R eaching the highest possible outcomes for children

A ccepting and embracing our differences

E veryone thriving in a secure, safe and happy environment

B elonging to our community and being a good citizen

U nderstanding that education is a precious gift

R especting ourselves and others by setting high standards

I ever giving up– learning from our mistakes

Computing at Raeburn Primary School

Computing at Raeburn Primary School

Intent			
High Expectations	**Modelling**	**Vocabulary**	**Inclusion**
All children at Raeburn are expected to and given the support to make progress. We follow a 'Low threshold, high ceiling' approach. Where children need adaptations and scaffolding, this is put in place, so progress is enabled for ALL learners. Giving our pupils Digital Literacy skills to enable them to effectively use a range of technology and knowledge that allows them to solve a range of problems using computational thinking.	Teachers teach and model the skills needed to succeed in Computing by using a range of digital resources, and by providing examples and setting high expectations. All staff adhere to a community approach regarding Online Safety. Any new e-safety concerns or issues are shared regularly with staff (staff meetings) and parents (via letters and our parent app).	We intend to create an oracy and vocabulary rich environment. Oracy is a highly valued skill and a key learning tool. An aspect of oracy is an expectation in all of our lessons. All classrooms have a vocabulary display where 'keyword studies' are shown- these may have a computing focus. Teachers use the key vocabulary from the TeachComputing planning grids in lessons. This is also highlighted in each year group's floor book.	Every pupil at Raeburn has the opportunity to study computing. The needs of all children are supported and catered for in an individualised approach. Where necessary, additional support or resourcing is put in place to ensure equal outcomes for all. All children are expected to take part in the lesson through recapping prior knowledge, by giving scaffolded support or adapted teaching. The resources and approaches used can be used to ensure all of our pupils feel included. For children with SEND, technology provides great opportunities for accessing learning and for enabling communication. This will support long term memory of new computing knowledge and mastery of any Digital Literacy skills.
Knowledge and concepts	**Skills**	**British Values**	**Cultural Capital**
We have established the Teach Computing scheme throughout Raeburn, from Year 1 to Year 6. A scheme which builds on key knowledge, concepts, vocabulary, computational thinking, and Digital Literacy skills. Providing a range of engaging contexts for instruction and project-based learning. They are structured to provide solid progression in single lessons, and sequenced to support long-term learning objectives.	Children develop their skills in a progressive, connection-centred curriculum across all age phases. Children build their skill set to enable them to utilise technology independently and solve problems using computational thinking .	British Values is a very important element within our curriculum. Each classroom has a display and when elements of British Values are addressed in curriculum areas, these will be recorded on the display and outlined with children. Giving the children a good understanding of how British Values relate to individual subject disciplines. Allowing children to expand their horizons through the technology available and its usages. **Democracy:** Computing lessons promote a culture built upon freedom and equality, where everyone is aware of their right to participate in activities and responsibility to ensure a happy, safe and secure learning environment. **The Rule of law:** Children understand the need for rules in Computing lessons to ensure a happy, safe and secure environment in which to learn. (This is linked heavily to e-safety, copyright laws and ownership) **Individual Liberty:** Children have the freedom to make their own choices when being creative whilst using digital software. **Tolerance:** Children show respect and value others' ideas and beliefs when talking about cyber culture and any other sensitive subjects. **Mutual Respect:** Children appreciate that we do not all share the same values, but we respect each other all the same.	Children understand how Computing is linked to the wider world and value its importance. Children are exposed to different voices, perspectives and cultural experiences within Computing. Throughout Early Years there are opportunities for children to become more culturally aware using the immediate environment of home, school and local area. Expectations, around pupils becoming effective communicators, are enhanced in school in partnership with increasing parental engagement. Children will be able to explore technology in a safe and often child-led way developing a familiarity with equipment and vocabulary allowing them to have a strong start in Key Stage 1 computing and all that it demands. Computing in EYFS is centred around play-based, unplugged activities that focus on building pupils' listening skills, curiosity, creativity and problem solving. Pupils will be able to take a photograph with a camera or table, play games on the interactive whiteboard or on iPads, watch video clips and listen to music Throughout Key Stage 1 there are opportunities for pupils to identify technology and how its responsible use improves our world in school and beyond. Through creating media, our pupils can digitally paint, write and format text, capture and change digital photographs and create musical compositions. Pupils will be able to group and label data and represent information using simple pictograms. Throughout Key Stage 2 pupils' life skills are further developed to show an understanding and demonstration of the attitudes needed to recognise their own and others, social, emotional and mental wellbeing. The varied and rich enhancements offered to pupils develop their range of vocabulary and debating skills around current affairs. Understand the interrelated networks within computers, including the World Wide Web and how the Internet can be used to communicate and be searched to find information. Pupils will develop the skills to create and develop stop-frame animations, edit photos, audio and videos, create vector drawings and 3D models and be able to design their own webpages. Programming skills will be further developed through selection, variables in games and sensing. Pupils will develop their data and information skills further through their creation and use of flat-file databases and spreadsheets. By the end of primary school, pupils are confident and clear communicators who are able to articulate their views and opinions, in a range of situations, thus enabling them to become responsible citizens who enhance the community they live in.

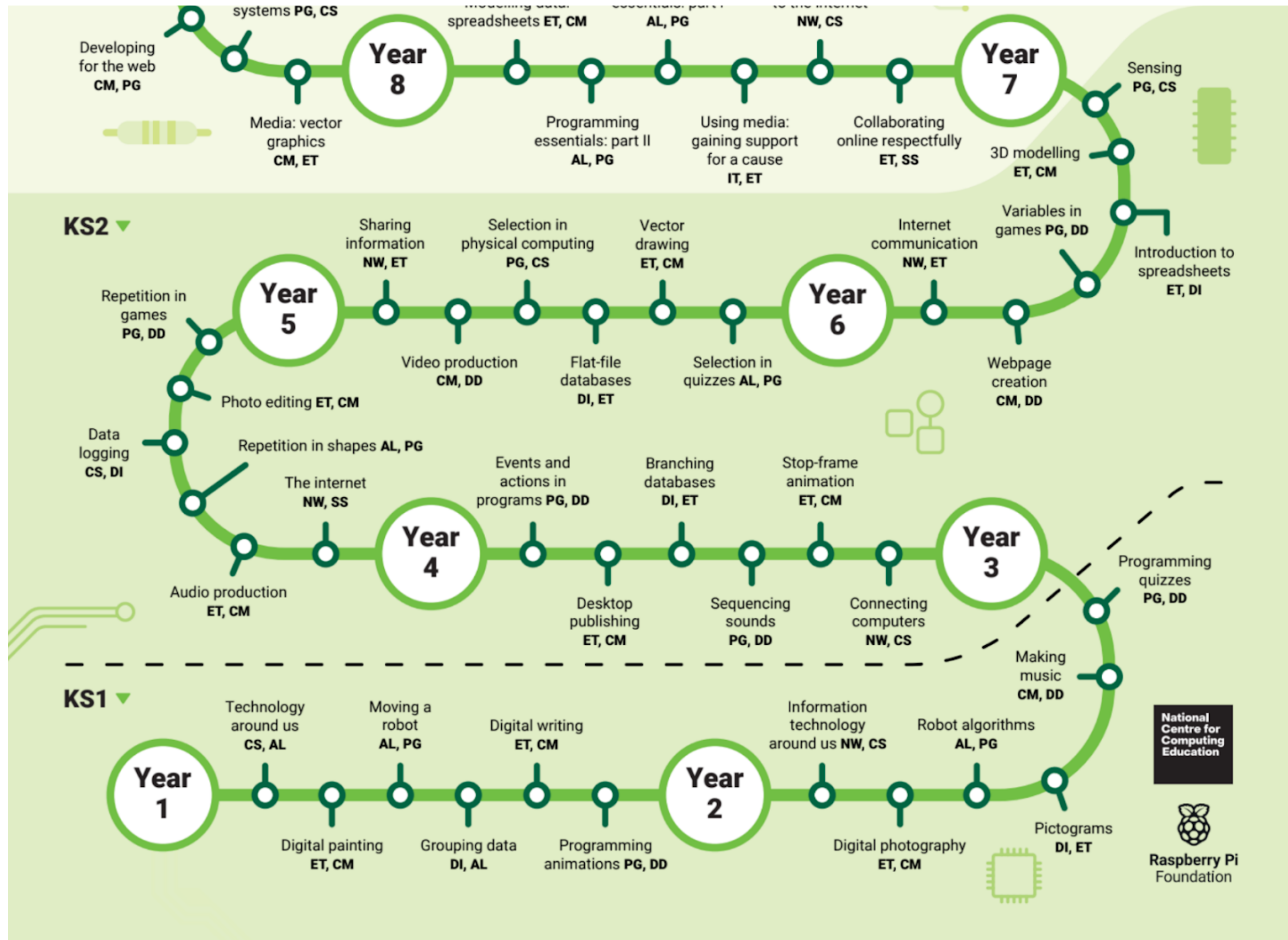| Implementation		
Curriculum(concepts, knowledge and skills)	**Reading across the curriculum**	**Vocabulary**
Our Computing curriculum uses the Teach Computing scheme of work as a framework for teachers to use to effectively teach computing to meet all key stage 1 and 2 learning objectives. Pupils will be able to know, apply and understand the matters, skills, processes specific to each module taught. Computing should be taught to inspire and challenge pupils, giving them a high-quality computing education that will equip our pupils to use computational thinking, skills and creativity to change the world around them. This will also give all pupils a good foundation in preparation for future work opportunities and for being a positive participant in a digital world. Teachers use 'Sticky Time' at the start of each lesson and ensure that skills are recapped throughout the module. Module Planning Grids are used to set out the knowledge, skills, conceptual understanding and vocabulary clearly to ensure progression throughout the school and within each module. Golden Threads of Innovation, Social Structures and Beliefs tie together key concepts of learning from Year 1 to Year 6. Evidence in year floor books clearly shows the learning objective and children understanding the computing skill/ or knowledge they are learning about. Children are aware of the question they are trying to answer and how this is linked to the real world.	There is the expectation that reading is a component of each lesson, through reading questions and instructions on physical worksheets to coding using software. Tiered vocabulary (from ModulePlanning Grids) is referred to throughout the module. Lessons will regularly have a key vocabulary focus.	Oracy is expected in all lessons, including strategies such as: My Turn Your Turn Think Pair Share Show Me Boards High Quality Questioning (Probing and process) Tiered vocabulary (from Module Planning Grids) is referred to throughout the module. Lessons will regularly have a key vocabulary focus. Tiered vocabulary is explicit on the Module Planning Grids and Computing Progression Map.
Inclusion	**Assessment**	**CPD**

We have high expectations of all children and expect them to make progress and access lessons. We use adaptive teaching and scaffolding to support learners. Staff have high expectations of all children in computing. We recap previous learning and are developing a system of 'Digital Leaders' to support others within each year group through peer support.	AFL strategies and principles underpin everything we do. At the end of KS2 modules teachers can use a summative assessment to support their pupil judgments. Sonar is used at the end of each term to make a judgement of pupil attainment	Teacher knowledge is supported through Teach Computing org National College Feedback from internal Deep Dive Subject lead supports planning, resources and knowledge with other staff
Monitoring	**Whole School/Parental involvement**	**Cultural Capital**
Subject leaders create a robust monitoring system including pupil voice, walkthroughs, staff voice, floor book looks, peer-peer mentoring and CPD. Subject leaders have an opportunity to regularly meet with SLT regarding their subject. SIA Deep Dive took place in October 2022. Evidence to be uploaded to Google document after each lesson taught.	Parents informed on a weekly basis through newsletters. At least one half termly sharing of books and classwork through open classrooms or parent/ teacher meetings.	- Trips - Visitors - Inspirational figures - Key Computing Celebrations or Current affairs
Whole school displays	The Computing display has an e-safety display with up-to-date information, key concepts and age-appropriate leaflets for the children. In the main Corridor there is a Computing display that has Qr codes on that will forward you to a digital folder with year specific work. There is also a Qr code /hyperlink that will forward you to The Digital Leaders website, displaying current computing news and points of interest. JL to ensure computer suite and main corridor displays are maintained, staff to update throughout the year when taught. All classrooms have British Values displays. .	

Impact			
Pupil Voice	**Evidence in Knowledge**	**Evidence in skills**	**Outcomes**
Evidence collected from pupil voice- surveys once a term. Children are enthusiastic about Computing; they are able to talk about the concepts they have studied. Children can talk about computing and how it relates to life. Children are confident to talk about their previous learning and learning across their current and previous year groups.	Children are able to understand and correctly utilise subject specific vocabulary. Module planning grids ensure coverage and progression in all skills relating to Computing. The use of 'sticky-time' in all lessons ensures that knowledge is embedded.	Children can apply skills in relation to ARE. Evidence is uploaded to year specific Google files after each lesson.	Children make excellent progress from their starting points across the curriculum. Children talk confidently about their learning. They will be able to discuss and share ideas collaboratively and apply their growing subject specific vocabulary in context. Children feel safe, calm and happy using digital resources and display a good level of Digital Litercay and technical skill.

Long Term Plan

Term:	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Autumn 1	As the EYFS is part of the **Foundation Stage Curriculum**, we relate the computing aspects of the children's work to the objectives set out in the Development Matters Framework and Early Learning Goals (ELGs). The children have the opportunity to use the computers, iPads and other technology equipment as part of their curriculum and in additional enhancement opportunities.	Computing systems and networks – Technology around us	Computing systems and networks – IT around us	Computing systems and networks – Connecting computers	Computing systems and networks – The Internet	Computing systems and networks - Systems and searching	Computing systems and networks - Communication and collaboration
Autumn 2		Creating media – Digital painting	Creating media – Digital photography	Creating media - Stop-frame animation	Creating media - Audio production	Creating media - Video production	Creating media – Web page creation
Spring 1		Programming A – Moving a robot	Programming A – Robot algorithms	Programming A - Sequencing sounds	Programming A – Repetition in shapes	Programming A – Selection in physical computing	Data and information – Spreadsheets
Spring 2		Data and information – Grouping data	Data and information – Pictograms	Data and information – Branching databases	Data and information – Data logging	Data and information – Flat-file databases	Programming A – Variables in games
Summer 1		Creating media – Digital writing	Creating media - Digital music	Creating media – Desktop publishing	Creating media – Photo editing	Creating media – Introduction to vector graphics	Creating media – 3D Modelling
Summer 2		Programming B - Programming animations	Programming B - Programming quizzes	Programming B - Events and actions in programs	Programming B – Repetition in games	Programming B – Selection in quizzes	Programming B - Sensing movement
Ongoing	E-safety	E-safety	E-safety	E-safety	E-safety	E-safety	E-safety

Computing Progression Map

systems **PG, CS**

Modelling data: spreadsheets **ET, CM**

essentials: part I **AL, PG**

to the internet **NW, CS**

Developing for the web **CM, PG**

Year 8

Year 7

Sensing **PG, CS**

Media: vector graphics **CM, ET**

Programming essentials: part II **AL, PG**

Using media: gaining support for a cause **IT, ET**

Collaborating online respectfully **ET, SS**

3D modelling **ET, CM**

KS2 ▼

Sharing information **NW, ET**

Selection in physical computing **PG, CS**

Vector drawing **ET, CM**

Internet communication **NW, ET**

Variables in games **PG, DD**

Repetition in games **PG, DD**

Year 5

Year 6

Introduction to spreadsheets **ET, DI**

Photo editing **ET, CM**

Video production **CM, DD**

Flat-file databases **DI, ET**

Selection in quizzes **AL, PG**

Webpage creation **CM, DD**

Data logging **CS, DI**

Repetition in shapes **AL, PG**

The internet **NW, SS**

Events and actions in programs **PG, DD**

Branching databases **DI, ET**

Stop-frame animation **ET, CM**

Year 4

Year 3

Programming quizzes **PG, DD**

Audio production **ET, CM**

Desktop publishing **ET, CM**

Sequencing sounds **PG, DD**

Connecting computers **NW, CS**

Making music **CM, DD**

KS1 ▼

Technology around us **CS, AL**

Moving a robot **AL, PG**

Digital writing **ET, CM**

Information technology around us **NW, CS**

Robot algorithms **AL, PG**

Year 1

Year 2

Pictograms **DI, ET**

Digital painting **ET, CM**

Grouping data **DI, AL**

Programming animations **PG, DD**

Digital photography **ET, CM**

Computing from the National Curriculum

Progression of Computing skills and knowledge
EYFS & KS1

EYFS (F1 & F2)

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, such as through undertaking projects involving the concepts and approaches.

KS1 Computing National Curriculum

Key stage 1 Pupils should be taught to: - understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions - create and debug simple programs - use logical reasoning to predict the behaviour of simple programs - use technology purposefully to create, organise, store, manipulate and retrieve digital content - recognise common uses of information technology beyond school - use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies .

Autumn 1	EYFS	Year 1	Year 2
Computing systems and networks	Personal, Social and Emotional Development -Manging Self; - Be confident to try new activities and show independence, resilience and perseverance in the face of challenge; - Explain the reasons for rules, know right from wrong and try to behave accordingly; E-Safety; - Talk about good & bad choices in real life e.g. taking turns, saying kind things, helping others, telling an adult if something upsets you. - Play appropriate games on the Internet. - Talk about good and bad choices when using websites – being kind, telling a grown up if something upsets us & keeping ourselves safe by keeping information private. Technology in our Lives; - Recognise purposes for using technology in school and at home. - Understand that things they create belong to them and can be shared with others using technology. - Recognise that they can use the Internet to play and learn.	-I can explain how these technology examples help us -I can explain technology as something that helps us -I can locate examples of technology in the classroom -I can name the main parts of a computer -I can switch on and log into a computer -I can use a mouse to click and drag -I can click and drag to make objects on a screen -I can use a mouse to create a picture -I can use a mouse to open a program -I can save my work to a file -I can say what a keyboard is for -I can type my name on a computer -I can delete letters -I can open my work from a file -I can use the arrow keys to move the cursor -I can discuss how we benefit from these rules -I can give examples of some of these rules -I can identify rules to keep us safe and healthy when we are using technology in and beyond the home	-I can describe some uses of computers -I can identify examples of computers -I can identify that a computer is a part of IT -I can identify examples of IT -I can identify that some IT can be used in more than one way -I can sort school IT by what it's used for -I can find examples of information technology -I can sort IT by where it is found -I can talk about uses of information technology -I can demonstrate how IT devices work together -I can recognise common types of technology -I can say why we use IT -I can list different uses of information technology -I can say how rules can help keep me safe -I can talk about different rules for using IT -I can explain the need to use IT in different ways -I can identify the choices that I make when using IT -I can use IT for different types of activities

EYFS (F1 & F2)

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, such as through undertaking projects involving the concepts and approaches.

KS1 Computing National Curriculum

Key stage 1 Pupils should be taught to: - understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions - create and debug simple programs - use logical reasoning to predict the behaviour of simple programs - use technology purposefully to create, organise, store, manipulate and retrieve digital content - recognise common uses of information technology beyond school - use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies .

	EYFS	Year 1	Year 2
Creating media - A	Expressive Art and Design – Creating with Materials; - Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function; Multimedia; - Use a mouse to rearrange objects and pictures on a screen. - Recognise text, images and sound when using ICT. - Use a camera or sound recorder to collect photos or sound - Begin to use a keyboard - Develop an interest in ICT by using age-appropriate websites or programs.	-I can draw lines on a screen and explain which tools I used -I can make marks on a screen and explain which tools I used -I can use the paint tools to draw a picture -I can make marks with the square and line tools -I can use the shape and line tools effectively -I can use the shape and line tools to recreate the work of an artist -I can choose appropriate shapes -I can create a picture in the style of an artist -I can make appropriate colour choices -I can choose appropriate paint tools and colours to recreate the work of an artist -I can say which tools were helpful and why -I know that different paint tools do different jobs -I can change the colour and brush sizes -I can make dots of colour on the page -I can use dots of colour to create a picture in the style of an artist on my own -I can explain that pictures can be made in lots of different ways -I can say whether I prefer painting using a computer or using paper -I can spot the differences between painting on a computer and on paper	-I can explain what I did to capture a digital photo -I can recognise what devices can be used to take photographs -I can talk about how to take a photograph -I can explain the process of taking a good photograph -I can explain why a photo looks better in portrait or landscape format -I can take photos in both landscape and portrait format -I can discuss how to take a good photograph -I can identify what is wrong with a photograph -I can improve a photograph by retaking it -I can experiment with different light sources -I can explain why a picture may be unclear -I can explore the effect that light has on a photo -I can explain my choices -I can recognise that images can be changed -I can use a tool to achieve a desired effect -I can apply a range of photography skills to capture a photo -I can identify which photos are real and which have been changed -I can recognise which photos have been changed

EYFS (F1 & F2)

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, such as through undertaking projects involving the concepts and approaches.

KS1 Computing National Curriculum

Key stage 1 Pupils should be taught to: - understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions - create and debug simple programs - use logical reasoning to predict the behaviour of simple programs - use technology purposefully to create, organise, store, manipulate and retrieve digital content - recognise common uses of information technology beyond school - use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies .

	EYFS	Year 1	Year 2
Programming - A	Communication and Language – Listening, Attention and Understanding; - Listen attentively and respond to what they hear with relevant questions, comments and actions when being read to and during whole class discussions and small group interactions; - Make comments about what they have heard and ask questions to clarify their understanding; Programming; - Help adults operate equipment around the school. - Use simple software to make things happen - Press buttons on a floor robot and talk about the movements - Explore options and make choices with toys, software and websites Data Collection; - Collect information as photos or sound files. - Use a simple pictogram or set of photos to count and organise information.	-I can match a command to an outcome - I can predict the outcome of a command on a device - I can run a command on a device -I can follow an instruction - I can give directions - I can recall words that can be acted out - I can compare forwards and backwards movements - I can predict the outcome of a sequence involving forwards and backwards commands - I can start a sequence from the same place - I can compare left and right turns - I can experiment with turn and move commands to move a robot - I can predict the outcome of a sequence involving up to four commands - I can choose the order of commands in a sequence - I can debug my program - I can explain what my program should do - I can identify several possible solutions - I can plan two programs - I can use two different programs to get to the same place	-I can choose a series of words that can be enacted as a sequence - I can follow instructions given by someone else - I can give clear instructions -I can show the difference in outcomes between two sequences that consist of the same commands - I can use an algorithm to program a sequence on a floor robot - I can use the same instructions to create different algorithms -I can compare my prediction to the program outcome - I can follow a sequence - I can predict the outcome of a sequence -I can explain the choices I made for my mat design - I can identify different routes around my mat - I can test my mat to make sure that it is usable -I can create an algorithm to meet my goal - I can explain what my algorithm should achieve - I can use my algorithm to create a program -I can plan algorithms for different parts of a task - I can put together the different parts of my program - I can test and debug each part of the program

Progression of Computing skills and knowledge
EYFS & KS1

EYFS (F1 & F2)

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, such as through undertaking projects involving the concepts and approaches.

KS1 Computing National Curriculum

Key stage 1 Pupils should be taught to: - understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions - create and debug simple programs - use logical reasoning to predict the behaviour of simple programs - use technology purposefully to create, organise, store, manipulate and retrieve digital content - recognise common uses of information technology beyond school - use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies .

	EYFS	Year 1	Year 2
Data and Information	Data Collection; - Collect information as photos or sound files. - Use a simple pictogram or set of photos to count and organise information.	-I can describe objects using labels -I can identify the label for a group of objects -I can match objects to groups -I can count a group of objects -I can count objects -I can group objects -I can describe an object -I can describe a property of an object -I can find objects with similar properties -I can count how many objects share a property -I can group objects in more than one way -I can group similar objects -I can choose how to group objects -I can describe groups of objects -I can record how many objects are in a group -I can compare groups of objects -I can decide how to group objects to answer a question -I can record and share what I have found	-I can compare totals in a tally chart -I can record data in a tally chart -I can represent a tally count as a total -I can enter data onto a computer -I can use a computer to view data in a different format -I can use pictograms to answer simple questions about objects -I can explain what the pictogram shows -I can organise data in a tally chart -I can use a tally chart to create a pictogram -I can answer 'more than'/'less than' and 'most/least' questions about an attribute -I can create a pictogram to arrange objects by an attribute -I can tally objects using a common attribute -I can choose a suitable attribute to compare people -I can collect the data I need -I can create a pictogram and draw conclusions from it -I can give simple examples of why information should not be shared -I can share what I have found out using a computer -I can use a computer program to present information in different ways

Progression of Computing skills and knowledge
EYFS & KS1

EYFS (F1 & F2)

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, such as through undertaking projects involving the concepts and approaches.

KS1 Computing National Curriculum

Key stage 1 Pupils should be taught to: - understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions - create and debug simple programs - use logical reasoning to predict the behaviour of simple programs - use technology purposefully to create, organise, store, manipulate and retrieve digital content - recognise common uses of information technology beyond school - use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies .

	EYFS	Year 1	Year 2
Creating Media - B	Expressive Art and Design – Creating with Materials; - Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function; Multimedia; - Use a mouse to rearrange objects and pictures on a screen. - Recognise text, images and sound when using ICT. - Use a camera or sound recorder to collect photos or sound - Begin to use a keyboard - Develop an interest in ICT by using age-appropriate websites or programs.	-I can identify and find keys on a keyboard -I can open a word processor -I can recognise keys on a keyboard -I can enter text into a computer -I can use backspace to remove text -I can use letter, number, and space keys -I can explain what the keys that I have learnt about already do -I can identify the toolbar and use bold, italic, and underline -I can type capital letters -I can change the font -I can select all of the text by clicking and dragging -I can select a word by double-clicking -I can decide if my changes have improved my writing -I can say what tool I used to change the text -I can use 'undo' to remove changes -I can explain the differences between typing and writing -I can make changes to text on a computer -I can say why I prefer typing or writing	-I can describe music using adjectives -I can identify simple differences in pieces of music -I can say what I do and don't like about a piece of music -I can create a rhythm pattern -I can explain that music is created and played by humans -I can play an instrument following a rhythm pattern -I can connect images with sounds -I can relate an idea to a piece of music -I can use a computer to experiment with pitch -I can explain how my music can be played in different ways -I can identify that music is a sequence of notes -I can refine my musical pattern on a computer -I can add a sequence of notes to my rhythm -I can create a rhythm which represents an animal I've chosen -I can create my animal's rhythm on a computer -I can explain how I changed my work -I can listen to music and describe how it makes me feel -I can review my work

Progression of Computing skills and knowledge
EYFS & KS1

EYFS (F1 & F2)

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, such as through undertaking projects involving the concepts and approaches.

KS1 Computing National Curriculum

Key stage 1 Pupils should be taught to: - understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions - create and debug simple programs - use logical reasoning to predict the behaviour of simple programs - use technology purposefully to create, organise, store, manipulate and retrieve digital content - recognise common uses of information technology beyond school - use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies .

	EYFS	Year 1	Year 2
Programming - B	Communication and Language – Listening, Attention and Understanding; - Listen attentively and respond to what they hear with relevant questions, comments and actions when being read to and during whole class discussions and small group interactions; - Make comments about what they have heard and ask questions to clarify their understanding; Programming; - Help adults operate equipment around the school. - Use simple software to make things happen - Press buttons on a floor robot and talk about the movements - Explore options and make choices with toys, software and websites Data Collection; - Collect information as photos or sound files. - Use a simple pictogram or set of photos to count and organise information.	-I can compare different programming tools - I can find which commands to move a sprite - I can use commands to move a sprite -I can run my program - I can use a Start block in a program - I can use more than one block by joining them together - I can change the value - I can find blocks that have numbers - I can say what happens when I change a value - I can add blocks to each of my sprites - I can delete a sprite - I can show that a project can include more than one sprite -I can choose appropriate artwork for my project - I can create an algorithm for each sprite - I can decide how each sprite will move -I can add programming blocks based on my algorithm - I can test the programs I have created - I can use sprites that match my design	-I can identify that a program needs to be started - I can identify the start of a sequence - I can show how to run my program -I can change the outcome of a sequence of commands - I can match two sequences with the same outcome - I can predict the outcome of a sequence of commands -I can build the sequences of blocks I need - I can decide which blocks to use to meet the design - I can work out the actions of a sprite in an algorithm -I can choose backgrounds for the design - I can choose characters for the design - I can create a program based on the new design -I can build sequences of blocks to match my design - I can choose the images for my own design - I can create an algorithm -I can compare my project to my design - I can debug my program - I can improve my project by adding features

KS2 Computing National Curriculum

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

	Year 3	Year 4	Year 5	Year 6
Computing systems And networks	-I can explain that digital devices accept inputs - I can explain that digital devices produce outputs - I can follow a process -I can classify input and output devices - I can describe a simple process - I can design a digital device -I can explain how I use digital devices for different activities - I can recognise similarities between using digital devices and non-digital tools - I can suggest differences between using digital devices and non-digital tools -I can discuss why we need a network switch - I can explain how messages are passed through multiple connections - I can recognise different connections -I can demonstrate how information can be passed between devices - I can explain the role of a switch, server, and wireless access point in a network - I can recognise that a computer network is made up of a number of devices -I can identify how devices in a network are connected together - I can identify networked devices around me - I can identify the benefits of computer networks	-I can demonstrate how information is shared across the internet - I can describe the internet as a network of networks - I can discuss why a network needs protecting -I can describe networked devices and how they connect - I can explain that the internet is used to provide many services - I can recognise that the World Wide Web contains websites and web pages -I can describe how to access websites on the WWW - I can describe where websites are stored when uploaded to the WWW - I can explain the types of media that can be shared on the WWW -I can explain that internet services can be used to create content online - I can explain what media can be found on websites - I can recognise that I can add content to the WWW -I can explain that there are rules to protect content - I can explain that websites and their content are created by people - I can suggest who owns the content on websites -I can explain that not everything on the World Wide Web is true - I can explain why I need to think carefully before I share or reshare content - I can explain why some information I find online may not be honest, accurate, or legal	-I can describe that a computer system features inputs, processes, and outputs - I can explain that computer systems communicate with other devices - I can explain that systems are built using a number of parts -I can explain the benefits of a given computer system - I can identify tasks that are managed by computer systems - I can identify the human elements of a computer system -I can compare results from different search engines - I can make use of a web search to find specific information - I can refine my web search -I can explain why we need tools to find things online - I can recognise the role of web crawlers in creating an index - I can relate a search term to the search engine's index -I can explain that a search engine follows rules to rank results - I can give examples of criteria used by search engines to rank results - I can order a list by rank -I can describe some of the ways that search results can be influenced - I can explain how search engines make money - I can recognise some of the limitations of search engines	-I can describe how computers use addresses to access websites - I can explain that internet devices have addresses - I can recognise that data is transferred using agreed methods -I can explain that all data transferred over the internet is in packets - I can explain that data is transferred over networks in packets - I can identify and explain the main parts of a data packet -I can explain that the internet allows different media to be shared - I can recognise how to access shared files stored online - I can send information over the internet in different ways -I can explain how the internet enables effective collaboration - I can identify different ways of working together online - I can recognise that working together on the internet can be public or private -I can choose methods of communication to suit particular purposes - I can explain the different ways in which people communicate - I can identify that there are a variety of ways to communicate over the internet -I can compare different methods of communicating on the internet - I can decide when I should and should not share information online - I can explain that communication on the internet may not be private

Progression of Computing skills and knowledge
KS2

	Year 3	Year 4	Year 5	Year 6
Creating Media - A	-I can create an effective flip book—style animation - I can draw a sequence of pictures - I can explain how an animation/flip book works -I can create an effective stop-frame animation - I can explain why little changes are needed for each frame - I can predict what an animation will look like -I can break down a story into settings, characters and events - I can create a storyboard - I can describe an animation that is achievable on screen -I can evaluate the quality of my animation - I can review a sequence of frames to check my work - I can use onion skinning to help me make small changes between frames -I can evaluate another learner's animation - I can explain ways to make my animation better - I can improve my animation based on feedback -I can add other media to my animation - I can evaluate my final film - I can explain why I added other media to my animation	-I can explain that the person who records the sound can say who is allowed to use it - I can identify the input and output devices used to record and play sound - I can use a computer to record audio -I can discuss what sounds can be added to a podcast - I can inspect the soundwave view to know where to trim my recording - I can re-record my voice to improve my recording - I can explain how sounds can be combined to make a podcast more engaging - I can plan appropriate content for a podcast - I can save my project so the different parts remain editable -I can improve my voice recordings - I can record content following my plan - I can review the quality of my recordings -I can arrange multiple sounds to create the effect I want - I can explain the difference between saving a project and exporting an audio file - I can open my project to continue working on it -I can choose appropriate edits to improve my podcast - I can listen to an audio recording to identify its strengths - I can suggest improvements to an audio recording	-I can compare features in different videos - I can explain that video is a visual media format - I can identify features of videos -I can experiment with different camera angles - I can identify and find features on a digital video recording device - I can make use of a microphone -I can capture video using a range of filming techniques - I can review how effective my video is - I can suggest filming techniques for a given purpose -I can create and save video content - I can decide which filming techniques I will use - I can outline the scenes of my video -I can explain how to improve a video by reshooting and editing - I can select the correct tools to make edits to my video - I can store, retrieve, and export my recording to a computer -I can evaluate my video and share my opinions - I can make edits to my video and improve the final outcome - I can recognise that my choices when making a video will impact on the quality of the final outcome	-I can discuss the different types of media used on websites - I can explore a website - I know that websites are written in HTML -I can draw a web page layout that suits my purpose - I can recognise the common features of a web page - I can suggest media to include on my page -I can describe what is meant by the term 'fair use' - I can find copyright-free images - I can say why I should use copyright-free images -I can add content to my own web page - I can evaluate what my web page looks like on different devices and suggest/make edits - I can preview what my web page looks like -I can describe why navigation paths are useful - I can explain what a navigation path is - I can make multiple web pages and link them using hyperlinks -I can create hyperlinks to link to other people's work - I can evaluate the user experience of a website - I can explain the implication of linking to content owned by others

Progression of Computing skills and knowledge
KS2

	Year 3	Year 4	Year 5	Year 6
Programming - A	-I can explain that objects in Scratch have attributes (linked to) - I can identify the objects in a Scratch project (sprites, backdrops) - I can recognise that commands in Scratch are represented as blocks -I can choose a word which describes an on-screen action for my plan - I can create a program following a design - I can identify that each sprite is controlled by the commands I choose -I can create a sequence of connected commands - I can explain that the objects in my project will respond exactly to the code - I can start a program in different ways -I can combine sound commands - I can explain what a sequence is - I can order notes into a sequence -I can build a sequence of commands - I can decide the actions for each sprite in a program - I can make design choices for my artwork -I can identify and name the objects I will need for a project - I can implement my algorithm as code - I can relate a task description to a design	-I can create a code snippet for a given purpose - I can explain the effect of changing a value of a command - I can program a computer by typing commands -I can test my algorithm in a text-based language - I can use a template to create a design for my program - I can write an algorithm to produce a given outcome -I can identify everyday tasks that include repetition as part of a sequence, eg brushing teeth, dance moves - I can identify patterns in a sequence - I can use a count-controlled loop to produce a given outcome -I can choose which values to change in a loop - I can identify the effect of changing the number of times a task is repeated - I can predict the outcome of a program containing a count-controlled loop -I can explain that a computer can repeatedly call a procedure - I can identify 'chunks' of actions in the real world - I can use a procedure in a program -I can design a program that includes count-controlled loops - I can develop my program by debugging it - I can make use of my design to write a program	-I can create a simple circuit and connect it to a microcontroller - I can explain what an infinite loop does - I can program a microcontroller to make an LED switch on -I can connect more than one output component to a microcontroller - I can design sequences that use count-controlled loops - I can use a count-controlled loop to control outputs -I can design a conditional loop - I can explain that a condition is either true or false - I can program a microcontroller to respond to an input -I can explain that a condition being met can start an action - I can identify a condition and an action in my project - I can use selection (an 'if...then...' statement) to direct the flow of a program -I can create a detailed drawing of my project - I can describe what my project will do - I can identify a real-world example of a condition starting an action -I can test and debug my project - I can use selection to produce an intended outcome - I can write an algorithm that describes what my model will do	-I can explain that the way a variable changes can be defined - I can identify examples of information that is variable - I can identify that variables can hold numbers or letters -I can explain that a variable has a name and a value - I can identify a program variable as a placeholder in memory for a single value - I can recognise that the value of a variable can be changed -I can decide where in a program to change a variable - I can make use of an event in a program to set a variable - I can recognise that the value of a variable can be used by a program -I can choose the artwork for my project - I can create algorithms for my project - I can explain my design choices -I can choose a name that identifies the role of a variable - I can create the artwork for my project - I can test the code that I have written -I can identify ways that my game could be improved - I can share my game with others - I can use variables to extend my game

KS2 Computing National Curriculum

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

	Year 3	Year 4	Year 5	Year 6
Data and Information	-I can arrange objects into a tree structure - I can create a group of objects within an existing group - I can select an attribute to separate objects into groups -I can group objects using my own yes/no questions - I can select objects to arrange in a branching database - I can test my branching database to see if it works -I can compare two branching database structures - I can create yes/no questions using given attributes - I can explain that questions need to be ordered carefully to split objects into similarly sized groups -I can create a physical version of a branching database - I can create questions that will enable objects to be uniquely identified - I can independently create questions to use in a branching database -I can create a branching database that reflects my plan - I can suggest real-world uses for branching databases - I can work with a partner to test my identification tool	-I can explain what data can be collected using sensors - I can identify that data from sensors can be recorded - I can use data from a sensor to answer a given question -I can identify the intervals used to collect data - I can recognise that a data logger collects data at given points - I can talk about the data that I have captured -I can explain that there are different ways to view data - I can sort data to find information - I can view data at different levels of detail -I can plan how to collect data using a data logger - I can propose a question that can be answered using logged data - I can use a data logger to collect data -I can draw conclusions from the data that I have collected - I can explain the benefits of using a data logger - I can interpret data that has been collected using a data logger	-I can create a database using cards - I can explain how information can be recorded - I can order, sort, and group my data cards -I can choose which field to sort data by to answer a given question - I can explain what a field and a record is in a database - I can navigate a flat-file database to compare different views of information -I can combine grouping and sorting to answer specific questions - I can explain that data can be grouped using chosen values - I can group information using a database -I can choose multiple criteria to answer a given question - I can choose which field and value are required to answer a given question - I can outline how 'AND' and 'OR' can be used to refine data selection -I can explain the benefits of using a computer to create charts - I can refine a chart by selecting a particular filter - I can select an appropriate chart to visually compare data -I can ask questions that will need more than one field to answer - I can present my findings to a group - I can refine a search in a real-world context	-I can apply an appropriate format to a cell - I can choose an appropriate format for a cell - I can explain what an item of data is -I can construct a formula in a spreadsheet - I can explain which data types can be used in calculations - I can identify that changing inputs changes outputs -I can apply a formula to multiple cells by duplicating it - I can calculate data using different operations - I can create a formula which includes a range of cells -I can apply a formula to calculate the data I need to answer questions - I can explain why data should be organised - I can use a spreadsheet to answer questions -I can produce a chart - I can suggest when to use a table or chart - I can use a chart to show the answer to questions

Progression of Computing skills and knowledge
KS2

KS2 Computing National Curriculum

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

	Year 3	Year 4	Year 5	Year 6
Creating Media - B	-I can explain the difference between text and images - I can identify the advantages and disadvantages of using text and images - I can recognise that text and images can communicate messages clearly -I can change font style, size, and colours for a given purpose - I can edit text - I can explain that text can be changed to communicate more clearly -I can create a template for a particular purpose - I can define the term 'page orientation' - I can recognise placeholders and say why they are important -I can choose the best locations for my content - I can make changes to content after I've added it - I can paste text and images to create a magazine cover -I can choose a suitable layout for a given purpose - I can identify different layouts - I can match a layout to a purpose -I can compare work made on desktop publishing to work created by hand - I can identify the uses of desktop publishing in the real world - I can say why desktop publishing might be helpful	-I can explain why I might crop an image - I can improve an image by rotating it - I can use photo editing software to crop an image -I can experiment with different colour effects - I can explain that different colour effects make you think and feel different things - I can explain why I chose certain colour effects -I can add to the composition of an image by cloning - I can identify how a photo edit can be improved - I can remove parts of an image using cloning -I can experiment with tools to select and copy part of an image - I can explain why photos might be edited - I can use a range of tools to copy between images -I can choose suitable images for my project - I can create a project that is a combination of other images - I can describe the image I want to create -I can combine text and my image to complete the project - I can review images against a given criteria - I can use feedback to guide making changes	-I can discuss how vector drawings are different from paper-based drawings - I can experiment with the shape and line tools - I can recognise that vector drawings are made using shapes -I can explain that each element added to a vector drawing is an object - I can identify the shapes used to make a vector drawing - I can move, resize, and rotate objects I have duplicated -I can explain how alignment grids and resize handles can be used to improve consistency - I can modify objects to create a new image - I can use the zoom tool to help me add detail to my drawings -I can change the order of layers in a vector drawing - I can identify that each added object creates a new layer in the drawing - I can use layering to create an image -I can copy part of a drawing by duplicating several objects - I can recognise when I need to group and ungroup objects - I can reuse a group of objects to further develop my vector drawing -I can compare vector drawings to freehand paint drawings - I can create a vector drawing for a specific purpose - I can reflect on the skills I have used and why I have used them	-I can add 3D shapes to a project - I can move 3D shapes relative to one another - I can view 3D shapes from different perspectives -I can lift/lower 3D objects - I can recolour a 3D object - I can resize an object in three dimensions -I can duplicate 3D objects - I can group 3D objects - I can rotate objects in three dimensions -I can accurately size 3D objects - I can combine a number of 3D objects - I can show that placeholders can create holes in 3D objects -I can analyse a 3D model - I can choose objects to use in a 3D model - I can combine objects in a design -I can construct a 3D model based on a design - I can explain how my 3D model could be improved - I can modify my 3D model to improve it

Progression of Computing skills and knowledge
KS2

KS2 Computing National Curriculum

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

	Year 3	Year 4	Year 5	Year 6
Programming - B	-I can choose which keys to use for actions and explain my choices - I can explain the relationship between an event and an action - I can identify a way to improve a program - I can choose a character for my project - I can choose a suitable size for a character in a maze - I can program movement -I can choose blocks to set up my program - I can consider the real world when making design choices - I can use a programming extension -I can build more sequences of commands to make my design work - I can choose suitable keys to turn on additional features - I can identify additional features (from a given set of blocks) -I can match a piece of code to an outcome - I can modify a program using a design - I can test a program against a given design -I can evaluate my project - I can implement my design - I can make design choices and justify them	-I can list an everyday task as a set of instructions including repetition - I can modify a snippet of code to create a given outcome - I can predict the outcome of a snippet of code -I can choose when to use a count-controlled and an infinite loop - I can modify loops to produce a given outcome - I can recognise that some programming languages enable more than one process to be run at once -I can choose which action will be repeated for each object - I can evaluate the effectiveness of the repeated sequences used in my program - I can explain what the outcome of the repeated action should be -I can explain the effect of my changes - I can identify which parts of a loop can be changed - I can re-use existing code snippets on new sprites -I can develop my own design explaining what my project will do - I can evaluate the use of repetition in a project - I can select key parts of a given project to use in my own design -I can build a program that follows my design - I can evaluate the steps I followed when building my project - I can refine the algorithm in my design	-I can identify conditions in a program - I can modify a condition in a program - I can recall how conditions are used in selection -I can create a program with different outcomes using selection - I can identify the condition and outcomes in an 'if... then... else...' statement - I can use selection in an infinite loop to check a condition -I can design the flow of a program which contains 'if... then... else...' - I can explain that program flow can branch according to a condition - I can show that a condition can direct program flow in one of two ways -I can identify the outcome of user input in an algorithm - I can outline a given task - I can use a design format to outline my project -I can implement my algorithm to create the first section of my program - I can share my program with others - I can test my program -I can extend my program further - I can identify the setup code I need in my program - I can identify ways the program could be improved	-I can apply my knowledge of programming to a new environment - I can test my program on an emulator - I can transfer my program to a controllable device -I can determine the flow of a program using selection - I can identify examples of conditions in the real world - I can use a variable in an if, then, else statement to select the flow of a program -I can experiment with different physical inputs - I can explain that checking a variable doesn't change its value - I can use a condition to change a variable -I can explain the importance of the order of conditions in else, if statements - I can modify a program to achieve a different outcome - I can use an operand (e.g. <>=) in an if, then statement -I can decide what variables to include in a project - I can design the algorithm for my project - I can design the program flow for my project -I can create a program based on my design - I can test my program against my design - I can use a range of approaches to find and fix bugs

Computing Lesson Structure

Introduction(including Sticky-Time)

The lesson introduction will introduce learners to the concept, skills and objectives that will be taught during the lesson and how these are used in real life situations. Learners will discuss what they can remember from the previous lesson and then after the responses, a list slide will be revealed to show all the key areas from the previous lesson.

Enquiry-Led Question

What will we be finding out in the lesson and how does this link to the overarching question for the module?

Knowledge

Teacher introduces the key learning for the lesson and how it fits in with the module. Highlight and discuss new vocabulary. Make links to prior knowledge and place in context.

Skill

New knowledge is deepened through application of specific computing skill and use digital resources.

This is achieved through 3 activities:

- Activity 1 will be the enquiry-led question that leads to research of investigation.
- Activity 2 will give pupils the opportunity to review their work or findings.
- Activity 3 will give the pupils the opportunity to use their new knowledge and skills to complete a piece of work.

(unpack, review and do)

Plenary

Plenary time gives pupils time to share their work with each other or with the whole class. Learners will be encouraged to explain which tools they have used to achieve their work (physical and digital).

Next time or Summary time

At the end of each lesson there will be an opportunity to review the success criteria for the lesson with the learners. There will be an additional slide to highlight what will be covered in the next lesson.