Computing

Curriculum Implementation

'Coding is today's language of creativity. All our children deserve a chance to become creators instead consumers of computer science.'
(Maria Klawe)

'Learning to write programs stretches your mind, and helps you think better, creates a way of thinking about things that I think is helpful in all domains.'
(Bill Gates)

As a minimum, Green Ridge seeks to provide children with the following knowledge, skills and understanding as outlined in the National Curriculum (2014):

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 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.

Programme of study

At Green Ridge, we use the 'Switched on Computing' scheme of work to support our delivery of our Computing curriculum. This provides the children with high quality lessons that explore programming, computational thinking, creativity, computer networks and online safety. Each Year group completes one unit per term.

The below overview highlights the units taught within each year group.

Green Ridge Academy
Computing Curriculum Map

	Autumn	Spring	Summer
Year One	We are TV chefs Filming the steps of a recipe	We are collectors Finding images using the web	We are celebrating Creating a card digitally
Year Two	We are researchers Researching a topic	We are astronauts Programming on screen	We are photographers Taking better photos
Year Three	We are programmers Programming an animation	We are presenters Videoing performance	We are vloggers Making and sharing a short screencast presentation
Year Four	We are software developers Developing a simple educational game	We are musicians Producing digital music	We are HTML editors Editing and writing HTML
Year Five	We are game developers Developing an interactive game	We are bloggers Sharing experiences and opinions	We are artists Fusing geometry and art
Year Six	We are computational thinkers Mastering algorithms for searching, sorting and mathematics	We are travel writers Using media and mapping to document a trip	We are publishers Creating a year book

Alongside the above lessons, separate e-safety lessons will be taught during e-safety week but also as part of any Computing lesson, particularly when children will be using the internet.

During different subject lessons, such as History, computers may also be used. This allows the children to further develop their use of computers, something which they will eventually use as part of their everyday lessons within Secondary school. Other lessons may also require the use of other devices such as iPads. During any of these lessons the children will ensure that they are being responsible with the resources they have access to and this will be reinforced through their lessons.

Each of the above units has corresponding lesson plans made available as part of the 'Switched on Computing' scheme. There is no need for these lesson plans to be recreated; however, teachers may wish to adapt lessons in line with their classes needs. Lessons will require teachers to familiarise themselves with the resources as some lessons will require experience of using certain programmes e.g. Scratch.

Skills Progression

We want to ensure that the children are always developing their Computing skills within their lessons. As such we want to ensure that the pitch of lessons is suitable for the year group but also includes a suitable level of challenge for the children. Each unit has specific skills which the pupils will focus on and develop within their Computing lessons while at Green Ridge Academy, these are then tracked using our Computing Assessment tracker document. An overview of the progression of skills can be found in the Computing Skills Map document.

Vocabulary Progression

Throughout all subjects taught at the school, we place a great emphasis on the teaching of new vocabulary. This allows them to better engage with the teaching content as well as ensuring that they can articulate their learning. Each unit has specific vocabulary which the pupils will focus on and develop within their Computing lessons while at Green Ridge Academy. An overview of the progression of vocabulary can be found in the Computing Vocabulary Progression document.

Lesson Structure

We recognise that teachers will need to adapt the lesson structure according to the content being delivered and to suit the needs of the pupils. However, to ensure that previous content is recapped and appropriate vocabulary is taught, a typical lesson should follow the following structure:

5 Minutes	Revisit of previous learning
5 Minutes	Vocabulary teaching
10 Minutes	Teaching Input
20 Minutes	Independent learning
5 Minutes	Plenary

The 'Revisit of previous learning' should incorporate 3 questions:
- One that recaps on learning from the current topic
- One that recaps on learning from a previous topic (if this is the first unit for the academic year, teachers could choose to focus on a unit from the previous year or have an additional question focusing on the current unit)
- One that recaps on an aspect of e-safety

Vocabulary should be taught after the 'Revisit of previous learning' stage and should be done each lesson to ensure new vocabulary is revisited and reinforced. Topic specific vocabulary can be found in the Computing Vocabulary Progression document.

Recording Learning

Unlike other lessons, the children will not have a subject book to record their learning in. Instead each child can save their learning in the Public (P:) drive under their year group folder. It is recommended that pupils save their learning using their name and the task. For example, 'Bob Johnson – Scratch Quiz'. Teachers can then access the pupils learning to review it and provide appropriate feedback.

Assessment

In each unit studied, teachers formatively assess pupils skills against those specified in the unit outcomes. Children are deemed to be either working towards, met or attaining a greater depth in the unit. These outcomes are recorded, on the year groups Computing Assessment Tracker and feed into the summative assessment completed at the end of each year giving an overall attainment grade. Assessments will be completed at the end of a unit.

Diversity and Equality Within the Computing Curriculum

At Green Ridge, we are committed to promoting diversity and equality throughout all subject areas, including Computing. Our strategies for doing so may include:

- Using appropriate books as stimuli for Computing units (e.g. Giraffes Can't Dance: Make a Scratch 'sprite' dance)
- Using research units to learn about different cultures
- Ensuring any worded examples include characters from a range of races and ethnic groups