Forest Federation

Long Term Planning

Key Stage 1 & 2 Computing

Purpose of Study

At the Forest Federation, 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. The core of computing is computer science, in which pupils are taught the principles of information and computation, how digital systems work, and how to put this knowledge to use through programming. Building on this knowledge and understanding, pupils are equipped to use information technology to create programs, systems and a range of content. 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.

Aims of the Computing National Curriculum
The national curriculum for computing aims to ensure that all pupils:

- 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.

By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

Key Stage 1

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.

Key Stage 1 overview

	Autumn	Spring	Summer
Year A	**We are treasure hunters** Solving problems using programmable toys **We are TV chefs** Filming the steps of a recipe	**We are digital artists** Creating work inspired by great artists **We are publishers** Creating a multimedia eBook about our achievements	**We are Rhythmic** Creating sound patterns in scratch Jr and GarageBand **We are detectives** Using data to solve clues
Year B	**We are astronauts** Programming on screen in Scratch Jr **We are game testers** Working out the rules for games	**We are photographers** Taking, selecting and editing digital images **We are safe researchers** Researching a topic	**We are animators** Creating a stop-motion animation **We are zoologists** Collecting data about bugs

Key Stage 2

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 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.

Lower Key Stage 2 Overview

	Autumn	Spring	Summer
Year A	**We are programmers** Programming an animation **We are bug fixers** Finding and correcting bugs	**We are presenters** Videoing and presenting against a green screen **We are who we are** Creating presentations about ourselves	**We are co-authors** Producing a wiki **We are opinion pollsters** Collecting and analysing data
Year B	**We are software developers** Developing a simple educational game **We are game makers** Coding for micro:bit	**We are musicians** Creating a piece of music in garage band **We are bloggers** Sharing experiences and opinions	**We are artists** Fusing Geometry and Art **We are meteorologists** Presenting the weather

Upper Key Stage 2 Overview

	Autumn	Spring	Summer
Year A	**We are game developers** Developing an interactive game **We are cryptographers** Cracking codes	**We are architects** Creating a virtual space **We are web developers** Making sense of the internet and building a website	**We are adventure gamers** Creating an interactive adventure using presentation software **We are VR designers** Experimenting with virtual and augmented reality
Year B	**We are toy makers** Coding and physical computing **We are computational thinkers** Mastering algorithms for searching, sorting and maths	**We are publishers** Creating a yearbook or magazine **We are connected** Developing skills for social media	**We are advertisers** Creating a short television advert **We are AI developers** Learning about artificial intelligence and machine learning