



Wellesbourne Primary School Progression Document

COMPUTING



INTENT

At Wellesbourne CE Primary School, we believe that the children should be equipped to use computational thinking and creativity to understand and change the world. Computing has become an integral part of our everyday life and will play an immeasurable part in our children's futures, therefore it is vital that we provide all our children with the skills, creativity and enthusiasm to live and thrive in a world increasingly dependent on computing. The children have many opportunities to use technology, through learning the basic IT skills, such as word processing and paint, to rapidly moving on to creating their own computer programs. The children are able to experiment with code through a range of different technology, such as turtles, Lego WeDo and Spheros so that they are learning to code and debug their programs effectively.

However, at the heart of our computing curriculum, we strive to provide children with the knowledge and skills needed to become digitally literate through a comprehensive E-safety curriculum where children are able to use, and express themselves through information technology safely.

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
National Curriculum	Pupils should be taught to: - understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions - create and debug simple programs - use logical reasoning to predict the behaviour of simple programs - use technology purposefully to create, organise, store, manipulate and retrieve digital content - recognise common uses of information technology beyond school - use technology safely and respectfully, keeping personal information private;		Pupils should be taught to: - design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts - use sequence, selection, and repetition in programs; work with variables and various forms of input and output - use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs - understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration - use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content - select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating			

	identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.	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.
At Wellesbourne CE Primary School, we use the KAPOW Scheme of Work and follow the progression of skills and knowledge document that they have produced.		

Year Group	Autumn	Spring	Summer
1	ONLINE SAFETY - LESSON 1 AND 2 IMPROVING MOUSE SKILLS ALGORITHMS UNPLUGGED	ONLINE SAFETY – LESSON 3 AND 4 ROCKET TO THE MOON PROGRAMMING BEE-BOTS	DIGITAL IMAGERY INTRODUCTION TO DATA
2	ONLINE SAFETY - LESSON 1 AND 2 WHAT IS A COMPUTER? ALGORITHMS AND DEBUGGING	ONLINE SAFETY – LESSON 3 AND 4 WORD PROCESSING SCRATCH JNR	STOP MOTION INTERNATIONAL SPACE STATION
3	ONLINE SAFETY - LESSON 1 AND 2 NETWORKS AND THE INTERNET SCRATCH	ONLINE SAFETY – LESSON 3 AND 4 EMAILING JOURNEY INSIDE A COMPUTER	VIDEO TRAILERS COMPARISON CARDS DATABASE
4	ONLINE SAFETY - LESSON 1 AND 2 COLLABORATIVE LEARNING FURTHER CODING WITH SCRATCH	ONLINE SAFETY – LESSON 3 AND 4 WEBSITE DESIGN HTML	ONLINE SAFETY – LESSON 5 AND 6 COMPUTATIONAL THINKING INVESTIGATING WEATHER
5	ONLINE SAFETY - LESSON 1 AND 2 SEARCH ENGINES PROGRAMMING MUSIC	ONLINE SAFETY – LESSON 3 AND 4 SPHEROS STOP MOTION ANIMATION	ONLINE SAFETY 5 MARS ROVER 1 MARS ROVER 2
6	ONLINE SAFETY - LESSON 1 AND 2 BLETCHLEY PARK INTRO TO PYTHON	ONLINE SAFETY – LESSON 3 AND 4 BIG DATA HISTORY OF COMPUTERS	ONLINE SAFETY – LESSON 5 AND 6 BIG DATA 2 INVENTING A PRODUCT

UTW Progression in Learning – Small Steps Preschool to Key Stage 1							
Technology	Preschool Year			Reception Year			Key Vocabulary
	Autumn Term	Spring Term	Summer Term	Autumn Term	Spring Term	Summer Term	
	Know photos, videos, songs and music can be accessed using digital devices.			Know digital devices can be used to answer a question or find out information.	Suggest using a digital device/internet to answer a question or find information.	Use the internet with adult supervision to find and retrieve information of interest to them	<u>Preschool</u> IPAD, Laptop, Interactive Screen, knob, pulley, lever, button <u>Reception</u> IPAD, Laptop, Interactive Screen, Internet Select, drag, camera, photo, Beebot, algorithm, instructions
	Investigate and explore technological toys and objects with knobs, pulley, levers, buttons.	Independently operate technological toys/equipment to achieve an effect e.g. sound, movement or new images.	Model and explain how to operate some simple technological toys e.g. remote control, touch-capable technology with support.	Explore the functions of different tools on UBoard Mate Drawing programme. Explore how to select and move items on the interactive screen white board/IPAD to play a simple game.	Explore different technology found at home, naming, talking and asking questions about what I notice. Explore the functions of the camera on an IPAD.	Explore the different buttons on a Beebot, asking questions and talking about what I notice.	
				Use UBoard Mate to draw my own picture. Use the interactive screen/IPAD to independently play a simple game.	Use an IPAD to independently take a photo of an object and themselves.	Programme a Beebot to follow a set on instructions. Debug instructions with support. Know what an algorithm is.	<u>Values</u> Mutual Respect The Rule of Law Resilience
	Follow rules when using ICT equipment and toys.			Know and follow given rules when using ICT equipment.	Talk about some ways to keep myself safe when using ICT equipment.		

A pupil at the end of Year 1 will know:	A pupil at the end of Year 1 will be able to:
The importance and value of computers. They will know how to use a mouse and understand how to log in and log out. They will understand the importance of passwords. What an algorithm is and begin to use them to program simple robots e.g. beebots. They will understand the terms; decomposition, bugs and debugging. They can use a camera/tablet to make simple videos and edit them. They will know that pictograms and branching databases can be created using a computer. They will know how to keep safe on the internet and what to do if they don't feel safe online.	Operate a camera or tablet to take photos and videos. Explore and tinker with hardware to find out how it works. Begin to know where some of the keys are located on the keyboard. Follow a basic set of instructions and then assemble instructions into a simple algorithm. Programme a Bee-bot to follow a route and debug instructions when things go wrong. Search and download images from the internet safely. Use software to explore and create pictograms and branching databases. They will be able to interact safely with others online and think about how their actions on the internet can affect others.
Links to Values: Service - Kindness - Resilience	Safer Internet Day and online safety learning - Kindness Debugging instructions- Resilience. Mutual respect- working with others.

A pupil at the end of Year 2 will know:	A pupil at the end of Year 2 will be able to:
The difference between a desktop and laptop. They will know that people control technology and computers often work together. They will know how to change and copy and paste text. They will understand the role of loops and abstraction. They will know the different uses of writing a programme. They will understand what an animation is and how to create one. They will know how to enter simple data into a spreadsheet and answer questions from it. They will know how to create a strong password and what information they should or shouldn't post online as well as the need to seek permission.	Understand what a computer is and that it's made up of different components. They will have greater control when taking photos with cameras, tablets or computers. They will be able to have the basics of touch typing. They will be able to decompose a game, explain what an algorithm is as well as follow and create one to include loops. They will be able to use word processing software to reformat text, search for an image and label them. They will be able to identify whether information is safe or unsafe to be shared online and use strategies to check if something they've read online is true.
Links to Values: Service - Kindness - Resilience	Safer Internet Day and online safety learning- Kindness Decomposing a game and then creating their own algorithm- Resilience. Mutual respect- working with others.

A pupil at the end of Year 3 will know:	A pupil at the end of Year 3 will be able to:
The difference between a tablet and laptop/desktop. They will understand what a network is and how it works. They will know how the internet works and how to send an email. They will know what Scratch is and understand how loops and decomposition are used. They will know a range of camera shots and how to edit videos using transitions and text. They will use a database to sort and filter data and make visual representations. They will understand the role of the internet on their mental wellbeing and the importance of privacy settings and age restrictions.	Understand what the different components of a computer do, the purpose of routers and how data is transferred. They will be able to form an algorithm, using repetition and loops and then debug the programme. Take photos and record video, using software to edit and enhance it. They will be able to send an email with an attachment. They will be able to sort and filter databases and create a chart and graph. They will be able to recognise reliable information online and recognise fake emails and what to do about them.
Links to Values: Service - Kindness - Resilience	Safer Internet Day and online safety learning- Kindness. Programming a game- Resilience. Mutual respect- working with others.

A pupil at the end of Year 4 will know:	A pupil at the end of Year 4 will be able to:
Software can be used collaboratively to work as a team and how to make helpful comments when doing so. They will know the features of presentation software. They will know the terms; variable and conditional statements. They will know some features of web design and what websites are made up of. They will know what 'sensor data' is and how it plays a role in forecasting weather. They will know what behaviours are appropriate in order to stay safe and respectful online.	Use tablets or digital cameras to film a weather forecast. Understand the role of sensors. They will be able to code a simple game, using abstraction, decomposition and incorporating variables. They will be able to design and build a web page. Use keywords to effectively search the internet for information. They will be able to record and sort data in a spreadsheet. They will be able to identify forms of advertising online as well as respectful and disrespectful behaviour.
Links to Values: Service - Kindness - Resilience	Safer Internet Day and online safety learning - Kindness Creating their own website- Resilience Mutual respect- working with others.

A pupil at the end of Year 5 will know:	A pupil at the end of Year 5 will be able to:
How search engines work and that anyone can create a website so it may not be trusted. They will know what copyright is and the difference between ROM and RAM. They will know how to use programming software to compose music. They will know that Spheroes use a language similar to Scratch. They will understand how stop motion animation works and how to edit and improve it. They will know what binary code looks like and how it links to the Mars Rover. They will understand some ways to deal with online bullying and where they can go for support.	Understand that external devices can be programmed by a separate computer. Explain the difference between ROM and RAM. They will be able to recognise that computers transfer data in binary and understand simple binary addition. They will be able to write more complex algorithms, using loops, debugging, repetition and a range of programming commands. They will be able to create music using Scratch and create a 3D design using TinkerCAD. They will be able to evaluate the pros and cons of online communication and know what to do if they are experiencing bullying online.
Links to Values: Service - Kindness - Resilience	Safer Internet Day and online safety learning- Kindness Service- Mary Jackson, Kathryn Johnson- links to Space and English unit Creating and then debugging an algorithm for a Sphero- Resilience Mutual respect- working with others.

A pupil at the end of Year 6 will know:	A pupil at the end of Year 6 will be able to:
The importance of having a secure password and what “brute force hacking” is. To know about the role of computers in cracking the Enigma code and historical figures who contributed to technological advances. They will know there are text-based programming languages like Python. They will know that sound clips can be edited and trimmed and that infrared waves are a way of transmitting data. They will know how to capture bullying content for evidence, know some common online scams and the impact of a digital footprint.	Explain about the history of computers and how they have evolved over time. Understand and identify barcodes, QR codes and RFID. Identify devices and applications that can scan or read barcodes, QR codes and RFID. Understand how corruption can happen within data during transfer (for example when downloading, installing, copying or updating files). They will be able to programme using the language of Python. They will be able to create and edit videos, adding multiple elements. They will be able to use TinkerCAD to design a product. They will be able to create a secure password and realise the importance of updating software to prevent data corruption and hacking. They will have strategies to create a positive online reputation.
Links to Values: Service - Kindness - Resilience	Safer Internet Day and online safety learning- Kindness Alan Turing- Service, Resilience Mutual respect- working with others. Coding Mondrian art piece- Resilience.

