Avonwood Primary School

Computing Curriculum Policy

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Avonwood Primary School
The best in everyone™
Part of United Learning

Contents

1.0 Our School Vision

At Avonwood we see it as our moral imperative for all children, regardless of background, to achieve their very best. Our children all read classic literature, study modern foreign languages, experience the science of dissecting organs and even learn a new musical instrument every year as a right, not a privilege. These high expectations enable us to develop and deliver a curriculum rich in carefully sequenced and embedded powerful knowledge. We expect teachers to deliver lessons with that fulfil this expectation whilst living up to our ambition of **inspiring wonder and intellectual curiosity**.

Our curriculum is at the centre of every education decision we take at Avonwood. We do not see the curriculum as a finished product, far from it. On a weekly, termly and annual basis we review plans, consider our intent and make sure we deliver the very best academic and enrichment diet to our children. All curriculum areas have a subject lead that is responsible for the design, implementation and ongoing monitoring and evaluation of this area.

Avonwood has moved away from tokenistic topics towards knowledge rich experiences in discrete subjects, with deliberate cross curricular links only when appropriate. For example, in Year 2 we teach the Great Fire of London when children have already learnt in Geography where London is and its status within the United Kingdom. The awe and wonder of learning continues to characterise the Avonwood curriculum but in a purposeful, sequenced and deliberate manner.

If 'powerful knowledge' is the head of our school, then reading for pleasure and progress is its heart. Our school environment and curriculum crystallises reading for pleasure as a valued and purposeful part of our curriculum. We agree with the view of Thompson (2020) when she states the importance of becoming a reader who teachers and a teacher who reads is a pedagogy with far reaching consequences. Reading progression is carefully mapped to provide opportunities for exposure to a wide variety of genres, authors of different backgrounds and a mixture of classic and contemporary texts. Every afternoon we 'Drop Everything and Read' to end our school day with a high quality whole class reading session. **We wholeheartedly believe reading is the golden key to unlocking the potential of every child's success**.

We are honoured to be the only United Nations Earth Charter Primary School in Europe. We believe it is vital that all children have an understanding of their responsibility as global citizens and our eight Earth Charter principals are referenced throughout our curriculum and daily life. From the importance of peace and respect for all living creatures through to the consideration of the past and future of our planet, this ethos gives our Avonwood curriculum a very current and relevant perspective that all stakeholders within our community hold strong. This runs deep within our "Avonwood DNA" and is optimised by our school mantra... it starts with one!

1.1 How our whole school vision links with computing

The Avonwood Curriculum for computing aims to prepare all children, regardless of their background, for the increasingly digital world, ensuring that their knowledge of technology and its implementation keeps up with society's progress. Our curriculum ensures that pupils will master core technological skills through the development and application of key concepts. The curriculum has been sequenced and specific knowledge selected to allow for gradual development of core computing skills to ensure children have enough time to grasp the content at hand before they are expected to meet the digital demands of the wider world. Our curriculum provides a solid technological foundation which can then be taken forward and expanded upon for KS3 and KS4. At Avonwood, we purposefully teach appropriate knowledge and actively encourage pupils to apply and make connections between the curriculum, their prior multi-modal computing experiences, and the wider world.

The computing curriculum at Avonwood Primary School provides children with:

- A developing understanding of computing systems, their relevant networks and how each individual device is linked to, and connected with, the digital world.
- An ability to design and create digital media, expressing their creativity through a technological lens.
- A complex and connected understanding of coding and programming; how it works, why it is used and its implementation in wider society.
- The knowledge required to know when data processing would be more efficient when tackled digitally and a developing understanding of how to represent data in a range of forms such as spreadsheets and graphs.
- An understanding of the application of the fundamental principles and concepts of computing, including abstraction, logic, algorithms, and data representation.

Throughout our curriculum we use a wide range of age-appropriate software to give children a thorough grounding in the variety of digital forms present in wider society. The links to the computing world made in other subjects, such as the digital advances made throughout history, ensure children understand the importance of this subject and allows them to see that everyone is influenced by the digital world.

2.0 Subject Intent, Implementation & Impact

2.1 Subject Intent

Computing teaching at Avonwood Primary School aims to teach a set of core ideas that will enable all students to enter the digital world at the end of their education with the confidence and competence in digital literacy that will be required of them.

At Avonwood, we aim to give children an understanding of the importance of the digital world, the role they play in it, both as a user and a creator, and the confidence to be technological pioneers who take their current understanding and combine it with their creativity to explore technology in new ways.

By the time they leave Avonwood, children will have developed foundational knowledge in computer science and the associated problem-solving skills need to debug and code. They will know how to stay safe, discerning, and responsible online including how to search efficiently. They will also have had a wide experience of using apps, website, and devices to create and edit digital media. They will be equipped with the skills and knowledge to choose tools appropriate for the task safely.

2.2 Subject Implementation

At Avonwood, we are fortunate to have access to United Learning's curriculum, this allows us to draw on a range of experts and implement their curriculum design. This is primarily through the use of the 'Teach Computing Curriculum' scheme of work which draws upon the expertise of subject specialists from the Computing Community. The scheme allows for progression and develops breadth of skills and knowledge. Each year the children revisit the same threads of Computing including programming, media creation and aspects of data handling.

Computing is a knowledge and skills-led subject, therefore the teacher is 'the expert' and guides the children through the following processes:

Instructive teaching – knowledge and skills

Much of the teaching time will be instructive, such as learning about how to order algorithms. Over time, children will develop and increase their knowledge in a range of applications to be able to use them with greater independence. To be able to use software, children will need direct teaching and guidance to refine their skills. Over time, children will consolidate their knowledge of key vocabulary and computing concepts, such as networks and technology in the wider world.

Practise and Consolidation and review

Once the teacher has finished their instructional coaching, the children will apply their new knowledge and understanding through targeted tasks on a range of software throughout each academic year. Consolidation activities form an important part of each lesson. For example: the start of each lesson will focus on reviewing previous learning; there will be opportunities during the lesson to recap key vocabulary or facts learnt in the lesson to that point; learning may be reviewed at the end of the lesson in a plenary.

Evaluation and Review

Children need to be given the opportunity to look for errors and debug algorithms. Review can be built into a cycle when producing media or programs. This gives pupils the opportunity to decide whether they have fulfilled the brief and to consider other ways of achieving the goal.

2.3 Subject Impact

If children are keeping up with the curriculum, they are deemed to be making good or better progress in accordance to the United Learning progression in conjunction with the National Curriculum objectives.

We measure the impact of our curriculum through the following methods:

Formative Assessment	Summative Assessment
Verbal responses to questions	Unit projects should demonstrate an understanding, and application, of taught outcomes. Years 4,5,6 computing workbook evaluations Bespoke end-of-unit quizzes in Years 4,5 and 6 that allow for instant feedback
Low-stakes quizzes	
Observational assessment	
Monitoring of work held digitally	

3.0 Sequencing of the Avonwood Computing Curriculum

3.1 Whole School Overview: Long Term Planning

	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Autumn	**Education for a Connected World** Self-image and identity Online Relationships	**Technology around us** [Aut 1] An introduction to computing systems and networks. **Moving a robot** [Aut 2] Combining commands to make a sequence and plan a simple program	**IT around us** [Aut 1] Developing an understanding of what information technology (IT) is and beginning to identify examples **Robot algorithms** [Aut 2] Using given commands in different orders to investigate how the order affects the outcome	**Connecting computing** [Aut 1] Developing an understanding of digital devices, with an initial focus on inputs, processes, and outputs **Sequence in music** [Aut 2] Exploreing the concept of sequencing in programming through Scratch	**The internet** [Aut 1] Evaluating online content to decide how honest, accurate, or reliable it is **Photo editing** [Aut 2] Developing an understanding of how digital images can be changed and edited	**Sharing information** [Aut 1] Developing an understanding of computer systems and how information is transferred between systems and devices **Vector drawings** [Aut 2] Exlporing how to use different drawing tools to help them create images	**Communication** [Aut 1] Exploring how we find information on the World Wide Web, through learning how search engines work **Variables in games** [Aut 2] Discovering what variables are and relate them to real-world examples of values that can be set and changed
Spring	**Education for a Connected World** Online Reputation	**Digital painting** [Spr 1] Developing an understanding of a range of tools used for digital painting.	**Making music** [Spr 1] Exploring how music can make them feel and creating different	**Branching database** [Spr 1] Developing an understanding of what a branching database is and how to create one	**Data logging** [Spr 1] Using a computer to review and analyse data **Audio editing**	**Selection in physical computing** [Spr 1] Using physical computing to explore the	**3D models** [Spr 1] Developing knowledge and understanding of

	Online Bullying Managing Online Information	**Grouping data** [Spr 2] Assigning data (images) with different labels in order to demonstrate how computers can group and present data	rhythms and tunes **Pictograms** [Spr 2] Understanding what data means and how this can be collected in the form of a tally chart	**Animation** [Spr 2] Using a range of techniques to create a stop-frame animation using tablets	[Spr 2] Producing a podcast, which will include editing their work, adding multiple tracks, and opening and saving the audio files	concept of selection in programming **Selection in quizzes** [Spr 2] Using knowledge of writing programs and using selection to control outcomes to design a quiz	using a computer to produce 3D models **Spreadsheets** [Spr 2] Organising data into columns and rows to create their own data set
Summer	**Education for a Connected World** Health, Well-Being and Lifestyle Privacy and Security Copyright and Ownership	**Introduction to animation** [Sum 1] An introduction to on-screen programming through ScratchJr **Digital writing** [Sum 2] Developing an understanding of the various aspects of using a computer to create and manipulate text	**Digital photography** [Sum 1] An exploration of different devices and gaining experience capturing, editing, and improving photos **Introduction to quizzes** [Sum 2] A recap of ScratchJr and modifying designs to create their own quiz questions	**Events and actions** [Sum 1] Exploring the links between events and actions, whilst consolidating prior learning relating to sequencing **Desktop publishing** [Sum 2] Using desktop publishing software and considering careful choices of font size, colour and type to edit and improve premade documents	**Repetition in shapes** [Sum 1] Exploring repeption and loops within programming **Repetition in games** [Sum 2] Exploring the concept of repetition in programming using the Scratch environment	**Video editing** [Sum 1] Understanding how to create short videos in groups and then reflecting and assessing on this **Flat-file databases** [Sum 2] Exploring how a flat-file database can be used to organise data in records	**Sensing** [Sum 1] Building in and testing a simple program in the programming environment before transferring it to their micro:bit **Webpage creation** [Sum 2] Identifying what makes a good web page and using this information to design and evaluate their own website

3.2 Knowledge & Skills Overview – EYFS

Term & Focus	*Early Learning Goal*	*Pupil outcomes / Year 1 readiness Skills, knowledge and understanding*	*Other opportunities to develop understanding*
Autumn Education for a Connected World Self-image and identity Online Relationships **Spring** Education for a Connected World Online Reputation Online Bullying Managing Online Information **Summer** Education for a Connected World Health, Well-Being and Lifestyle Privacy and Security Copyright and Ownership	N/A	**Education for a Connected World** Self-image and identity I can recognise that I can say 'no' / 'please stop' / 'I'll tell' / 'I'll ask' to somebody who asks me to do something that makes me feel sad, embarrassed or upset I can explain how this could be either in real life or online Online relationships I can recognise some ways in which the internet can be used to communicate I can give examples of how I (might) use technology to communicate with people I know Online reputation I can identify ways that I can put information on the internet Online Bullying I can describe ways that some people can be unkind online I can offer examples of how this can make others feel Managing Online Information I can talk about how I can use the internet to find things out I can identify devices I could use to access information on the internet I can give simple examples of how to find information (e.g. search engine, voice activated searching)	• When out in the locality, ask children to help to press the button at the pelican crossing, or speak into an intercom to tell somebody you have come back. • Provide a range of materials and objects to play with that work in different ways for different purposes, for example, egg whisk, torch, other household implements, pulleys, construction kits and tape recorder. • Provide a range of programmable toys, as well as equipment involving ICT, such as computers.

		<u>Health, Well-Being and Lifestyle</u> I can identify rules that help keep us safe and healthy in and beyond the home when using technology I can give some simple examples <u>Privacy and Security</u> I can identify some simple examples of my personal information (e.g. name, address, birthday, age, location) I can describe the people I can trust and can share this with I can explain why I can trust them <u>Copyright and Ownership</u> I know that work I create belongs to me I can name my work so that others know it belongs to me	

Year 1

Term & Focus	*National Curriculum Objectives*	*Knowledge*	*Skills*
Autumn <u>Technology around us</u> Computing systems and networks <u>Moving a robot</u> Programming	To use technology purposefully to create, organise, store, manipulate and retrieve digital content. To recognise common uses of information technology beyond school. To use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies. To create and debug simple programs.	• I know how different technology is used around me • I know how to keep my logon details safe • I know the main parts of a computer • I know how to combine forwards and backwards movements to make a sequence	• I can identify examples of technology around me • I can turn on a laptop independently • I can log on to the laptop with some support • I can use the mouse to click and drag • I can use the arrow keys • I can experiment with turn and move commands to move a robot
Spring <u>Digital painting</u> Creating media <u>Grouping data</u> Data and information	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. To use technology purposefully to create, organise, store, manipulate and retrieve digital content. To recognise common uses of information technology beyond school.	• I know what different freehand tools do • I know how to choose appropriate tools • I know that different paint tools do different jobs • I know how to paint a picture on the laptop • I know how to label objects • I know how to group objects • I know how to record and share what I have found	• I can use the paint tools to draw a picture • I can use the shape and line tools • I can make appropriate shape and colour choices • I can change the colour and brush size • I can spot the differences between painting on a computer and on paper • I can compare objects • I can describe the properties of objects • I can choose how to group objects

Summer <u>Introduction to animation</u> Programming through ScratchJr <u>Digital writing</u> Creating media	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. To use technology purposefully to create, organise, store, manipulate and retrieve digital content. To understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions. To create and debug simple programs. To use logical reasoning to predict the behaviour of simple programs.	• I know what a sprite is • I know how to change the value of a block • I know how to delete a sprite • I know what an algorithm is • I know where to find different keys on a keyboard • I know what different keys can do • I know how to change a font • I know how to delete text	• I can compare different programming tools • I can use commands to move a sprite • I can add programming blocks based on my algorithm • I can use a computer to write • I can use letter, number, and space keys • I can type capital letters • I can make changes to improve my writing • I can compare writing on a computer to writing on paper and say which I prefer

Year 2

Term & Focus	*National Curriculum Objectives*	*Knowledge*	*Skills*
Autumn <u>IT around us</u> Computing systems and networks <u>Robot algorithms</u> Programming	To use technology purposefully to create, organise, store, manipulate and retrieve digital content. To recognise common uses of information technology beyond school. To use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies. To create and debug simple programs. To understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.	• I know some different types of computers • I know the purpose of information technology at home • I know how information technology is used in a shop • I know different uses of information technology • I know how to use information technology safely • I know how to create different algorithms for a range of sequences • I know how to create and debug a program I have written	• I can talk about the uses of information technology • I can compare types of information technology • I can explain simple guidance for using information technology in different environments • I can identify the choices I make when using information technology • I can give clear and unambiguous instructions • I can use algorithms to program a sequence • I can predict the outcome of a sequence • I can plan algorithms for different parts of a task
Spring <u>Making music</u> Creating media <u>Pictograms</u> Data and information	To use technology purposefully to create, organise, store, manipulate and retrieve digital content. To use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they	• I know how to spot patterns in music • I know the meaning of 'pitch' and 'duration' • I know how to create a musical pattern on a computer • I know how to save my work • I know how to reopen my work	• I can identify differences in music • I can create a rhythm pattern • I can connect images with sounds • I can refine my musical pattern on a computer • I can explain how my music makes me feel

	have concerns about content or contact on the internet or other online technologies. To recognise common uses of information technology beyond school.	• I know how to record data in a tally chart • I know how to enter data on to a computer • I know how to create a pictogram • I know the meaning of 'attribute' • I know why information should not be shared	• I can compare totals in a tally chart • I can organise data in a tally chart • I can tally objects using a common attribute • I can create a pictogram and draw conclusions from it • I can share what I have found out using a computer
Summer <u>Digital photography</u> Creating media <u>Introduction to quizzes</u> Programming through ScratchJr	To recognise common uses of information technology beyond school To use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies. To use technology purposefully to create, organise, store, manipulate and retrieve digital content. To understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions. To create and debug simple programs. To use logical reasoning to predict the behaviour of simple programs.	• I know what devices can be used to take photographs • I know the process of taking a photograph • I know what makes a good photograph • I know how to improve a photograph • I know that a sequence of commands has a start • I know that a sequence of commands has an outcome • I know how to create a program using a given design • I know how to change a given design • I know how to create an algorithm	• I can sort devices into old and new • I can take photos in both portrait and landscape, and explain which looks better • I can edit a photo using different tools and effects • I can recognise which images have been changed • I can show how to run my program • I can predict the outcome of a sequence of commands • I can tell the actions of a sprite in an algorithm • I can choose backgrounds and characters for the design • I can compare my project to my design • I can improve my project by adding features

Year 3

Term & Focus	*National Curriculum Objectives*	*Knowledge*	*Skills*
Autumn <u>Connecting computing</u> Computing systems and networks <u>Sequence in music</u> Programming through Scratch	To 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 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 To use sequence, selection, and repetition in programs; work with variables and various forms of input and output To design, write, and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts To use logical reasoning to explain how some simple algorithms work, and to detect and correct errors in algorithms and programs	• I know how digital devices function and that they have inputs and outputs • I know how digital devices change the way we work • I know that digital devices are connected forming a large network • I know the names of the physical components of a network • I know how to use basic coding blocks on scratch • I know that a program has a start • I know that a sequence of commands can have an order • I know that different sprites can have different actions	• I can classify input and output devices • I can explain how I use digital devices for different activities • I can recognise different connections • I can demonstrate how information can be passed between devices • I can identify networked devices around me • I can recognise that commands in Scratch are represented as blocks • I can start a program in different ways • I can build a sequence of commands • I can implement my algorithm as code

Spring <u>Branching databases</u> Data and information <u>Animation</u> Creating media	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 To use technology safely, respectfully, and responsibly	• I know the attributes needed to collect relevant data • I know what a branching database is and what it is used for • I know why it is important for a database to be well structured • I know how to relate a database to other forms of data representation • I know that an animation is a sequence of drawings or photographs • I know how a sequence of images relates to animated movement • I know how to build frames up into a short animation • I know how to add other media into an animation	• I can make up a yes/no question about a collection of objects • I can select an attribute to separate objects into groups • I can select objects to arrange in a branching database • I can prove my branching database works • I can use my branching database to answer questions • I can compare two ways of presenting information • I can create an effective flip book-style animation • I can draw a sequence of pictures • I can describe an animation that is achievable on screen • I can improve my animation based on feedback • I can add other media to my animation
Summer <u>Events and actions</u> Programming <u>Desktop publishing</u> Creating media	To design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts To use sequence, selection, and repetition in programs; work with variables and various forms of input and output To use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs	• I know how a sprite moves in an existing project • I know how to adapt a program to fit a new context • I know that debugging is an important step in the coding process • I know how to code a maze-based challenge • I know that text and images convey information • I know that there are different page settings for different purposes	• I can program movement • I can choose blocks to set up my program • I can build more sequences of commands to make my design work • I can modify a program using a design • I can implement my design • I can explain the difference between text and images • I can change the font style, size and colours for a given purpose • I can edit text • I can create a template for a particular purpose

	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 To use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content	• I know the benefits of desktop publishing	• I can paste text and images • I can choose a suitable layout for a given purpose

Year 4

Term & Focus	*National Curriculum Objectives*	*Knowledge*	*Skills*
Autumn <u>The internet</u> Computing systems and networks <u>Photo editting</u> Creating media	To 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 To use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content 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 To use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact	• I know how information is shared across the internet • I know why a network needs protecting • I know how networked devices connect • I know how to access websites on the WWW • I know how the content is created on the WWW • I know how images can be changed for different uses • I know how to retouch an image • I know that images can be combined to make new ones	• I can explain the types of media that can be shared on the WWW • I can suggest who owns the content on websites • I can explain that there are rules to protect content • I can recognise unreliable content • I can explain why I need to think carefully before I share or reshare content • I can explain the effect that editing has on an image • I can change the composition of an image • I can give examples of positive and negative effects that retouching can have on an image • I can sort images into ‘fake’ and ‘real’

Spring <u>Data logging</u> Data and information <u>Audio editting</u> Creating media	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 To use sequence, selection, and repetition in programs; work with variables and various forms of input and output To use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content To use technology safely, respectfully, and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact	• I know that sensors are input devices • I know that data from sensors can be recorded • I know how to import a data set • I know how to view data in different ways • I know how to sort data • I know how to use a data logger • I know that sound can be digitally recorded • I know how to use a digital device to record sound • I know how to save a digital recording as a file • I know how to open a digital recording as a file • I know how to edit a digital recording	• I can choose a data set to answer a given question • I can identify a suitable place to collect 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 recognise the range of sounds that can be recorded • I can suggest how to improve my recording • I can plan and write the content for a podcast • I can choose suitable sounds to include in a podcast • I can suggest improvements to a digital recording
Summer <u>Repetition in shapes</u> Programming <u>Repetition in games</u> Programming	To design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts To use sequence, selection, and repetition in programs; work with variables and various forms of input and output To use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs To select, use and combine a variety of software (including internet services) on a range of digital devices to design and	• I know why accuracy in programming is important • I know how to create a code snippet • I know how to create a program in a text-based language • I know what 'repeat' means • I know how to modify a count-controlled loop • I know how to decompose a program into parts • I know how to modify a snippet of code	• I can program a computer by typing commands • I can write an algorithm to produce a given outcome • I can identify patterns in a sequence • I can predict the outcome of a program containing a count-controlled loop • I can develop my program by debugging it • I can predict the outcome of a snippet of code

	create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information	• I know how to modify loops • I know how to include two or more loops in a design • I know how to modify an infinite loop • I know how to refine the algorithm in my design	• I can explain what the outcome of the repeated action should be • I can explain the effect of my changes • I can evaluate the use of repetition in a project • I can evaluate the steps I followed when building my project

Year 5

Term & Focus	*National Curriculum Objectives*	*Knowledge*	*Skills*
Autumn <u>Sharing information</u> Computing systems and networks <u>Vector drawing</u> Creative media	To design, write, and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts To use sequence, selection, and repetition in programs; work with variables and various forms of input and output To 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 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 To use technology safely, respectfully, and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact	• I know that computers can be connected to form systems • I know the role of computer systems in our lives • I know the human elements of a computer • I know that networked digital devices have unique addresses • I know the different ways that information can be sent over the internet • I know that different drawing tools can produce different outcomes • I know the main drawing tools • I know how to create a vector drawing • I know how to modify objects to create different effects • I know how to use the zoom tool to help me add detail • I know how to group objects	• I can explain how computer systems communicate with other devices • I can recognise that connected digital devices can allow us to access shared files stored online • I can compare working online with working offline • I can explain how the internet enables effective collaboration • I can discuss how a vector drawing is different from paper-based drawings • I can move, resize, and rotate objects I have duplicated • I can use tools to achieve a desired effect • I can reuse a group of objects to further develop my vector drawing • I can evaluate my vector drawing • I can suggest improvements to a vector drawing

Spring <u>Selection in physical computing</u> Programming <u>Selection in quizzes</u> Programming	To design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts To use sequence, selection, and repetition in programs; work with variables and various forms of input and output To use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs 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	• I know how to control a simple circuit connected to a computer • I know how to write a program that includes count-controlled loops • I know how to program a microcontroller • I know how to test and debug my project • I know how selection is used in computer programs • I know how selection directs the flow of a program • I know how to design a program that uses selection • I know how to create a program that uses selection	• I can program a microcontroller to light an LED • I can design sequences for given output devices • I can describe what my project will do (the task) • I can identify a condition to start an action (real world) • I can modify a condition in a program • I can create a program with different outcomes using selection • I can identify the outcome of user input in an algorithm • I can identify way the program could be improved
Summer <u>Video editing</u> Creative media <u>Flat file databases</u> Data and information	To use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content 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 To use technology safely, respectfully, and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact	• I know which digital devices can record video • I know how to safely use devices • I know the features of an effective video • I know how to edit a video • I know how to use a form to record information • I know what a 'field' and a 'record' is in a database • I know how grouping and sorting data allows us to answer questions	• I can select a suitable device and software to capture my video • I can select the correct tools to make edits to my video • I can evaluate my video and share my opinions • I can order, sort, and group my data cards • I can navigate a flat-file database to compare different views of information • I can refine a chart by selecting a particular filter

Year 6

Term & Focus	*National Curriculum Objectives*	*Knowledge*	*Skills*
Autumn <u>Communication</u> Computing systems and networks <u>Variables in games</u> Programming	To design, write, and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts To 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 To use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content 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 To use technology safely, respectfully, and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact To use sequence, selection, and repetition in programs; work with variables and various forms of input and output To use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs	• I know how to use a search engine • I know how search engines select results • I know how search engines are ranked • I know the different ways of communicating over the internet • I know how search engines make money • I know what a 'variable' is • I know why a variable is used in a program • I know how to improve a game by using a variable • I know how to create algorithms • I know how to test the code that I have written • I know how to extend my game further using more variables	• I can compare results from different search engines • I can recognise the role of web crawlers in creating an index • I can explain that search results are ordered • I can recognise some of the limitations of search engines • I can choose methods of communication to suit particular purposes • I can identify examples of information that is variable • 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 explain my design choices • I can choose a name that identifies the role of a variable • I can identify ways that my game could be improved

Spring <u>3D modelling</u> Creative media <u>Spreadsheets</u> Data and information	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 To use technology safely, respectfully, and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact	• I know how to create and manipulate 3D digital objects • I know how graphical objects can be modified • I know how to construct a digital 3D model of a physical object • I know how to modify multiple 3D objects • I know which questions can be answered using data • I know that objects can be described using data • I know that formulas can be used to produce calculated data • I know how to apply formulas to data • I know how to create a spreadsheet • I know how to produce a graph	• I can create two groups of objects separated by one attribute • I can resize, rotate, group, and recolour a 3D object • I can choose which 3D objects I need to construct my model • I can evaluate my model against a given criterion • I can explain the relevance of data headings • I can build a data set in a spreadsheet application • I can construct a formula in a spreadsheet • I can apply a formula to multiple cells by duplicating it • I can explain why data should be organised • I can suggest when to use a table or a graph
Summer <u>Sensing</u> Programming <u>Webpage creation</u> Creating media	To design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts To use sequence, selection, and repetition in programs; work with variables and various forms of input and output To use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs	• I know how to create a program to run on a controllable device • I know that selection can control the flow of a program • I know how to update a variable with a user input • I know how to use a conditional statement to compare a valuable to a value • I know what variables to include in a project	• I can apply my knowledge of programming to a new environment • I can determine the flow of a program using selection • I can experiment with different physical inputs • I can modify a program to achieve different outcomes • I can design the program flow for my project • I can use a range of approaches to find or fix bugs

	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 To use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content To use technology safely, respectfully, and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact	• I know the different types of media used on websites • I know that websites are written in HTML • I know the common features of a web page • I know what is meant by the term 'fair use' • I know what a navigation path is • I know the implication of linking to content owned by others • I know how to create hyperlinks	• I can explore a website • I can draw a web page layout that suits my purpose • I can find copyright-free images • I can describe why navigation paths are useful • I can evaluate the user experience of a website

4.0 Computing Curriculum Resources

4.1 Example Medium Term Plan

	Objectives [& Teach Computing resources]	**Success criteria**	**Additional e-Safety success criteria** [& Project Evolve resources]
1	To identify technology	• 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	
2	To identify a computer and its main parts	• 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	• Prior to pupils logging onto the computer: I can explain that passwords are used to protect information, accounts and devices.
3	To use a mouse in different ways	• 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	
4	To use a keyboard to type	• I can save my work to a file • I can tell you that writing on a computer is called typing • I can type my name on a computer	• I can explain why work I create using technology belongs to me • I can say why it belongs to me (e.g. 'I designed it' or 'I filmed it''). • I can save my work under a suitable title or name so that others know it belongs to me (e.g. filename, name on content). • I understand that work created by others does not belong to me even if I save a copy
5	To use the keyboard to edit text	• I can delete letters • I can open my work from a file • I can use the arrow keys to move the cursor	
6	To create rules for using technology responsibly	• 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	• If something happens that makes me feel sad, worried, uncomfortable or frightened I can give examples of when and how to speak to an adult I can trust and how they can help. • I know how to get help from a trusted adult if we see content that makes us feel sad, uncomfortable, worried or frightened. • I can explain rules to keep myself safe when using technology both in and beyond the home.

*	Additional E Safety Lesson		• I can give simple examples of how to find information using digital technologies, e.g. search engines, voice activated searching. • I know / understand that we can encounter a range of things online including things we like and don't like as well as things which are real or make believe / a joke.

4.2 Lesson Structure

Monthly Review
- Review prior knowledge from previous topics
- Link current learning to wider world

Weekly Review
- Review last lesson's learning
- Link current session to prior knowledge

I
- Demonstrate software
- Outline Task

We
- Guide chidlren through software
- Complete a portion of the task as a class

You
- Children to use software to complete task

Plenary
- Discuss application / any bugs encountered
- Show end result

4.3 Assessment

Teacher assessment in computing should consider a large body of evidence of the child's knowledge, their guided work and their independent practice of computing skills. To assess computing successfully, teachers need to consider assessment when they start their planning for each topic.

This is done through:

Formative assessment in lessons

During lessons, teachers should be continuously watching, questioning, listening to and reviewing any saved work of their pupils to build up a picture of each individual's knowledge, vocabulary and skills, so any gaps in knowledge or skills, or misconceptions, can be identified and addressed.

In Years 4,5 and 6, pupils complete their work within a 'computing workbook' on their 365 accounts. Teachers can access these through their own digital device to keep track of the children's work and make appropriate lesson adjustments based on formative assessment.

Low-stakes summative assessment

In KS1 and Year 3, at the end of a computing unit, the children will usually be given a task to complete independently. The outcome and effectiveness of the children's work in accordance to this task can help provide a picture of children's understanding and contribute towards summative assessment.

In Years 4, 5 and 6, pupils complete an end-of-unit quiz on Microsoft forms about the half-term's learning. This provides instant feedback and data to the teacher who can then fill in gaps in the knowledge where appropriate.

Saved Document Inspections

At least once per unit, teachers inspect children's saved documents to analyse their completed work against the unit outcomes. Pupils work should demonstrate a practical understanding of the software being used and how it can be applied to a range of briefs. This is usually in the form of children's digital workbooks.

5.0 Roles and Responsibilities

5.1 Class Teacher

It is the teachers' role to be aware of and follow the guidance contained within this policy. They should seek advice from the subject leader if they are unsure of knowledge content or how best to tackle a unit of work.

5.2 Subject Leader

The roles of the subject leader are to:

- Plan a progressive Long Term Plan using the National Curriculum as a base and using the School Curriculum Intents to tailor their subject provision to suit our pupils, which is chunked into units for each year group.
- Produce Medium Term Plans to frame the teaching and learning for each unit. - Promote their subject through signposting staff to up-to-date resources and subject specific evidence-based research.
- Support staff through planned CPD events and ad-hoc requests for assistance with knowledge or planning.
- Oversee the delivery of the subject through:
    - learning walks
    - saved document checks
    - pupil voice
    - subject audits
- Meet with their SLT link to update them with current developments in research and thinking.
- Create an annual action plan.
- Ensure there are sufficient resources for the subject to be taught effectively and efficiently.
- Ensure this policy is up to date.

5.3 Senior Leadership Team

Each subject will have an SLT link/ Their roles are to:

- Support the subject leader to:
    - Be an advocate for the subject
    - Oversee the delivery of their subject through assisting with learning walks, book looks and pupil voice
    - Enable their subject leader to have sufficient CPD opportunities to develop staff knowledge.
    - Implement their action plan. - Work together so that school priorities can be identified, and prevent all subjects from being promoted and developed at the same time