# Computing Progression of Learning at Woodstock CE Primary School

## National Curriculum Overview

| Key Stage 1 | Key Stage 2 |
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***Through a variety of creative and practical activities, pupils should be taught:***

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

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

## Computing Systems and Networks

| EYFS | KS1: Years 1 & 2 | | KS2: Years 3 & 4 | | KS2: Years 5 & 6 | |
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| ☆ Match their developing physical skills to tasks and activities in the setting. | <u>Technology Around Us</u><br>☆ How technology can help us, parts of computer using keyboard & mouse, | <u>Information Technology Around Us</u><br>☆ Information technology at school and beyond; how it improves our world and using responsibly. | <u>Connecting Computers</u><br>☆ What is a digital device, compare digital and non-digital devices, introduction to devices making up network infrastructure. | <u>The Internet</u><br>☆ Apply knowledge of networks to appreciate internet as network or networks. Explore WWW, who owns content and what they can create. | <u>Sharing Information</u><br>☆ Develop understanding of computer systems and how information is transferred between systems and devices. | <u>Communication</u><br>☆ Using WWW as communication tool. How search engines work, what influences searching; privacy & security.<br>☆ Web browsers, 'unplugged' |

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| ☆ Develop fine motor skills so that they can use a range of tools competently. Safely and confidently. | using technology responsibly.<br>☆ Paintz app | ☆ Unplugged / Google Slide sorting activity | ☆ Mainly unplugged / worksheets<br>☆ Graphics software e.g. Paint | Evaluate online content and understand consequences of false information<br>☆ Internet browser, G Suite traceroute, Chrome music lab | ☆ Take part in a collaborative online project.<br>☆ Google slides, Scratch | |

# Creating Media

| EYFS | KS1: Years 1 & 2 | | KS2: Years 3 & 4 | | KS2: Years 5 & 6 | |
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| ☆ Explore, use and refine a variety of artistic effects to express their ideas and feelings.<br>☆ Safely use and explore a variety of materials, tools and techniques experimenting with colour, design, texture, form and function. | <u>Digital Painting</u><br>☆ Create digital paintings based on artists' work<br>☆ MS Paint, Paintz app<br><br><u>Digital Writing</u><br>☆ Using a word processor<br>☆ Word, Google Docs<br>☆ 2Publish, Clicker | <u>Digital Photography</u><br>☆ Capturing, editing and improving photos. Online safety - images may not be real<br>☆ Tablet device and / or digital camera. Pixlr<br><br><u>Making Music</u><br>☆ Listen to and create music, linking to patterns | <u>Stop Frame-Animation</u><br>☆ Create stop frame animation, story-based animation, adding music and text to animation<br>☆ Tablets, iMotion<br>☆ Stop motion studio, 2animate, animation in PPT<br><br><u>Desktop Publishing</u><br>☆ Using text and images to communicate messages, how & why desktop publishing used in real world<br>☆ Adobe Spark | <u>Photo Editing</u><br>☆ How digital images can be changed and edited, resaved and reused. Impact that editing images can have.<br>☆ paint.net, pixabay<br>☆ befunky, lunapic,<br><br><u>Audio Editing</u><br>☆ Recording and playing audio, plan and record a podcast | <u>Vector Drawing</u><br>☆ Use different drawing tools and create images in layers.<br>☆ Google drawings<br>☆ Aspex draw, drawing tools in Word and PPT<br><br><u>Video Editing</u><br>☆ Planning, capturing, editing and manipulating video<br>☆ Video devices e.g. tablets, iPads, video camera, Video Editor (Win 10 app) / iMovie | <u>3D Modelling</u><br>☆ Produce 3D models, examining the differences between working digitally and 2D and 3D graphics.<br>☆ TinkerCAD (need accounts)<br><br><u>Web Page Creation</u><br>☆ Design, create and evaluate own website, paying attention to copyright and fair use of media.<br>☆ Google sites |

# Data and Information

| EYFS | KS1: Years 1 & 2 | | KS2: Years 3 & 4 | | KS2: Years 5 & 6 | |
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| ☆ Sort materials. For example, at tidy-up time know how to put different construction materials in separate baskets. | <u>Grouping Data</u><br>☆ Grouping and sorting objects, labelling groups<br>☆ Practical objects, Google slides | <u>Pictograms</u><br>☆ Sorting and grouping data, pictograms, tally charts and block diagrams. When information shouldn't be shared | <u>Branching Databases</u><br>☆ Investigating and creating branching database.<br>☆ J2EBranch | <u>Data Logging</u><br>☆ Data collection and analysis using data loggers.<br>☆ Data loggers or apps, Google Science journal | <u>Flat-file Databases</u><br>☆ Order and answer questions about data in flat-file database. Create graphs and charts<br>☆ j2data<br>☆ Information Magic, Softease Database | <u>Spreadsheets</u><br>☆ Organising and formatting data in spreadsheets, formulae and graphs<br>☆ Google sheets or Excel |

# Programming

| EYFS | KS1: Years 1 & 2 | | KS2: Years 3 & 4 | | KS2: Years 5 & 6 | |
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| ☆ Explore how things work.<br>☆ Be confident to try new activities and show independence, resilience and perseverance in the face of challenge. | <u>Moving a Robot</u><br>☆ Programming floor robots<br>☆ BeeBots<br><br><u>Introduction to Animation</u><br>☆ Programming Space race project<br>☆ Scratch Jr | <u>Robot Algorithms</u><br>☆ Algorithms, programs, debugging and design<br>☆ BeeBots<br><br><u>Introduction to Quizzes</u><br>☆ Creating a simple quiz<br>☆ Scratch Jr | <u>Sequence in Music</u><br>☆ Sequencing and simple programs, exploring motion, sound and event blocks.<br>☆ Scratch<br><br><u>Events and Actions</u><br>☆ Creating maze using pen blocks and movement.<br>☆ Scratch | <u>Repetition in Shapes</u><br>☆ Programming to create shapes and patterns, using repetition and loops<br>☆ Scratch, Logo<br><br><u>Repetition in Games</u><br>☆ Exploring repetition in animation and games.<br>☆ Scratch | <u>Selection in Physical Computing</u><br>☆ Using Crumble to control simple model with input (selection) and output<br>☆ Crumble<br><br><u>Selection in Quizzes</u><br>☆ Planning, creating and testing a quiz<br>☆ Scratch | <u>Variables in Games</u><br>☆ Variables in scoreboard simulation, design and improve game using variables.<br>☆ Scratch<br><br><u>Sensing</u><br>☆ Sequence, repetition, selection and variables using MicroBits<br>☆ Microbit |

# Online Safety

| EYFS | KS1: Years 1 & 2 | KS2: Years 3 & 4 | | KS2: Years 5 & 6 | |
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| ☆ Remember rules without needing an adult to remind them.<br>☆ Explain the reasons for rules, know right from wrong and try to behave accordingly.<br>☆ Know and talk about the different factors that support their overall health and wellbeing: sensible amounts of 'screen time'. | ☆ Rules for, and ways of keeping physically and emotionally safe - including safety online and the responsible use of ICT; how to report concerns<br>☆ Privacy and the implications of it for both children and adults; including that it is not always right to keep secrets if they relate to being safe.<br>☆ Each person's body belongs to them, and the differences between appropriate and inappropriate or unsafe physical, and other contact and privacy (sharing images online)<br>☆ Sharing feelings and worries; if we feel unsafe.<br>☆ Recognise that they share a responsibility for keeping themselves and others safe, when to say, 'yes', 'no', 'I'll ask' and 'I'll tell'<br>☆ (Online Safety Day) | ☆ Strategies for keeping physically and emotionally safe including road safety, safety in the environment (including rail, water and fire safety), and safety online<br>☆ Different types of bullying including cyberbullying, the impact of bullying, responsibilities of bystanders and how to get help.<br>☆ The concept of privacy; including that it is not always right to keep secrets if they relate to being safe (knowing which details to keep private online)<br>☆ How to ask for advice or help for themselves | ☆ Online (including social media, the responsible use of ICT and mobile phones)<br>☆ The importance of protecting personal information, including passwords, addresses and the distribution of images of themselves and others.<br>☆ Identify things, people and places that you need to keep safe from, and suggest strategies for keeping themselves safe including who to go to for help.<br>☆ People who are responsible for helping them stay healthy and safe and ways that they can help these people<br>☆ (Online Safety Day) | ☆ Using power in a variety of contexts including persuasion, bullying, negotiation and 'win'- 'win' outcomes.<br>☆ Recognising, predicting and assessing risks in different situations and deciding how to manage them responsibly.<br>☆ Online Safety: Understand how technology can be used to try to gain power or control, and strategies to prevent this from happening<br>☆ Use technology positively and safely to communicate with family and friends. | ☆ Nature and consequences of discrimination, teasing, bullying (indirect and direct) and aggressive behaviours including cyber bullying, use of prejudice based language, how to respond and ask for help.<br>☆ Why and how rules and laws that protect themselves and others are made and enforced, why different rules are needed in different situations.<br>☆ Raised awareness of radicalisation and extremism.<br>☆ (Safety Day/Anti-bullying Week) |

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| | | or others, and to keep trying until they are heard.<br>☆ (Online Safety Day) | | | |