

Ashbourne Primary School's Computing and Online Safety Scheme Of Work with skills and knowledge progression

Intent:

Computing at Ashbourne Primary School fosters curiosity, enquiry, safety and confidence by developing the skills pupils need to become safe, responsible and competent users of ever-advancing technologies. Pupils learn to use technology thoughtfully, creatively and effectively, preparing them for life in an increasingly digital world.

Our curriculum is built upon our Golden Threads of Language and Literacy, Resilience and Regulation, and Belonging and Becoming, which underpin all teaching, learning and relationships across our school and ensure pupils develop secure knowledge alongside confidence, aspiration and readiness for life beyond school.

Our PRAISE aims bring these expectations to life in daily practice by teaching pupils to take pride in their work, show respect for all, act with kindness, become independent achievers, stay resilient and demonstrate excellent behaviour. These shared expectations shape how pupils approach learning, relationships and challenges, helping them develop confidence, responsibility and positive attitudes that support success across the curriculum and beyond.

Online safety is at the forefront of our Computing curriculum. Pupils are supported to understand, evaluate and apply safe behaviours when using digital technology, both within lessons and through dedicated opportunities such as Online Safety Week.

At Ashbourne Primary School, pupils develop knowledge and skills across all areas of computing, including information technology, programming and digital literacy. Computing is embedded across the wider curriculum: pupils learn skills discretely and are also given opportunities to apply them in meaningful contexts, such as creating stop-motion animations to tell stories or designing games and quizzes linked to learning in subjects such as History or Geography.

Every pupil has opportunities to develop communication skills through the use of a diverse range of digital tools and programs. Computing Ambassadors from Key Stage Two help promote computing across the school, and partnerships with Queen Elizabeth Grammar School enrich learning through additional coding opportunities, helping to raise aspirations and strengthen community links.

Technology is used as a purposeful tool to engage learners, enhance understanding and equip pupils with the knowledge and skills they will need in a rapidly changing technological world. The curriculum is carefully structured to build progressively from Early Years through to Upper Key Stage 2. In Early Years and Key Stage 1, pupils develop foundational knowledge and skills, begin coding and learn how to stay safe online. In Lower Key Stage 2, they deepen their understanding by using a wider range of programs, creating their own digital content and exploring safe communication. In Upper Key Stage 2, pupils build on prior learning to design more complex programs and explore both the positive and negative impacts of technology and social media. This approach reflects our understanding that learning is secured when knowledge is stored in long-term memory, which requires time, practice and revisiting. Planning the curriculum in this way allows pupils to establish secure foundations before advancing and applying concepts across a range of topics and contexts.

High expectations for all pupils are central to our curriculum. Teaching is adapted to remove barriers and ensure that every learner can access, participate in and succeed.

By the time pupils leave our school, they are equipped with the knowledge, skills and confidence to continue learning successfully at the next stage of their education and beyond.

National Curriculum Aims

- 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

KS1 Content

- Understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following a sequence of instructions
- Create and debug simple programs
- Use logical reasoning to predict the behaviour of simple programs
- Use technology purposefully to create, organise, store, manipulate and retrieve digital content
- Recognise common uses of information technology beyond school

KS2 Content

- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts
- Use sequence, selections and repetition in programs; work with variables and various forms of input and output
- Use logical reasoning to explain how some simple algorithms work to detect and correct errors in algorithms and programs

• Use technology safety and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about material on the internet or other online technologies	• Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration • Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content • Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information • Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact
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EYFS: Understanding The World

The EYFS framework is structured very differently to the national curriculum as it is organised across seven areas of learning rather than subject areas. The aim of this document is to help subject leaders to understand how the skills taught across EYFS feed into national curriculum subjects. This document demonstrates which statements from the 2020 Development Matters are prerequisite skills for computing within the national curriculum. The table below outlines the most relevant statements taken from the Early Learning Goals in the EYFS statutory framework and the Development Matters age ranges for Three and Four-Year-Olds and Reception to match the programme of study for computing. The most relevant statements for computing are taken from the following areas of learning:

- Personal, Social and Emotional Development
- Physical Development
- Understanding the World
- Expressive Arts and Design

3-4 year olds	Personal, Social and Emotional Development		• Remember rules without needing an adult to remind them.
	Physical Development		• Match their developing physical skills to tasks and activities in the setting.
	Understanding the World		• Explore how things work.
Reception	Personal, Social and Emotional Development		• Show resilience and perseverance in the face of a challenge • Know and talk about the different factors that support their overall health and wellbeing: - sensible amounts of ‘screen time’.
	Physical Development		• Develop their small motor skills so that they can use a range of tools competently, safely and confidently.
	Expressive Arts and Design		• Explore, use and refine a variety of artistic effects to express their ideas and feelings.
ELG	Personal, Social and Emotional Development	Managing Self	• Be confident to try new activities and show independence, resilience and perseverance in the face of challenge. • Explain the reasons for rules, know right from wrong and try to behave accordingly.
	Expressive Arts and Design	Creating with Materials	• Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.

Computing skills and knowledge progression from Y1-Y6

Year Group	Computing Systems and Networks	Creating Media	Programming	Data and Information	Online Safety	Key Vocab	Resources
KS1	<u>Technology Around Us</u> - I can identify	<u>Digital Painting</u> - I can describe	<u>Programming Animations (Scratch Jr)</u>	<u>Grouping Data (through maths)</u>	- I can explore what the internet is and	Technology Computer	Paintz.app MS Paint

Year 1	technology - I can identify a computer and its main parts - I can use a mouse in different ways - I can use a keyboard to type on a computer - I can use a keyboard to edit text - I can create rules for using technology safely	what freehand tools do - I can use the shape and line tools - I can make careful choices when painting - I can explain why I chose specific tools - I can use a computer independently - I can compare painting on a computer and on paper	- I can choose a command for a given purpose - I can join a series of commands together - I can identify the effect of changing a value - I can explain that each sprite has its own instructions - I can design the parts of a project - I can use an algorithm to create a program	- I can label objects - I can identify that objects can be counted - I can describe objects in different ways - I can count objects with the same properties - I can compare groups of objects - I can answer questions about a group of objects	how it connects us to others - I can search the internet safely - I can explain what to keep private online - I can own my creative work - I can explain what I know about keeping safe online	Mouse Keyboard Tools Shape Line Command Instruction Algorithm Data	MS Word MS PowerPoint Scratch Jr
						Key Vocab	Resources
KS1 Year 2	IT Around Us - I can recognise the uses and features of information technology - I can identify the uses of information technology in the school - I can identify technology beyond school - I can explain how information technology helps us - I can explain how to use	Digital Photography - I can use a digital device to take a photographs - I can make choices when taking a photograph - I can describe what makes an effective photograph - I can describe how a photo can be improved - I can use tools to change an image - I can recognise that photos can be changed	Programming Quizzes (Scratch Jr) - I can explain that a sequence of commands has a start - I can explain that a sequence of commands has an outcome - I can create a program using a given design - I can change a given design - I can create a program using my own design - I can decide how my project can be improved	Pictograms (through maths) - I can recognise that we can count and compare using tally charts - I can recognise that pictures can be represented as pictures - I can create a pictogram - I can select objects by attribute and make comparisons - I can recognise that people can be described by attributes - I can explain that we can present information using a computer	- I can understand that some websites are appropriate for children and some are not - I can understand that my information leaves a 'digital footprint' - I can understand how to be a good friend online and what 'cyberbullying' is - I can search the internet using keywords - I can explore how accurate different websites are	Information Technology Computer Photograph Digital Landscape Portrait Tools Edited	MS PowerPoint iPad cameras j2e.com/j2data Scratch Jr

	information technology safely - I can recognise that choices are made when using information technology						
						Key Vocab	Resources
LWKS2 Year 3	<u>Connecting Computers</u> - I can explain how digital devices function - I can identify input and output devices - I can recognise how digital devices can change the way we work - I can explain how a computer network can be used to share information - I can explore how digital devices can be connected - I can recognise the physical components of a network	<u>Desktop Publishing</u> - I can recognise how text and images convey information - Recognise that text and layout can be edited - I can choose appropriate page settings - I can add content to a publication - I can consider how different layouts can suit different purposes - I can consider the benefits of desktop publishing	<u>Sequencing Sounds (Scratch)</u> - I can explore a new programming environment (Scratch) - I can identify that commands have an outcome - I can explain that a program has a start - I can recognise that a sequence of commands has an order - I can change the appearance of my project - I can create a project from a task description	<u>Branching Databases</u> - I can create questions with yes/no answers - I can identify the attributes needed to collect data about an object - I can create a branching database - I can explain why it is helpful for a database to be well-structured - I can plan the structure of a branching database - I can create an identification tool	- I can explain the importance of effective passwords - I can understand how the internet can create a community online - I can explore product websites and how they work - I know how to show respect online - I can communicate effectively by email	Digital device Input Output Network Connection Publish Text Image Layout Purpose Algorithm Programming Sequence Branching Attributes Database Identification	MS Paint Scratch J2e.com/j2data MS Word Canva.com
						Key Vocab	Resources
LWKS2 Year 4	<u>The Internet</u> - I can describe how networks physically	<u>Photo Editing</u> - I can explain that digital images can be changed	<u>Repetition in Games (Scratch)</u> - I can use count-controlled loops	<u>Data Logging</u> - I can explain the data gathered over time can be	- I can explore how to be responsible and respectable on and offline	Internet Network Connection Device	Paint.NET Pixlr Photo editor BeFunky Scratch

	connect to others - I can recognise how networked devices make up the internet - I can outline how websites can be shared via the World Wide Web - I can describe how content can be added and accessed on the World Wide Web - I can recognise how the content of the World Wide Web is created by people - I can evaluate consequences of unreliable content online	- I can explain that colours can be changed in digital images - I can explain how cloning can be used in photo editing - I can explain how images can be combined - I can combine images for a purpose - I can evaluate how changes can improve an image	- I can explain that in programming there are infinite loops and count controlled loops - I can develop a design that includes two or more loops - I can modify an infinite loop - I can design a project that includes repetition - I can create a project that includes repetition	used to answer questions - I can use a digital device to collect data - I can explain how a data logger collects data over time - I can recognise how a computer can help us analyse data - I can identify the data needed to answer questions - I can use data to answer questions	- I can understand what information should and should not be shared online - I can say what to do if I receive hurtful messages online - I can search the internet accurately and effectively - I can understand plagiarism and when it is and isn't okay to use the work of others	Website World Wide Web Content Digital image Editing Cloning Infinite loop Count controlled loop Repetition Data Device Analyse	Arduino Science Journal Log Box Data loggers
						Key Vocab	Resources
UPKS2 Year 5	<u>Systems and Searching</u> - I can explain that computers can be connected to form systems - I can recognise the role of computer systems in our lives - I can	<u>Video Production</u> - I can explain what makes a video effective - I can identify devices that can record video - I can capture video using a range of techniques - I can create a	<u>Selection in Quizzes (Scratch)</u> - I can explain how selection is using in programming - I can relate that a conditional statement connects a condition to an outcome - I can explain how	<u>Flat-file Databases</u> - I can use a form to record information - I can compare paper and computer-based databases - I can outline how you can answer questions by grouping and	- I can create a secure password - I can understand the expectations and responsibilities of a 'digital citizen' - I can identify spam and how to deal with it - I can cite a source for research - I can understand how	System Search engine Results Ranking Video Storyboard Sharing Programming Conditional statement Selection Flow	Google Slides MS Photos Spark Video Scratch J2e.com/j2data

	experiment with search engines - I can describe how search engines select results - I can explain how search results are ranked - I can recognise why the order of results are important and to whom	storyboard - I can identify that video can be improved through reshooting and editing - I can consider the impact of the choices made when making a sharing videos	selection directs the flow of a program - I can design a program which uses selection - I can create a program which uses selection - I can evaluate my program	sorting data - I can explain that tools can be used to look for specific data - I can explain that computer programs can be used to compare data visually - I can use a real-world database to answer questions	photos can be altered digitally and how this can impact others	Database Data Sorting Compare	
						Key Vocab	Resources

UPKS2 Year 6	<u>Communication and Collaboration</u> - I can explain the importance of internet addresses - I can recognise how data is transferred across the internet - I can explain how sharing information online can help people to work together - I can evaluate different ways of working together online - I can recognise how we communicate using technology - I can evaluate different methods of online communication	<u>3D Modelling</u> - I can recognise that you can work in three dimensions on a computer - I can identify that 3D objects can be modified - I can recognise that objects can be combined in a 3D model - I can create a 3D model for a given purpose - I can plan my own 3D model - I can create my own 3D model	<u>Variables in Games (Scratch)</u> - I can define a 'variable' as something that is changeable - I can explain why a variable is used in a program - I can choose how to improve a game using variables - I can design a project that builds on a given example - I can use my design to create a project - I can evaluate my project	<u>Introduction to Spreadsheets</u> - I can create a data set in a spreadsheet - I can build a data set in a spreadsheet - I can explain that formulas can be used to produce calculated data - I can apply formulas to data - I can create a spreadsheet to plan an event - I can choose suitable ways to present data	- I can understand how to talk to others safely online - I can understand my own responsibilities as a 'digital citizen' - I can identify secure sites that protect my information - I can explain what 'cyberbullying' is and explain strategies for dealing with it - I can explore how the media can shape our ideas and reinforce stereotypes	Internet Address Data Sharing Collaboration Communication Three Dimensional Modelling Variable If/then Data set Spreadsheet	Google Slides Tinkercad Scratch MS Excel Google Sheets
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Impact:

We assess the impact of our curriculum by checking that our children know more and remember more. Teachers ensure pupils regularly revisit prior learning over time. This ensures learning is embedded into pupils' long-term memory. Teachers and leaders monitor the impact of the curriculum through:

- Key questioning
- Observations within lessons
- Outcomes from tasks/topics
- Flashback Friday
- Flashback 4
- Lesson quizzes
- Pupil voice
- Learning walks
- Curriculum monitoring
- Data analysis