# 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.

**GREEN RIDGE PRIMARY ACADEMY**

## Intent – what we aim to do

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|---|---|
| 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
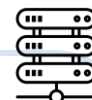
## Structure of a lesson

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 two computing clubs (Y1-Y3 and Y4-Y6), as part of our curriculum enrichment opportunities. In the lower school club, pupils are further exposed to how computers work and basic coding in programmes such as Scratch and Minecraft. In the upper school, pupils continue to develop their programming language and learn how to make a website, as well as continuing coding in Python and Minecraft.

## Computing in EYFS

In EYFS, Computing is embedded into areas of the curriculum to enhance learning. An example of this is where pupils use iPads to take pictures when representing numbers in Maths or to make stop-motion animations. The pupils are introduced to BeeBots to show cause and effect; they understand that when the left arrow is pressed, the BeeBot turns left, which results in a basic understanding of directional language that can later be used in programming and algorithms. Throughout EYFS, pupils are provided with opportunities to experience technology, which provides them with the necessary foundations to begin the Computing curriculum in Year 1. However, technology is purposefully managed to allow them to focus on their interpersonal speech, language and communication skills

10 min – next steps/review

5 min – Hook

15 min – Teaching input inc vocabulary

10 min – Guided practice

15 min – Independent application

5 min – 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 at the end. Teachers will be verbally assessing pupils knowledge of the three areas of computing to ensure their knowledge progresses unit by unit. The outcomes of each unit are saved either on the system or on an online portal so that teachers can assess the effectiveness.

## 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

# 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 daily tweet is sent out via X to communicate learning with parents
- A weekly podcast, interviewing pupils, provides opportunities to recall and reflect on learning
- 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?

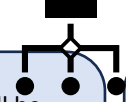| | | | | | | |
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| Pupils have a love for computing and can articulate what they enjoy. | Pupils are confident, responsible and safe online citizens. | Pupils can accurately use the language and vocabulary of Computing. | Pupils can think critically, 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 – Whole School
## 2023-2024

| | 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 | Different Languages | Meeting A Brief | Flowol & Internet Searches | Code Breakers | Solving Problems Using Data | Internet Fairness |