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Policy Written: September 2025
Approved by governors: November 2025
Date for renewal: November 2026

Computing Foundation Subject Policy

Intent

"Computers are incredibly fast, accurate and stupid; humans are incredibly slow, inaccurate and brilliant; together they are powerful beyond imagination."
Albert Einstein

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. (NC2014)

WE CAN provide teaching that develops knowledge and skills so children can learn and progress effectively

Children in the EYFS are exposed to technology through a range of learning experiences and role play opportunities.
Throughout Key Stage 1 and Key Stage 2, Computing is taught in 3 blocked units each year. Our Computing curriculum meets all requirements of the Computing National Curriculum with objectives distributed between the year bands to ensure progression.
In our Computer Science strand, children in KS1 learn simple coding to move an object, children in LKS2 develop their understanding by using sequencing and animation, while by the end of KS2 children have learnt to use complex variables.
In our Digital Literacy strand, KS1 children develop their understanding of the differences between the real world and the online world. LKS2 children learn about what should or shouldn't be shared and by the end of KS2 they have an understanding of how to be a digital citizen.
Finally, in our Information Technology strand, lower down the school children create their own story books, while by the time they leave the school, they have created presentations, worked collaboratively online and produced their very own short film.

Computing lessons should incorporate hands-on tasks and activities using a variety of technology within real-life scenarios that tackle specific problems or needs. The important theme of e-safety should run as a priority throughout the units.

Links between subjects strengthen and support pupils' knowledge and understanding. Cross curricular reading, writing and maths is embedded across the curriculum.

Vertical links embed learning in the same subject across year groups or units. For example, children in Year 3 apply what they learnt about inserting images in Y2 when they produce posters using an alternative publishing software.
Horizontal links link learning in the same year group with another curriculum subject. For example, when referring back to personal safety taught in PSHE during E-Safety lessons.
Diagonal links link learning in different year groups and a different curriculum subject. For example, a class teacher may choose to use a younger year group as the audience and base publishing work on a theme covered by an earlier year group.

It is important to teach skills separately, ensuring that once students have grasped the knowledge and that they can apply it across different subjects.

WE CAN offer enriching activities, events and experiences

Computing skills are often used during our Whole School Days or Junior Leaders Days either as the focus for learning or as a tool to enable children to learn about new ideas or information.

WE CAN work together to remove barriers and ensure equality

For those children who find accessing computing lessons more challenging due to their individual needs, additional support or modified tasks and apparatus may be used. The children who are most confident in using technology may be asked to share their expertise and offer peer support or modelling in computing lessons. Children in receipt of Pupil Premium funding are helped through the use of targeted questioning, differentiation and support.

WE CAN build independent and resilient learners who are able to communicate confidently

We promote opportunities for children to work as independent learners towards a planned goal in Computing lessons. In Computer Science, children are regularly required to debug or fix code that doesn't work. This process helps to develop resilient learners with a WE CAN attitude. Children are reminded to learn from their mistakes, use their growth mindset and to keep trying. In Information Technology, pupils use communication skills to generate, present and share their ideas.

WE CAN listen to and treat each other and all members of the community with respect, tolerance and concern

Digital Literacy helps to promote the British values of respect and tolerance by exploring the links between the real and online and the idea of Digital Citizenship. Children learn that you must act online as you would in the real world. All year groups learn that positive communication and respect are as important online as in the real world.

WE CAN recognise ability, maximise potential and prepare children well for their future and life in modern Britain

Computing skills are essential for engaging in our modern world. The Computing curriculum prepares our children for their future by teaching essential life skills. The ability to research and present information will be essential for children as they move on to secondary, further education and into the world of work. An interest in Computing may lead pupils towards a career in administration, cyber security, programming, app development or network management.

Implementation

Roles and Responsibilities

- The class teacher is responsible for delivering Computing learning as outlined in the curriculum
- The computing subject leader is responsible for

- Updating unit plans in response to annual evaluations
- Ensuring all resources for teaching are available and well organised,
- Offering support with computing teaching and learning,
- Maintaining an oversight of assessment outcomes,
- Monitoring the quality of teaching and learning,
- Keeping up to date with the latest best practice computing teaching.

- The Curriculum Manager is responsible for supporting the computing subject leader in their role.
- The Academic Lead is responsible for ensuring progression and continuity across the school.
- The Headteacher is responsible for overall academic provision and performance.

Subject Organisation

In the EYFS Computing children are exposed to different technologies.
In KS1 and KS2, Computing teaching is taught as blocked units. Three units are taught each year and they cover the three strands of computing:

- Computer Science
- Information Technology,
- and Digital Literacy.

The units are outlined as unit plans in the Curriculum Document. These should be used as the basis for lesson planning and the creation of SMARTs (where necessary).
For Computer Science, we follow the Discovery Education Espresso Coding curriculum resources. For Information Technology and Digital Literacy, units were produced 'in house'.
Computing is included as an option in the annual cycle of homework projects. This allows children to engage in project-based design work at home with their families.

Planning Process

Unit Plans:
The starting point for planning a computing unit is the unit plan. This shows objectives, content, vertical, horizontal and diagonal links, progression and assessment. It is given to staff in Curriculum folders.
Medium Term Plans:
Having read the unit plan, teachers delivering the unit should work together and must annotate unit plans to map out the content across the number of lessons available. They will need to ensure enough time is allocated to each part of the unit and should consider the best way to deliver the teaching for their classes. Teachers should be mindful of the end of unit assessment criteria when planning. The computing subject leader is available to offer advice on medium term plans.
At this point, teachers must identify which resources will be required, check what is available and make a request to the computing subject leader and EDIT technicians for any additional resources required. For computing, this will involve testing the hardware and software so what is planned can be delivered. Teachers must understand what they are teaching and how the software and saving procedures work.
Lesson Planning:
Teachers then plan individual lessons to deliver the required content.
The focus for lessons should be on the Computing knowledge and skills. Lessons should be practical and allow children to apply their skills. It is best practice to begin a lesson with a review of prior learning. Teachers should plan in opportunities to introduce new vocabulary with children as part of their teaching.
Lesson plans should contain plans for adaptive teaching as appropriate to the children.

Teaching and Learning

Best practice is for Computing lessons to include practical, hands-on tasks and activities using a range of technology and to be set in a real-life context addressing a particular problem or need. Skills should be taught discretely and once this knowledge is secure it can be applied in other contexts across the curriculum.
Teachers should apply the 5-a-day approach to Computing.
Whenever relevant reference should be made to Grendon's Goals and any vertical, horizontal or diagonal links.
Resources:
Laptops are stored in the locked laptop trolley in the computer room. Ipads are kept in the locked trolleys. The computer room holds additional resources such as Bee-bots, headphones, microphones, and cameras.
Please keep the resources tidy and in the correct trolley or labelled box. Laptops are numbered and should be returned to the corresponding shelf.
To reduce login time and allow the hardware to save details future use, children should use the same laptop each week.
If any of the resources are broken or not working, please let the computing lead know as soon as possible.
Our school technician is able to add apps to Ipads. Please make a request with sufficient time before you need it for your lessons.
Staff and pupils have individual log on details for Teams, a school email account and an individual Discovery Education account.
Health and Safety:
Some lessons in Computing will include an element of e-safety risk. All children are required to sign the school e-safety agreement annually.
Before any child has access to the internet in a lesson, class teachers must address e-safety and explain rules and expectations. Class teachers should identify the best ways to mitigate online risks e.g. by setting clear expectations or increasing the level of adult support.
Teachers must report any safeguarding concerns using CPoms or directly to a DSL. They should discuss any health and safety concerns with a Senior Leader and make reference to any risk in planning on Smart boards.
Equality and Inclusion:
Computing teaching will be accessible to all children and challenge them appropriately. Where children need additional support this may be provided through scaffolding or adult support as part of universal provision.
Recording:
We need to collect evidence of pupils' achievement in computing to enable teachers to complete accurate assessment and for monitoring purposes. We do not have exercise books but we do use class scrapbooks as a way to collect evidence. The method of recoding depends on the unit and specific details of where work should be saved are given on the unit plans.
Computing work is saved in one of three ways:

- *Class Scrapbook*- In a class scrapbook which documents individual lessons.
- *My Content*- Espresso work is recorded in the My Content section of each child's Espresso account.
- *Teams*- On individual TEAMS accounts as a completed assignment.

If teachers have any questions about recording work in computing then they should speak to the computing lead at the planning stage.

Impact

By the end of their time at Grendon Primary School children will have been exposed to a wide range of Computing projects. They will understand key topics related to Information Technology, Computer Science and Digital Literacy.

Assessment

Assessments are made at the end of each unit. Class teachers refer to the assessment criteria referenced on unit plans and make a judgement on which children are meeting the expected standard, below the expected standard or exceeding the expected standard.

The Computing lead will analyse the data and identify any trends, strengths or weaknesses and any area where additional support is needed. Plans are then put into place to address this.