Computing Curriculum Rationale

At St Wilfrid's Primary School, we are working towards developing our children to become independent, confident and responsible users of technology. Our intention is to engage them in an ambitious computing environment in order to prepare them for a rapidly changing world. All learners will study a computing curriculum which is rich in knowledge and skills.

INTENT

Alignment to National Curriculum

The computing curriculum at St Wilfrid's follows the National Curriculum as a basis for its content. It has been designed to enable children to become computational thinkers when programming and creative users of information technology. We teach programming using the six areas of computational thinking which are **algorithms, decomposition, patterns, logic, abstraction and evaluation**. We also aim to ensure that all pupils become digitally literate and can use technology safely, respectfully and responsibly. Online safety is embedded within the computing and PSHE curriculum.

End Points

By Year 6 pupils will be more independent in their use of technology and will conduct themselves safely and responsibly. Children will be able to use the knowledge and skills quired throughout their time at St Wilfrid's to produce digital content and create programs in the three areas of **computer science**, **information and technology** and **digital literacy** all without support.

Sequencing

As the National Curriculum for computing is not broken down further than just key stages, careful consideration has been given to how the different elements of the subject should be sequenced. These are based around the strands of creating media, data handling, computer networks and systems and programming, which includes physical computing. A unit of work will begin by exploring pupil's prior knowledge, either that learnt in previous year groups or that already acquired at home.

Addressing Social Disadvantage

There is a current and future demand for digital skills with over 21,000 people being employed in digital industries across Sheffield in 2017. The government report **"No longer optional: employer demand for digital skills"** states that, *"Overall, roles requiring digital skills pay 29% (£8,300) over those roles that do not (£37,000 vs £28,700)."* The computing curriculum is designed to ensure that all pupils have the opportunity to succeed. The aim is to deliver the curriculum to all pupils and to support individuals in keeping up with the pace of the scheme of work across the school.

IMPLEMENTATION

Pedagogical Approaches

The knowledge required in computing takes place through a range of approaches and our learners experience this knowledge through active learning tasks. Some activities begin with tutorials that provide instructions. Immediate feedback is given to provide positive reinforcement for learners as they achieve each level. Learners working through the levels of the activity are building their knowledge through experience. Another approach used is the **PRIMM** model. In programming, the children may be asked to **predict**, **run** or **investigate** teachers code before then being asked to **modify** a program and then onto designing and **making** their own.

Teachers' Expert Knowledge

We want to ensure we deliver powerful knowledge and skills to our children as they gain confidence and understanding in computing. We have an experienced computing teacher who delivers sessions in computing and online safety across the school and demonstrates good subject knowledge as required by the DfE. The teacher is a SLE within computing. Teachers are provided with an overview of the required skills and knowledge being taught rather than the technology being used. Some teachers across the school teach their own computing lessons with guidance from the SLE.

Promoting Discussion and Understanding

To develop understanding in computing, many concepts are first taught through **role play** or **unplugged** activities (away from computer). This leads to conversations and discussions about how computers actually work or what the code is actually doing in the program. Through these type of activities, key vocabulary, and core knowledge, is mastered. Children also use **paired programming**, in which two **programmers** work together at one workstation. One, the driver, writes the code while the other, the navigator, reviews each line of code as it is typed in. This promotes discussion and understanding when working in pairs.

Knowing More and Remembering More

The first lesson for each unit of work is used to review the ideas mastered in previous units or to find out what the children already know about the area being taught. Opportunities for retrieval practice are included in computing lessons to ensure knowledge is transferred into long-term memory. Retrieval activities may require children to remember learning from the previous lesson, previous topic or even previous year.

IMPACT

Approach to Assessment

Throughout and at the end of a lesson, children are asked to evaluate and recognise their own success against the learning outcome. After the unit, children carry out an accurate self and/or peer assessment on the work they have produced against the set criteria. The teacher tracks whether children are working towards, meeting or exceeding what is thought to be the national standard for that unit of work in a tracker.

Performance Data

Data is not published nationally for computing. However, the school tracks achievement in computing to ensure children are on target for national expectation at the end of key stage 1 and 2. A range of children's work from a variety of abilities is uploaded to the school computer blog to keep as evidence.
https://stwcomputing.wordpress.com/

Pupils' Work

Pupils' work is saved in a variety of ways depending on the activity. Children have individual and shared areas on the school network. Work is also uploaded to Google Classroom. This not only provides the teacher with evidence for assessment, but also gives the teacher the opportunity to use children's work to demonstrate, model or modify, to develop understanding. Children also save work on platforms like Scratch. All this, helps the child to make links from prior to new learning by looking back at previous work. Work is monitored by the subject leader to ensure there is sequence, progression and greater independence by higher year groups.

Talking to Pupils

The computing subject leader has discussions with pupils about their learning as it progresses. This forms part of the monitoring process. Children's work and their self-evaluation and assessment sheets guide these discussions, to ensure the teacher knows to what depth the new knowledge and skills have been learnt. This informs future planning.

Local Context

St Wilfrid's is a technology rich school. In addition to our computer suite (25 PCs), each classroom has two standalone computers which children have access to. We also have 45 ipad devices which enable each child to work independently or in groups in the class when needed.

Teacher Assessment

Formative assessment is used to implement the computing curriculum. This is achieved through observations, quizzes, self and peer assessments using success criteria to assess a final project. The teacher plans opportunities in the lesson to check that pupils understand, can do the task, can problem solve, can predict and can explain using the key vocabulary.

Links / References

Digital Skills: https://www.gov.uk/government/publications/current-and-future-demand-for-digital-skills-in-the-workplace
PRIMM Model: https://blogs.kcl.ac.uk/cser/2017/09/01/primm-a-structured-approach-to-teaching-programming/
Sheffield Picture: https://www.sheffield.ac.uk/news/nr/creative-digital-report-tech-city-1.705754
St Wilfrid's Computing Evidence https://stwcomputing.wordpress.com/