Computing at

Upton Heath C of E Primary School

Computing Curriculum Statement

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Intent

The curriculum at Upton Heath Primary School (UHPS) is carefully planned and structured to ensure that current learning is built on previous learning as part of a sequential/spiral curriculum, enabling children to achieve the end of year expectations. In line with the National Curriculum 2014, the computing curriculum at UHPS aims to ensure that all pupils:

- can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
- are responsible, competent, confident and creative users of information and communication technology

At UHPS, we believe that it is essential for children to leave primary school with the skills needed to navigate their way around the expansive world of technology. In this ever-changing society, technology will play a huge part in our children's lives and it is therefore crucial that we prepare them for this. Therefore, we want to model and educate our pupils on how to use technology positively, responsibly and safely and will deliver a robust computing and online safety curriculum. We want our pupils to understand that there is always a choice when using technology and as a school we utilise and model positive use of technology. Computing has deep links with other curriculum areas, especially mathematics and science, and provides opportunities to support a mastery curriculum. We encourage staff to try and embed computing across the whole curriculum to make learning creative and accessible while ensuring that the coverage of all three aspects of the computing curriculum are covered (computer science, information technology and digital literacy). We want our pupils to be fluent with a range of tools (hardware and software) to best express their understanding and hope by Upper Key Stage 2, children have the independence and confidence to choose the best tool to fulfil the task and challenge set by teachers.

Click on the links below (Internal document sections):

Computing Curriculum	Computing Progression of Skills	Computing Vocabulary

Click on the links below (External and supporting documents):

Barefoot Computing Early Years	NCCE Website KS1	NCCE Website KS2	Education for a Connected World	Project Evolve

Implementation

Computing is taught in a mixture of ways at UHPS: discrete lessons as identified in the progression document based on the NCCE scheme; cross curricular lessons through our **Curriculum Quests,** embedding previously taught and key skills; and using the Education for a Connected World Framework/Project Evolve to support the delivery of a robust online safety curriculum, which links into our PSHE curriculum. These lessons can be taught in blocks or weekly lessons but will be covered each half term by each year group in Key Stage 1 and Key Stage 2, to ensure that all pupils receive a quality and focused computing curriculum that builds upon previous knowledge. Computing teaching at UHPS involves adapting and extending the curriculum to match all pupils' needs. When planning, teachers consider children's interests, current events, their own teaching style, the use of any support staff and the resources available. They plan and deliver a curriculum where the skills within their year group can be taught in any order, with the exception of programming where the concepts and skills rely on prior knowledge as it is covered twice in each year group. All subject knowledge is supported both in school and at home with the use of knowledge organisers and relevant classroom displays where appropriate. An effective implementation of computing would allow children to explore new skills and software before applying those skills to an end project which has an audience and purpose. Online safety, whilst being taught discretely, should be consolidated regularly across the curriculum and adapted to the needs of the cohort and the social/online issues that arise.

Impact

We encourage our children to enjoy and value the curriculum we deliver. The impact and measure of this is to ensure children not only acquire the appropriate age-related knowledge linked to the computing curriculum, but also skills which equip them to progress from their starting points, and within their everyday lives. After the implementation of this robust computing curriculum, children at UHPS will be digitally literate and able to join the rest of the world on its digital platform. They will be equipped, not only with the skills and knowledge to use technology effectively and for their own benefit, but more importantly – to do so safely. The biggest impact we want to have on our children is that they understand the consequences of using the internet and that they are also aware of how to keep themselves safe online. As children become more confident in their abilities in computing, they will become more independent and key life skills such as problem-solving, logical thinking and self-evaluation become second nature.

The impact and outcomes of the computing curriculum will be evidenced in a number of ways: displays around the school, evidence in the children's wider topic work, the children's individual Seesaw accounts, Twitter and Tapestry posts and by speaking to the children themselves.

Most children should reach the end of year expectations. This will, in terms of attainment and progress, be seen by:

- Children will be confident users of technology, able to use it to accomplish a wide variety of goals, both at home and in school.
- Children will have a secure and comprehensive knowledge of the implications of technology and digital systems. This is important in a society where technologies and trends are rapidly evolving.
- Children are able to recognise the dangers that exist from the use of technology and understand how to access online systems safely.

British Values and our Christian Distinctiveness.

As a school, we value the diverse ethnic backgrounds of all pupils and families and undertake a variety of events and lessons to celebrate these. Our teaching of the British Values of tolerance, individual liberty, mutual respect, the rule of law and democracy are support by our computing curriculum and online safety objectives. These values are embedded into our curriculum planning for computing and online safety where appropriate.
Examples include, but are not limited to:

- Exploring democracy and how technology is used as part of the democratic process, for example census data,
- Exploring the rule of law linked to copyright, personal data and privacy, cyber bullying, code of conduct and PEGI ratings
- Promoting mutual respect and tolerance by exploring ethical and cultural issues such as; checking content for factual errors and bias, cyber bullying, and impact of technology on wellbeing
- Contribute positively to life in modern Britain by teaching students how to use the internet positively including social media, how to leave a positive digital footprint and the impact this has on their lives including in the years to come
- The history of computing and the influence of key historical figures from the UK in the development of modern day technology

Assessment

Assessment for learning is continuous throughout the planning, teaching and learning cycle. The NCCE framework, from which our learning is based, provides formative assessment opportunities for teachers to use as appropriate. This helps to ensure that misconceptions are recognised and addressed if they occur. The range of strategies used includes:

- Observing children at work, individually, in pairs, small groups and in class during whole class teaching.
- Using differentiated, open-ended questions that require children to explain and unpick their understanding.
- The use of Knowledge Organisers for each topic to enable the children to guide their own learning and use them to quiz the children and to use computing vocabulary appropriately.
- Learning quizzes
- Providing effective feedback to learning both in class and on their learning portfolios (Seesaw), to support learning moving forward and to provide opportunities to self-assess, consolidate and study in-depth.
- Moderation of work and learning portfolios (Seesaw portfolios) will be used to inform teacher assessment and reflect on achievements and outcomes against agreed success criteria and learning objectives.

These assessments are vital to ensure that teachers are adapting their teaching to suit the needs of the pupils that they are working with, and teachers are encouraged to change parts of the lesson, such as how much time you spend on a specific activity, in response to these assessments.

For KS2, NCCE provide summative assessment opportunities in the form of multiple choice quizzes, which can be delivered in paper form or interactively, or a best fit rubric allowing teachers to have an additional evidence point as to whether children have met the expected standard if the teachers thinks that would be appropriate for their children. Teachers then use our assessment system, Insight, to record and monitor children's progress and attainment each term.

We are committed to providing a teaching and learning environment which ensures that all children are able to progress with their learning, regardless of social class, gender, culture, race, or SEND. Teachers will use a range of strategies to ensure that all learners are included within a classroom ethos that is Relevant, Engaging, Aspirational, Creative and Holistic. (REACH)

Early Years:

Despite computing not being explicitly mentioned within the Early Years Foundation Stage (EYFS) statutory framework, 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, which forms the basis of our EYFS computing curriculum.

At UHPS we understand the importance role our computing curriculum still plays in the children's knowledge and understanding of the world. Therefore, we still embed technology, online safety and provided discrete and embedding opportunities for computational thinking in order to ensure that our children are ready to access the Key Stage 1 curriculum and build up what is often an existing knowledge based of technology at home, allowing them to access and use this safely and confidently and build upon their interests.

Our computing curriculum in EYFS uses computational thinking activities based around the Computing for at Schools Barefoot Computing resources and introduces a range of tasks and devices for the children to become familiar with and to tinker with to prepare them for KS1.New learning of specific computing skills are introduced from small adult led group work which then feeds into the child initiated environments while other resources and activities such as pattern work, problem-solving, role-play and tinkering are constantly available and accessed to support the curriculum.

As in all year groups, staff model and demonstrate positive use of technology, to enhance the modelling of concepts and explanations and to build upon the interests of children. Staff may also use and demonstrate computing concepts that we would not expect the children to recreate, such as the use of augmented reality, but provide further opportunities for discussion.

Whilst no formal computing assessments are made in EYFS staff use their observations to identify misconceptions and strengths across the cohort and record this information to pass on to KS1 staff and take photo evidence which is uploaded onto Seesaw.

EYFS Curriculum

Cohort	Half term	Theme / Topic	Intent	Implementation	Impact
Reception	**Autumn 1** EYFS – transition how do we feel	Computational thinking BUSY BODIES (CAS planning) Online Safety	To develop computational thinking skills: Logical reasoning, abstraction, pattern spotting, sequencing (algorithms) decomposition (breaking problems down) To allow children to be prepared and responsibly digital citizens	Implementation of computing in EYFS will be through: - Teacher modelling - Small group teaching - Computing/Technology continuous provision areas - Access to technology in role play areas - Computational thinking, tinkering, creating, problem solving, collaboration, persevering - - Online safety objectives will be taught through the year following project Evolve/Education for a Connected world and using digital stories - Computation thinking activities will be supported by the Barefoot Computing resources - Activities will be adapted depending on the child initiated themes and needs of the cohort.	Children will be secure in the concepts they have been taught and will be ready to access the KS1 curriculum having already been introduced to some of the devices, equipment, vocabulary and concepts that they will encounter. Children in EYFS will confidently be able to talk about ways to stay safe and know the difference between online and offline. Children will know how to use and look after the technology and equipment that they use Teachers will have a secure understanding of where the children are at. They will have identified any misconceptions and any children that require support/intervention.
	Autumn 2 EYFS – winter is coming	Technology to connect Digital art Online Safety	To explore how to use, look after and store the technology they use and to know their correct names of the components To use technology to create digital art, exploring, finger drawing, stamps and appropriate app and software To allow children to be prepared and responsibly digital citizens		
	Spring 1 EYFS – Living in the past…	Programming Online safety – digital story	To begin to use programmable/direction language. To debug and work collaboratively to solve a problem. To begin to explore some programmable toys To allow children to be prepared and responsibly digital citizens		
	Spring 2 EYFS – What a wonderful world…	Computational thinking- Boats ahoy (CAS planning) Digital writing Online safety	To develop computational thinking skills: Logical reasoning, abstraction, pattern spotting, sequencing (algorithms) decomposition (breaking problems down) Find letters on a keyboard – ipad and keyboard. To begin to type words.		

			To allow children to be prepared and responsibly digital citizens		
	Summer 1 EYFS – Stepping into the unknown	Programming Online safety	To develop use of programmable /directional language. To begin o more confidence follow a written set of instructions. To begin to orally give or write down instructions. To begin to more confidently debug programs. To explore programmable toys with more confidence To allow children to be prepared and responsibly digital citizens		
	Summer 2 EYFS – Where will we go?	Computational thinking- Summer fun (CAS) Technology to connect Online safety	To develop computational thinking skills: Logical reasoning, abstraction, pattern spotting, sequencing (algorithms) decomposition (breaking problems down) To explore technology in 'real world settings' in role play areas To allow children to be prepared and responsibly digital citizens		

Key Stage 1:

During Key stage 1, children begin to understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions. They create and debug simple program and use logical reasoning to predict the behaviour of simple programs. They begin to explore technology using different devices, ipads, laptops and unplugged activities and use technology purposefully to create, organise, store, manipulate and retrieve digital content. Children begin to recognise common uses of information technology beyond school. Most importantly, children will learn how to use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.

The Key Stage 1 curriculum, teaches the fundamental skills that the children will develop during Key stage 2.

Key Stage 2:

Throughout KS2, children revisit and build on the core areas taught in previous years and begin to develop their skills in a range of contexts both in discrete and cross curricular lessons. Pupils continue to develop their ability to design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. Their understanding of programming will allow them to use sequence, selection, and repetition in programs; work with variables and various forms of input and output. Children will develop their computational thinking both online and unplugged to develop their use of logical reasoning, explaining how some simple algorithms work and to detect and correct errors in algorithms and programs. KS2 children will have an increased understanding of 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. They will use search technologies

effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. As our children reach UKS2 their will take increasing independence and begin to select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information. All children will use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact as at UHPS we believe that online safety is of upmost importance.

The Computing Curriculum – KS1/KS2

Cohort	Half term	Theme / Topic	Intent	Implementation	Impact
Year 1	Autumn 1	**Computing systems and networks Technology around us**	- To identify technology. - To identify a computer and its main parts. - To use a mouse in different ways. - To use a keyboard to type on a computer. - To use the keyboard to edit text. - To create rules for using technology responsibly.	Implementation of computing in UHPS will be through: - Teacher modelling - Small group and whole class teaching - Computing/Technology continuous provision areas (KS1) - Access to technology in role play areas (KS1) or access to appropriate technology in different curriculum areas under adult direction - Revisiting of previous taught skills and skill extension in cross curricular subjects - Computational thinking and unplugged activity to support and enhance the curriculum and used as starters (Bebras and Barefoot)	Children will be secure in the concepts they have been taught and will be ready to access the sequential learning for the next year group. They will be able to confidently use the devices and the software they have been introduced to and will be more confident to use the vocabulary and concepts that they have encountered. Children will confidently be able to talk about ways to stay safe and know how to keep themselves safe online. Teachers will have a secure understanding of where the children are at. They will have identified any misconceptions and any children that require support/intervention.
Year 2		**Computing systems and networks Information Technology around us**	- To recognise the uses and features of information technology. - To identify information technology in the home. - To identify information technology beyond school. - To explain how information technology benefits us. - To show how to use information technology safely. To recognise that choices are made when using information technology.		
Year 3		**Computing systems and networks Connecting computers**	- To explain how digital devices function - To identify input and output devices - To recognise how digital devices can change the way we work		

			- To explain how a computer network can be used to share information - To explore how digital devices can be connected To recognise the physical components of a network	- Curriculum planning based on the NCCE curriculum but adapted and enhanced where appropriate - Online safety objectives will be taught through the year following project Evolve/Education for a Connected world and using digital stories - Curriculum enrichment through theme days , visitors and after school clubs	Computing will be used to enhance learning and application of knowledge from other subject curriculum areas.
Year 4		**Computing systems and networks The Internet**	- To describe how networks physically connect to other networks - To recognise how networked devices make up the internet - To outline how websites can be shared via the World Wide Web - To describe how content can be added and accessed on the World Wide Web - To recognise how the content of the WWW is created by people To evaluate the consequences of unreliable content		
Year 5		**Computing systems and networks Computing systems and networks**	- To explain that computers can be connected together to form systems - To recognise the role of computer systems in our lives - To recognise how information is transferred over the internet - To explain how sharing information online lets people in different places work together - To contribute to a shared project online To evaluate different ways of working together online		
Year 6		**Computing systems and networks Computing systems and networks**	- To identify how to use a search engine - To describe how search engines select results - To explain how search results are ranked - To recognise why the order of results is important, and to whom - To recognise how we communicate using technology - To evaluate different methods of online communication		

Cohort	Half term	Theme / Topic	Intent	Implementation	Impact
Year 1	Autumn 2	**Creating media Digital painting**	- To describe what different freehand tools do. - To use the shape tool and the line tools. - To make careful choices when painting a digital picture. - To explain why I chose the tools I used. - To use a computer on my own to paint a picture. To compare painting a picture on a computer and on paper.	Implementation of computing in UHPS will be through: - Teacher modelling - Small group and whole class teaching - Computing/Technology continuous provision areas (KS1) - Access to technology in role play areas (KS1) or access to appropriate technology in different curriculum areas under adult direction	Children will be secure in the concepts they have been taught and will be ready to access the sequential learning for the next year group. They will be able to confidently use the devices and the software they have been introduced to and will be more confident to use the vocabulary and concepts that they have encountered.
Year 2		**Creating media Digital photography**	- To use a digital device to take a photograph. - To make choices when taking a photograph. - To describe what makes a good photograph. - To decide how photographs can be improved. - To use tools to change an image.		

			To recognise that photos can be changed.	- Revisiting of previous taught skills and skill extension in cross curricular subjects - Computational thinking and unplugged activity to support and enhance the curriculum and used as starters (Bebras and Barefoot) - Curriculum planning based on the NCCE curriculum but adapted and enhanced where appropriate - Online safety objectives will be taught through the year following project Evolve/Education for a Connected world and using digital stories - Curriculum enrichment through theme days , visitors and after school clubs	Children will confidently be able to talk about ways to stay safe and know how to keep themselves safe online. Teachers will have a secure understanding of where the children are at. They will have identified any misconceptions and any children that require support/intervention. Computing will be used to enhance learning and application of knowledge from other subject curriculum areas.
Year 3		**Creating media Stop-frame Animation**	- To explain that animation is a sequence of drawings or photographs - To relate animated movement with a sequence of images - To plan an animation - To identify the need to work consistently and carefully - To review and improve an animation To evaluate the impact of adding other media to an animation		
Year 4		**Creating media -Audio editing**	- To identify that sound can be digitally recorded. - To use a digital device to record sound. - To explain that a digital recording is stored as a file - To explain that audio can be changed through editing - To show that different types of audio can be combined and played together To evaluate editing choices made		
Year 5		**Creating media Vector drawing**	- To identify that drawing tools can be used to produce different outcomes - To create a vector drawing by combining shapes - To use tools to achieve a desired effect - To recognise that vector drawings consist of layers - To group objects to make them easier to work with - To evaluate my vector drawing		
Year 6		**Creating media - 3D Modelling**	- To identify how to use a search engine - To describe how search engines select results - To explain how search results are ranked - To recognise why the order of results is important, and to whom - To recognise how we communicate using technology - To evaluate different methods of online communication		

Cohort	Half term	Theme / Topic	Intent	Implementation	Impact
Year 1	Spring 1	**Programming A Moving a robot**	- To explain what a given command will do. - To act out a given word. - To combine forwards and backwards commands to make a sequence. - To combine four direction commands to make sequences. - To plan a simple program. To find more than one solution to a problem.	Implementation of computing in UHPS will be through: - Teacher modelling - Small group and whole class teaching - Computing/Technology continuous provision areas (KS1)	Children will be secure in the concepts they have been taught and will be ready to access the sequential learning for the next year group. They will be able to confidently use the devices and the software they have been introduced to and will be

Year 2		**Programming A**	- To describe a series of instructions as a sequence. - To explain what happens when we change the order of instructions. - To use logical reasoning to predict the outcome of a program (series of commands). - To explain that programming projects can have code and artwork. - To design an algorithm. To create and debug a program that I have written.	- Access to technology in role play areas (KS1) or access to appropriate technology in different curriculum areas under adult direction - Revisiting of previous taught skills and skill extension in cross curricular subjects - Computational thinking and unplugged activity to support and enhance the curriculum and used as starters (Bebras and Barefoot) - Curriculum planning based on the NCCE curriculum but adapted and enhanced where appropriate - Online safety objectives will be taught through the year following project Evolve/Education for a Connected world and using digital stories - Curriculum enrichment through theme days , visitors and after school clubs	more confident to use the vocabulary and concepts that they have encountered. Children will confidently be able to talk about ways to stay safe and know how to keep themselves safe online. Teachers will have a secure understanding of where the children are at. They will have identified any misconceptions and any children that require support/intervention. Computing will be used to enhance learning and application of knowledge from other subject curriculum areas.
Year 3		**Programming A** **Sequence in music**	- To explore a new programming environment - To identify that commands have an outcome - To explain that a program has a start - To recognise that a sequence of commands can have an order - To change the appearance of my project - To create a project from a task description		
Year 4		**Programming A** **Repetition in shapes**	- To identify that accuracy in programming is important - To create a program in a text-based language - To explain what 'repeat' means - To modify a count-controlled loop to produce a given outcome - To decompose a task into small steps - To create a program that uses count-controlled loops to produce a given outcome		
Year 5		**Programming A** **Selection in physical computing**	- To control a simple circuit connected to a computer - To write a program that includes count-controlled loops - To explain that a loop can stop when a condition is met, e.g. number of times - To conclude that a loop can be used to repeatedly check whether a condition has been met - To design a physical project that includes selection To create a controllable system that includes selection		
Year 6		**Programming A** **Variables in games**	- To define a 'variable' as something that is changeable - To explain why a variable is used in a program - To choose how to improve a game by using variables - To design a project that builds on a given example - To use my design to create a project - To evaluate my project		

Cohort	**Half term**	**Theme / Topic**	**Intent**	**Implementation**	**Impact**

Year 1	Spring 2	**Data and information Grouping data**	- To label objects. - To identify that objects can be counted. - To describe objects in different ways. - To count objects with the same properties. - To compare groups of objects. To answer questions about groups of objects.	Implementation of computing in UHPS will be through: - Teacher modelling - Small group and whole class teaching - Computing/Technology continuous provision areas (KS1) - Access to technology in role play areas (KS1) or access to appropriate technology in different curriculum areas under adult direction - Revisiting of previous taught skills and skill extension in cross curricular subjects - Computational thinking and unplugged activity to support and enhance the curriculum and used as starters (Bebras and Barefoot) - Curriculum planning based on the NCCE curriculum but adapted and enhanced where appropriate - Online safety objectives will be taught through the year following project Evolve/Education for a Connected world and using digital stories - Curriculum enrichment through theme days , visitors and after school clubs	Children will be secure in the concepts they have been taught and will be ready to access the sequential learning for the next year group. They will be able to confidently use the devices and the software they have been introduced to and will be more confident to use the vocabulary and concepts that they have encountered. Children will confidently be able to talk about ways to stay safe and know how to keep themselves safe online. Teachers will have a secure understanding of where the children are at. They will have identified any misconceptions and any children that require support/intervention. Computing will be used to enhance learning and application of knowledge from other subject curriculum areas.
Year 2		**Data and information - Pictograms**	- To recognise that we can count and compare objects using tally charts. - To recognise that objects can be represented as pictures. - To create a pictogram. - To select objects by attribute and make comparisons. - To recognise that people can be described by attributes. To explain that we can present information using a computer.		
Year 3		**Data and information Branching databases**	- To create questions with yes/no answers - To identify the object attributes needed to collect relevant data - To create a branching database - To explain why it is helpful for a database to be well structured - To identify objects using a branching database To compare the information shown in a pictogram with a branching database		
Year 4		**Data and information Data logging**	- To explain that data gathered over time can be used to answer questions - To use a digital device to collect data automatically - To explain that a data logger collects 'data points' from sensors over time - To use data collected over a long duration to find information - To identify the data needed to answer questions To use collected data to answer questions		
Year 5		**Data and information Flat-file databases**	- To use a form to record information - To compare paper and computer-based databases - To outline how grouping and then sorting data allows us to answer questions - To explain that tools can be used to select specific data - To explain that computer programs can be used to compare data visually To apply my knowledge of a database to ask and answer real-world questions		
Year 6		**Data and information Spreadsheets**	- To identify questions which can be answered using data - To explain that objects can be described using data - To explain that formulas can be used to produce calculated data - To apply formulas to data, including duplicating - To create a spreadsheet to plan an event - To choose suitable ways to present data		

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Year 1	Summer 2	**Creating media** **Digital writing**	- To use a computer to write. - To add and remove text on a computer. - To identify that the look of text can be changed on a computer. - To make careful choices when changing text. - To explain why I used the tools that I chose. To compare writing on a computer with writing on paper.	Implementation of computing in UHPS will be through: - Teacher modelling - Small group and whole class teaching - Computing/Technology continuous provision areas (KS1) - Access to technology in role play areas (KS1) or access to appropriate technology in different curriculum areas under adult direction - Revisiting of previous taught skills and skill extension in cross curricular subjects - Computational thinking and unplugged activity to support and enhance the curriculum and used as starters (Bebras and Barefoot) - Curriculum planning based on the NCCE curriculum but adapted and enhanced where appropriate - Online safety objectives will be taught through the year following project Evolve/Education for a Connected world and using digital stories - Curriculum enrichment through theme days , visitors and after school clubs	Children will be secure in the concepts they have been taught and will be ready to access the sequential learning for the next year group. They will be able to confidently use the devices and the software they have been introduced to and will be more confident to use the vocabulary and concepts that they have encountered. Children will confidently be able to talk about ways to stay safe and know how to keep themselves safe online. Teachers will have a secure understanding of where the children are at. They will have identified any misconceptions and any children that require support/intervention. Computing will be used to enhance learning and application of knowledge from other subject curriculum areas.
Year 2		**Creating media** **Making music**	- To say how music can make us feel. - To identify that there are patterns in music. - To describe how music can be used in different ways. - To show how music is made from a series of notes. - To create music for a purpose. - To review and refine our computer work.		
Year 3		**Creating media** **Desktop publishing**	- To recognise how text and images convey information - To recognise that text and layout can be edited - To choose appropriate page settings - To add content to a desktop publishing publication - To consider how different layouts can suit different purposes To consider the benefits of desktop publishing		
Year 4		**Creating media** **Photo editing**	- To explain that digital images can be changed - To change the composition of an image - To describe how images can be changed for different uses - To make good choices when selecting different tools - To recognise that not all images are real - To evaluate how changes can improve an image		
Year 5		**Creating media** **Video editing**	- To recognise video as moving pictures, which can include audio - To identify digital devices that can record video - To capture video using a digital device - To recognise the features of an effective video - To identify that video can be improved through reshooting and editing - To consider the impact of the choices made when making and sharing a video		
Year 6		**Creating media** **Web page creation**	- To review an existing website and consider its structure - To plan the features of a web page - To consider the ownership and use of images (copyright) - To recognise the need to preview pages - To outline the need for a navigation path To recognise the implications of linking to content owned by other people		

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Year 1	Summer 2	**Programming B Introduction to animation**	- To choose a command for a given purpose. - To show that a series of commands can be joined together. - To identify the effect of changing a value. - To explain that each sprite has its own instructions. - To design the parts of a project. - To use my algorithm to create a program.	Implementation of computing in UHPS will be through: - Teacher modelling - Small group and whole class teaching - Computing/Technology continuous provision areas (KS1) - Access to technology in role play areas (KS1) or access to appropriate technology in different curriculum areas under adult direction - Revisiting of previous taught skills and skill extension in cross curricular subjects - Computational thinking and unplugged activity to support and enhance the curriculum and used as starters (Bebras and Barefoot) - Curriculum planning based on the NCCE curriculum but adapted and enhanced where appropriate - Online safety objectives will be taught through the year following project Evolve/Education for a Connected world and using digital stories - Curriculum enrichment through theme days , visitors and after school clubs	Children will be secure in the concepts they have been taught and will be ready to access the sequential learning for the next year group. They will be able to confidently use the devices and the software they have been introduced to and will be more confident to use the vocabulary and concepts that they have encountered. Children will confidently be able to talk about ways to stay safe and know how to keep themselves safe online. Teachers will have a secure understanding of where the children are at. They will have identified any misconceptions and any children that require support/intervention. Computing will be used to enhance learning and application of knowledge from other subject curriculum areas.
Year 2		**Programming B Programming quizzes**	- To explain that a sequence of commands has a start. - To explain that a sequence of commands has an outcome. - To create a program using a given design. - To change a given design. - To create a program using my own design. To decide how my project can be improved.		
Year 3		**Programming B Events and actions**	- To explain how a sprite moves in an existing project - To create a program to move a sprite in four directions - To adapt a program to a new context - To develop my program by adding features - To identify and fix bugs in a program - To design and create a maze-based challenge		
Year 4		**Programming B Repetition in games**	- To develop the use of count-controlled loops in a different programming environment - To explain that in programming there are infinite loops and count-controlled loops - To develop a design that includes two or more loops which run at the same time - To modify an infinite loop in a given program - To design a project that includes repetition To create a project that includes repetition		
Year 5		**Programming B Selection in quizzes**	- To explain how selection is used in computer programs - To relate that a conditional statement connects a condition to an outcome - To explain how selection directs the flow of a program - To design a program which uses selection - To create a program which uses selection - To evaluate my program		
Year 6		**Programming B Sensing**	- To create a program to run on a controllable device - To explain that selection can control the flow of a program - To update a variable with a user input		

			- To use an conditional statement to compare a variable to a value - To design a project that uses inputs and outputs on a controllable device To develop a program to use inputs and outputs on a controllable device		

Computing Vocabulary

EYFS

Technology around us	Programming	Computational Thinking
technology computer, mouse, keyboard, screen, click, drag, draw, double-click, click and drag, space bar, capital letter, full stop, safely, responsibly online, offline ipad, chagrining, screen	forwards, backwards, turn, clear, go, , instructions, directions, left, right, plan,	Tinkering – play and explore Collaboration – working together Persevering – not giving up Patterns –similarities and differences

Year 1 Vocabulary

Technology around us	Digital Painting	Moving a robot	Grouping Data	Digital writing	Program animation
technology computer, mouse/trackpad, keyboard, screen, click, drag, draw, double-click, click and drag, input device, mouse, shift, space bar, capital letter, full stop, safely, responsibly	paint program, tool, paintbrush, erase, fill, undo, shape tools, line tool, fill tool, undo tool, brush size, pictures, painting, computers, like, prefer, dislike	forwards, backwards, turn, clear, go, commands, instructions, directions, left, right, plan, algorithm, program, route	object, label, group, search, image, property, colour, size, shape, value, data set, more, less, most, fewest, least, the same	Word processor, keyboard, keys, letters, Microsoft Word, Google Docs, numbers, space, backspace, text cursor, toolbar, bold, italic, underline, mouse, cursor, select, font, undo	ScratchJr, Bee-Bot, command, sprite, compare, programming, programming area, block, joining, start block, run, program, background, delete, reset, algorithm, predict, effect, change, value, instructions, appropriate, design, programming blocks, programs

Year 2 Vocabulary

Information Technology around us	Digital Photography	Robot Algorithms	Pictograms	Making Music	An Introduction to Quizzes
Information Technology (IT), computer, barcode, scanner / scan	device, camera, photograph, capture, image, digital, landscape, portrait, horizontal, vertical, field of view, narrow, wide, format, framing, focal point, subject matter, compose, natural lighting, artificial lighting, flash, focus, background, foreground, editing, tools, colour, filter, images, Pixlr, lighting, filter, changed, real	instruction, sequence, clear, unambiguous, algorithm, program, order, commands, prediction, artwork, design route, mat, debugging	more than, less than, most, least, organise, data, object, tally chart, votes, total, pictogram, enter, compare, objects, count, pictogram, explain, more, less, least, more common, least common, attribute, group, same, different, most popular, least popular, conclusion, block diagram, sharing	music, planets, Mars, Venus, war, peace, quiet, loud, feelings, emotions, pattern, rhythm, pulse, Neptune, pitch, tempo, notes, instrument, create, emotion, pulse / beat, open, edit	sequence, command, program, run, start, outcome, predict, program, blocks, sprite, algorithm, design, actions, project, modify, change, build, match, compare, debug, features, evaluate

Year 3 Vocabulary

Connecting Computers	Stop-frame Animation	Sequence in music	Branching databases	Desktop Publishing	Events and actions
digital device, input, output, process, program, connection, network, network switch, server, wireless access point (WAP)	animation, flip book, stop frame animation, frame, sequence, image, photograph, setting, character, events, onion skinning, consistency, evaluation, animation, delete, media, import, transition	Scratch, programming, blocks, commands, code, sprite, costume, stage, backdrop, sprites, programming blocks, motion, turn, point in direction, go to, glide, sequence, event, task, design, run the code, order, note, chord, algorithm, bug, debug	attribute, value, questions, table, objects, branching database, database, equal, even, separate, structure, compare, order, organise, j2data, selecting, pictogram, information, decision tree	text, images, advantages, disadvantages, communicate, font, font style, template, landscape, portrait, orientation, placeholder, desktop publishing, copy, paste, layout, purpose, benefits	motion, event, sprite, algorithm, logic, move, resize, extension block, pen up, set up, pen, design, action, debugging, errors, setup, code, test, debug, actions, events

Year 4 Vocabulary

The Internet	Audio editing	Repetition in shapes	Data logging	Photo editing	Repetition in games
	audio, record, playback, microphone, speaker, headphones, input, output, sound, record, playback, start, pause, stop, podcast, save, file, edit, selection, open, mixing, time shift, export, MP3, editing, evaluate, feedback	program, turtle, commands, code snippet, design, debug, Logo commands, pattern, repeat, repetition, count-controlled loop, algorithm, value, trace, decompose, procedure, program	data, table (layout), input device, sensor, data logger, logging, data point, interval, analyse, data set, import, export, logged, collection, review, conclusion	image, edit, arrange, select, digital, crop, undo, save, search, flip, copyright, composition, pixels, rotate, adjustments, effects, colours, hue/saturation, sepia, version, illustrator, real, vignette, fake, retouch, clone, recolour, magic wand, adjust, sharpen, alter, brighten, cut, copy, paste, composite, background, foreground, publication, elements, original, font style, shapes, border, layer	Scratch, programming, sprite, blocks, code, loop, repeat, value, block, repeat, forever, infinite loop, count-controlled loop, costume, repetition, animate, event block, duplicate, modify, design, repetition, algorithm, debug, refine, evaluate

Year 5 Vocabulary

Sharing Information	Video editing	Selection in physical computing	Flat-file databases	Vector drawing	Selection in quizzes
system, connection, digital, input, process, output, protocol, address, packet, chat, explore, slide deck, reuse, remix, collaboration	video, audio, recording, storyboard, script, soundtrack, dialogue, capture, zoom, storage, digital, tape, AV (audio-visual), save, videographer, video techniques: zoom, pan, tilt, angle, lighting,	Microcontroller, Crumble controller, components, LED, Sparkle, crocodile clips, connect, battery box, program, repetition, infinite loop, output devices, motor, Sparkle, count-controlled loop, switch, condition, true, false, input, selection,	database, data, information, record, field, sort, order, group, search, value, criteria, graph, chart, axis, compare, filter, presentation	vector, drawing tools, shapes, object, icons, toolbar, vector drawing, move, resize, colour, rotate, duplicate/copy, organise, zoom, select, rotate, alignment grid, handles, consistency, modify, layers, front, back, order, copy, paste,	selection, condition, true, false, count controlled loop, outcomes, conditional statement - the linking together of a condition and outcomes - algorithm, program, debug, question, answer, task, design, input, implement, test, run, setup, share, evaluate, constructive

	setting, YouTuber, content, light, audio/sound, camera angle, colour, export, computer, Microsoft Movie Maker, split, trim/clip, edit, titles, end credits, timeline, transitions, retake/reshoot (choose agreed language), special effects, title screen, constructive feedback	condition, action, task, design, algorithm, program, debug, evaluate		group, ungroup, duplicate, reuse, improvement, evaluate, alternatives	

Year 6 Vocabulary

Communication	Web page creation	Variables in games	Introduction to Spreadsheets	3D Modelling	Sensing
search, search engine, Google, Bing, Yahoo!, Swisscows, DuckDuckGo, refine, index, crawler, bot, ranking, search engine optimisation, links, web crawlers, searching, content creator, selection, communication, internet, public, private, one-way, two-way, one-to-one, one-to-many, SMS,	website, web page, browser, media, Hypertext Markup Language (HTML), logo, layout, header, media, purpose, copyright, fair use, home page, preview, evaluate, device, Google Sites, breadcrumb	Variable, change, name, value Variable, name, value, set, change Variable, set, change, design, event Design, algorithm, code Task, algorithm, design, artwork, program, project, code, test, debug Improve, evaluate, share	spreadsheet, data, data heading, data set, cells, columns and rows, data item, object, application, format, common attribute, formula, calculation, input, output, cells, cell reference, calculate, operation, range, duplicate, sigma, propose, question,	2D, 3D, 3D object, 3D space, view, resize, colour, lift, rotate, position, select, duplicate, dimensions, placeholder, hole, group, ungroup, design, modify, evaluate, improve	Micro:bit, MakeCode, input, process, output, flashing, USB, selection, condition, if… then… else, variable, random, sensing, accelerometer, compass, direction, navigation, design, task, algorithm, step counter, plan, create, code, test, debug

email, WhatsApp, blog, YouTube, Twitter, BBC Newsround	trail, navigation, hyperlink, subpage, evaluate, implication, external link, embed		organised, graph, chart, evaluate, results, comparison, questions, software, tools		

Progression of Skills

Progression in Computing systems and Networks

	COMPUTING SYSTEMS & NETWORKS	Creating Media		Data and Information	Programming	
YEAR 1	**Technology around us** To identify technology To identify a computer and its main parts To use a mouse in different ways To use a keyboard to type To use the keyboard to edit text To create rules for using technology responsibly	Digital painting To describe what different freehand tools do To use the shape tool and the line tools To make careful choices when painting a digital picture To explain why I chose the tools I used To use a computer on my own to paint a picture To compare painting a picture on a computer and on paper	Digital writing To use a computer to write To add and remove text on a computer To identify that the look of text can be changed on a computer To make careful choices when changing text To explain why I used the tools that I chose To compare writing on a computer with writing on paper	**Grouping data** To label objects To identify that objects can be counted To describe objects in different ways To count objects with the same properties To compare groups of objects To answer questions about groups of objects	**Moving a robot** To explain what a given command will do To act out a given word To combine forwards and backwards commands to make a sequence To combine four direction commands to make sequences To plan a simple program To find more than one solution to a problem	**Introduction to animation** To choose a command for a given purpose To show that a series of commands can be joined together To identify the effect of changing a value To explain that each sprite has its own instructions To design the parts of a project To use my algorithm to create a program
YEAR 2	**Information technology around us** To recognise the uses and features of information technology To identify information technology in the home To identify information technology beyond school To explain how information technology benefits us To show how to use information technology safely To recognise that choices are made when	Digital photography To know what devices can be used to take photographs To use a digital device to take a photograph To describe what makes a good photograph To decide how photographs can be improved To use tools to change an image To recognise that images can be changed	Making music To say how music can make us feel To identify that there are patterns in music To describe how music can be used in different ways To show how music is made from a series of notes To create music for a purpose To review and refine our computer work	**Pictograms** To recognise that we can count and compare objects using tally charts To recognise that objects can be represented as pictures To create a pictogram To select objects by attribute and make comparisons To recognise that people can be described by attributes To explain that we can present information using a computer	**Robot algorithms** To describe a series of instructions as a sequence To explain what happens when we change the order of instructions To use logical reasoning to predict the outcome of a program (series of commands) To explain that programming	**Introduction to quizzes** To explain that a sequence of commands has a start To explain that a sequence of commands has an outcome To create a program using a given design To change a given design To create a program using my own design To decide how my

	using information technology				projects can have code and artwork To design an algorithm To create and debug a program that I have written	project can be improved
YEAR 3	**Connecting computers** To explain how digital devices function To identify input and output devices To recognise how digital devices can change the way we work To explain how a computer network can be used to share information To explore how digital devices can be connected To recognise the physical components of a network	<u>Stop-frame animation</u> To explain that animation is a sequence of drawings or photographs To relate animated movement with a sequence of images To plan an animation To identify the need to work consistently and carefully To review and improve an animation To evaluate the impact of adding other media to an animation	<u>Desktop publishing</u> To recognise how text and images convey information To recognise that text and layout can be edited To choose appropriate page settings To add content to a desktop publishing publication To consider how different layouts can suit different purposes To consider the benefits of desktop publishing	**Branching databases** To create questions with yes/no answers To identify the object attributes needed to collect relevant data To create a branching database To identify objects using a branching database To explain why it is helpful for a database to be well structured To compare the information shown in a pictogram with a branching database	**Sequence in music** To explore a new programming environment I can identify that each sprite is controlled by the commands I choose To explain that a program has a start To recognise that a sequence of commands can have an order To change the appearance of my project To create a project from a task description	**Events and actions** To explain how a sprite moves in an existing project To create a program to move a sprite in four directions To adapt a program to a new context To develop my program by adding features To identify and fix bugs in a program To design and create a maze-based challenge
YEAR 4	**The internet** To describe how networks physically connect to other networks To recognise how networked devices make up the internet To outline how websites can be shared via the World Wide Web To describe how content can be added and accessed on the World Wide Web	<u>Photo editing</u> To explain that digital images can be changed To change the composition of an image To describe how images can be changed for different uses To make good choices when selecting different tools	<u>Audio editing</u> To identify that sound can be digitally recorded To use a digital device to record sound To explain that a digital recording is stored as a file To explain that audio can be changed through editing To show that different types of audio can be combined and played	**Data logging** To explain that data gathered over time can be used to answer questions To use a digital device to collect data automatically To explain that a data logger collects 'data points' from sensors over time To use data collected over a long duration to find information To identify the data needed to answer	**Repetition in shapes** To identify that accuracy in programming is important To create a program in a text-based language To explain what 'repeat' means To modify a count-controlled loop to produce a given	**Repetition in games** To develop the use of count-controlled loops in a different programming environment To explain that in programming there are infinite loops and count controlled loops To develop a design which includes two or more loops which run at the same time

	To recognise how the content of the WWW is created by people To evaluate the consequences of unreliable content	To recognise that not all images are real To evaluate how changes can improve an image	together To evaluate editing choices made	questions To use collected data to answer questions	outcome To decompose a program into parts To create a program that uses count-controlled loops to produce a given outcome	To modify an infinite loop in a given program To design a project that includes repetition To create a project that includes repetition
YEAR 5	**Sharing information** To explain that computers can be connected together to form systems To recognise the role of computer systems in our lives To recognise how information is transferred over the internet To explain how sharing information online lets people in different places work together To contribute to a shared project online To evaluate different ways of working together online	<u>Video editing</u> To recognise video as moving pictures, which can include audio To identify digital devices that can record video To capture video using a digital device To recognise the features of an effective video To identify that video can be improved through reshooting and editing To consider the impact of the choices made when making and sharing a video	<u>Vector drawing</u> To identify that drawing tools can be used to produce different outcomes To create a vector drawing by combining shapes To use tools to achieve a desired effect To recognise that vector drawings consist of layers To group objects to make them easier to work with To evaluate my vector drawing	**Flat-file databases** To use a form to record information To compare paper and computer-based databases To outline how grouping and then sorting data allows us to answer questions To explain that tools can be used to select specific data To explain that computer programs can be used to compare data visually To apply my knowledge of a database to ask and answer real-world questions	**Selection in physical computing** To control a simple circuit connected to a computer To write a program that includes count-controlled loops To explain that a loop can stop when a condition is met, e.g. number of times To conclude that a loop can be used to repeatedly check whether a condition has been met To design a physical project that includes selection To create a controllable system that includes selection	**Selection in games** To explain how selection is used in computer programs To relate that a conditional statement connects a condition to an outcome To explain how selection directs the flow of a program To design a program which uses selection To create a program which uses selection To evaluate my program

YEAR 6	**Communication** To identify how to use a search engine To describe how search engines select results To describe how search engines select results To explain how search results are ranked To recognise why the order of results is important, and to whom To recognise how we communicate using technology To evaluate different methods of online communication	<u>3D modelling</u> To use a computer to create and manipulate three-dimensional (3D) digital objects To compare working digitally with 2D and 3D graphics To construct a digital 3D model of a physical object To identify that physical objects can be broken down into a collection of 3D shapes To design a digital model by combining 3D objects To develop and improve a digital 3D model	<u>Web page creation</u> To review an existing website and consider its structure To plan the features of a web page To consider the ownership and use of images (copyright) To recognise the need to preview pages To outline the need for a navigation path To recognise the implications of linking to content owned by other people	**Spreadsheets** To identify questions which can be answered using data To explain that objects can be described using data To explain that formula can be used to produce calculated data To apply formulas to data, including duplicating To create a spreadsheet to plan an event To choose suitable ways to present data	**Variables in games** To define a 'variable' as something that is changeable To explain why a variable is used in a program To choose how to improve a game by using variables To design a project that builds on a given example To use my design to create a project To evaluate my project	**Sensing** To create a program to run on a controllable device To explain that selection can control the flow of a program To update a variable with a user input To use an conditional statement to compare a variable to a value To design a project that uses inputs and outputs on a controllable device To develop a program to use inputs and outputs on a controllable device