an 'off' switch and 1 to and 'on' switch.
2	Counting in Binary	• To examine how whole numbers are used as the basis for representing all types of data in digital systems. • To recognise that the numbers 0, 1, 2 and 3 could be represented by the patterns of two binary digits of 00, 01, 10 and 11 • To represent whole numbers in binary, for example counting in binary from zero to 15, or writing a friend's age in binary.	• Children can count up from 0 in binary using visual aids if needed. • Children can relate bits to computer storage.
3	Converting from Decimal to Binary	• To examine how whole numbers are used as the basis for representing all types of data in digital systems. • To represent whole numbers in binary, for example counting in binary from zero to 15, or writing a friend's age in binary. • To explore how division by two can be used as a technique to determine the binary representation of any whole number by collecting remainder terms.	• Children can convert numbers to binary using the division by two method. • Children can check their own answers using the converter tool.

4	Game States	• To examine how whole numbers are used as the basis for representing all types of data in digital systems.	• Children can make use of a variable set to 0 or 1 to control game states.

		• To represent the state of an object in a game as active or inactive using the respective binary values of 1 or 0.	

Unit 6.9– Spreadsheets (with Microsoft Excel)

Lesson	Title	Aims (Objectives)	Success Criteria
1	What is a Spreadsheet?	• To know what a spreadsheet looks like. • To navigate and enter data into cells.	• Children know some uses of a spreadsheet tool. • Children can navigate around a spreadsheet using cell references. • Children can enter data into cells. • Children understand new vocabulary relating to spreadsheets: cells, columns, rows, cell names, sheets, workbook.
2	Basic Calculations	• To introduce some basic data formulae in Excel. • To demonstrate how the use of Excel can save time and effort when performing calculations.	• Children can use a spreadsheet to carry out basic calculations including addition, subtraction, multiplication and division formulae. • Children can use the series fill function. • Children recognise how using formulae allows the data to change and the calculations to update automatically.
3	Modelling	• To use a spreadsheet to model a situation.	• Children can use a spreadsheet to model a situation. • Children can use a spreadsheet to solve a problem. • Children can use the SUM function
4	Organising Data	• To demonstrate how Excel can make complex data clear by manipulating the way it is presented.	• Children can use a variety of methods including flash fill, convert text to tables and splitting cells for organising and presenting their data in a spreadsheet. • Children know what is meant by a delimiter. • Children understand how to sort data.
5	Advanced Formulae and Big Data	• To use formulae for percentages, averages, max and min in spreadsheets.	• Children know how to incorporate formulae for percentages, averages, max and min into their spreadsheets. • Children gain familiarity with range notation. • Children know some shortcuts that help to make data meaningful. • Children begin to develop a critical eye when it comes to the conclusions that can be made from data.

6	Charts and Graphics	• To create a variety of graphs in Excel.	• Children know that there are ways to represent their data graphically and that spreadsheets can make the process of representing data easier.

			• Children gain an understanding of how a graphical representation can make data easier to interpret. • Children make a variety of charts using Sheets. • Children illustrate their data using sparklines and data bars.
7	Using a Spreadsheet to Plan a Cake Sale	• To use a spreadsheet to model a real-life situation.	• Children can understand how a spreadsheet can be used to plan an event. • Children understand the advantages of using formulae when data is subject to change. • Children have modelled a real-life situation using a spreadsheet.
8	Using a Spreadsheet to Solve Problems	• To apply spreadsheet skills to solving problems.	• To apply all new spreadsheet skills to solving problems and presenting data. • To explore printing spreadsheets.

Unit 6.9– Spreadsheets (with Google sheets)

Lesson	Title	Aims (Objectives)	Success Criteria
1	What is a Spreadsheet?	• To know what a spreadsheet looks like. • To navigate and enter data into cells.	• Children know some uses of a spreadsheet tool. • Children can navigate around a spreadsheet using cell references. • Children can enter data into cells. • Children understand new vocabulary relating to spreadsheets: cells, columns, rows, cell names, sheets, workbook.
2	Basic Calculations	• To introduce some basic data formulae in Sheets. • To demonstrate how the use of Sheets can save time and effort when performing calculations.	• Children can use a spreadsheet to carry out basic calculations including addition, subtraction, multiplication and division formulae. • Children can use the series fill function. • Children recognise how using formulae allows the data to change and the calculations to update automatically.

3	Modelling	● To use a spreadsheet to model a situation.	● Children can use a spreadsheet to model a situation. ● Children can use a spreadsheet to solve a problem. ● Children can use the SUM function
4	Organising Data	● To demonstrate how spreadsheets can make complex data clearer by manipulating the way it is presented.	● Children can use a variety of methods including flash fill, convert text to tables and splitting cells for organising and presenting their data in a spreadsheet.

			• Children know what is meant by a delimiter. • Children understand how to sort data.
5	Advanced Formulae and Big Data	• To use formulae for percentages, averages, max and min into spreadsheets.	• Children know how to incorporate formulae for percentages, averages, max and min into their spreadsheets. • Children gain familiarity with range notation. • Children know some shortcuts that help to make data meaningful. • Children begin to develop a critical eye when it comes to the conclusions that can be made from data.
6	Charts and Graphics	• To create a variety of charts and graphs to understand data.	• Children know that there are ways to represent their data graphically and that spreadsheets can make the process of representing data easier. • Children gain an understanding of how a graphical representation can make data easier to interpret. • Children make a variety of charts using Sheets. • Children illustrate their data using sparklines and data bars.
7	Using a Spreadsheet to Plan a Cake Sale	• To use a spreadsheet to model a real-life situation.	• Children can understand how a spreadsheet can be used to plan an event. • Children understand the advantages of using formulae when data is subject to change. • Children have modelled a real-life situation using a spreadsheet.
8	Using a Spreadsheet to Solve Problems	• To apply spreadsheet skills to solving problems.	• To apply all new spreadsheet skills to solving problems and presenting data. • To explore printing spreadsheets.