



Computing Policy
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Fellside Community Primary School

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Mission Statement

Ensuring every member of our school community is inspired to fulfil their potential and is successfully prepared for their future.

Fellside Learning Values

In the autumn term 2015, staff agreed on a set of principles that we seek to promote to further develop Fellside children's understanding of the characteristics of effective learning. We aim, over time, to ensure children are better equipped to accurately assess themselves as learners and set pertinent goals for self-improvement.

These values underpin both our curriculum and our ethos, and they are central to the tenets of daily life at our school.

Curiosity	We aim for children to show curiosity in their learning; to ask questions and take risks.
Commitment	We encourage children to give 100% effort and to be prepared to practise.
Confidence	We want Fellside children to be brave in their learning; to be excited to try new things.
Creativity	Using imagination; pushing boundaries; suggesting new ideas and being resourceful – all part of daily life at Fellside.
Collaboration	We encourage tolerance, working together as a team and asking for and offering help.
Challenge	Learning from mistakes and sometimes finding things difficult is all part of being a learner.
Change	Acceptance of helpful criticism so we can learn from it and ensure that we keep improving.

Colloquially, we refer to these values as 'The Seven Cs'

Introduction

The use of computers and computer systems is an integral part of the National Curriculum but further than this, it is a key life skill. In an increasingly digital world there now exists a wealth of software, tools and technologies that can be used to communicate, collaborate, express ideas and create digital content. At Fellside Community Primary School, we recognise that pupils are entitled to a broad and balanced computing education with a structured, progressive, approach to the learning how computer systems work, the use of IT and the skills necessary to become digitally literate and participate fully in the modern world. The purpose of this policy is to state how the school intends to make this provision.

Rationale

We believe that IT, computer science and digital literacy:

- are essential life skills necessary to fully participate in the modern digital world.
- allow children to become creators of digital content rather than simply consumers of it.
- provide access to a rich and varied source of information and content.
- communicate and present information in new ways, which helps pupils understand, access and use it more readily.
- motivate and enthuse pupils.
- offer opportunities for communication and collaboration through group working both inside and outside of school.
- have the flexibility to meet the individual needs and abilities of each pupil.

This policy outlines how teaching and learning, assessment and leadership of Computing at Fellside Community Primary School relate to these values and philosophies.

Intent

Our computing curriculum at Fellside Primary School intends to develop children's digital knowledge and skills through a modern, ambitious and relevant education in computing. 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 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 pupils understand the advantages and disadvantages associated with online experiences, children must 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 discretely, we will give pupils the opportunity to apply and develop what they have learnt across wider learning in the curriculum.

Aims

Fellside Community Primary School aims to:

- provide a broad, balanced, challenging and enjoyable curriculum for all pupils
- meet the requirements of the national curriculum programmes of study for computing at Key Stage 1 and 2
- understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- develop pupil's computational thinking skills that will benefit them throughout their lives
- Provide pupils with opportunities to evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
- equip pupils with the confidence and skills to use digital tools and technologies throughout their lives.
- enhance and enrich learning in other areas of the curriculum using IT and computing.
- develop the understanding of how to use computers and digital tools safely, responsibly and competently

The National Curriculum for Computing aims to ensure that all pupils can:

- understand and apply the fundamental principles of computer science, including logic, algorithms, data representation, and communication
- 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.
- responsible, competent, confident and creative users of information and communication technology.

Implementation

Our scheme of work for Computing is adapted from the 'Teach Computing' Curriculum and covers all aspects of the National Curriculum. The curriculum equips children with the knowledge, skills and understanding they need to thrive in the digital world of today and the future. The curriculum can be broken down into 3 strands: **computer science, information technology and digital literacy.**

Curriculum Organisation and Planning

Fellside Community Primary School teaches Computing as a discreet subject from the Early Years Foundation Stage to Year 6. However, it is also widely delivered as a cross-curricular subject to support the teaching in other lessons such as literacy, history, geography and art.

In 2020, we adapted The Teach Computing scheme of work (see appendix 1). The curriculum is structured into units. For these units to be coherent, the lessons within a unit must be taught in order. However, across a year group, the units themselves do not need to be taught in order, with the exception of 'Programming' units, where concepts and skills rely on prior learning and experiences. The Teach Computing Curriculum uses the National Centre for Computing Education's computing taxonomy to ensure comprehensive coverage of the subject. All learning outcomes can be described through a high-level taxonomy of ten strands, ordered alphabetically as follows:

- Algorithms — Be able to comprehend, design, create, and evaluate algorithms
- Computer networks — Understand how networks can be used to retrieve and share information, and how they come with associated risks
- Computer systems — Understand what a computer is, and how its constituent parts function together as a whole
- Creating media — Select and create a range of media including text, images, sounds, and video
- Data and information — Understand how data is stored, organised, and used to represent real-world artefacts and scenarios
- Design and development — Understand the activities involved in planning, creating, and evaluating computing artefacts
- Effective use of tools — Use software tools to support computing work
- Impact of technology — Understand how individuals, systems, and society as a whole interact with computer systems
- Programming — Create software to allow computers to solve problems
- Safety and security — Understand risks when using technology, and how to protect individuals and systems

The taxonomy provides categories and an organised view of content to encapsulate the discipline of computing. Whilst all strands are present at all phases, they are not always taught explicitly.

The units for key stages 1 and 2 are based on a spiral curriculum. This means that each of the themes are revisited regularly (at least once in each year group), and pupils revisit each theme through a new unit that consolidates and builds on prior learning within that theme. This style of curriculum design reduces the amount of knowledge lost through forgetting, as topics are revisited yearly.

The Teach Computing Curriculum acknowledges that physical computing plays an important role in modern pedagogical approaches in computing, both as a tool to engage pupils and as a strategy to develop pupils' understanding in more creative ways. Additionally, physical computing supports and engages a diverse range of pupils in tangible and challenging tasks. The physical computing units in the Teach Computing Curriculum are:

- Year 5 – Selection in physical computing, which uses a Crumble controller
- Year 6 – Sensing, which uses a micro:bit

The unit overviews for each unit show the links between the content of the lessons and the national curriculum and Education for a Connected World framework. These references have been provided to show where aspects relating to online safety, or digital citizenship, are covered within the Teach Computing Curriculum. Not all of the objectives in the Education for a Connected World framework are covered in the Teach Computing Curriculum, as some are better suited to personal, social, health, and economic (PSHE) education; spiritual, moral, social, and cultural (SMSC) development; and citizenship. However, the coverage required for the computing national curriculum is provided.

Teaching and Learning Style

To ensure all children are supported and challenged in computing, teachers may:

- demonstrate tasks on an IWB alongside discussion as a whole class.
- ask children to work individually, in pairs or small groups according to the nature and activity of the task.
- group children based on same or mixed ability.
- encourage pupils to help one another and demonstrate new skills to others.
- supply different levels of support by the class teacher or teaching assistant.

At Fellside Community Primary School, it is expected that not all Computing lessons will take place in the computing suite, but that some learning of systems, vocabulary and eSafety may be classroom-based or outdoor activities. This is to ensure that children appreciate that Computing is a broad subject which touches upon many elements of the wider world beyond physical electronic devices.

Computing in the Early Years Foundation Stage

According to research carried out by CHILDWISE: "Today's pre-schoolers are confidently navigating digital platforms with purpose and determination. By the age of three, almost all watch programmes on-demand and have access to a connected device, and more than half have their own tablet or computer."

With young children already spending a great deal of time on devices, it is important that pupils at Fellside are engaged in computing-related activities.

At Fellside, computing is filtered through the EYFS curriculum in many different ways. Children experience computing through use of a classroom computer, iPads and mechanical toys. Applications on computers and iPads are used to enhance learning in areas such as communication and language, mathematical, physical and fine motor development.

We develop computational thinking through using simple computer programmes and APPs, using the Internet to research, taking photos and videos to capture events and reading e-books. Computational thinking can be as basic as following instructions to develop a sense of coding. We develop coding using directional language verbally, physically and then moving to Bee Bots.

Computers and iPads are available for children to use during child initiated learning where children are encouraged to take photographs of their learning and create

videos. Bee Bots and Codepillars are available for children to 'tinker' with to develop computational thinking and an understanding of code.

Pupils have regular visits to the ICT suite to use skills learned in the classroom to support their school readiness in digital areas.

Computing in Key Stage 1

The National curriculum states that in Key Stage 1, pupils should be taught to:

- understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions
- create and debug simple programs
- use logical reasoning to predict the behaviour of simple programs
- use technology purposefully to create, organise, store, manipulate and retrieve digital content
- recognise common uses of information technology beyond school
- use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies

Computing in Key Stage 2

The National curriculum states that in Key Stage 2, pupils should be taught to:

- design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts
- use sequence, selection, and repetition in programs; work with variables and various forms of input and output
- use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
- understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration
- use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content
- select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information

- use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

Impact

Asking our learners to consider the 'why?' behind their learning and not just the 'how?' is a central principle of much curriculum learning at Fellside, but especially so for computing. 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 increasingly key not only to an effective education, but also to achievement of a healthy lifestyle. We encourage regular discussions between staff and pupils to best embed and understand this.

Assessment of Computing

The way pupils showcase, share and apply their computing learning demonstrates the impact of our curriculum, however we also look for evidence through reviewing pupil's knowledge and skills digitally through marking and observing learning regularly. Progression in our computing curriculum is demonstrated through outcomes.

Every lesson includes formative assessment opportunities for teachers to use. 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. These assessments are vital to ensure that teachers are adapting their teaching to suit the needs of the pupils that they are working with. The learning objective and success criteria are introduced in the slides at the beginning of every lesson. At the end of every lesson, pupils are invited to self-assess how well they have met the learning objective. This gives pupils a reminder of the content that has been covered, as well as a chance to reflect. It is also a chance for teachers to see how confident the class are so that they can make changes to subsequent lessons accordingly. 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, we encourage observational assessment while pupils are still developing their literacy skills. We believe that this is the most reliable way to capture an accurate picture of learning. To capture summative assessment data of KS1 pupils, we use the success criteria in each lesson and capturing some of the following while the lesson is taking place:

- The work that pupils complete (marking)
- Notes on conversations or discussions that you have or hear during an activity
- Photographs of the work that pupils produce during an activity
- The pupils' self-assessments at the end of the lesson

In Key Stage 2, every unit includes an optional summative assessment framework in the form of either a multiple-choice quiz (MCQ) or a rubric. All units are designed to

cover both skills and concepts from across the computing national curriculum. Units that focus more on conceptual development include an MCQ. Units that focus more on skills development end with a project and include a rubric. Each rubric covers the application of skills that have been directly taught across the unit, and highlights to teachers whether the pupil is approaching (emerging), achieving (expected), or exceeding the expectations for their age group. It allows teachers to assess projects that pupils have created, focussing on the appropriate application of computing skills and concepts.

Contribution of Computing in Teaching of the Wider Curriculum

Computing is used widely across the curriculum to aid in processing, research and skill development. Teachers are able to arrange lessons in the IT Suite outside of Computing time and 30 iPads are available for use in the classroom.

Some of the opportunities for wider contribution of Computing are:

- Little Wandle letters and sounds revised phonics program
- Accelerated Reader online quizzing tool related to enhance reading skills
- Microsoft programs for text processing
- Internet research linked to a books, events or topics.
- Athletics online skills program
- Mathematics Interactive Teaching Programs for use by teacher or pupils.
- Timetable Rockstars – a tool designed to enhance multiplication skills
- Paint program to create digital art.
- Sonic Pi to compose digital music.
- Cheranga to support the delivery of the music curriculum
- Audacity to clip music and sound effects for use in music or drama.
- iPads used to video dance routines or sports for self-evaluation.

The Role of Computing in Children's Spiritual, Moral, Social and Cultural (SMSC) Development

At Fellside, we endeavour to promote Spiritual, Moral, Social and Cultural development across all aspects of the curriculum. Computing is taught as a discrete subject where pupils are taught the skills of computer science, digital literacy and information technology in both isolation and combination. Pupils are taught to embrace creativity and imagination when designing, creating and debugging a project and to reflect and improve on their work. Children work in a climate of mutual respect, giving appropriate advice and opinions on each other's work and working cooperatively in groups or teams, thus creating a sense of community spirit. When using technology, children use good etiquette and respect of others' views, opinions and creations is expected. There is a respect and awareness of the digital culture in which we now live and children are empowered to positively contribute to this in connection with other subjects and in a range of settings.

The Role of Computing in Children's Personal, Social, Health and Citizenship Education (PSHCE)

Due to the increase in the use of digital devices, digital literacy links directly to aims of the PSHE curriculum. In growing up in a connected world, we believe our young people must know how to protect their personal privacy, protect themselves from those who attempt to manipulate their opinions and beliefs and to be knowledgeable citizens who are genuinely informed to take part in debates concerning our society. Through E-safety lessons based around Education for a Connected World and using Project Evolve (see E-safety Policy) to ensure progression in provision, children are highlighted to key online safety issues around the following themes:

- Self-image and identity
- Online relationships
- Online reputation
- Online bullying
- Managing online information
- Health, wellbeing and lifestyle
- Privacy and security
- Copyright and ownership

Not all of the objectives in the Education for a Connected World framework are covered in the Teach Computing Curriculum, as some are better suited to personal, social, health, and economic (PSHE) education; spiritual, moral, social, and cultural (SMSC) development; and citizenship.

At Fellside, we follow initiatives such as Safer Internet Day, and National Careers Week which enhance both E-safety and provide an understanding of where computing fits in to the context of the wider world.

Role of Computing in the Promotion of British Values

Through the topics taught in Computing, we aim to enable the children to understand British values. These are:

- Democracy.
- The rule of law.
- Individual liberty.
- Mutual respect.
- Tolerance of those of different faiths and beliefs.

This includes providing a mutually respectful working environment, where progression and achievement is enhanced through encouragement and praise for all; following rules and security measures when working online; sharing work with one another and in turn respecting the work, opinions and views of their peers.

Opportunities for Engagement and Enrichment

Involvement in a few initiatives enhance the computing curriculum. The whole

school participates in Internet Safety Day and National Careers Week. We offer two computing clubs, one coding club and one robotics club. These are usually met with good interest and the clubs have entered national level competitions run through the organisation with success. The VexIQ Robotics (upper key stage 2) Competition provides an opportunity for children attending these clubs to travel and compete in national competitions. The profile of computing is raised through their recognition and discussions in assemblies. 'Techy Tots' (key stage one) curriculum, VexGo Robotics (lower key stage 2) and Vex123* enhance (EFYS and key stage 1) are all clubs offered to pupils to enhance coding ability.

*resources on loan and use will continue whilst we have the available resources.

Some classes enrich through external visits, such as to Nissan, where an external provider delivers activities in line with National Curriculum objectives, or to Durham University where children participate in a local project and deliver their programming designs to both post and undergraduate students.

Parents are encouraged to support the implementation of IT and computing where possible by encouraging use of IT and computing skills at home for pleasure, through home-learning tasks and use of the school website. The scheme we follow in school has links to free software which can be passed on to parents for children to complete further learning at home. Parents will be made aware of issues surrounding e-safety and encouraged to promote this at home. The scheme we follow in school has links to free software which can be passed on to parents for children to complete further learning at home.

The Role of the Subject Leader

The subject leader will:

- offer help, support and training to all members of staff (including teaching assistants) in their teaching, planning and assessment of computing.
- provide colleagues opportunities to observe good practice in the teaching of computing.
- maintain resources and advise staff on the use of digital tools, technologies and resources.
- monitor classroom teaching or planning following the schools monitoring programme.
- monitor the children's progression in computing, looking at examples of work of different abilities.
- manage the computing budget.
- keep up-to-date with new technological developments and communicate information and developments with colleagues.
- lead staff training on new initiatives.
- attend appropriate in-service training.
- have enthusiasm for computing and encourage staff to share this enthusiasm.
- keep parents and governors informed on the implementation of computing

in the school.

- liaise with all members of staff on how to reach and improve on agreed targets.
- help staff to use assessment to inform future planning.

The computing subject leader will assess and address staff training needs as part of the annual development plan process or in response to individual needs and requests throughout the year.

Individual teachers should attempt to continually develop their own skills and knowledge, identify their own needs and notify the subject leader. Teachers will be encouraged to use IT and computing to produce plans, reports, communications and teaching resources.

Resources

Fellside Community Primary School has purchased hardware and software to support Computing both as a discrete subject and with regard to other curriculum areas.

Hardware includes:

- A 31-computer IT suite*
- 2 laptops*
- 30 iPads for Year 1 to 6
- 4 iPads for EYFS
- Headphones
- Webcams
- 7 Ozobots
- 4 Beebots
- 30 Raspberry Pis
- 2 Code-a-pillars
- VexGo Robotics pack
- Vex IQ Robotics pack
- Vex 123 Robotics (trial pack)

There are additional PCs and laptops available within classrooms

Software and Online Subscriptions include:

- Twinkl (for planning and resourcing)
- Accelerate Reading
- Kidblog
- Scratch
- Audacity
- Sketch Up
- Microsoft Office
- Sonic Pi
- Maths Rockstars
- GIMP

- Accelerated Reader
- Athletics

Health and Safety

The school is aware of the health and safety issues involved in children's use of IT and computing.

All fixed electrical appliances in school are tested by a Local Authority contractor every five years and all portable electrical equipment in school is tested by an external contractor every twelve months.

It is advised that staff should not bring their own electrical equipment in to school but, if this is necessary, equipment must be PAT tested before being used in school. This also applies to any equipment brought in to school by, for example, visitors running workshops, activities, etc. and it is the responsibility of the member of staff organising the workshop, etc. to advise those people.

All staff should visually check electrical equipment before they use it and take any damaged equipment out of use. Damaged equipment should then be reported to a computer technician, bursar or head teacher who will arrange for repair or disposal.

In addition:

- children should not put plugs into sockets or switch the sockets on.
- trailing leads should be made safe behind the equipment
- liquids must not be taken near the computers
- magnets must be kept away from all equipment
- safety guidelines in relation to IWBs will be displayed in the classrooms
- e-safety guidelines will be set out in the e-safety policy & Acceptable Use Policy

We take security very seriously.

As such:

- the computing technician employed through the Local Authority will be responsible for regularly updating anti-virus software.
- use of IT and computing will be in line with the school's 'acceptable use policy'. All staff, volunteers and children must sign a copy of the schools AUP.
- parents will be made aware of the 'acceptable use policy' at school entry and Key Stage 2.
- all pupils and parents will be aware of the school rules for responsible use of IT and computing and the internet and will understand the consequence of any misuse.
- the agreed rules for safe and responsible use of IT and computing and the internet will be displayed in all computing areas.

Equal Opportunities

We will ensure that all children are provided with the same learning opportunities regardless of social class, gender, culture, race, disability or learning difficulties. As a result, we hope to enable all children to develop positive attitudes towards others. All pupils have equal access to computing and all staff members follow the equal opportunities policy. Resources for all children will be made available to support and challenge appropriately.

Inclusion

The Teach Computing Curriculum has been written to support all pupils. 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, which support making computing topics more accessible.

In order to support pupils with SEND, teachers may offer support through paired and group work, teacher or teaching assistant support, tasks broken into smaller steps and visual aids and reminders.

To ensure sufficient challenge for pupils, a teacher may plan extensions, providing opportunities for creative and independent use of learned skills and by supporting higher standards of explanations and vocabulary.

Monitoring of Standards in Computing

The subject leader is responsible for monitoring the standard of the children's work and the quality of teaching in line with the schools monitoring cycle. This may be through lesson observations, pupil discussion and evaluating pupil work. We aim to allocate time for the vital task of reviewing samples of children's work and for visiting classes to observe teaching in the subject at least once per year.

Policy Review

This policy will be reviewed on a three-year cycle or previously should government guidance or school technology change.



Fellside Community Primary Computing Curriculum Overview

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Digital Literacy	Information Technology			Computer Science	
Year 1	Technology around us	Digital Painting	Digital Writing	Grouping Data	Moving a robot	Introduction to animation
Year 2	IT around us	Digital photography	Making music	Pictograms	Robot algorithms	Introduction to quizzes
Year 3	Connecting computers	Animation	Desktop publishing	Branching databases	Sequence in music	Events and actions
Year 4	The Internet	Audio editing	Photo editing	Data logging	Repetition in shapes	Repetition in games
Year 5	Sharing information	Vector drawing	Video editing	Flat-file databases	Selection in physical computing	Selection in quizzes
Year 6	Communication	3D Modelling	Web page creation	Spreadsheets	Variables in games	Sensing

Core strands

Computing systems and networks
Creating media
Data and information
Programming

