Computing

Introduction

At Joydens Wood Infant School we use Kapow Primary to support the delivery and implementation of our Foundation Subjects. The Computing curriculum fulfils the statutory requirements for computing outlined in the National Curriculum and contributes to the coverage of the government's Education for a Connected World framework. Computing lessons have been categorised into the five key areas, which we return to in each year group making it clear to see prior and future learning for your pupils and how what you are teaching fits into their wider learning journey. These are: computing systems and networks, programming, creating media, data handling and online safety.

National Curriculum KS1 Subject Content

A high-quality computing education equips pupils to use computational thinking and creativity to understand and change the world. Computing has deep links with mathematics, science, and design and technology, and provides insights into both natural and artificial systems. Computing also ensures that pupils become digitally literate – able to use, and express themselves and develop their ideas through information and communication technology – at a level suitable for the future workplace and as active participants in a digital world.

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; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.

Intent

Our Computing curriculum aims to instil a sense of enjoyment around using technology and to develop people's appreciation of its capabilities and the opportunities technology offers to, create, manage, organise and collaborate. We intend for children to be digitally literate and have a range of transferable skills at a suitable level for the future and also be responsible online citizens.

Implementation

Our Computing curriculum enables a broad and balanced range of opportunities to learn and apply transferable skills. The units have been created to link to other subjects such as science, art and music to enable cross-curricular learning. Lessons incorporate a range of teaching strategies from independent tasks, pairs and group work as well as unplugged and digital activities. Differentiated guidance is available for every lesson to ensure that lessons can be accessed by all. Knowledge organisers are available for each unit support pupils in building a foundation of factual knowledge by encouraging recall of key facts and vocabulary.

Impact

The impact of knowledge can be constantly monitored through both formative and summative assessments. Each lesson includes guidance to support teachers in assessing pupils against the learning objective and a unit quiz and knowledge catcher can be used to assess the children's understanding at the end of each unit. Pupils should be equipped with a range of skills to enable them to achieve and be active participants in the ever-increasing digital world.
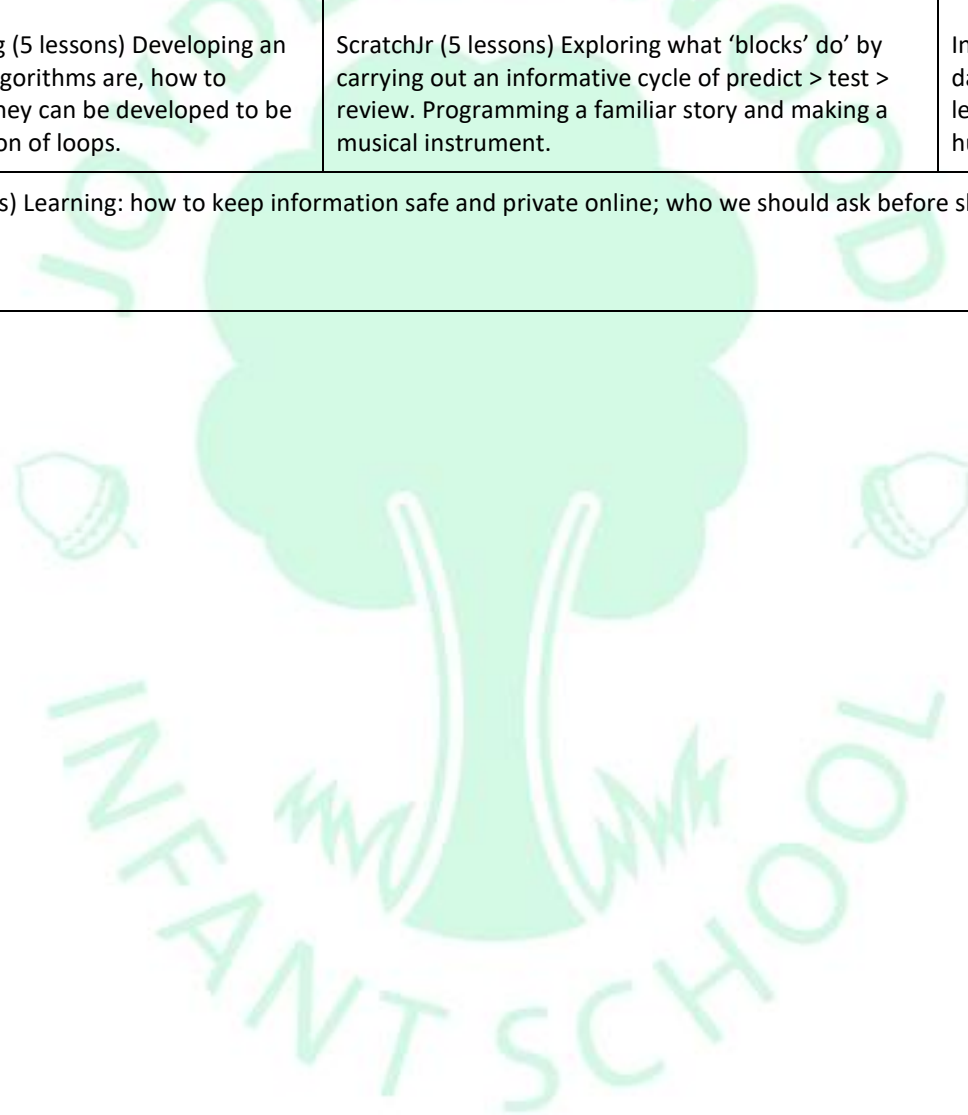
Assessment in Computing

Teachers will assess children against each learning objective and pupils will be able to use their Learning Ladders, outlining the topic's success criteria, to self-assess their own understanding of the learning. They will be given opportunities to demonstrate their understanding throughout each unit via quizzes and 'knowledge catchers' which form part of the assessment process. End of Term data drop points are distributed throughout the year and Teachers assess children against the National Curriculum in KS1 and the Development Matters statements and Early Learning Goals in EYFS.

Long Term Plan

*From Kapow Primary's Long Term Plan

	Autumn	Spring	Summer
	Children in the Early Years learn best through play and practical application of skills. Our computing scheme has been designed to align with cutting-edge Early Years pedagogy to ensure that not only are children accessing relevant areas of the curriculum but that they remain highly involved and engaged while doing so.		
EYFS	Computing through continuous provision Using a computer - Learning about the main parts of a computer and how to use the keyboard and mouse. Learning how to log in and out.	Programming - All about instructions - The children learn to receive and give instructions and understand the importance of precise instructions. Exploring hardware - tinkering and exploring with different computer hardware and learning to operate a camera	Programming bee-bots (or similar) - children learn about directions, experiment with programming a bee-bot and tinker with hardware Introduction to data - children sort and categorise data and are introduced to branching databases and pictograms
Year 1	Improving mouse skills (5 lessons) Learning how to login and navigate around a computer; developing mouse skills; learning how to drag, drop, click and control a cursor to create works of art Algorithms unplugged (5 lessons) Algorithms, decomposition and debugging are made relatable to familiar contexts, following directions, learning why instructions need to be specific.	Rocket to the moon (5 lessons) Developing keyboard and mouse skills through designing, building and testing. Creating a digital list of materials, using drawing software and recording data. Programming Bee-Bots (5 lessons) (Option 1: Bee-Bot) (Option 2: Virtual Bee-Bot) Introducing programming through the use of a Bee-Bot and exploring its functions.	Digital imagery (5 lessons) (Option 1: Google) (Option 2: Microsoft Office 365) Taking and editing photos, searching for and adding images to a project. Introduction to data (5 lessons) Learning what data is and the different ways it can be represented. Learning why data is useful and the ways it can be gathered and recorded.
Online Safety	Online safety Y1 (4 lessons) Learning how to stay safe online and how to manage feelings and emotions when someone or something has upset us		

Year 2	What is a computer? (5 lessons) Exploring what a computer is by identifying how inputs and outputs work and how computers are used in the wider world to design their own computerised invention. Algorithms and debugging (5 lessons) Developing an understanding of; what algorithms are, how to program them and how they can be developed to be more efficient, introduction of loops.	Computing systems and networks Spring 2 Programming 2 Word processing (5 lessons) Developing touch typing skills, learning keyboard shortcuts and simple editing tools. ScratchJr (5 lessons) Exploring what 'blocks' do' by carrying out an informative cycle of predict > test > review. Programming a familiar story and making a musical instrument.	Stop Motion (5 lessons) (Option 1: Using tablet devices), (Option 2: Devices with cameras) or (Option 3: Devices without cameras) Learning how to create simple animations from storyboarding creative ideas. International Space Station (5 lessons) Learning how data is collected, used and displayed and the scientific learning of the conditions needed for plants and humans to survive.
Online Safety	Online safety Y2 (5 lessons) Learning: how to keep information safe and private online; who we should ask before sharing things online and how to give, or deny permission online.		

Computer Science

Progression of Skills & Knowledge	
EYFS	**KS1**
The class follow instructions as part of practical activities and games Learning to give simple instructions. The children follow instructions as part of a dressing up game and learn to give simple instructions. Pupils learn that an algorithm is a set of instructions to carry out a task, in a specific order. They use logical reasoning to read simple instructions and predict the outcome. Experimenting with programming a Bee-Bot/Blue-Bot and learning how to give simple commands. Understanding how to debug instructions, with the help of an adult, when things go wrong.	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.

Information Technology

Progression of Skills & Knowledge	
EYFS	**KS1**
Learning what a keyboard is and how to locate relevant keys Learning to log in and out. Learning what a mouse is and developing basic mouse skills, including moving and clicking and using an online paint tool.	Recognise common uses of information technology beyond school. Online safety

Digital Literacy

Progression of Skills & Knowledge	
EYFS	**KS1**
Children sort and categorise objects. Children respond to yes/no questions as an introduction to branching databases. Children learn branching databases through physical sorting and categorising. Children learn to interpret a basic pictogram.	Use technology purposefully to create, organise, store, manipulate and retrieve digital content. 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