FEDERATION OF
FOLLIFOOT & SPOFFORTH
CHURCH OF ENGLAND PRIMARY SCHOOLS
Love Learn Thrive

Computing Rationale

National Curriculum Aims for Computing

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

National Curriculum Purpose for Computing

A high-quality computing education equips pupils to use computational thinking and creativity to understand and change the world. Computing has deep links with mathematics, science, and design and technology, and provides insights into both natural and artificial systems. The core of computing is computer science, in which pupils are taught the principles of information and computation, how digital systems work, and how to put this knowledge to use through programming. Building on this knowledge and understanding, pupils are equipped to use information technology to create programs, systems and a range of content. Computing also ensures that pupils become digitally literate – able to use, and express themselves and develop their ideas through, information and communication technology – at a level suitable for the future workplace and as active participants in a digital world.

Literate in Computing

While there are three aspects to the computing curriculum (computer science, information technology, digital literacy) there is the 'golden thread' of computational thinking which underpins computer literacy. Computational thinking, understood, after Jeanette Wing, as "taking an approach to solving problems, designing systems and understanding human behaviour that draws on concepts fundamental to computing", is the golden thread running through the computing curriculum.[1]

For example, in the Statutory Framework for EYFS, the early learning goal from the 'technology' strand in the 'understanding the world' area of learning, requires that, 'children recognise that a range of technology is used in places such as homes and schools'. However, the computation thinking approaches (tinkering, creating, debugging, persevering, collaborating) can be seen in (>>>>)

By the end of Year Six children at Follifoot and Spofforth are able to apply computational thinking to a wide range of problems.

They are

[1] http://milesberry.net/2016/01/laying-the-foundations-for-computing-in-the-early-years/

By the time children reach the end of Year Six they will be securely computer literate and working in line with age related national expectations. They will have a secure understanding of the

***Computing* Rationale**

Intent	Implementation	Impact: to be reviewed at the end of each academic year
A balanced computing curriculum at Follifoot & Spofforth Primary Schools enables the children to develop their understanding and use of technology through practical and exploratory opportunities using deliberate practice to develop their understanding. As they move through school, they develop an understanding of how technology and digital systems work. Children develop their digitally literacy, showing that they know how to use technology respectfully and safely. Children engage and develop a deep understanding of computer science, knowing how to develop and create their programs for a range of purposes. The computing curriculum aims to develop children as computational thinkers to enable them to solve problems across the whole curriculum and life in general.	A balanced curriculum that is sequenced appropriately across the three areas of computing with natural links to other curriculum areas. Planning demonstrates a substantive and disciplinary approach to teaching. Children develop fluency in using technology for a range of purposes. Staying safe online is integrated into all areas of the curriculum. It is taught specifically in computing and within PSHE. Computing lessons focus on collaboration and creativity by providing extended periods of time to work independently and with others to solve problems and develop the knowledge and skills required to be computational thinkers.	

There are three aspects to the computing curriculum:

• Computer Science (CS)

The core of computing is **computer science**, in which pupils are taught the principles of information and computation, how digital systems work, and how to put this knowledge to use through programming.

• Information technology (IT)

pupils are equipped to use **information technology** to create programs, systems and a range of content.

• Digital Literacy (DL)

digitally literate – able to use, and express themselves and develop their ideas through, information and communication technology

Knowledge and Enquiry in Computing

Substantive knowledge in computing is understanding how to use technology, how to be safe and knowing how to program. This is developed through deliberate practice and by children applying their knowledge of how to be computational thinkers. "Computational thinking is an important life skill, which all pupils now need to develop. It is central to both living in and understanding our digitally enriched world. It is a cognitive process involving logical reasoning by which problems are solved across the whole curriculum and through life in general." (Computing at School, 2015)

In order to develop as computational thinkers, children engage with computational concepts and approaches:

Concepts	*Approaches*
● *Logic: predicting and analysing* ● *Algorithms: making steps and rules* ● *Decomposition: breaking down into parts* ● *Patterns: spotting and using similarities* ● *Abstraction: removing unnecessary detail* ● *Evaluation: making judgements*	● *Tinkering: experimenting and playing* ● *Creating: designing and making* ● *Debugging: finding and fixing errors* ● *Persevering: keeping going* ● *Collaborating: working together*

Creativity in Computing

Computing is an area of the curriculum that has many opportunities for children to demonstrate creativity through developing their own programs, systems and digital content whilst applying their developing computational thinking. Computing has opportunities for natural cross-curricular learning; examples include presenting data in tables, researching in History or writing instructions in English.

Assessment in Computing

Tracking children's progress throughout their school life is vital in order to establish their acquisition of knowledge and skills. At the Federation of Follifoot & Spofforth, learning always starts with the children's prior knowledge and any misconceptions they may have. Class teachers decide upon the most appropriate age related way of obtaining the children's prior knowledge. Units of work are then personalised to the children.

Misconceptions that arise throughout the unit are identified and addressed appropriately by the teacher. As a Federation we are currently exploring approaches to assessing children's recall of their learning to assess how effectively knowledge and skills have been embedded and mastered.