WISE CROFTWAY ACADEMY

WISE MORPETH ROAD ACADEMY

WISE MALVIN'S CLOSE ACADEMY

Computing

01

Develop our children as lifelong learners.
(Ambitious, Independent)

02

Develop the character of our children.
(Tolerant, Responsible)

03

Develop behaviours and habits to become effective learners.
(Co-operative, Resilient)

04

Develop the moral compass of our children.
(Empathetic, Honest)

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"Computing is not about computers anymore. It is about living." - Nicholas Negroponte

INTENT

Our computing curriculum aims to give our pupils the life-skills that will enable them to embrace and utilise new technology in a socially responsible and safe way in order to flourish. We want our pupils to be able to operate in the 21st century workplace and we want them to know the career opportunities that will be open to them if they study computing. We want children to become autonomous, independent users of computing technologies, gaining confidence and enjoyment from their activities. We want the use of technology to support learning across the entire curriculum and to ensure that our curriculum is accessible to every child. Not only do we want them to be digitally literate and competent end-users of technology but through our computer science lessons we want them to develop creativity, resilience and problem-solving and critical thinking skills. '**Computing also ensures that pupils become digitally literate** ' **(The National Curriculum)**

Implementation

Computing is taught using a blocked curriculum approach ensuring a balanced coverage of computer science, information technology and digital literacy. This ensures children are able to develop depth in their knowledge and skills over the duration of each of their computing topics. Computing is planned using schemes of work that have been developed using the national curriculum. Planning is supported by Purple Mash to provide teachers with the confidence to deliver a computing curriculum from EYFS to Year 6, which are often richly linked to engaging contexts in other subjects and topics. Knowledge and skills are mapped across each year group to ensure systematic progression. We use Chromebooks and IPads alongside a range of other hardware to ensure that all year groups have the opportunity to use a range of devices and programs for many purposes across the wider curriculum, as well as in discrete computing lessons. The computing curriculum is also enhanced by local resources enabling the children access to specialist equipment. Employing cross-curricular links motivates pupils and supports them to make connections and remember the steps they have been taught.

Our key knowledge concepts are: Algorithms, logic, data representation, artificial and digital systems

Our key skills concepts are: Control, handling data and information, sound and music, understanding technologies, text and multimedia, digital images and research and internet safety.

Enrichment	Supporting Children:
We embed computing into the wider school curriculum through a variety of means. Children develop computational skills, challenges and scenarios through a range of activities such as after school clubs, safer internet day and visitors coming into school. Visitors support and deliver the use of sphero balls, virtual reality headsets and the use of 3D printers enhancing the use of technology in the modern world. Children explore computing careers within University college where computing is integrated to show how technology and IT is used in the modern world. Careers week and focused work surrounding this area help children remember knowledge and support further the skills used across the curriculum.	All children are entitled to an appropriate education, one that is bespoke to their needs, promotes ambitious standards and the fulfilment of potential. This will enable them to achieve their best and become confident individuals living fulfilling lives. Computing lessons are planned to address potential areas of difficulty and to remove barriers to pupil achievement. Teachers make reasonable adjustments, to prevent disadvantage and discrimination and to promote equality of opportunity for all pupils. In addition support is provided through pre-teaching any subject specific vocabulary, Visual and auditory prompts and task planners
How we develop the moral compass and character of our children	**Impact**
Learning allows pupils to enjoy exploring different problems from the real world. The teaching of Computer Science will develop independent pupils who thrive from making mistakes and learning from it. Teaching Computer Science allows us to create future citizens who can use technology fluently and understand the implications of technology in the real world. Pupils will have the opportunity to investigate different problems from the real world, come up with solutions and critique the solutions from others. All pupils have the right to study Computer Science as it will give them a sound footing in a world dominated by technology and problems.	In KS1 we build children's basic understanding of being safe when using technology. They are introduced to algorithms through unplugged activities and use of computer programs and apps to develop their understanding of block coding. They develop their understanding of staying safe online and use the internet to gather information. Within KS2, children use the internet to find a range of information and use programs to develop their digital literacy. Deepening their understanding of block coding, children use a range of devices to test and debug algorithms. Children's achievements are evidenced through Google Classroom and shared on the drive. Judgements are based on teacher judgement.

National Curriculum Objectives

Area of Learning	Computer Science	Information Technology	Digital Literacy
KS1	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
KS2	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 Appreciate how [search] results are selected and ranked	Use search technologies effectively 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	Understand the opportunities [networks] offer for communication and collaboration Be discerning in evaluating digital content Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact

NC: Problem solving and creativity to be an integral part of computing as it equips pupils to understand the world

Curriculum End Points and Key Knowledge

These indicate what we want the children to know and the key computational skills we want them to be confident in by the end of each unit. They are organised around the key areas identified in the National Curriculum.

Computing Science Information Technology Digital Literacy

Blyth WISE Computing Curriculum Overview						
	Autumn 1	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
Nursery	**Using Equipment** Exploration and creativity- toys can be wound up, pulled backwards, turned on and off Logic- Know that they can turn on and off, know how to turn devices on and off Analysis- navigate touch screens		**Using Equipment** Exploration and creativity- know how toys work: pressing, pulling lifting. Logic- Know that they can turn on and off, know how to turn devices on and off Responsibility and Safety- Internet can be used to find information . Adult is needed to keep them safe Analysis- navigate touch screens Emerging Tech-how to use iPads , cameras and phones		**Using Equipment** Exploration and creativity- know how toys work: pressing, pulling lifting. Logic- Know that they can turn on and off, know how to turn devices on and off Responsibility and Safety- Internet can be used to find information . Adult is needed to keep them safe Analysis- navigate touch screens Emerging Tech-how to use iPads , cameras and phones	
Reception	**Using Equipment** Logic-how to turn on iPads Responsibility and Safety- internet can be used to find information . Adult is needed to keep them safe Analysis- navigate touch screens Emerging Tech- how to use iPads , cameras and phones		**Using Equipment** Exploration and creativity- how to complete simple programmes, talk buttons Logic- how to turn on iPads Responsibility and Safety-internet can be used to find information . Adult is needed to keep them safe Analysis- navigate touch screens Emerging Tech-how to use iPads , cameras and phones		**Using Equipment** Exploration and creativity- how to complete simple programmes. Create videos on iPads Logic-programme a toy Responsibility and Safety- internet can be used to find information . Adult is needed to keep them safe Analysis- navigate touch screens Emerging Tech- how to use iPads , cameras and phones	

Year 1	**Online Safety & Exploring Purple Mash** **Logic-** To know how to log in using a username and password. **Data representation-** Save work on Purple Mash. **Artificial and Digital Systems-** Navigate Purple Mash and locate where work is stored. **Communication and coordination-** Respond to a notification on Purple Mash. **Digital Literacy -** Create an avatar. **Research & Internet Safety -** Understand what a password is.	**Grouping and sorting** **Algorithms- An algorithm is a precise, step-by-step set of instructions used to solve a problem or achieve an objective.** **Logic- Follow instructions to get the correct result.** **Data representation- A computer is an electronic device.** **Artificial and Digital Systems- Computers need precise instructions to follow.** **Communication and coordination-** **Research & Internet Safety - Understand SMART rules**	**Coding** **Algorithms- Use directional language** **Logic- coding mistakes are called bugs, debugging identifies and fixes a mistake** **Data representation- The scale is the size of an object in 2Code.** **Artificial and Digital Systems- Inputs are information going into the computer and outputs are information coming out of the computer.** **Digital Literacy - Properties can be changed by writing code.** **Research & Internet Safety - Understand in 'SMART' 'T' means to tell a responsible adult if you are worried.**		**Pictograms** **Logic- data is a group of facts and used for different purposes.** **Data Representation- data can be collected and represented. using pictures** **Artificial and Digital Systems- technology is used to collect data** **Communication and Coordination - information comes from different sources** **Digital Literacy - images can represent words** **Research & Internet Safety - private means keep it to yourself. Keep personal information safe. Personal information belongs to someone**	**Spreadsheets** **Algorithms- Use the 'count' tool.** **Logic- Organise information on a spreadsheet.** **Communication and coordination- Use the 'speak' tool.** **Digital Literacy - Add clipart images.** **Research & Internet Safety - Understand in 'SMART' 'A' means accept and to know what and what not to accept online.**
Year 2	**Coding** **Algorithms-** An event is something that causes a block of code to be run. **Logic-** Predict what will happen when a piece of code is run. **Data representation-** Explain the design mode in 2Code. **Artificial and Digital Systems-** An object is an element in a computer program that can be changed using actions or properties. **Digital Literacy -** Explain collision detection. **Research & Internet Safety -** Understand how to stay safe online.		**Effective searching** **Algorithms-** Google uses algorithms to record the search. **Artificial and Digital Systems-** The Internet is the network of computers the World Wide Web works on. **Communication and coordination-** Know the difference between the World Wide Web and the Internet. **Digital Literacy -** You can use the internet to communicate. **Research & Internet Safety -** Understand what a digital footprint is.	**Making music** **Algorithms-** All devices use algorithms to respond to our actions. **Logic-** Compose music using 2Beat. **Artificial and Digital Systems-** Save, retrieve, edit and resave work in Purple Mash. **Communication and coordination-** Share work between different devices. **Digital Literacy -** Understand digitally means digital or computer technology. **Research & Internet Safety -** Use the search bar to find information on Purple Mash.	**Spreadsheets** **Logic-** Understand what a 'magic square' is. **Data representation-** data is a collection of information, collected by observation, questions or measurement. **Digital Literacy -** Internet images into cells. **Research & Internet Safety -** Understand what privacy means.	**Presenting ideas** **Logic- Explain what an ebook, concept map and quiz is.** **Data representation- Data can be structured into tables.** **Communication and coordination- Understand what a presentation is.** **Digital Literacy - Understand digital content can be represented in many forms.** **Research & Internet Safety - Assess the reliability of information**

Year 3	**Coding** **Algorithms-** Debug any problems in the code, fixing and testing them. **Logic-** Change an object in the computer program. **Communication and coordination-** Understand outputs. **Digital Literacy -** Create a scene. **Research & Internet Safety -** Tell a trusted adult if there is a problem online.		**Email** **Logic- Compose an email.** **Artificial and Digital Systems- Emails are messages sent electronically.** **Communication and coordination- Understand how to send an email.** **Digital Literacy - Understand how to attach a file to an email.** **Research & Internet Safety - Know how to create a safe password.**		**Branching databases** **Algorithms-** debugging is finding a problem fixing and testing them. **Data representation-** database is a collection of data organised in such a way that it can be searched, and information found easily. **Communication and coordination-** Add sound. **Digital Literacy -** Add images. **Research & Internet Safety -** Identify a spoof website.	**Graphing** **Logic-** a graph is a diagram showing the value of objects. **Data representation-** Create a block graph, line graph and pie chart. **Research & Internet Safety -** Understand cyberbullying and how to address it.
Year 4	**Logo** **Algorithms-** LOGO is a text-based coding language used to control an on screen turtle to create mathematical patterns. **Logic-** Use the 'call' function. **Communication and coordination-** Understand how to move in 2Logo. **Digital Literacy -** Use the pen in 2Logo. **Research & Internet Safety -** Explain their digital footprint	**Hardware investigators** **Logic-** hardware refers to the physical parts of a computer or device. **Artificial and Digital Systems-** Understand how a computer works. **Research & Internet Safety -** Explain what malware is.	**Animation** **Algorithms**- animation is the process giving the illusion of movement. **Logic-** movies are a collection of images, images and videos can be put together, stop motion. **Digital Literacy-** Movies are multimedia platforms **Research & Internet Safety -** Identify how to protect their identity online.	**Making music** **Logic-** Use the rippler tool. **Artificial and Digital Systems-** Create different tunes. **Research & Internet Safety -** Explain what plagiarism is.	**Coding** **Algorithms-** Use different commands. **Logic-** Predict what will happen when a piece of code in run,, **Data representation-** Use a flowchart to represent an algorithm. **Communication and coordination-** Use a timer to run code. **Digital Literacy -** Create a background. **Research & Internet Safety -** Explain how to have healthy screen time.	
Year 5	**Game creator** **Algorithms-** animation is creating an illusion of movement. **Logic-** a computer game is a game played using a computer, typically a video game. **Communication and coordination-** Input information into a device. **Digital Literacy -** Create characters for the game. **Research & Internet Safety -** Understand what privacy means.		**Databases** **Logic-** Understand how a table sorts information into rows and columns. **Data representation-** Data is facts and statistics collected together for information. **Communication and coordination-** Work collaboratively **Digital Literacy -** Create charts to represent information. **Research & Internet Safety -** Understand how to use citations.	**3D Modelling** **Logic-** Know modelling is the activity of making models. **Artificial and Digital Systems-** Understand why ow CAD is used. **Communication and coordination-** Understand people's viewpoints. **Research & Internet Safety -** Explain reliability	**Spreadsheets** Algorithms- formulas used to collate information Logic- rows are horizontal, columns lettered. Entry's are called records. Cell references tell the name of the cell Data representation- data can be easily converted into different charts Artificial and Digital systems - questionnaires/surveys generate numerical data **Research & Internet Safety** - data is encrypted to keep it safe	

Year 6	**Understanding Binary** **Algorithms**- Inputs and outputs are used within coded programs. **Logic-** Explain how the binary system works within a wide variety of digital systems. **Data representation-** Within digital systems, whole numbers are used as the basis of representing all types of data and that this is known as a binary format. **Artificial and Digital Systems-** Computers use the binary system. **Communication and coordination-** **Digital Literacy -** **Research & Internet Safety -** Privacy seals of approval	**Networks** **Algorithms-** Page rank algorithm sorts web pages. **Logic-** LAN and WAN (networks) **Data representatio**n- database is collection of data organised. **Artificial and Digital Systems**-Filtering and monitoring **Communication and coordination-** World Wide Web is about connections **Digital Literacy -** **Research & Internet Safety -** Reliability of information online	**Blogging** **Algorithms-** HTML is a text based coding language. **Logic-** Blogs can be used for information **Data representation-** Blogs record numerical data for popularity **Artificial and Digital Systems-**A blog is a regularly updated website or webpage. **Communication and coordination-** You can work collaboratively on a blog. **Digital Literacy - A vlog is a video version of a blog where a person records themselves and shares this** **Research & Internet Safety -** Use appropriate methods to validate information and check for bias and accuracy.	**Quizzing** **Logic-** a quiz is a test of knowledge **Data representation-** a database is a structured set of data held in a computer, especially one that is accessible in various ways. **Communication and coordination- c**ollaboration is the action of working with someone to produce something. **Digital Literacy -** **Research & Internet Safety -** explain the positive and negative influences of technology.

Understanding the World

Introduction

Understanding the world is a specific area of learning and consists of 'People and communities', 'The world' and 'Technology'. The knowledge and skills maps have been separated to ensure progression in planning, teaching and tracking.

People and communities

Developing an understanding of 'People and communities' is important because.
People and communities is crucial to broadening and developing children's sense of their physical world and their community. It involves guiding children through opportunities to explore, observe and find out. People and communities will help children to develop an understanding of the lives and traditions of their friends and their local community as well as extending this to people and places beyond their local community.

We develop children's understanding of 'People and communities' in a range of ways, including:

- PSHE
- Assemblies
- Visits within the local community
- Show and tell
- Inviting in visitors
- Parent events
- RE
- Opportunities to explore different careers and cultures in continuous provision

In particular, we value the opportunities we have to maximise children's experiences of other communities and cultures. We encourage children to talk about past and present events in their own lives and the lives of their family members. We use RE as an opportunity to broaden children's understanding of the similarities and differences between themselves and others, and between families, communities and traditions by taking the time to attend to what they are saying or trying to convey. We also make effective use of the outdoors, including the local neighbourhood and local churches/places of worship.

At Blyth Wise, our aim is to provide children with opportunities to learn more about people and places. We extend children's learning by encouraging visits and visitors to come into school. We also encourage

children to share special events with other children and staff in photographs or verbally.

By the end of the Early Years Foundation Stage (Reception), children should reach the following Early Learning Goal in Past and Present

- Talk about the lives of the people around them and their roles in society
- Know about the similarities and differences between things in the past and now, drawing on their experiences and what has been read in class
- Understand the past through setting, character and events encountered in books read in class and storytelling,

By the end of the Early Years Foundation Stage (Reception), children should reach the following Early Learning Goal in People, Culture and Communities:

- Describe their immediate environment using knowledge from observation, discussion, stories, non-fiction texts and maps
- Know some similarities and differences between different religious and cultural communities in this country
- Explain some similarities and differences between life in this country and life in other countries

The world

Developing an understanding of 'The world' is important because-

It helps children know about the similarities and differences in the world around them. They learn to make observations of animals and plants and it builds up a rich vocabulary of scientific contexts. It also supports children in deepening their understanding skills by explaining why some things occur and to talk about how and why things change. It also provides opportunities for experimentation, exploration, observation, problem solving, prediction, critical thinking, decision making and discussion.

Children's understanding of 'The world' develops by-

At Blyth Wise, we develop children's understanding of the world through play based and directed activities. We develop this in a range of ways, including:

- Outdoor learning
- Daily opportunities to explore outdoors
- Visits in the local environment
- Planting seeds, plants and flowers in the garden
- Visits/experiences, e.g. babies, chicks, frogs
- Observational drawings/paintings
- Listening/Sound walks
- Taking photographs
- Recording
- Benefit risk assessments

In Blyth Wise Academy, we aim to give children the time and space to explore in depth those things which interest and fascinate them. We support children to reflect on and explain their ideas to develop higher level thinking skills. We encourage children to investigate the natural world and enhance children's experiences of the world by letting them explore the outdoors in all weathers.

By the end of the Early Years Foundation Stage (Reception), children should reach the following Early Learning Goal in The world:

-explore the natural world around the, making observations and drawing pictures of animals and plants.
-know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class
- Understand some important processes and changes in the natural world around them, including the seasons and changing states of matters

Characteristics of Effective Learning
All Knowledge and Skills maps are underpinned by the Characteristics of Effective Learning The pre-requisite for the Characteristics of Effective learning are:- **Children's ability to learn and think for themselves**.
Unique Child
The best preparation for the future is to promote positive dispositions by providing living experiences of making choices, innovating, taking responsibility, facing challenges, thinking flexibly and critically, and knowing **how** to learn so that they will be able to respond to their unfolding futures. Supporting children in the Characteristics of Effective Learning, a statutory element of the EYFS, is a central responsibility in early years provision.
Each unique child is an active agent of their own development.
The Characteristics of Effective Learning represent the active role children adopt as they follow their curiosity and push themselves to become more competent and to understand more, and are rewarded by the inner satisfaction of mastering new skills and feeling their independence grow.
While the Areas of Learning and Development outline different elements of what children may learn during their first years, the Characteristics of Effective Learning describe how children learn. These learning dispositions, behaviours and habits of mind are particularly important in the EYFS because they build the foundations needed to support children to become lifelong strong learners and independent thinkers.
Wellbeing
Children's emotional wellbeing is the first necessity for effective learning. Children need to feel safe within warm, loving and caring relationships. When children's primary need for emotional safety is met, they can then relax and move into exploring, taking risks, making discoveries, and experiences of the deep involvement through which they learn.
Adults can help children to feel confident and at ease by providing environments that meet children's need for tenderness and affection, relaxation, inner peace, enjoyment, openness, safety and belonging

Effective learners develop self-regulation, which is the ability to be aware of and to manage their feelings, their actions, and how they are thinking. Self-regulation includes both emotional self regulation developed through emotionally supportive relationships, and cognitive self-regulation.
When there is support for children's sense of agency – knowing they have control of their own decisions, goals and actions rather than simply being passive in their experiences – they are likely to be effective in their learning.
Play
Play and self-initiated activities are opportunities to build Characteristics of Effective Learning. In play, children can follow their own innate curiosity and drive to find things out, to relate to others, and to be in charge of their own actions. Adults provide an enabling environment for Playing and Exploring through experiences and interactions that respect children's ideas, autonomy and interests. In play, children decide what they will do – often in collaboration with others -- what it is about, who they will play with and for how long. They follow their own curiosity and find their own challenges, using their senses to explore the world and their imaginations to act out what they know and how they feel. They are free to take a risk with new experiences, in open-ended activity. In play children also have opportunities to engage in Active Learning, as they are intrinsically motivated toward their own goals. Adults can foster children's growing powers to concentrate with deep involvement, support resilience by helping children to develop a view that not getting the result they (or others) wanted or were expecting is not a failure, but an opportunity to try again, learn and develop, and that they can keep on trying and persisting even in the face of challenge or difficulties.
Thinking Creatively and Critically. Children think of their own ideas, imagine possibilities, and can creatively combine ideas in spontaneous ways. They make meaning as they notice patterns and build their own working theories to make sense of their experiences, then make predictions and test them to refine their understanding. Problems are identified, possible solutions invented, and with support children become increasingly able to monitor their efforts, to alter their approach flexibly when needed, and to review how well it went and what they have learned. This critical thinking becomes more conscious and under children's control especially through talking with others about their thoughts, sharing and developing ideas together.
Inclusion and Equalities
Valuing and respecting the diversity of individuals, families and communities is at the heart of early years practice. Inequalities persist in society, with far-reaching effects on children's education, health and life chances. We must explicitly addressing issues of discrimination and in doing so will meet the Equalities Act 2010 requirement that no child or family is discriminated against in terms of the protected characteristics: age, disability, gender reassignment, race, religion or belief, sex, sexual orientation, marriage and civil partnership. Equalities and inclusion apply to all children and families.
Each child and family brings their own identity, values, and their unique fund of knowledge influenced by the practices of their community. By becoming aware of and challenging any misconceptions, practitioners can work with families in an equal partnership that requires actively listening to the realities, experiences and perspectives of each individual. Creating an ethos of equality involves being aware of how all the practices and environments in an early years setting appear through the lens of each unique child.
Equity requires more than treating everyone the same. Equality provides fairness through treating everyone the same regardless of need, while **equity** achieves this through treating people differently depending on need. While it is vital for all children and their families to be included and difference celebrated, it is also important that there is awareness of the significant physical, emotional and cognitive barriers many children encounter in accessing early education. Sometimes children and their families may require extra support, and sensitive conversations to develop trust. Talking about race is a first step in countering racism. When adults are silent about race, children's racial prejudice and misconceptions can be maintained or reinforced. Encouraging dialogue and conversation about difference can evoke children's strong sense of fairness, and break down false assumptions about everyone being able to succeed on their merits, so that children can develop anti-racist views.
Building awareness through first-hand experiences has lasting impact.

While it is important for children to see their own identity reflected in positive ways in the setting, it is equally important for children in settings where there is little diversity to become aware of and to appreciate difference. Visits to places where children can be involved with other cultures and see ways people live and worship can be memorable. Ensure children can see themselves and their families in the environment. Children need to see a representation of 'someone who looks like me', or has a family structure like mine, or lives somewhere like where I live, etc.

Focus on the child at the centre. All children are unique. Interests should be central to the offer of high quality learning opportunities.
Developing a sense of belonging is an important part of inclusive practice. Feeling different or being marginalised can lead.

Parents

Parents and carers make a crucial difference to children's outcomes.
The benefits are greatest when practitioners and families work in partnership to develop ways to support children both at home and in the setting. Working together ensures a good understanding of a child's needs, leading to appropriate provision within the setting and the possibility of supporting learning in the home.
Parents are children's first and most enduring educators.

Partnerships with parents can be truly effective only when parents and practitioners work together to enable children to create meaningful connections to their wider world and to foster a love of learning.
Parents must feel included, listened to and trusted within their own teaching role.

Clear leadership regarding partnership with parents will provide the right foundation. Leaders should show commitment to developing a genuine interest in each family. Regularly reviewing the experience of families is essential for settings to develop their vision and practice.

- Characteristics of Effective Learning
- Thinking creatively and critically - thinking
- Personal, Social and Emotional Development - Making Relationships; Sense of Self; Understanding Emotion;
- Communication and Language- Listening and Attention; Understanding; Speaking
- Physical Development - Moving and Handling; Health and Self Care
- Literacy- Reading; Writing; Mathematics;
- Understanding the World- People and Communities; The World; Technology
- Expressive Arts and Design- Exploring and using Media and Materials; Benign Imaginative `

EYFS Nursery Computing Knowledge Map			
Knowledge	**Nursery** **Using Equipment** **Autumn**	**Nursery** **Using Equipment** **Spring**	**Nursery** **Using Equipment** **Summer**
CONCEPTS- Knowledge			
Despite computing not being explicitly mentioned within the Early Years Foundation Stage (EYFS) statutory framework, which focuses on the learning and development of children from birth to age five, there are many opportunities for young children to use technology to solve problems and produce creative outcomes. In particular, many areas of the framework provide opportunities for pupils to develop their ability to use computational thinking effectively			
Knowledge **Concepts**	**Nursery** **Using Equipment** **Autumn**	**Nursery** **Using Equipment** **Spring**	**Nursery** **Using Equipment** **Summer**
Knowledge			

Exploration and creativity	**To know that toys can be operated in different ways - winding up, pulling backwards, turning on and off**	**To know that toys can be operated in different ways - winding up, pulling backwards, turning on and off.** **To know how to make toys work through engaging correctly with the equipment - pressing, pulling, lifting flaps.**	**To know how to make toys work through engaging correctly with the equipment - pressing, pulling, lifting flaps.**
Logic	**To know that they can turn devices on and off, including TV, IPdas, remote controls toys** **To know how to turn on Ipads, CD players.**	**To know that they can turn devices on and off, including TV, IPdas, remote controls toys.** **To know how to turn on Ipads, CD players.** **To know how to complete simple programmes used to support their learning.**	**To know how to turn on Ipads, CD players.**
Responsibility and Safety		**To know that the internet can be used to find out information with an adult.** **To know that an adult needs to support their on-line access to keep them safe.**	**To know that the internet can be used to find out information with an adult.** **To know that an adult needs to support their on-line access to keep them safe.**
Analysis	**To know how to navigate using a touchscreen display.**	**To know how to navigate using a touchscreen display.**	**To know how to navigate using a touchscreen display.**
Emerging tech		**To know how to use Ipads, and equipment for every day such as cameras and mobile phones.**	**To know how to use Ipads, and equipment for every day such as cameras and mobile phones.**
VOCABULARY			
Specific lesson / unit Vocabulary	**Remote control, IPad, tablet, screen, touch, CD player - CD (Music and story)**	**Remote control, IPad, tablet, screen, touch, CD player - CD (Music and story), Interactive Whiteboard, app**	**Remote control, IPad, tablet, screen, touch, CD player - CD (Music and story), Interactive Whiteboard, apps**

Skills	Nursery Using Equipment Autumn	Nursery Using Equipment Spring	Nursery Using Equipment Summer
Exploration and creativity	Turning on and operating some ICT equipment. Repeat sounds, sights and actions Operates mechanical toys, e.g. turns the knob on a wind-up toy or pulls back on a friction car. Apply learning to age-appropriate computer software Draw a picture on screen		
Logic	Operate simple equipment Uses a remote control Navigate touchable technology with support. Complete a simple program on a computer. Create a video recording		

Responsibility and Safety	**Retrieve information from the internet**
Analysis	**Making toys work by pressing parts** **Lifting flaps to achieve effects such as sound, movements or new images.** **Retrieve from technological devices and the internet.** **Will interact with a range of technologies**
Emerging tech	**Programmable toys for children to play with, as well as equipment involving ICT, such as computers**

SIGNIFICANT PEOPLE/ ORGANISATIONS			
	Nursery **Using Equipment** **Autumn**	**Nursery** **Using Equipment** **Spring**	**Nursery** **Using Equipment** **Summer**
Cultural Capital	**Kez Margrie-Producer of CBBC**		

SMSC			
	Nursery **Using Equipment**	**Nursery** **Using Equipment**	**Nursery** **Using Equipment**

	Autumn	Spring	Summer
British Values **(Democracy. Rule of Law. Tolerance. Mutual Respect. Individual Liberty)**	**Democracy - We provide activities that involve turn taking, sharing and collaboration. Children are given opportunities to develop enquiring minds in an atmosphere where questions are valued.** **Rule of Law - Children understand the rules for using different equipment.** **Individual Liberty - We provide opportunities for children to increase their confidence in their own abilities, for example through allowing children to explore and tinker with equipment** **Mutual respect and tolerance - Children are supported to take turns and work with other children. They are reminded to share equipment and listen to others.**		
Equalities **(SMSC, protected characteristics, race, gender, safeguarding etc.)**	**Children become ambitious, independent, tolerant learners because they:** **Have opportunities to explore and investigate IT devices and software; Reflect on their experiences; Awareness of what they use technology for independently and working with others** **Active participation in computing across the EYFS** **Engaging children in developing their computational thinking** **opportunities to explore and be creative** **Invite visitors from different careers/ groups locally/nationally so children can experience how computing works in the real world**		

EYFS Reception Knowledge Map			
Knowledge **Concepts**	**Reception** **Using Equipment** **Autumn**	**Reception** **Using Equipment** **Spring**	**Reception** **Using Equipment** **Summer**
CONCEPTS- Knowledge			
Exploration and creativity		**To know how to complete simple programmes used to support their learning.** **To know how to use talk buttons to support learning across a range of areas.**	**To know how to complete simple programmes used to support their learning.** **To know how to use the IPad to create a video.**
Logic	**To know how to turn on Ipads, CD players.**	**To know how to turn on Ipads, CD players.**	**To know how to interact with technology to programme an age appropriate toy.**
Responsibility and Safety	**To know that the internet can be used to find out information with an adult.** **To know that an adult needs to support their on-line access to keep them safe.**	**To know that the internet can be used to find out information with an adult.** **To know that an adult needs to support their on-line access to keep them safe.**	**To know that the internet can be used to find out information with an adult.** **To know that an adult needs to support their on-line access to keep them safe.**
Analysis	**To know how to navigate using a touchscreen display**	**To know how to navigate using a touchscreen display**	**To know how to use age appropriate computer software.**
Emerging tech	**To know how to use Ipads, and equipment for every day such as cameras and mobile phones.**	**To know how to use Ipads, and equipment for every day such as cameras and mobile phones.**	**To know how to use Ipads, and equipment for every day such as cameras and mobile phones.**

	VOCABULARY		
Specific lesson / unit Vocabulary	**Remote control, IPad, tablet, screen, touch, touch-screen, CD player - CD (Music and story) Mobile phone, camera, internet, google, safety.**	**Remote control, IPad, tablet, screen, touch, touch-screen, CD player - CD (Music and story) Mobile phone, camera, internet, google, safety, Interactive Whiteboard, apps, talk buttons**	**Remote control, IPad, tablet, screen, touch, touch-screen, CD player - CD (Music and story) Mobile phone, camera, internet, google, safety, Interactive Whiteboard, apps, video**

Skills	**Reception** **Using Equipment** **Autumn**	**Reception** **Using Equipment** **Spring**	**Reception** **Using Equipment** **Summer**
Exploration and creativity	**Turning on and operating some ICT equipment.** **Operates mechanical toys, e.g. turns the knob on a wind-up toy or pulls back on a friction car.** **Apply learning to age-appropriate computer software.** **Draw a picture on screen** **Explore different technologies (ELG)reception** **Use safe equipment to play with such as torches and walkie talkies** **Take photographs**		

Logic	**Operate simple equipment** **Uses a remote control** **Navigate touchable technology with support.** **Complete a simple program on a computer.** **Use programmable toys such as a whisk, torch, household implements** **Create a video recording**
Responsibility and Safety	**Retrieve information from the internet.**
Analysis	**Making toys work by pressing parts (30-50)** **Lifting flaps to achieve effects such as sound, movements or new images. (30-50)** **Retrieve from technological devices and the internet. (30-50)** **Will interact with a range of technologies (40-600**
Emerging tech	**Use a photocopier to copy pictures**

END POINTS			
End Point	**Reception** **Using Equipment** **Autumn**	**Reception** **Using Equipment** **Spring**	**Reception** **Using Equipment** **Summer**
	use a mouse to draw on the computer	**move a programmable toy**	**write my name on the computer**

SIGNIFICANT PEOPLE/ ORGANISATIONS/ Experiences			
	Reception Using Equipment Autumn	**Reception Using Equipment Spring**	**Reception Using Equipment Summer**
Cultural Capital	**Continuous provision - Tinkering stations, Use of Ipads, Purple Mash on Chromebooks or computers**		

	Reception Using Equipment Autumn	**Reception Using Equipment Spring**	**Reception Using Equipment Summer**
British Values **(Democracy. Rule of Law. Tolerance. Mutual Respect. Individual Liberty)**	**Democracy - We provide activities that involve turn taking, sharing and collaboration. Children are given opportunities to develop enquiring minds in an atmosphere where questions are valued.** **Rule of Law - Children understand the rules for using different equipment.** **Individual Liberty - We provide opportunities for children to increase their confidence in their own abilities, for example through allowing children to explore and tinker with equipment** **Mutual respect and tolerance - Children are supported to take turns and work with other children. They are reminded to share equipment and listen to others.**		
Equalities **(SMSC, protected characteristics, race, gender, safeguarding etc.)**	**Children become ambitious, independent, tolerant learners because they:** **Have opportunities to explore and investigate IT devices and software; Reflect on their experiences; Awareness of what they use technology for independently and working with others** **Active participation in computing across the EYFS** **Engaging children in developing their computational thinking** **opportunities to explore and be creative**		

Year 1 Computing Knowledge Map					
Units	**Year 1 Online Safety and Exploring Purple Mash Autumn 1**	**Year 1 Lego Builders Autumn 2**	**Year 1 Coding Spring**	**Year 1 Pictograms Summer 1**	**Year 1 Spreadsheets Summer 2**
Programme/ Device	Tools, Paint Projects, 2Connect, 2Count, 2Explore	Paint Projects, 2DIY	2Code	2Count	2Calculate
Key Concepts	**Knowledge (NC)**				
Algorithms		To know that an algorithm is a precise, step-by-step set of instructions used to solve a problem or achieve an objective. To know that correcting errors in an algorithm or program is called 'debugging' To know that an algorithm written for a computer to follow is called a program.	To know actions are types of commands which are run on an object. To know an algorithm is a precise step by step set of instructions used to solve a problem or achieve an objective. To know debugging is finding a problem in the code and fixing it. To know an event is something that causes a block of code to be run. ns are detailed information about how something should be done. To know an object is an element in a computer program that can be changed using actions or properties. To know the 'run' button will cause the instruction in a program to be carried out.		To know the 'count' tool s counts the number of cells with a value that matches the value of the cell to the left of the tool. To know the 'move cell' makes a cell's contents moveable by drag-and-drop methods. To know the 'lock' tool prevents cell values being changed.
Logic	To know a log in is an username and password to access a system. To know you need to log out when leaving a computer system To know an username is a name that is used by a person to access an online site.	To know that to achieve the effect they want when building something, you need to follow accurate instructions To know that by following the instructions correctly, you will get the correct result. .	To know instructions are detailed information about how something should be done.	To know that data is a group of facts that have been collated. To know that data can be used for different purposes.	To know spreadsheets are used for organising and storing information. To know columns are vertical reference points for the cells in a spreadsheet. To know cells are an individual section of a spreadsheet grid and it contains data or calculations To know rows are vertical reference points for the cells in a spreadsheet.

					To know cells can contain: words, numbers, colours or symbols.
Data Representation	To remember to save your work so it can be accessed later.	To know a computer is an electronic device for storing and processing data.	To know the scale is the size of an object in 2Code.	To know that data can be represented in picture format. To know that computing allows data to be added and changed quickly To know that there is a connection between data collected in class (verbally, tally etc) and presented on screen.	
Artificial & Digital Systems	To know 'my work' is the place on Purple Mash where your work is stored. To know tools is an area on Purple Mash with different learning apps.	To know that computers need precise instructions to follow.	To know code is instructions written using symbols and words that can be interpreted by a computer. To know a command is a single instruction in a computer program. To know input is information going into the computer. To know an output is information that comes out of the computer	To know that technology can be used to collect data.	
Communication & Coordination	To know a notification is a system that lets you know if you have something to look at.			To know that information comes from different sources	To know the 'speak' tool will speak the contents of a cell containing a number each time the value changes.
Digital Literacy	To know an avatar is a digital picture to represent someone.		To know all objects have properties that can be changed in design or by writing code e.g. image, colour and scale properties. To know the background is part of the program design that shows behind everything else.	To know that a label represents a choice in the context of data handling To know that images can represent words.	To know clipart images are simple pictures and symbols available for computer users to add to documents.
Research & Internet Safety	To know a password is a series of letters, numbers and special characters that is entered after the username to access an online site.	To know the subheading names for the SMART online safety rules (Safe, Meeting, Accepting, Reliable, Tell).	To know the 'T' in our Online Safety rules means 'Tell' a parent or a teacher if you have an online worry. To know who in school you can tell.	To know that private means something which must be kept to yourself and not shared with anyone. To know that 'safe' in the Online Safety rules means to keep personal information safe.	To know the 'A' in our Online Safety rules means 'Accepting'.

				To know personal information is information which is specifically related to a person.	
VOCABULARY					
Specific lesson / unit Vocabulary	log in, log out, username, password my work, avatar, notification, topics, tools, save	algorithm, computer, debug, instruction, program.	action, algorithm, background, code, command, debug, event, execute, input, instructions, object, output, properties, run, scale, scene, sound		arrow keys, backspace key, cells, clipart, columns, count tool, delete key, image toolbox, lock tool, move cell tool, rows, speak tool, spreadsheet.
Units	**Year 1 Online Safety and Exploring Purple Mash Autumn 1**	**Year 1 Lego Builders Autumn 2**	**Year 1 Coding Spring**	**Year 1 Pictograms Summer 1**	**Year 1 Spreadsheets Summer 2**
Programme/ Device	Tools, Paint Projects, 2Connect, 2Count, 2Explore	Paint Projects, 2DIY	2Code	2Count	2Calculate
Skills					
Control (Algorithms)		Follow instructions in a computer program Explain the effect of carrying out a task with no instructions Understand how the order in which the steps of a recipe are presented affects the outcome Organise instructions for a simple recipe. Debug simple errors in other children's written instructions for recipes	Give and follow instructions. Arrange code blocks to create a set of instructions. Create a program using code blocks. Use object and action code blocks. Use event, object and action code blocks. Notice when their code executes when their program is run. Create a design plan for a Free code Scene program. Use code to make the program they have designed work.		Add the count tool to count items.
Handling Data & Information	Log in to Purple Mash using account details. Find their saved work in the Online Work area of Purple Mash. Find messages that their teacher has left for them on Purple Mash. Search Purple Mash to find resources.			Sort objects on screen using one criterion then different criteria Sort on-screen objects in different ways and relate this to real objects Collect data on class or topic and represent the information using a pictogram package	Enter data into cells. Use the 'lock' tool to prevent changes to cells.

				Use a pictogram to help create and help answer questions Contribute to the collection of class data. Contribute to a class pictogram. Discuss what the pictogram shows. Represent the results as a pictogram	
Sound & Music					Add the speak tool so that the items are counted out loud.
Understanding Technologies	Use the different types of topic templates in the Topics section confidently. Explore the Tools section on Purple Mash and become familiar with some of the key icons: Save, Print, Open and New.	Understand the effect that precise accuracy of the instructions has on the outcome.			Navigate around a spreadsheet. Explain what rows and columns are
Electronic Communication				Save and retrieve work/images.	Save and open sheets.
Text & Multimedia	Understand how to use the different icons and writing cues to add pictures and text to their work.			Discuss and illustrate the transport used to travel to school.	
Digital Images (Photos, paint, animation)	Create their own avatar and understand why they are used. Add their name to a picture they created on the computer.	Compare their digital paintings within 2Paint and show an understanding as to why they are different	Draw symbols to represent instructions. Edit a scene by adding, deleting and moving objects. Change the size of objects using the properties table.		Open the Image toolbox and find and add clipart Use the 'move cell' tool so that images can be dragged around the spreadsheet. Give images a value that the spreadsheet can use to count them.
Research & Internet Safety	Save work into the My Work folder in Purple Mash and understand that this is a private saving space just for their work. Develop an understanding of ownership of work online.	To identify where the SMART Online Safety rules are in the classroom.	To write a list of trusted adults who children can 'tell' if they have an online worry.	To explore different types of personal information and name personal information including full name, phone number and address.	To identify what you should and should not accept online.

	Log out of Purple Mash when they have finished using it and know why that is important.				
Unit Outcomes					
Units	**Year 1 Online Safety and Exploring Purple Mash Autumn 1**	**Year 1 Lego Builders Autumn 2**	**Year 1 Coding Spring**	**Year 1 Pictograms Summer 1**	**Year 1 Spreadsheets Summer 2**
Programme/ Device	Tools, Paint Projects, 2Connect, 2Count, 2Explore	Paint Projects, 2DIY	2Code	2Count	2Calculate
Curriculum End Point	**Logic-** To know how to log in using a username and password. **Data representation-** Save work on Purple Mash. **Artificial and Digital Systems-** Navigate Purple Mash and locate where work is stored. **Communication and coordination-** Respond to a notification on Purple Mash. **Digital Literacy -** Create an avatar. **Research & Internet Safety -** Understand what a password is.	**Algorithms-** An algorithm is a precise, step-by-step set of instructions used to solve a problem or achieve an objective. **Logic-** Follow instructions to get the correct result. **Data representation-** A computer is an electronic device. **Artificial and Digital Systems-** Computers need precise instructions to follow. **Communication and coordination-** **Research & Internet Safety -** Understand SMART rules	**Algorithms-** Use directional language **Logic-** coding mistakes are called bugs, debugging identifies and fixes a mistake **Data representation-** The scale is the size of an object in 2Code. **Artificial and Digital Systems-** Inputs are information going into the computer and outputs are information coming out of the computer. **Digital Literacy -** Properties can be changed by writing code. **Research & Internet Safety -** Understand in 'SMART' 'T' means to tell a responsible adult if you are worried.	**Logic-** data is a group of facts and used for different purposes. **Data Representation-** data can be collected and represented. using pictures **Artificial and Digital Systems-** technology is used to collect data **Communication and Coordination -** information comes from different sources **Digital Literacy** - images can represent words **Research & Internet Safety -** private means keep it to yourself. Keep personal information safe. Personal information belongs to someone	**Algorithms-** Use the 'count' tool. **Logic-** Organise information on a spreadsheet. **Communication and coordination-** Use the 'speak' tool. **Digital Literacy -** Add clipart images. **Research & Internet Safety -** Understand in 'SMART' 'A' means accept and to know what and what not to accept online.
Suggested summary task	To create a set of instructions on how to access Purple Mash.	Create their own algorithm and partner to follow and create.	To explain how to play their program and then share with peers.	Collect own data and group collated data into pictorial representations	Collect own data and use the count tool.

SIGNIFICANT PEOPLE/ORGANISATIONS					
	Year 1 Online Safety and Exploring Purple Mash Autumn 1	**Year 1 Lego Builders Autumn 2**	**Year 1 Coding Spring**	**Year 1 Pictograms Summer 1**	**Year 1 Spreadsheets Summer 2**

Cultural Capital	Walt Disney	Ole Kirk Kristiansen	Silas Adekunle	George Dow	Blaise Pascal

SMSC					
	Year 1 Online Safety and Exploring Purple Mash Autumn 1	**Year 1 Lego Builders Autumn 2**	**Year 1 Coding Spring**	**Year 1 Pictograms Summer 1**	**Year 1 Spreadsheets Summer 2**
British Values (Democracy. Rule of Law. Tolerance. Mutual Respect. Individual Liberty)	Rule of Law - Children understand the rules for using different equipment. **The Rule of Law - Understand the use of rules on computers and the internet.**	Individual Liberty-Pupils are free to make choices Democracy - Children consult information with their class.	Individual liberty- pupils make their own choices. Make better decisions Mutual respect for each other and the work children are doing.	Individual Liberty-Pupils are free to make choices Democracy. Children consult information with their class.	The Rule of Law - Understand that rules are to keep others and ourselves safe and to help the internet to be an enjoyable and engaging place.
Equalities (SMSC, protected characteristics, race, gender, safeguarding etc.)	By Understanding the advantages and limitations of ICT.	By exploring the moral issues surrounding the use of data.	By Understanding the advantages and limitations of ICT.	By exploring the moral issues surrounding the use of data.	By Understanding the advantages and limitations of ICT.

	SAFEGUARDING				
	Year 1 Online Safety and Exploring Purple Mash Autumn 1	**Year 1 Lego Builders Autumn 2**	**Year 1 Coding Spring**	**Year 1 Pictograms Summer 1**	**Year 1 Spreadsheets Summer 2**
Mental Health & Wellbeing	Passwords: To create a safe password. Explore why passwords need to be safe.	SMART To identify where the SMART Online Safety rules are in the classroom. To explore information from a variety of sources (electronic and paper based).	Trusted Adults To write a list of trusted adults who children can 'tell' if they have an online worry.	Keeping personal information safe: To explore different types of personal information and name personal information including full name, phone number and address.	Accept: To identify what you should and should not accept online.
Personal & Physical					

LINKED CAREERS					
	Year 1 Online Safety and Exploring Purple Mash Autumn 1	**Year 1 Lego Builders Autumn 2**	**Year 1 Coding Spring**	**Year 1 Pictograms Summer 1**	**Year 1 Spreadsheets Summer 2**
Cultural Capital	Robotics engineer	Artist, Digital Media, Illustrator, Animator	Coder	Data Analyst	Accountant

LOCAL STUDY					
	Year 1 Online Safety and Exploring Purple Mash Autumn 1	**Year 1 Lego Builders Autumn 2**	**Year 1 Coding Spring**	**Year 1 Pictograms Summer 1**	**Year 1 Spreadsheets Summer 2**
Links to locality	Tharus - Local technology company	Apple Store - Newcastle	Gateshead College	Local banks and building societies	Paul Connon Acocountants

Year 2 Computing Knowledge Map					
Units	**Year 2 Coding Autumn**	**Year 2 Effective Searching Spring 1**	**Year 2 Making music Spring 2**	**Year 2 Spreadsheets Summer 1**	**Year 2 Presenting Ideas Summer 2**
Programme/ Device	Free code chimp, tools, 2Code	2Connect, 2Quiz, Google	2Sequence	2Calculate	2Quiz, 2Connect
Key Concepts	**Knowledge (NC)**				
Algorithms	To know an algorithm is a precise step by step set of instructions used to solve a problem or achieve an objective. To know debugging is looking for any problems in the code, fixing and testing them. To know an event is something that causes a block of code to be run. To know nesting is when you write a command inside something else. To know a timer is a command to run a block of commands after a timed delay or at regular intervals. To know a sequence is when a computer program runs commands in order. To when 'when clicked' is an event command and it makes code run when you click or swipe on something.	To know Google uses very complex computer algorithms to record the search that the millions of users do and uses these to help select the best results.	To know that all devices use algorithms to respond to our actions.		
Logic	To know a button is an object on the screen which can be clicked on. To know prediction is to say what you think will happen when a piece of code is run.		To know bpm is the number of beats played in a minute. To know composition is a piece of creative work, especially a poem or piece of music. To know sound effects (Sfx) are sounds other than speech or music	To know that spreadsheets are used for organising information. To know that a column is a vertical reference point for the cells in a spreadsheet. To know that a row is a horizontal reference point for the cells in a spreadsheet.	To know an e-book is an electronic version of a printed book that can be read on a computer or a specifically designed handheld device. To know a concept map is a tool for organising and representing knowledge.

			made artificially for use in a play, film, or piece of music. To know an instrument is an object or device for producing musical sounds. To know music is vocal or instrumental sounds (or both) played alone or combined. To know volume is how loud a piece of music is. To know a soundtrack is a recording of the musical accompaniment of a film. To know tempo is the speed at which a passage of music is, or should be, played. To know you can add music composed in 2Beat into 2Sequence.	To know copy and paste is a way to copy information from the screen into the computer's memory and paste it elsewhere without re-typing. To know a 'magic square' is where the sums of each row, column and diagonal are the same.	To know a quiz is a test of knowledge, especially as a competition between individuals or teams as a form of entertainment.
Data Representation	To know design mode is used to create the look of a 2Code computer program when it is run.			To know a individual section of a spreadsheet grid and it contains data or calculations. To know the counting tool counts the number of cells with a value that matches the value of the cell to the left of the tool. to know data is a collection of information, collected by observation, questions or measurement. To know a table is an organised display of information laid out in rows and columns. To know a block graph is a visual chart which displays data with blocks. to know the equals tool tests whether the entered calculation in the cells to the left of the tool has the correct answer in the cell to the right of the tool.	To know that data can be structured in tables to make it useful.

Artificial & Digital Systems	To know actions are types of commands, which are run on an object and they could be used to move an object or change a property. To know an output is information that comes out of the computer. To know an object is an element in a computer program that can be changed using actions or properties. To know a bug is a problem in a computer program that stops it working the way it was designed.	To know the Internet is the network of computers the World Wide Web works on.	To know on 2Sequence it is possible to change the volume of each row of instruments so some are quieter than others. To know you can loop the music so it plays continuously. To know information (work) can be saved, retrieved, edited and resaved.		
Communication & Coordination		The World Wide Web refers to the web pages and documents you see when you are browsing online and it is just one part of the Internet. To know every computer and device on the Internet is connected by ethernet cables, phone lines, fibre optic wires and wireless access points. To know the Internet is a global network of computers and it is made up of millions of computers around the World all connected. To know a browser is a tool to help us access the World Wide Web. To know a website is a collection of webpages that belong to one domain or owner. To know a webpage is a single page which can include images, videos and charts. To know a web address is the identifying address for a file, or webpage on the Internet. To know a search engine is a program to help you find webpages on the Internet.	To know work can be shared between different devices.		To know a presentation is a speech or talk in which a new product, idea, or piece of work is shown and explained to an audience.

Digital Literacy	To know collision detection is detecting when two characters on the screen touch each other. To know the background is part of the program design that shows behind everything else and it sets the scene for the story or game.	The Internet also includes other things such as e-mail, instant messaging, and multiplayer gaming	To know digitally means digital or computer technology.	To know the image toolbox enables you to insert images into cells.	To know that digital content can be represented in many forms. To know amination is a process by which we see still pictures appear to move. to know a node is a way to represent a concept or idea using text and/or images.
Research & Internet Safety	To know our online safety rules Safe, Meeting, Accepting, Reliable, Tell. To know who in school you can tell if you are worried about something online. To know that 'safe' in the Online Safety rules means to keep private information safe.	To know a digital footprint is the information about a person that exists on the Internet as a result of their online activity.	To know the search bar is at the top of the home page of Purple Mash. To know searching is looking for information using a search engine.	To know that 'private' means something which must be kept to yourself and not shared with anyone.	To know some websites are good to use and some are not age appropriate. To know 'R' in our online safety rules means 'reliable'. To know some information you find on the internet may not always be true.
VOCABULARY					
Specific lesson / unit Vocabulary	Action, algorithm, background, button, collision detection, debug, design mode, event, key pressed, nesting, object, predict, properties, run, scale, scene, sound, sequence, test, text, timer, when clicked.	internet, search, search engine	Bpm, composition, digitally, instrument, music, sound effects, soundtrack, tempo, volume.	backspace key, copy, paste, columns, cells, count tool, delete key, equals tool, image toolbox, lock tool, move cell tool, rows, speak tool, spreadsheet.	concept map, quiz, presentation, node, animated, non-fiction, narrative, audience.
Units	**Year 2 Coding Autumn**	**Year 2 Effective Searching Spring 1**	**Year 2 Making music Spring 2**	**Year 2 Spreadsheets Summer 1**	**Year 2 Presenting Ideas Summer 2**
Programme/ Device	Free code chimp, tools, 2Code	2Connect, 2Quiz, Google	2Sequence	2Calculate	2Quiz, 2Connect
Skills					
Control (Algorithms)	Explain that an algorithm is a set of instructions Describe the algorithms they created Plan an algorithm that includes collision detection.				

Handling Data & Information	Create a program using collision detection. Read blocks of code and predict what will happen when it is run Create a program that uses a timer-after command. Explain what the timerafter command does in their program. Predict what will happen in a program that includes a timer-after command. Create a computer program that includes different objects types. Modify the properties of an object. Use different events in their program to make objects move. Create a computer program that includes a button object. Explain what a button does in their program. Modify the properties of a button to fit their program design. Explain what debugging means. Use a design document to start debugging a program. Debug simple programs.	Retrieve relevant, purposeful digital content using a search engine.		Explain what rows and columns are in a spreadsheet. Add the count tool to count items Use tools in a spreadsheet to automatically total rows and columns. Use a spreadsheet to solve a mathematical puzzle. Work out how much they need to pay using coins by using a spreadsheet to help calculate.	Make a quiz about a story using 2Quiz Extract information from a 2Connect file to make a publisher fact file on a non-fiction topic. Create digital content to achieve a given goal by combining software packages. Collect, organise and present data and information in digital content Use a variety of software to manipulate and present digital content and information.
Sound & Music	To add sounds to collision detection events.		Use the different sounds within 2Sequence to create a tune. Explore how to speed up and slow down tunes. Understand what happens to the tune when sounds are moved. Added sounds to a tune they have already created to change it. Consider how music can be used to express feelings. Change the volume of the background sounds. Create two tunes which depict two feelings. Upload and use their own sound chosen from a bank of sounds. Create, upload and use their own recorded sound.		

			Create own tune using some of the chosen sounds.		
Understanding Technologies	Explain that for the computer to make something happen, it needs to follow clear instructions.	Recall the meaning of key Internet and searching terms. Identify the basic parts of a web search engine search page. Understand the layout and features of a search engine Discuss how they use technology at home	Understand what 2Sequence is and how it works. Store and retrieve work from the saved area on Purple Mash.	To open, save and edit a spreadsheet. Use copying, cutting and pasting to help make spreadsheets. Create a table of data on a spreadsheet. Use the data to create a block graph manually.	Talk about their work and make improvements to solutions based on feedback received.
Electronic Communication		Understand that they do not have to search for just words, they can also ask a search engine a question			
Text & Multimedia		Read a web search results page.			Examine a traditional tale presented as a mind map, as a quiz, as an ebook and as a fact file.
Digital Images (Photos, paint, animation)				Add images from the image toolbox and allocate them a value. Use images in a spreadsheet.	Add appropriate clipart and photo.
Research & Internet Safety	To identify the SMART online safety rules in your classroom. To name someone in school who you can tell if you are worried about something online.	Search the Internet for answers to a quiz. Relate to the creation of a digital footprint to their search history Find the solutions for answers to a problem or quiz using a search engine.	Use the search bar in Purple Mash to find information.	To name the following types of 'personal information' : full name, telephone number, home address, photographs or school name.	Use a search engine to find specific relevant information to use in a presentation for a topic. To explore age appropriate websites and games identify age guidance. To explore how the internet may not always provide reliable information.
Unit Outcomes					
Units	**Year 2 Coding Autumn**	**Year 2 Effective Searching Spring 1**	**Year 2 Making music Spring 2**	**Year 2 Spreadsheets Summer 1**	**Year 2 Presenting Ideas Summer 2**

Programme/ Device	Free code chimp, tools, 2Code	2Connect, 2Quiz, Google	2Sequence	2Calculate	2Quiz, 2Connect
Curriculum End Point	**Algorithms-** An event is something that causes a block of code to be run. **Logic-** Predict what will happen when a piece of code is run. **Data representation-** Explain the design mode in 2Code. **Artificial and Digital Systems-** An object is an element in a computer program that can be changed using actions or properties. **Digital Literacy -** Explain collision detection. **Research & Internet Safety -** Understand how to stay safe online.	**Algorithms-** Google uses algorithms to record the search. **Artificial and Digital Systems-** The Internet is the network of computers the World Wide Web works on. **Communication and coordination-** Know the difference between the World Wide Web and the Internet. **Digital Literacy -** You can use the internet to communicate. **Research & Internet Safety -** Understand what a digital footprint is.	**Algorithms-** All devices use algorithms to respond to our actions. **Logic-** Compose music using 2Beat. **Artificial and Digital Systems-** Save, retrieve, edit and resave work in Purple Mash. **Communication and coordination-** Share work between different devices. **Digital Literacy -** Understand digitally means digital or computer technology. **Research & Internet Safety -** Use the search bar to find information on Purple Mash.	**Logic-** Understand what a 'magic square' is. **Data representation-** data is a collection of information, collected by observation, questions or measurement. **Digital Literacy -** Internet images into cells. **Research & Internet Safety -** Understand what privacy means.	**Logic-** Explain what an ebook, concept map and quiz is. **Data representation-** Data can be structured into tables. **Communication and coordination-** Understand what a presentation is. **Digital Literacy -** Understand digital content can be represented in many forms. **Research & Internet Safety -** Assess the reliability of information.
Suggested summary task	Apply knowledge of debugging across a range of scenarios including making logical attempts to debug their own more complex code.	Choose their own topic to research and then share information found.	Work collaboratively to create a piece of music.	Choose their own topic to collect data, input into a spreadsheet and then create a block graph.	Choose an app on Purple Mash to present your own ideas.

SIGNIFICANT PEOPLE/ORGANISATIONS					
	Year 2 Coding Autumn	**Year 2 Effective Searching Spring 1**	**Year 2 Making music Spring 2**	**Year 2 Spreadsheets Summer 1**	**Year 2 Presenting Ideas Summer 2**
Cultural Capital	Grace Hopper	**Larry Page**	Kane Kramer	Bill Gates	Sian Lloyd

SMSC					
	Year 2 Coding Autumn	**Year 2 Effective Searching Spring 1**	**Year 2 Making music Spring 2**	**Year 2 Spreadsheets Summer 1**	**Year 2 Presenting Ideas Summer 2**
British Values (Democracy. Rule of Law. Tolerance. Mutual Respect. Individual Liberty)	Individual liberty- pupils make their own choices. Make better decisions Mutual respect for each other and the work children are doing.	The Rule of Law - Understand the use of rules on computers and the internet.	Individual liberty- Empowering our pupils to make their own choices. Tolerance- enhancing pupils' understanding of their place in a culturally diverse society	Individual liberty- Empowering our pupils to make their own choices. Democracy-pupil views	The Rule of Law - Understand that rules are to keep others and ourselves safe and to help the internet to be an enjoyable and engaging place. Individual liberty- Empowering our pupils to make their own choices. Democracy-pupil views
Equalities (SMSC, protected characteristics, race, gender, safeguarding etc.)	By Understanding the advantages and limitations of ICT. By developing a sense of awe and wonder at human ingenuity	By considering the benefits and potential dangers of the internet. By highlighting the ways to stay safe when using online services. By being prepared to work with technology to forge new relationships	By Understanding the advantages and limitations of ICT.	By highlighting the ways to stay safe when using online services.	By considering the benefits and potential dangers of the internet. By highlighting the ways to stay safe when using online services. By being prepared to work with technology to forge new relationships

	SAFEGUARDING				
	Year 2 Coding Autumn	**Year 2 Effective Searching Spring 1**	**Year 2 Making music Spring 2**	**Year 2 Spreadsheets Summer 1**	**Year 2 Presenting Ideas Summer 2**
Mental Health & Wellbeing **Personal & Physical**	**SMART:** To identify the SMART online safety rules in your classroom. **Trusted Adults:** To name someone in school who you can tell if you are worried about something online.	**Digital footprints:** Explore the positive and negative impacts of digital footprint and social media.	**Searching:** Use a search engine to find specific relevant information to use in a presentation for a topic.	**Personal Information:** To name the following types of 'personal information' : full name, telephone number, home address, photographs or school name.	**Reliability:** To explore age appropriate websites and games identify age guidance. To explore how the internet may not always provide reliable information.

LINKED CAREERS					
	Year 2 Coding Autumn	**Year 2 Effective Searching Spring 1**	**Year 2 Making music Spring 2**	**Year 2 Spreadsheets Summer 1**	**Year 2 Presenting Ideas Summer 2**
Cultural Capital	Game designer, computer programmer	Web developer	DJ, musician, music studio manager	Accountant	News presenter, researcher

LOCAL STUDY					
	Year 2 Coding Autumn	**Year 2 Effective Searching Spring 1**	**Year 2 Making music Spring 2**	**Year 2 Spreadsheets Summer 1**	**Year 2 Presenting Ideas Summer 2**
Links to locality	Gateshead College	Sky Blue	The Sage	The Three Little W's Limited	News Post Leader Blyth

Year 3 Computing Knowledge Map				
Units	**Year 3 Coding Autumn**	**Year 3 Email Spring**	**Year 3 Branching Databases Summer 1**	**Year 3 Graphing Summer 2**
Programme/ Device	2Code	2Email, 2Connect, 2DIY	2Question	2Graph
Key Concepts	**Knowledge (NC)**			
Algorithms	To know a flowchart is a diagram which represents an algorithm. To know an event is something that causes a block of code to be run. To know timers is a command to run a block of commands after a timed delay or at regular intervals. To know a procedure is a set of coded instructions that perform a certain task. To know a sequence is when a computer program runs commands in order. To know a prediction is what you think will happen when a piece of code is run. To know repeat is a command that can be used to make a block of commands run a set number of times or forever. To know a button is an object that can trigger an event in response to being clicked. To know nesting is when you write a command inside something else. To know debugging is looking for any problems in the code, fixing and testing them. To know an algorithm is a precise step by step set of instructions used to solve a problem or achieve an objective.		To know that debugging is finding a problem fixing and testing them.	
Logic	To know an object is an element in a computer program that can be changed using actions or properties.	To know compose is to write or create something. To know formatting allows you to change the the way the text of an email looks. To know to click on the 'compose' button to write an email.		To know a graph is a diagram showing the value of objects. To know a field is part of a record.

Data Representation			To know a database is a collection of data organised in such a way that it can be searched, and information found easily. To know a database usually refers to data stored on computers. To know a branching database is used to classify groups of objects. To know data is facts about something; date can be words, numbers or pictures. To know that 2Question is a tool for creating branching databases. To know that a branching database is sometimes referred to as a binary tree or a key. To know a branching database is a way to identify an object by answering a series of simple questions and yes/no questions	To know data is facts and statistics collected together for reference. To know a bar chart is a graph in which the numerical amounts are shown by the height or length of lines or rectangles of equal width. To know a block graph is a graph where a block represents one item. To know a line graph is a graph where a line is used to show an amount. To know a pie chart is a type of graph in which a circle is divided into sections that each represent a part of the whole. To know a row is the horizontal line of entries in a table or graph. To know the column is the vertical line of entries in a table or graph.
Artificial & Digital Systems		To know emails are messages sent by electronic means from one device to one or more people.		
Communication & Coordination	To know sound is a type of output command that makes a noise.	To know communication is the sharing or exchanging of information by speaking, writing, or using some other medium such as email. To know send is to make an email be delivered to the email address it is addressed to. To know an address book is a list of people who you regularly send an email to. To know save to draft allows you to save an email that you are working on and send it later. To know 'CC' is a way of sending a copy of your email to other people so they can see the information in it.	To know that you can add sound from the sound picker.	
Digital Literacy	To know a scene is a visual aspect of a program. To know a background is part of the program design that shows behind everything else.	To know an attachment is a file, which could be a piece of work or a picture, that is sent with the email.	To know that you can add an image from clip-art, draw an image using the paint tools or upload from your device.	

Research & Internet Safety	To know that you should tell a trusted adult to tell if there is a problem.	To know 'report to the teacher' is a way 2Email to tell the teacher if you have received an email that makes you feel upset or scared. To know a password is a secret word, phrase or combination of letters, numbers and symbols that must be used to gain admission to a site or application such as email.	To know a spoof website is a website that uses dishonest designs to trick users into thinking that it represents the truth.	To know cyberbullying uses online communication to bully a person, typically by sending messages of an intimidating or threatening nature.
VOCABULARYflow				
Specific lesson / unit Vocabulary	Action, algorithm, alert, background, blocks of command, button, collison detection, debug, develop, execute, event, flowchart, nesting, object, output, plan, predict, procedure, properties, repeat, timer, sequemce, sound, scene, test, values.	address book, attachment, communication, compose, CC, draft, email, formatting, password, report, save send	Branching database, data, database,debug, question	Bar chart, block graph, data, field, graph, line graph
Units	**Year 3 Coding Autumn**	**Year 3 Email Spring**	**Year 3 Branching Databases Summer 1**	**Year 3 Graphing Summer 2**
Programme/ Device	2Code	2Email, 2Connect, 2DIY	2Question	2Graph
Skills				
Control (Algorithms)	Design and write a program that uses a timer-every command Understand there can be different ways to solve a problem. Understand how the turtle object moves. Use the repeat command with an object. Design a computer program that includes use of the repeat command. Design and write computer programs using prior knowledge. Run, test and debug their programs. Consider nesting when debugging their programs. Plan their scene and code before they design their program.		Use and debug their own and others branching databases.	

Handling Data & Information	Read and explain a flowchart Use a flowchart to design and write a computer program. Use the properties table to set the properties of objects.	Attach work to an email. Attach files appropriately and use email communication to explore ideas.	Use YES/NO questioning to play a simple game with a peer. Explain why they choose a particular question to split their database. Contribute to a class branching database about fruit. Complete a branching database about vegetables Design and write a branching database.	Set up a graph with a given number of fields and enter data for a graph. Answer questions based on data. Produce and share graphs made on the computer. Select the most appropriate style of graph for their data and explain their reasoning. Present the results in a range of graphical formats Use the sorting option to make analysis of their data easier
Sound & Music				
Understanding Technologies	Make several different things happen in a program.	Order the various types of communication that have been used through history. Understand the importance of draft.	Understand how YES/NO questions are structured and answered.	
Electronic Communication		List a range of different ways to communicate. Open an email and respond to it. Send emails to other children in the class. Use the search option in the address book to find a classmate when sending an email. Explain what CC means and how to use it. Read and respond to a series of email communications. Explain why the terms CC and BCC are used Understand when to use CC or BCC		
Text & Multimedia	Design and write a computer program that uses click events and timers.			
Digital Images (Photos, paint, animation)			Select and save appropriate images.	
Research & Internet Safety	Explain how to stay safe online and what to do in an emergency.	Write rules about how to stay safe using email.	Understand that some information held on websites may not be accurate or true.	Understand how to address cyberbullying.

			Evaluate facts from a website and explain how they fact checked the information that was presented.	
Unit Outcomes				
Units	**Year 3 Coding Autumn**	**Year 3 Email Spring**	**Year 3 Branching Databases Summer 1**	**Year 3 Graphing Summer 2**
Programme/ Device	2Code	2Email, 2Connect, 2DIY	2Question	2Graph
Curriculum End Point	**Algorithms-** Debug any problems in the code, fixing and testing them. **Logic-** Change an object in the computer program. **Communication and coordination-** Understand outputs. **Digital Literacy -** Design and write a scene. **Research & Internet Safety -** Tell a trusted adult if there is a problem online.	**Logic-** Compose an email. **Artificial and Digital Systems-** Emails are messages sent electronically. **Communication and coordination-** Understand how to send an email. **Digital Literacy -** Understand how to attach a file to an email. **Research & Internet Safety -** Know how to create a safe password.	**Algorithms-** debugging is finding a problem fixing and testing them. **Data representation-** database is a collection of data organised in such a way that it can be searched, and information found easily. **Communication and coordination-** Add sound. **Digital Literacy -** Add images. **Research & Internet Safety -** Identify a spoof website.	**Logic-** a graph is a diagram showing the value of objects. **Data representation-** Create a block graph, line graph and pie chart. **Research & Internet Safety -** Understand cyberbullying and how to address it.
Suggested summary task	Share 2Code program with peers to play.	To write a set of instructions on how to use an email.	Debug a database and explain how to fix it.	To collect data and decide which way is most appropriate to present it.

SIGNIFICANT PEOPLE/ORGANISATIONS				
	Year 3 Coding Autumn	**Year 3 Email Spring**	**Year 3 Branching Databases Summer 1**	**Year 3 Graphing Summer 2**
Cultural Capital	Mitchel Resnick	**Steve Jobs**	James Gosling	Cliver Sinclair

SMSC				
	Year 3 Coding	**Year 3 Email**	**Year 3 Branching Databases**	**Year 3 Graphing**

	Autumn	Spring	Summer 1	Summer 2
British Values (Democracy. Rule of Law. Tolerance. Mutual Respect. Individual Liberty)	Individual liberty- pupils make their own choices. Make better decisions Mutual respect for each other and the work children are doing.	The Rule of Law - Understand the use of rules on computers and the internet. Individual Liberty - Understand how to use our right to freedom of speech in a respectable and thoughtful way, being considerate of how this speech will affect othersBy exploring human achievements and creativity in relation to world wide communications	Mutual respect - Appreciate and understand the views of others, our right to challenge, question and discuss opinions and views, and to do this in a respectable and thoughtful way. Tolerance - Understand that we are connected to people across the whole world.	Mutual respect - Appreciate and understand the views of others, our right to challenge, question and discuss opinions and views, and to do this in a respectable and thoughtful way. Tolerance - Understand that we are connected to people across the whole world.
Equalities (SMSC, protected characteristics, race, gender, safeguarding etc.)	By Understanding the advantages and limitations of ICT. By discussing the impact of ICT on the the way people communicate	By discussing the impact of ICT on the way people communicate By wandering at the power of of the digital age	By volunteering and cooperating well with others	By developing awareness of and responding to others

	SAFEGUARDING			
	Year 3 Coding Autumn	**Year 3 Email Spring**	**Year 3 Branching Databases Summer 1**	**Year 3 Graphing Summer 2**
Mental Health & Wellbeing	Explain how to stay safe online and what to do in an emergency.	Identify which emails which may harm their device. Once an email is sent it can't be unsent.	Understand that some information held on websites may not be accurate or true.	Understand how to address cyberbullying.
Personal & Physical				

LINKED CAREERS				
	Year 3 Coding Autumn	**Year 3 Email Spring**	**Year 3 Branching Databases Summer 1**	**Year 3 Graphing Summer 2**
Cultural Capital	Robotics engineer	Admin	Data analyst	Bank advisor

LOCAL STUDY				
	Year 3 Coding Autumn	**Year 3 Email Spring**	**Year 3 Branching Databases Summer 1**	**Year 3 Graphing Summer 2**
Links to locality	Tharsus	Nigel Wright Recruitment	Local banks and building societies	Local banks and building societies

Year 4 Computing Knowledge Map					
Units	**Year 4 Logo Autumn 1**	**Year 4 Hardware Investigators Autumn 2**	**Year 4 Animation Spring 1**	**Year 4 Making Music Spring 2**	**Year 4 Coding Summer**
Programme/ Device	2Logo	2Connect, 2Quiz	2Animate	Busy Beats	2Chart, 2Code
Key Concepts	**Knowledge (NC)**				
Algorithms	To know LOGO is a text-based coding language used to control an on screen turtle to design and write mathematical patterns. To know debugging is looking for any problems in the code, fixing and testing them.		To know animation is a process by which still pictures appear to move.		To know debugging is looking for any problems in the code, fixing and testing them. To know a command is a single instruction in a computer program. To know 'If' is a conditional command. and if the condition is true then the commands inside the block will be run. To know 'if/else' is a conditional command and olf the condition is true, then the commands inside the 'if block' will be run but if the condition is not met, then the commands inside the 'else block' are run. To know object types are the visual components within 2Code that have different properties and different actions to respond to events. To know that a button is an object that can trigger an event in response to being clicked. To know all objects have properties that can be changed in design or by writing code e.g. image, colour and scale properties. To know a code block is an individual code command represented visually by a block on the screen.

					To know selection is a conditional command and when it is used, a program will choose a different outcome depending on a condition. To know 'repeat until' is a command that can be used to make a block of commands run until something certain happens.
Logic	To know 'call' is the correct term for telling the program to run the procedure.	To know hardware refers to the physical parts of a computer or device. To know the parts inside the computer casing are often called the components. To know the parts that are attached to the computer case are called peripherals. To know software describes the programs that run on the computer. To know a motherboard is a printed circuit board containing the main parts of a computer or other device, with connectors for other circuit boards to be slotted into.	To know a flipbook is a book with pictures drawn in a way that makes them appear to move when the pages are flicked. To know a frame is a single image in an animation. To know onion skinning is a process where the shadow image of the previous frame is present to help you line up the objects of the animation correctly. To know a background is a non-moving image that appears behind the animated images. To know to press play to make the animation start. To know stop motion is a technique whereby the camera is repeatedly stopped and started, for example to give animated figures the impression of movement.	To know rhythm is a pattern of long and short sounds and silences. To know rippler is a tool which when clicked, begins the ripple of sound. To know the melody is the part which makes a piece of music most memorable and moving. It is the tune; the part that you can sing or hum along to.	To know the alert is a type of output. It shows a pop-up of text on the screen To know prediction is what you think will happen when a piece of code is run. To know that coordinates are numbers which determine the position of a point, shape or object in a particular space. To know that variables are a named area in computer memory and the program can change this variable value.
Data Representation					To know a flowchart is a diagram which represents an algorithm.
Artificial & Digital Systems		To know RAM allows programs to store information to help the computer run more quickly. To know CPU is the part of a computer in which operations are controlled.		To know when you click on one of the notes it will bring up the synth board. To know you can make different parts to your tune by creating different tabs and then switching between them.	

		To know a graphics card is a printed circuit board that controls the output to a display screen. To know a monitor is a screen which displays an image generated by a computer. To know a network card is an electronic device that connects a computer to a computer network. To know speakers are a device for letting you hear sounds generated by the computer. To know a keyboard and mouse are external devices.		To know the 'bpm' button changes the speed of the music.	
Communication & Coordination	To know 'BK' means move backwards a distance of units. To know 'FD' means move forward a distance of units. To know 'RT' means to turn right a given number of degrees. To know 'LT' means to turn left a given number of degrees. To know 'REPEAT' means to repeat a set of instructions a specified number of times.				To know a timer is a command to run a block of commands after a timed delay or at regular intervals To know that prompt for input is a code command that visually presents the user with text
Digital Literacy	To know 'SETPC' means to set pen colour to a given colour. To know 'SETPS' means to set the pen thickness. To know 'PU' means to lift the pen up off the screen. To know 'PD' means put the pen back down on the screen.		To know a video clip is a short piece of film or animation. To know music can be added to the animation.		To know the background is the part of the program design that shows behind everything else. It sets the scene for the story or game.
Research & Internet Safety	To know a digital footprint is the information about a person that exists on the Internet as a result of their online activity	To know that malware is software that is specifically designed to disrupt, damage, or gain access to a computer.	To know security symbols such as a padlock protect their identity online	To know plagiarism is when you use someone else's words or ideas and pass them off as your own	To know you need to have a balance between active and digital activities.
VOCABULARY					

Specific lesson / unit Vocabulary	BK, debugging, FD, Logo, LT, PD, PU, repeat, RT, SETPC, SETPS.	CPU, graphics card, keyboard, monitor, motherboard, mouse, network card, RAM, speakers	animation, background, frame, flipbook, onion skinning, play, stop motion, sound, video clip.	Dynamics, house music, melody, pitch, pulse, rhythm, rippler, tempo, texture.	action, alert, background, button, code block, command, co-ordinates, debug, execute, flowchart, if/else, if, nesting, number variable, objects types, predict, prompt, properties, repeat, selection, timer, variable, variable value.
Units	**Year 4 Logo Autumn 1**	**Year 4 Hardware Investigators Autumn 2**	**Year 4 Animation Spring 1**	**Year 4 Making Music Spring 2**	**Year 4 Coding Summer**
Programme/ Device	2Logo	2Connect, 2Quiz	2Animate	Busy Beats	2Chart, 2Code
Skills					
Control (Algorithms)	Explain what the common instructions are in 2Logo and how to type them. Follow simple 2Logo instructions to design shapes on paper. Follow simple instructions to design shapes in 2Logo. Design 2Logo instructions to draw patterns of increasing complexity. Explain the pu and pd commands. Write 2Logo instructions for a word of four letters. Follow 2Logo code to predict the outcome. Use the Procedure feature.		Design a simple animation using paper to create a flick book.	Design and write a simple melodic pattern using 2Sequence and Busy Beats. Use a variety of notes, experimenting with pitch.	Plan an algorithm for their scene and use 2Code to program it Design and write a program that includes an IF statement. Use the X and Y properties of objects in coding. Design and write a program that includes an IF statement. Read code that includes repeat until and IF/ ELSE and explain how it works Design and write a program that includes an IF/ ELSE statement
Handling Data & Information					Interpret a flowchart that depicts an IF statement. Interpret a flowchart that depicts an IF/ ELSE statement.
Sound & Music			Add sounds to make more complex and imaginative animations.	Use appropriate musical language to discuss a piece of music. Identify sounds in a piece of music.	

				Explain how a piece of music makes them feel. identify and recall a simple rhythm. Explain what tempo is, and how changing it can change the mood of a piece of music. Design and write their own simple rhythm using Busy Beats. Show an understanding of melody. Experiment with pitch, rhythm, and melody to create a piece of house music on Busy Beats.	
Understanding Technologies	Use logical reasoning to predict what will happen.	Name the different parts of a desktop computer. Explain what the function of the different parts of a computer are. Create a leaflet to show the function of computer parts. Understand what hardware is. Explain specific components allow computers to join and form a network.	Use animation frames using 2Animate to replicate storyboard Make a simple animation using 2Animate. Use the Onion Skin tool to create an animated image. Use backgrounds and sounds to make more complex and imaginative animations. Explain what 'stop motion' animation is and how it is created. Use ideas from existing 'stop motion' films to recreate their own animation.	Explore and understand how music is created.	Explore different object types in 2Code. Explain what a variable is in programming Create and use variables when programming
Electronic Communication		Compare physical network connections with wireless connections.	Share animations and commented on each other's work using display boards and blogs in Purple Mash		
Text & Multimedia					
Digital Images (Photos, paint, animation)	Design shapes using the Repeat command. Find the most efficient way to draw shapes. Design 'flowers' or 'crystals' using 2Logo.				Use a background and objects to design a scene

Research & Internet Safety	Give examples of things that they would and would not want to be in their digital footprint	Identify possible risks of installing free and paid for software	Aware of the existence of scam websites.	Determine whether activities that they undertake online, infringe another's' copyright. Know the difference between researching and using information and copying it.	Give reasons for limiting screen time.
Unit Outcomes					
Units	**Year 4 Logo Autumn 1**	**Year 4 Hardware Investigators Autumn 2**	**Year 4 Animation Spring 1**	**Year 4 Making Music Spring 2**	**Year 4 Coding Summer**
Programme/ Device	2Logo	2Connect, 2Quiz	2Animate	Busy Beats	2Chart, 2Code
Curriculum End Point	**Algorithms-** LOGO is a text-based coding language used to control an on screen turtle to design and write mathematical patterns. **Logic-** Use the 'call' function. **Communication and coordination-** Understand how to move in 2Logo. **Digital Literacy -** Use the pen in 2Logo. **Research & Internet Safety -** Explain their digital footprint	**Logic-** hardware refers to the physical parts of a computer or device. **Artificial and Digital Systems-** Understand how a computer works. **Research & Internet Safety -** Explain what malware is.	**Algorithms**- animation is the process giving the illusion of movement. **Logic**- movies are a collection of images, images and videos can be put together, stop motion. **Digital Literacy**- Movies are multimedia platforms **Research & Internet Safety -** Identify how to protect their identity online.	**Logic-** Use the rippler tool. **Artificial and Digital Systems-** Create different tunes. **Research & Internet Safety -** Explain what plagiarism is.	**Algorithms-** Use different commands. **Logic-** Predict what will happen when a piece of code in run. **Data representation-** Use a flowchart to represent an algorithm. **Communication and coordination-** Use a timer to run code. **Digital Literacy -** Design a background. **Research & Internet Safety -** Explain how to have healthy screen time.
Suggested summary task	To create a tutorial on how to use 2Logo.	Use 2Quiz to create a quiz about parts of the computer and then share with peers.	To design and write a 3D stop-motion movie with green screen technology.	To evaluate own and peers music.	To test peers programs and debug if necessary.

SIGNIFICANT PEOPLE/ORGANISATIONS					
	Year 4 Logo Autumn 1	**Year 4 Hardware Investigators Autumn 2**	**Year 4 Animation Spring 1**	**Year 4 Making Music Spring 2**	**Year 4 Coding Summer**

Cultural Capital	Victor Scheinman	**Linus Torvalds**	Émile Cohl	Oak Felder	Renick Bell

SMSC					
	Year 4 Logo Autumn 1	**Year 4 Hardware Investigators Autumn 2**	**Year 4 Animation Spring 1**	**Year 4 Making Music Spring 2**	**Year 4 Coding Summer**
British Values (Democracy. Rule of Law. Tolerance. Mutual Respect. Individual Liberty)	Individual Liberty - Understand how to use our right to freedom of speech in a respectable and thoughtful way, being considerate of how this speech will affect others	Tolerance - Understand that we are connected to people across the whole world. We understand that these are people from different communities, cultures, faiths and beliefs.	Democracy-pupil views- look at music from a range of viewpoints Questioning to encourage and develop these skills through discussions and problem solving Individual Liberty - Understand the freedom the internet and computers offer us in discovering information and connecting us with the world. Mutual Respect - Understand the views of others, our right to challenge, question and discuss opinions and views, and to do this in a respectable and thoughtful way.	Mutual Respect - Understand the views of others, our right to challenge, question and discuss opinions and views, and to do this in a respectable and thoughtful way.	Individual liberty- pupils make their own choices. Make better decisions Mutual respect for each other and the work children are doing.
Equalities (SMSC, protected characteristics, race, gender, safeguarding etc.)	By considering the vision of those involved in developing the web	By exploring the moral issues surrounding the use of data By considering the benefits and potential dangers of the internet By considering the vision of those involved in developing the web By discussing the impact of IT on the way people communicate	By exploring human achievements and creativity By developing a sense of awe and wonder at human ingenuity	By allowing pupils to show their delight and curiosity in creating their own sounds By appreciating how music is used in different ways in different settings. By wondering at the power of the digital age By discussing the impact of IT on the way people communicate By exploring human achievements and creativity	By wondering at the power of the digital age By understanding the advantages and limitations of IT

	SAFEGUARDING				
	Year 4 Logo Autumn 1	**Year 4 Hardware Investigators Autumn 2**	**Year 4 Animation Spring 1**	**Year 4 Making Music Spring 2**	**Year 4 Coding Summer**
Mental Health & Wellbeing **Personal & Physical**	Think critically about information which they share online	Communication: Explain how people can connect with one another through the Internet. Explain how the ability for people to communicate online can unite a community.	Personal Information: Identify how to protect themselves from online identity theft.	Age appropriateness: Demonstrate an understanding of age-appropriate music.	Describe appropriate ways to behave towards other people online and why this is important

	LINKED CAREERS				
	Year 4 Logo Autumn 1	**Year 4 Hardware Investigators Autumn 2**	**Year 4 Animation Spring 1**	**Year 4 Making Music Spring 2**	**Year 4 Coding Summer**
Cultural Capital	Robotics engineer	IT Technician	Illustrator, animator, film director	DJ, Musician, Music studio manager	Robotics engineer

	LOCAL STUDY				
	Year 4 Logo Autumn 1	**Year 4 Hardware Investigators Autumn 2**	**Year 4 Animation Spring 1**	**Year 4 Making Music Spring 2**	**Year 4 Coding Summer**
Links to locality	Tharsus	John Harwood	Jason Knight - Blue Kangaroo	Judge Jules local DJ Openzone @ The Word	The robotics industry is active in Blyth and there are jobs available in the local area creating and programming robots - Tharsus

Year 5 Computing Knowledge Map				
Units	**Year 5 Game Creator Autumn**	**Year 5 Databases Spring 1**	**Year 5 3D Modelling Spring 2**	**Year 5 Spreadsheets Summer**
Programme/ Device	2DIY3D	2Investigate	2Design and Make	2Calculate
Key Concepts	**Knowledge (NC)**			
Algorithms	To know animation is creating an illusion of movement. To know customise is to modify something to suit an individual or task. To know instructions are detailed information about how something should be done or operated.			To know that formulas are used to collate information
Logic	To know a computer game is a game played using a computer, typically a video game. To know evaluation is making a judgement about the value of something. To know perspective is representing three dimensional objects on a two-dimensional surface to give the right impression of their height, width, depth, and position in relation to each other. To know playability is a measure of either the ease by which a video game may be played, or of the overall quality of its gameplay.	To know a table is sorting information into rows and columns	To know modelling is the activity of making models. To know 3D is something that has three dimensions; height, width and depth. To know points is the exact position or location on a 2Dsurface. To know a template is something that serves as a model for others to copy. To know a polygon is an object with at least three straight sides and angles, and typically five or more. To know 2D is something that has only two dimensions; height and width. To know a net is a pattern that you can cut and fold to make a model of a solid shape.	To know that rows are horizontal and begin with a number. To know columns are lettered and vertical. To know functions are used to perform calculations or other actions. To know databases are used to sort or store information To know each entry or piece of information is called a record. To know that a cell reference tells the name of the cell.
Data Representation		To know a field contains information relating to one aspect or attribute of the record. To know a binary tree (branching database) is a way to sort information by dividing the information into groups based upon questions with yes or no answers.		To know that data can be easily converted into different charts (bar, pie, line) to present them clearly.

		To know data is facts and statistics collected together for information. To know a database is a set of data that can be held in a computer in a format that can be searched and sorted for information. To know 'find' means to search for information in a database. To know a record is a collection of data about one item entered into a database. To know sort, group and arrange are different ways to sort information in a database to it is easy to read, understand and interpret. To know statistics and reports are used to produce information about data in a database.		
Artificial & Digital Systems			To know Computer aided Design (CAD) is a computer program or app that allows you to design a 3D object or environment in 2D and visualise it in 3D on the screen from many angles. To know 3D Printing is the action or process of making a physical object from a three dimensional digital model, typically by laying down many thin layers of a material in succession.	To know that questionnaires/surveys generate numerical data which we can analyse
Communication & Coordination	To know being interactive is responding to a user's input on a computer or device.	To know collaboration is produced by, or involving, two or more parties working together.	To know a viewpoint is a person's opinion or point of view.	
Digital Literacy	To know an image is a picture displayed on the computer screen. To know a screenshot is an image of the data displayed on the screen of a computer or mobile device. To know texture is high frequency detail or colour information on a computer-generated graphic.	To know an avatar is an icon or figure representing a person in a video game, Internet forum, etc. To know charts represent information in a pictorial form.		
Research & Internet Safety	To know privacy means keeping your personal information private.	To know citations is a quotation from or reference to a book, paper, or author, especially in an academic work.	To know reliability is the quality of being trustworthy.	To collaborate carefully and respectfully with others by completing the task together as directed.

				To know data is often encrypted to keep it safe. To know encryption is securely encoding information so that it can only be read by those knowing both the system used a secret, private key.
VOCABULARY				
Specific lesson / unit Vocabulary	animation, computer game, customise, evaluation, image, instructions, interactive, perspective, playability, screenshot, texture.	arrange, avatar, binary tree, charts, collaborative, data, database, find, group, record, reports, sort, statistics, table	2D, 3D, 3D Printing, CAD, modelling, net, points, polygon, template, viewpoint.	average, advance mode, copy and paste, column, cells, charts, equals tool, formula, formula wizard, move cell tool, random tool, rows, spin tool, spreadsheet, timer
Units	**Year 5 Game Creator Autumn**	**Year 5 Databases Spring 1**	**Year 5 3D Modelling Spring 2**	**Year 5 Spreadsheets Summer**
Programme/ Device	2DIY3D	2Investigate	2Design and Make	2Calculate
Skills				
Control (Algorithms)	Review and analyse a computer game. Describe some of the elements that make a successful game. Begin the process of designing their own game. Design the setting for their game so that it fits with the selected theme. Make their game more unique by electing the appropriate options to maximise the playability. Write informative instructions for their game so that other people can play it.			Use the 'how many' tool.
Handling Data & Information		Understand the different ways to search a database. Enter information into a class database. Create their own database on a chosen topic. Add records to their database. Add field information.		Create a formula in a spreadsheet to convert m to cm. Create a spreadsheet that converts miles to km and vice versa. Use a spreadsheet to work out which letters appear most often. Use a spreadsheet to work out the area and perimeter of rectangles.

		Understand how to word questions so that they can be effectively answered using a search of their database.		Use calculations to solve a real-life problem. Create simple formulae that use different variables create a formula that will work out how many days there are in x number of weeks or years use a spreadsheet to model a real-life situation and come up with solutions that can be practically applied.
Sound & Music				
Understanding Technologies	Evaluate my their own and peers' games to help improve their design for the future	Search a database to answer questions correctly.	Explain what the 2Design and Make tool is for Explore the different viewpoints in 2Design and Make whilst designing a building..	
Electronic Communication			Print their design as a 2D net and then created a 3D model. Explore the possibilities of 3D printing.	
Text & Multimedia				
Digital Images (Photos, paint, animation)	Upload images or use the drawing tools to design the walls, floor, and roof. Design characters for their game. Decide upon, and change, the animations and sounds that the characters make.	Design an avatar for a class database.	Adapt one of the vehicle models by moving the points to alter the shape of the vehicle while still maintaining its form. Explore how to edit the polygon 3D models to design a 3D model for a purpose. Refine one of their designs to prepare it for printing.	
Research & Internet Safety	Think critically about what they share online, even when asked by a usually reliable person to share something	Cite all sources when researching and explain the importance of this	Show an understanding of the advantages and disadvantages of different forms of communication and when it is appropriate to use each	Understand why encryption is used.
Unit Outcomes				
Units	**Year 5 Game Creator Autumn**	**Year 5 Databases Spring 1**	**Year 5 3D Modelling Spring 2**	**Year 5 Spreadsheets Summer**
Programme/ Device	2DIY3D	2Investigate	2Design and Make	2Calculate

Curriculum End Point	**Algorithms-** animation is creating an illusion of movement. **Logic-** a computer game is a game played using a computer, typically a video game. **Communication and coordination-** Input information into a device. **Digital Literacy -** Design characters for the game. **Research & Internet Safety -** Understand what privacy means.	**Logic-** Understand how a table sorts information into rows and columns. **Data representation-** Data is facts and statistics collected together for information. **Communication and coordination-** Work collaboratively **Digital Literacy -** Create charts to represent information. **Research & Internet Safety -** Understand how to use citations.	**Logic-** Know modelling is the activity of making models. **Artificial and Digital Systems-** Understand why ow CAD is used. **Communication and coordination-** Understand people's viewpoints. **Research & Internet Safety -** Explain reliability	Algorithms- formulas used to collate information Logic- rows are horizontal, columns lettered. Entry's are called records. Cell references tell the name of the cell Data representation- data can be easily converted into different charts Artificial and Digital systems - questionnaires/surveys generate numerical data Responsibility and Safety- data is encrypted to keep it safe
Suggested summary task	To share created games and evaluate a peer's game.	To evaluate own and peers' databases.	To create a tutorial on how to use 2Design and Make.	Present results from a real event by analysing graphs

SIGNIFICANT PEOPLE/ORGANISATIONS				
	Year 5 Game Creator Autumn	**Year 5 Databases Spring 1**	**Year 5 3D Modelling Spring 2**	**Year 5 Spreadsheets Summer**
Cultural Capital	Shigeru Miyamoto	**Alan Turing**	Ada Lovelace	Dan Bricklin

SMSC				
	Year 5 Game Creator Autumn	**Year 5 Databases Spring 1**	**Year 5 3D Modelling Spring 2**	**Year 5 Spreadsheets Summer**
British Values (Democracy. Rule of Law. Tolerance. Mutual Respect.	Individual liberty- Empowering our pupils to make their own choices. Democracy-pupil views- look at games from a range of viewpoints Tolerance- enhancing pupils' understanding of their place in a culturally diverse society.	The Rule of Law - To know what we are allowed to post and share.	Mutual Respect - To what we are allowed to post and share	Individual liberty- Empowering our pupils to make their own choices. Individual Liberty and Internet safety- Knowing that they are safe when working on line.

Individual Liberty)	Questioning to encourage and develop these skills through discussions and problem solving Mutual respect- showing and receiving. Foster mutual respect for each other's work			
Equalities (SMSC, protected characteristics, race, gender, safeguarding etc.)	By reviewing and evaluating created games.	By exploring the moral issues surrounding the use of data	By wandering at the power of the digital age	By exploring the moral issues surrounding the use of data By discussing the impact of IT on the way people communicate

	SAFEGUARDING			
	Year 5 Game Creator Autumn	**Year 5 Databases Spring 1**	**Year 5 3D Modelling Spring 2**	**Year 5 Spreadsheets Summer**
Mental Health & Wellbeing	References: Repurpose and make appropriate use of selected resources for given audiences, acknowledging material used where appropriate.	To gather strategies for managing time online	To know the importance of balancing time online with other activities	**Reliability: Children demonstrate an understanding that not all information on the internet is accurate.**
Personal & Physical				

LINKED CAREERS				
	Year 5 Game Creator Autumn	**Year 5 Databases Spring 1**	**Year 5 3D Modelling Spring 2**	**Year 5 Spreadsheets Summer**
Cultural Capital	Animator, Game Designer, Game tester	Business analyst	Product designer	Data analyst, Accountant, Bank advisor

LOCAL STUDY				
	Year 5 Game Creator Autumn	**Year 5 Databases Spring 1**	**Year 5 3D Modelling Spring 2**	**Year 5 Spreadsheets Summer**
Links to locality	Atomhawk - game developer	Local banks and building societies	Atomhawk	Local banks and building societies

Year 6 Computing Knowledge Map				
Units	**Year 6 Understanding Binary Autumn 1**	**Year 6 Networks Autumn 2**	**Year 6 Blogging Spring**	**Year 6 Quizzing Summer**
Programme/ Device	2Connect, 2Question	2Write, 2Connect, 2Chart.	2Write, 2Connect, 2Blog	2Quiz, 2DIY, 2Connect, 2Investigate
Key Concepts	**Knowledge (NC)**			
Algorithms		To know the page rank algorithm is an algorithm that sorts web pages so that the most useful are listed at the top.	To know HTML is a text based coding language that tells a computer what a web page looks like.	
Logic	To know that a transistor is a tiny switch that is activated by the electronic signals it receives. To know a single 0 or 1 is called a bit. To know that a variable is used in programming to keep track of things that can change while a program is running. To know that an integer is any whole number.	To know a network within one physical site is called a Local Area Network (LAN). To know a larger network requires a switch (or a hub). To know a wide area network (WAN) is a computer network in which the computers connected may be far apart, generally having a radius of more than 1 km.	To know an icon is a symbol or graphic representation on a screen. To know nodes represent concepts or ideas. To know connections represent a relationship or connection between two nodes or ideas To add a comment to a blog post use the comments box at the bottom of a blog post.	To know the concept maps are a tool for organising and representing knowledge and they form a web of ideas which are all interconnected. To know a quiz is a test of knowledge, especially as a competition between individuals or teams as a form of entertainment. To access the front screen click on the i at the top of the activity screen
Data Representation	To know that an input is data that a computer receives. To know that whole numbers are used as the basis for representing all types of data in digital systems. To know 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 know that binary represents numbers using 1s and 0s and these represent the on and off electrical states respectively in hardware and robotics.	To know network cables are used to connect and transfer data and information between computers and routers. To know wireless is the ability to transmit data from one device to another without using wires. To know a router is a device which forwards data packets to the appropriate parts of a computer network.	To know blogs record numerical data to identify popularity of posts.	To know a database is a structured set of data held in a computer, especially one that is accessible in various ways. To know the table view allows us to see all of the records and the information for the different fields. To know sort allows the user to sort by different fields and the information can be displayed in ascending or descending order. To know a group allows the user to group records together according to shared information.

				To know the statistics and report button allows the user to find statistical information in a database.
Artificial & Digital Systems	To know that computers use the binary system.		To know a blog is a regularly updated website or web page, typically one run by an individual or small group, that is written in an informal or conversational style.	
Communication & Coordination		To know the internet is all the cables, fibre, routers, switches etc. that connect computers together, or networks of computers to one another. To know the World Wide Web is about connections between documents and is just one of the services which uses the internet to be able to communicate. To know a group of devices which are connected to one another using network cables is a wired local network. To know a network is several interconnected computers, machines, or operations.	To know a blog page is a web page onto which blog posts are hosted. To know a blog post is a piece of writing or other item of content published on a blog. To know collaboration means to be produced by or involving two or more parties working together.	To know collaboration is the action of working with someone to produce something.
Digital Literacy			To know a vlog is a video version of a blog where a person records themselves and shares this, allowing others to comment.	
Research & Internet Safety	To know a site is secure by looking for privacy seals of approval e.g. https, padlock icon.	To know a site is secure by looking for privacy seals of approval e.g. https, padlock icon. To think critically about the information shared online and know if it is reliable	To know that posts go through an approval process to reduce the issues surrounding inappropriate posts and cyberbullying.	To know a PEGI rating is a rating that shows what age a game is suitable for
VOCABULARY				
Specific lesson / unit Vocabulary	Bsse 2, base 10, binary, bit, byte, decimal. denary, digit, gigabyte (GB), integer, kilobyte (KB), machine code, megabyte (MB), nibble, switch, terabyte (TB), transistor, variable.	internet, local area network (LAN), network, network cables, router, wide area network (WAN), world wide web (WWW).	audience, blog, blog page, blog post, collaborative, icon	audience, collaboration, concept map, database, quiz.
Units	**Year 6 Understanding Binary Autumn 1**	**Year 6 Networks Autumn 2**	**Year 6 Blogging Spring**	**Year 6 Quizzing Summer**

Programme/ Device	2Connect, 2Question	2Write, 2Connect, 2Chart.	2Write, 2Connect, 2Blog	2Quiz, 2DIY, 2Connect, 2Investigate
Skills				
Control (Algorithms)	Use inputs and outputs within coded programs.		Create a blog or blog post with a specific purpose.	
Handling Data & Information	Explain how all data in a computer is saved in the computer memory in a binary format. Explain that binary uses only the integers 0 and 1. Convert numbers to binary using the division by two method. Check their own answers using the converter tool. Make use of a variable set to 0 or 1 to control game states.	Explain the school network. Explain the differences between more than two network types such as: LAN, WAN, WLAN and SAN.		Share their quiz and respond to feedback. Understand the different question types within 2Quiz. Use 2Quiz to make and share a science quiz. Explore different types of Text Toolkit grammar games. Choose an appropriate Text Toolkit tool to make their own grammar game(s). Use a 2Investigate quiz to answer quiz questions. Design their own quiz based on one of the 2Investigate example databases.
Sound & Music				
Understanding Technologies	Relate 0 to an 'off' switch and 1 to and 'on' switch. Relate bits to computer storage.	Explain the difference between the World Wide Web and the internet. Provide examples of the difference between the World Wide Web and the Internet. Consider some of the major changes in technology which have taken place during their lifetime and the lifetime of another adult. Understand how search results are selected and ranked.		Consider the audience's ability level and interests when setting the quiz. Share their quiz with peers.

Electronic Communication			Assess the effectiveness and impact of a blog. Understand the key features of a blog. Work collaboratively to plan a blog. Understand that the way in which information is presented has an impact upon the audience. Post comments and blog posts to an existing class blog.	Have ideas about what sort of questions are best suited to the different question types. Give and respond to feedback.
Text & Multimedia	Count up from 0 in binary using visual aids if needed.		Understand how a blog can be used as an informative text.	
Digital Images (Photos, paint, animation)				Use the 2DIY activities to create a picture-based quiz.
Research & Internet Safety	Judge what sort of privacy settings might be relevant to reducing different risks.	Research Tim Berners-Lee. Independently and with due regard for safety, search the internet using a variety of techniques to find a range of information and resources on a specific topic.	Understand the approval process that their posts go through and demonstrate an awareness of the issues surrounding inappropriate posts and cyberbullying. Understand that content included in blogs should carefully consider the end user. Use appropriate methods to validate information and check for bias and accuracy. Make use of copy and paste, beginning to understand the purpose of copyright regulations and the need to repurpose	Understand the importance of balancing game and screen time with other parts of their lives. Identify the positive and negative influences of technology on health and the environment.
Unit Outcomes				
Units	**Year 6 Understanding Binary Autumn 1**	**Year 6 Networks Autumn 2**	**Year 6 Blogging Spring**	**Year 6 Quizzing Summer**
Programme/ Device	2Connect, 2Question	2Write, 2Connect, 2Chart.	2Write, 2Connect, 2Blog	2Quiz, 2DIY, 2Connect, 2Investigate
Curriculum End Point	**Algorithms**- Inputs and outputs are used within coded programs. **Logic-** Explain how the binary system works within a wide variety of digital systems. **Data representation-** Within digital systems,	**Algorithms-** Page rank algorithm sorts web pages. **Logic-** LAN and WAN (networks) **Data representation**- database is collection of data organised. **Artificial and Digital Systems**-Filtering and monitoring	**Algorithms-** HTML is a text based coding language. **Logic-** Blogs can be used for information **Data representation-** Blogs record numerical data for popularity **Artificial and Digital Systems-**A blog is a regularly updated website or webpage.	**Logic-** a quiz is a test of knowledge **Data representation-** a database is a structured set of data held in a computer, especially one that is accessible in various ways.

	whole numbers are used as the basis of representing all types of data and that this is known as a binary format. **Artificial and Digital Systems-** Computers use the binary system. **Communication and coordination-** **Digital Literacy -** **Research & Internet Safety -** Privacy seals of approval	**Communication and coordination-** World Wide Web is about connections **Digital Literacy -** **Research & Internet Safety -** Reliability of information online	**Communication and coordination-** You can work collaboratively on a blog. **Digital Literacy - A vlog is a video version of a blog where a person records themselves and shares this** **Research & Internet Safety -** Use appropriate methods to validate information and check for bias and accuracy.	**Communication and coordination- c**ollaboration is the action of working with someone to produce something. **Digital Literacy -** **Research & Internet Safety -** explain the positive and negative influences of technology.
Suggested summary task	Use their knowledge of binary and of code to design, make and evaluate their own programs which represents the state of an object as active or inactive, using the respective binary values or 1 or 0	Get into the role of an IT technician and explain how the school network works.	Create a vlog using information from their blog.	Create a quiz show based on a curriculum area.

SIGNIFICANT PEOPLE/ORGANISATIONS				
	Year 6 Understanding Binary Autumn 1	**Year 6 Networks Autumn 2**	**Year 6 Blogging Spring**	**Year 6 Quizzing Summer**
Cultural Capital	Charles Babbage	**Sir Tim Berners-Lee**	Mark Zuckerberg	Hedy Lamaar

SMSC				
	Year 6 Understanding Binary Autumn 1	**Year 6 Networks Autumn 2**	**Year 6 Blogging Spring**	**Year 6 Quizzing Summer**
British Values (Democracy. Rule of Law. Tolerance. Mutual Respect. Individual Liberty)	Individual liberty- Empowering our pupils to make their own choices. Make better decisions Mutual respect for each other and the work children are doing. Rule of Law- knowing the reasons behind laws and the consequences around breaking laws.	Individual liberty- Empowering our pupils to make their own choices. Individual Liberty and Internet safety- Knowing that they are safe when working online.	Individual liberty- Empowering our pupils to make their own choices. Democracy-pupil views- look at blogs from a range of viewpoints Tolerance- enhancing pupils' understanding of their place in a culturally diverse society. Questioning to encourage and develop these skills through discussions and problem solving Mutual respect- showing and receiving. Foster mutual respect for each other's work	Individual liberty- Empowering our pupils to make their own choices. Democracy-pupil views- look at quizzes from a range of viewpoints Tolerance- enhancing pupils' understanding of their place in a culturally diverse society. Questioning to encourage and develop these skills through discussions and problem solving Mutual respect- showing and receiving. Foster mutual respect for each other's work

			Tolerance- enhancing pupils' understanding of their place in a culturally diverse society.	Tolerance- enhancing pupils' understanding of their place in a culturally diverse society.
Equalities (SMSC, protected characteristics, race, gender, safeguarding etc.)	By understanding the advantages and limitations of IT.	By considering the benefits and potential dangers of the internet. By considering the vision of those involved in developing the web, By links through digital media services with other schools and communities.	By using the internet as a gateway to big life issues. By links through digital media services with other schools and communities. By highlighting the ways to stay safe when using online services and social media. By discussing the impact of IT on the way people communicate.	By discussing the impact of IT on the way people communicate.

	SAFEGUARDING			
	Year 6 Understanding Binary Autumn 1	**Year 6 Networks Autumn 2**	**Year 6 Blogging Spring**	**Year 6 Quizzing Summer**
Mental Health & Wellbeing **Personal & Physical**	**Privacy settings:** Judge what sort of privacy settings might be relevant to reducing different risks.	**Safe surfing:** Independently and with due regard for safety, search the internet using a variety of techniques to find a range of information and resources on a specific topic.	**Bias & Copyright:** Use appropriate methods to validate information and check for bias and accuracy. Make use of copy and paste, beginning to understand the purpose of copyright regulations and the need to repurpose	**Screen time:** Understand that using a screen can help you surf the Internet or enjoy computer games but you need to be careful how much time you spend using a screen. For instance, using a screen at night can damage your sleep patterns. Turn your screen off regularly and enjoy the world outside.

LINKED CAREERS				
	Year 6 Understanding Binary Autumn 1	**Year 6 Networks Autumn 2**	**Year 6 Blogging Spring**	**Year 6 Quizzing Summer**
Cultural Capital	Software application designer	Web Developer, Computer system analyst, IT Technician	Youtuber, Blogger, Podcaster, Radio presenter, TV presenter	Promotions producer, Quiz presenter.

LOCAL STUDY				
	Year 6 Understanding Binary	**Year 6 Networks**	**Year 6 Blogging**	**Year 6 Quizzing**

	Autumn 1	Autumn 2	Spring	Summer
Links to locality	Gateshead College, Life Centre, Openzone @ The Word	Nevzat (Web developer) creator of new websites	Scran on the Tyne, Life in Geordieland	Ant and Dec's Saturday Night Takeaway