



Computing Curriculum Statement

Intent

Computing at Waterhouses intends to develop ‘thinkers of the future’ through a modern, ambitious and relevant education in computing. We want to model and educate our pupils on how to use technology positively, responsibly and safely. We want our pupils to be creators not only consumers and our broad curriculum encompassing computer science, information technology and digital literacy reflects this.

We teach our pupils to understand that there is always a choice with using technology and as a school we utilise technology to model positive use. We recognise that the best prevention for a lot of issues we currently see with technology/social media is through education. Building our knowledge in this subject will allow pupils to effectively demonstrate their learning through creative use of technology. We recognise that technology can allow pupils to share their learning in creative ways. We also understand the accessibility opportunities technology can provide for our pupils. We want to equip pupils to use computational thinking and creativity that will enable them to become active participants in the digital world. It is important to us that the children understand how to use the ever-changing technology to express themselves, as tools for learning and as a means to drive their generation forward into the future.

Whilst ensuring they understand the advantages and disadvantages associated with online experiences, we want children to develop as respectful, responsible and confident users of technology, aware of measures that can be taken to keep themselves and others safe online. Our aim is to provide a computing curriculum that is designed to balance acquiring a broad and deep knowledge alongside opportunities to apply skills in various digital contexts. Beyond teaching computing discreetly, we will give pupils the opportunity to apply and develop what they have learnt across wider learning in the curriculum.

Implementation

Our scheme of work for Computing is from Teach Computing from the National Centre for Computing Education (<https://teachcomputing.org/>). This scheme was chosen as it has been created by subject experts and based on the latest pedagogical research. As computing is a relatively new discipline, evidence of effective teaching approaches continues to emerge and evolve, this is supported by Teach Computing. The scheme provides an innovative progression framework where

computing content (concepts, knowledge, skills and objectives) has been organised into interconnected networks called learning graphs.

The curriculum aims to equip young people with the knowledge, skills and understanding they need to thrive in the digital world of today and the future. Within the Teach Computing Curriculum, every year group learns through units within the same four themes:

- Computing systems and networks
- Programming
- Data and information
- Creating media

These combine the ten strands of the National Centre for Computing Education's taxonomy. All learning objectives have been mapped to the strands, which ensures that units build on each other from one key stage to the next:

Primary themes	Computing systems and networks	Programming	Data and information	Creating media
Taxonomy strands	Computer systems Computer networks	Programming Algorithms Design and development	Data and information	Creating media Design and development
	Effective use of tools			
	Impact of technology			
	Safety and security			

The Teach Computing curriculum is structured into units for each year group, each unit is broken down into lessons and taught in numerical order. Each lesson is sequenced so that it builds on the learning from the previous lesson, and where appropriate, activities are scaffolded so that all pupils can succeed and thrive.

Scaffolded activities provide pupils with extra resources, such as visual prompts, to reach the same learning goals as the rest of the class.

Exploratory tasks foster a deeper understanding of a concept, encouraging pupils to apply their learning in different contexts and make connections with other learning experiences. As well as scaffolded activities, embedded within the lessons are a range of pedagogical strategies (defined in the 'Pedagogy' section of this document), which support making computing topics more accessible.

To stretch more able pupils, focus on deepening understanding and allowing pupils to explain and justify their reasoning. Make tasks more open ended to encourage independence, and use questioning to probe higher-order thinking. 'Why' and 'How' questions can encourage more able learners to consider the impact of their decisions and explain their underlying thought process.

There are opportunities each lesson for formative assessment. These opportunities are listed in the lesson plan and are included to ensure that misconceptions are recognised and addressed if they occur. They vary from teacher observation or questioning, to marked activities. Every unit includes an optional summative assessment in the form of either a multiple choice quiz (MCQ) or a rubric. Pedagogically, when we assess, we want to ensure that we are assessing a pupil's understanding of computing concepts and skills, as opposed to their reading and writing skills. Therefore, the assessments in key stage one are mostly rubric-based, though MCQs are introduced in Year 2.

Impact

We encourage our children to enjoy and value the curriculum we deliver. We will constantly ask the why behind their learning and not just the how. We want learners to discuss, reflect and appreciate the impact computing has on their learning, development and well being. Finding the right balance with technology is key to an effective education and a healthy life-style.

Our curriculum enables our children to:

- understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation.
- analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems.
- evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems.
- be responsible, competent, confident and creative users of information and communication technology.

We feel the way we implement computing helps children realise the need for the right balance and one they can continue to build on in their next stage of education and beyond.