SUBJECT ON A PAGE

Computing

At Green Ridge, we understand that we are living in a world where technology is rapidly transforming the way in which we teach and learn. We encourage pupils to be creative, curious and inquisitive learners. We believe that Computing allows pupils to understand the positive and safe uses of technology, at the same time as developing their critical thinking and problem-solving skills.

Intent – what we aim to do

- Teach pupils to be creative with technology.
- Prepare pupils for the challenges and opportunities offered by a world that is being rapidly transformed by technological change.
- Teach pupils how to understand the ideas and principles that underpin how digital systems work.
- Teach pupils to become highly skilled in analyisng problems in computational terms.
- Teach pupils to become digitally literate.
- Impart pupils with the knowledge of risks online and how to remain safe enabling pupils to use technology in a safe and responsible way.
- To introduce pupils to the language and vocabulary of computing.

Implementation – how do we achieve our aims?

The REach2 scheme of work teaches practical approaches to computing and computing language in a fun and logical way. At the same time, it provides teachers with all the guidance and supporting materials they need to plan and deliver a high-quality computing education. The scheme of learning provides full coverage of the national curriculum for computing and provides opportunities for the 3 key strands to be taught and revisited. Pupils are provided with a computing lesson once a week, supplemented with cross-curricular opportunities throughout the year, which allow pupils to apply previous learnt knowledge and skills in other areas of the curriculum.

Planning/ Sequencing

Lessons are sequenced using the Reach2 scheme of work. The scheme provides a series of units to cover across the year, ensuring the 3 key strands are covered. The way in which lessons are sequenced also link to progression across the skill. For example, algorithms (computer science) is first taught in Year 1, where the pupils are introduced to simple algorithms used to program a bee-bot. In Year 2, the learning progresses on to produce codes in Scratch; they are introduced to block coding, sprites and scripts. In Year 3, pupils build extended codes on Scratch and begin understanding the concept of inputs and outputs and working on a loop. In Year 4, pupils are introduced to blocks using variables (if, then, else) and use these to create their own educational games. In Year 5, pupils complete complex programming, where they use codes to modify outputs and learn how to use broadcast blocks. In Year 6, pupils draw upon all prior knowledge to transfer this into different languages using different platforms. Each unit has a knowledge organiser provided with key knowledge, vocabulary and diagrams to support retrieval practise.

Three areas of Computing:

Throughout the school year, pupils are taught lessons to embed the three areas of computing: computer science, information technology and digital literacy.

Computer science:
- Understanding how computers work
- Understanding how to write algorithms and solve problems to create computer programs

Information Technology:
- Creating, organising and manipulating digital content
- Using search technologies effectively and how to analyse, present and evaluate data

Digital Literacy:
- Being responsible, competent, confident and creative users of technology

Implementation – (continued)

Structure of a lesson

Lessons are timetabled weekly and last for one hour. Each lesson begins by revisiting knowledge from the previous lesson and the previous unit. Pupils are then given an online safety scenario to identify the issues and discuss solutions and advice. This is followed by official advice for the scenario. Pupils are then introduced to the key vocabulary for the lesson, followed by a modelled task and guided practice, before independently applying the new learning. Where the learning is completed using laptops/iPads, pupils save their work to Teams or on Scratch, which is marked by the class teacher.

Computing Club

Each term we run a computing club(Y3-Y6), as part of our curriculum enrichment opportunities. In the club, pupils continue to develop their programming language using Scratch and Micro:Bits and have access to enriched opportunities through the use of VR headsets.

Computing in EYFS

In Reception, children are introduced to computing through playful, practical experiences that help them make sense of the digital world. They are encouraged to explore and operate simple devices, such as the Tonies box, and to show curiosity about toys with moving parts and mechanisms. Through hands-on investigation, they begin to understand cause and effect by pressing buttons, pulling levers, or lifting flaps to make things happen.

As their awareness grows, children start to recognise that digital devices and the internet can be used as tools for finding information. They experiment with materials and resources to explore how their actions lead to outcomes, building both confidence and independence in their learning.

5 mins – next steps/review

5 mins – Online Safety Starter

15 min – Teaching input inc vocabulary

10 mins – Guided practice

20 mins – Independent application

5 mins – Review of learning

Assessment

In each unit studied, teachers will use assessment for learning throughout to ensure retrieval practise allows knowledge to move to the long-term memory. Unit projects will be assessed throughout the unit, where in-the-moment feedback is provided, and the end project is assessed against a success criteria. Teachers will be verbally assessing pupils' knowledge of the three areas of computing to ensure their knowledge progresses unit by unit. Pupils are assessed using an end of unit quiz, this measures the accurate retrieval of key knowledge. The outcomes of assessments are used to identify gaps and inform the need for re-teaching throughout the next unit.

SMSC + British Values

In Computing, we aim to promote British Values and SMSC by:

- Pupils use of imagination and creativity in their learning
- Pupils having a sense of enjoyment and fascination in learning about technology and their systems
- Pupils having the moral responsibility for their actions when using technology
- Pupils having the social responsibility to celebrate each other's achievements
- Pupils following rules during the lessons when using technology and by understanding algorithms this supports pupils in being able to follow instructions
- Teaching pupils about their rights and responsibilities when using technology
- Online Safety Starters allow pupils to think critically about the world around them and potential issues they may need to overcome when online.

Implementation – (continued)

Digital Transformation

Technology is embedded throughout the school to improve the effectiveness and efficiency of teaching and learning. Some examples of how we are using technology are:

- Based on the EEF's 5 a day, we use technology to adapt and support all learners
- VR headsets are used to provide an immersive learning experience
- Kahoot! is used for retrieval practice
- Padlet is used to discuss ideas
- QR codes are produced to provide model texts and deeper learning opportunities
- A class dojo is sent each week, per class, to communicate learning with parents
- iPads are used to share learning in class, to support the reduction of printing

Retrieval Practice

Through lesson starters and the progression design of our curriculum, pupils are given opportunities to encounter computing knowledge repeatedly throughout their time at primary school. When a unit is revisited, teachers will employ retrieval practice strategies to support children in transferring knowledge to the long-term memory. Strategies such as low-stake quizzes on Kahoot and retrieval grids are used to support children in retrieval key knowledge throughout the year.

Online Safety

Online safety is embedded into every computing lesson taught. Each lesson starts with an online safety starter, where the pupils discuss what advice they would give, based on the scenario, which is then followed by informed advice. Online safety starters have been mapped out, in a separate progression document, to ensure each of the different areas are covered. These include self-image and identity, online relationships, online reputation, cyberbullying, managing online information, health, well-being and lifestyle, privacy and security and copyright and ownership.

Adaptive Teaching

In line with our teaching and learning framework, adaptive teaching is used to ensure all learners can apply their knowledge, make progress and apply their knowledge to independent application.

Adaptations in Computing may include:

- Adapted resources
- Providing additional models/demonstrations
- Vocabulary prompts
- Partially completed examples

Impact – how will we know we achieved our aims?

- Pupils have a love for computing and can articulate what they enjoy.
- Pupils are confident, responsible and safe online citizens.
- Pupils can accurately use the language and vocabulary of Computing.
- Pupils can think critically, and problem solve to identify and correct errors.
- Pupils will be confident in all 3 areas of the Computing curriculum.
- Pupils are aware of the importance of technology in the ever-changing world around us.
- Pupils appreciate the capabilities and opportunities technology offers within school and later life.

Computing Overview

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1	Hardware Explorers	Programs and Algorithms	Digital Art	Introduction to Debugging	Writing Algorithms	Internet Explorers
Year 2	Algorithmic Thinking	Internet Awareness	Creating Presentations	Excellent Excel	Learning to Code	Digital Citizens
Year 3	Time to Travel	Apply our coding Alien at School	Networks	Communicating Online	Branching Databases	Presenting My Ideas
Year 4	Programming	Animation Adventures	Presenting Data	Advertising	Making a Quiz	Desktop Publishing
Year 5	Complex Programming	Broadcasting	Analysing Data	Video Montage	Staying Safe Online	Repetition and Procedures
Year 6	Meeting A Brief	Solving Problems Using Data	Internet Fairness & Internet Searches	3D Modelling	Creating Media	Programming to Control a Product