Computing

Intent

At Holland Moor, we want our children to become innovators in a digital world**.** We want them to become computer scientists, web developers, application analysts and computer engineers. We want our Computing curriculum to captivate our children so it will equip them with computational thinking and creativity to understand and change the world we live in. We want our Computing curriculum to make strong links with mathematics, science, and design/technology, and to provide insights into both natural and artificial systems. With computer science at the heart of our Computing curriculum, we want our pupils to know how digital systems work, the principles of information and computation, and how to put this knowledge to use through programming. We want our pupils to use this knowledge and understanding to create programs, systems and a range of content. We want children at Holland Moor to be digitally literate - able to find, evaluate, and clearly communicate through various IT platforms. We want our children to be fully aware of the amazing possibilities the digital world can open up and of challenges and problems it can create. We want pupils at Holland Moor to be good digital citizens and to know how to stay safe and keep others safe online.

Implementation

The Computing curriculum at Holland Moor has been developed around our pupils. Their journey builds on knowledge, skills and understanding from previous units. Most units include aspects of all three strands, computer science, informational technology and digital literacy, however each unit has a specific focus area of computing, to ensure deep coverage across the curriculum.

- Our units are blocked to allow children to focus on developing their knowledge, skills and understanding, studying each topic in depth.
- Keeping our children safe online is of the utmost importance, therefore each block begins with a unit on E-safety.
- Our curriculum follows the Purple Mash scheme of work, which has an online platform where our children have their individual usernames and passwords.
- Teachers set activities for our children on Purple Mash which they can then complete and hand-in online. This enables teachers to assess their work easily and implement immediate intervention if needed.
- Pupils use 2dos to complete their work so it will be saved in their own folders automatically and can be easily reviewed and assessed by the class teacher.
- Our Children have access to iPads and Chromebooks to support all areas of the curriculum.

- 'Unplugged' sessions take place in the classroom whereas 'plugged' lessons can take place in the suite if desktops are being used, or in the classroom if iPads or Chromebooks are required.

- Each unit of work has been planned with a comprehensive knowledge organiser which includes desired key learning, key vocabulary and key resources.

- Pre-teaching new key vocabulary takes place prior to our Computing lessons. This technique facilitates the understanding of new words by giving our pupils their meanings before they encounter them. This practice reduces cognitive load and facilitates learning.

- Teachers use highly effective techniques to check for understanding, including signal it, choose it and summarize it in each lesson to ensure misconceptions are highlighted and addressed with immediate intervention.

- Teachers plan lessons to allow our children to apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation.

- Our children are given opportunities to analyse problems in computational terms and have repeated practical experience of writing computer programs to solve such problems.

- Using the 'impersonate pupil' function on Purple Mash, our teachers effectively model all activities. They may use different techniques such as my turn, our turn, your turn, to ensure their children have an enhanced learning process. Teachers simultaneously describe what they're doing and why they're doing it, to make concepts more accessible and to improve pupil outcomes.

- Our children are provided with various types of scaffolding depending on task and need. Scaffolding helps them to systematically build their knowledge base and supports their learning, allowing them to gain confidence when performing tasks independently. Scaffolding might include a set success-criteria or breaking learning down into manageable chunks.

Impact

Holland Moor's Computing journey will impact our children's digital literacy, understanding of information technology and computational thinking. Our specific curriculum design will lead to outstanding progress over time across key stages, relative to a child's individual starting point and their progression of knowledge/skills/understanding. Children will therefore be expected to leave Holland Moor reaching at least age-related expectations for Computing. As our children progress along their Computing journey, they become responsible, competent, confident and creative users of information and communication technology who are digitally literate and have the ability to think critically to solve complex problems. Our curriculum will produce eager and informed Computing learners. Our children's progress can be evidenced in their individual online files, pupil interviews and assessments.

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Vertical Concepts in Computing

At Holland Moor, we use *vertical concepts* from Nursery to Year 6. These are big ideas or themes that grow in depth and complexity as our children move up through the school. Vertical concepts provide a structured approach to learning, helping children connect ideas across different subjects and understand how topics develop as they progress through each year. Our Vertical concepts in Computing are as follows:

Computer Science: Problem Solving
Applying coding skills to real-world scenarios by controlling robots or creating digital solutions for practical problems, integrating logical thinking and creativity.

Information Technology: Digital Creativity and Accuracy
Using digital software tools to perform tasks efficiently and create multimedia projects.

Digital Literacy: Communication
Learning to communicate and collaborate safely and effectively online.