What Computing looks like in Goodrich CE (VC) Primary School

At Goodrich CE Primary, we believe that technology can transform learning. We aim to integrate technology throughout the children's learning, giving them the necessary skills and understanding to become problem solvers, critical thinkers and enable them to be digitally literate, so that they can be responsible when using a variety of technology in new and creative ways.

What a computing lesson looks like in our school:
- Computing is split into three main areas: Computer Science, Digital Literacy and Information Technology.
- E-Safety is taught overtly with one lesson each half term and this will be referenced throughout all computing session or when using technology linked with computing.
- Other computing areas will be taught overtly on a weekly/fortnightly basis (as stated in the school curriculum overview) and the four computing elements are fed into a cross-curricular piece of work or as a discrete skill
- Children understand the sticky knowledge they need to continue their learning journey, which follow the learning graphs from the NCCE, they are following and learn/experience for the purpose
- Mini plenaries to share misconceptions, pose questions, challenge ideas and share creative ideas
- Using identified vocabulary associated with computing session/skill being taught

This is our philosophy:
High quality modelling and scaffolding of skills leading to…
- Fluency and capability of the skill with a range of applications and software on a range on electronic equipment, e.g. IPads
- Working at greater depth, specifically problem solving, programming and data handling
- Cross-Curricular links where possible
- Children build on from basic skills developing resilience and confidence with programming, the purpose of multi-media, collection and input of data from simple collection
- During the year, we plan opportunities for children to share their learning with other children, adults (classes, collective worships)

E-Safety
- Children understands the steps they must take to use technology safely and respectfully in school and at home and to keep their personal information private
- Children learn to know where to go for help and support if they encounter something that make them feel uncomfortable on the internet or other online technologies
- Appropriate e-safety information shared with parents regularly through the school newsletter and on our school Twitter page

This is the knowledge and understanding gained at each stage:

By the end of EYFS pupils will:

Children recognise that a range of technology is used in places such as homes and schools. They select and choose technology for particular purposes.

By the end of Key Stage 1 pupils will:

- 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

By the end of Key Stage 2 pupils will:

- 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

Our Computing Curriculum is carefully structured to allow pupils to develop their computational thinking and approached through a variety of activities including unplugged (without a computer), screen or physical activities.
The Computing Curriculum is comprised of three key areas of study: Computer Science, Digital Literacy and Information Technology.

Computing Science

Computing Science is the foundation element of the computing curriculum. In this area, pupils are encouraged to develop key computational thinking strategies such as tinkering, decomposition and debugging to ensure they become critical thinkers and apply these skills across the breadth of the curriculum. Pupils also study the hardware components and how simple networks work.
During EYFS, pupils begin to write and follow algorithms, leading to programming Beebots around a maze. In Upper Key Stage 2, these skills will eventually develop into coding quizzes and using Scratch, a platform game using a block-based coding language.

Digital Literacy

This element of the computing curriculum teaches pupils how to be responsible users of technology to engage and thrive in the digital world. It is at the forefront of all lessons and is embedded through PSHE, Safer Internet Day, Anti-bullying week and E-Safety lessons throughout the year. All pupils from EYFS to Year 6, are taught the knowledge and behaviours to use technology safely, so that they can be critical thinkers and be aware of who to talk to when they are upset or worried about what they have encountered on a device, app, platform etc.

Information Technology

Information technology units are designed for pupils to solve problems with the aid of technology, for example, making a story come to life through animation or editing images and audio for a purpose. All pupils from EYFS to Year 6, will develop a variety of skills across different devices to enable them to make appropriate choices when deciding how to present or solve problems with the use of technology.

This is how it works:

- Planning for programming is through a set of overt lessons from the NCCE
- Opportunities for cross-curriculum development with foundations based on the overt lessons
- Cross-curricular opportunities include a wide range of IPad apps such as: green screening, iMovie, Garage Band, etc.
- Support from Computing at Schools (CAS) for staff and also CPD opportunities linked to NCCE (Teach Computing), Barefoot.
- Use of D+D services to ensure up-to-date equipment, filters and services

E-Safety

- Taught through PHSE lessons every term and a Summer term focus (see E-Safety Progression document based on Project Evolve).
- Revisited at the start of computing lessons and discussed as and when situations arise
- E-Safety poster, signed by the children, to be displayed and referred to as and when situations arise
- E-safety information sent out to parents via newsletter and emails

Programming
- Use of simple, directional programmable robots, e.g. BeeBots
- Use of Scratch Junior as an introduction to programming
- WeDO Lego control systems for control of self-built robots for specific experiences/cross curricular

Multimedia
- Introduction to Puppet edu, book creator, iMovie, green screening, expeditions etc.

Technology in our lives
- Children are exposed to a range of applications (IPads) and software (laptops) throughout their learning journey and high quality teaching both overt and discrete. Apps and software include: Microsoft programs (Laptop - Word, PowerPoint, Excel), (IPad - pages, keynote, numbers), QR coding, data storage online, times table rock stars, SeeSaw, 123 Maths (Intervention), Type 2 Write, Now Press Play

Data Handling
- Taught overtly and then utilised discretely within cross-curricular lessons to either enhance or clarify/depict learning
- Cross- curricular links include: Science, Maths, Geography, History, Design and Technology

This is what the adults do:
- Planning is both overt and discrete. Staff follow NCCE planning which builds on previous learning, skills and experiences
- Positive use of mistakes and misconceptions
- Create a learning environment rich in resources that support learning
- Learning walks/monitoring to ensure that computing is being taught
- Regular staff audits
- Whole school CPD
- Inform/guide parents on how to appropriately guide/support their child's use of technology and how to keep their child safe online
- Research new innovative techniques/programs to support the teaching of computing
- Network with other schools - computing coordinators, e.g. though the WVLN and West Midlands Hub.

This how we support pupils:
- Mixed ability groups and pairings
- Use of technology for SEN children throughout the curriculum e.g. dictation tools, voice notes
- For those children identified – 1:1/small group support put into place
- Clear learning objectives and skills to be learned are shared at the beginning of each lesson.
- Self-assessments are used throughout the lesson, e.g. through mini-plenaries

This how we support staff:
- Identification of CPD needed
- Curriculum Groups – share expertise throughout the school
- Use of staff meetings
- Small sessions and immediate support as and when required
- Use of Computing at Schools (CAS) and NCCE
- Use of D+D to overcome any technical issues and identify more effective software/school processes

This how we challenge:
- Differentiation and planning
- Small group work to further challenge
- Reasoning and justification
- Revisiting sticky knowledge regularly

CURRICULUM IMPACT

This is what you might typically see:

- Happy and engaged learners
- Open ended investigation
- Paired/group/1:1 work
- A range of different activities, including practical and use of technology appropriate to age and developmental stage
- Self-motivated learning
- TIPTOP learning
- Children talking positively about computing and sharing and reflecting on their learning and how it can relate to real situations

This is how we know how well our children are doing:

- Formative Assessment by teachers at the end of a session to inform whether planning needs to be adjusted or what skills need to be consolidated.
- Analysis of assessments – use of sticky knowledge questions, assessment grids based on NCCE units.
- Pupil progress meeting
- Marking/feedback with cross-curricular subjects
- Pupil feedback
- Photo evidence/folder of work/ QR codes
- End of term reports

This is the impact of the teaching:

- Confident children who can talk about computing and uses of technology
- Children who are enjoying their learning in computing
- Depth of understanding/application in different contexts
- Children ready for the next step in their education
- Resilient digital learners who are responsible, respectful and supportive citizens both on and off line
- A clear understanding of how to remain safe online in and outside of school