COMPUTING POLICY

Date: March 2021

Signed:

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1.   **Aims**

The 2014 national curriculum introduced a new subject, Computing, which replaces ICT. This represents continuity and change, challenge and opportunity. It gave schools the chance to review and enhance current approaches in order to provide an even more exciting and rigorous curriculum that addresses the challenges and opportunities offered by the technologically rich world in which we live.

Computing is concerned with how computers and computer systems work, and how they are designed and programmed. Pupils studying computing will gain an understanding of computational systems of all kinds, whether or not they include computers. Computational thinking provides insights into many areas of the curriculum, and influences work at the cutting edge of a wide range of disciplines.
Hayton C of E Primary school's aims are to:
- Provide a relevant, challenging and enjoyable curriculum for computing for all pupils.
- Meet the requirements of the national curriculum programmes of study for computing.
- Use computing as a tool to enhance learning throughout the curriculum.
- To respond to new developments in technology.
- To equip pupils with the confidence and capability to use ICT and computing throughout their later life.
- To enhance learning in other areas of the curriculum using ICT and computing.
- To develop the understanding of how to use ICT and computing safely and responsibly.

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
- 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, to analytically solve problems.
- Are responsible, competent, confident and creative and safe users of information and communication technology.

2.   **Objectives**

This policy encompasses the aims and objectives of the staff, parents and governors of Hayton School for the delivery of computing throughout the school. It relates to the current School Development Plan, which highlights the commitment of the School to high standards of teaching and learning in this area of the curriculum. The policy should be read in conjunction with the School's Online Safety Policy and Procedures (see separate document).

At Hayton School we value the enormous potential of Computing and the range of possibilities which it opens up for both children and adults to enhance teaching and learning. We welcome the opportunity to improve communication with others, both at home and abroad, and to give us all access to the wealth of information available through our connection to the World-Wide Web. The school believes that computing:

- Gives pupils immediate access to a rich source of materials.
- Can present information in new ways which help pupils understand access and use it more readily.
- Can motivate and enthuse pupils.
- Can help pupils focus and concentrate.
- Offers potential for effective group working.
- Has the flexibility to meet the individual needs and abilities of each pupil.

3. **Teaching and Learning**

The new National Curriculum presents the subject as one lens through which pupils can understand the world. There is a focus on computational thinking and creativity, as well as opportunities for creative work in programming and digital media.
The introduction makes clear the three aspects of the computing curriculum: **computer science** (CS), **information technology** (IT) and **digital literacy** (DL).

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.

4. **Planning**

As the school develops its resources and expertise to deliver the computing curriculum, modules will be planned in line with the national curriculum and will allow for clear progression. Computing will be taught both as a discrete subject and in a cross-curricular way when the opportunity presents itself. Modules will be designed to enable pupils to achieve stated objectives. Pupil progress towards these objectives will be recorded by teachers as part of their class recording system and once a term shared with the computing subject leader for whole school tracking purposes. Teachers plan using the Chris Quigley Essentials and other schemes of work including the Teach Computing units or their year group which covers all elements of the national curriculum (see Table 1 below).

Table 1 - Computing national curriculum

	Key Stage 1	Key Stage 2
Computer Science	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	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 Appreciate how [search] results are selected and ranked
Information Technology	Use technology purposefully to create, organise, store, manipulate and retrieve digital content	Use search technologies effectively 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
Digital Literacy	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	Understand the opportunities [networks] offer for communication and collaboration Be discerning in evaluating digital content Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact

In the Early Years Foundation Stage Curriculum, the Technology requirements stated in the Understanding of the World element of the Early Learning Goals are covered in continuous and blocked units throughout the year. "Switched on to ICT in the Early Years" is used to support the implementation of computing in the EYFS. It is important in the EYFS to give children a broad, play-based experience of Computing in a range of contexts, including outdoor play. The computing curriculum is not just about computers. Early years learning environments should feature Computing scenarios based on experience in the real world, such as in role play. Children gain confidence, control and language skills through opportunities to 'paint' on the whiteboard or drive a remote-controlled toy. Outdoor exploration is an important aspect, supported by toys such as walkie-talkie sets etc. Recording devices can support children to develop their communication skills. This is particular useful with children who have English as an additional language.

5.   **Assessment and Recording**

Teachers regularly assess capability through observations and looking at completed work. Key objectives to be assessed are taken from the Chris Quigley Essentials curriculum and National Curriculum to assess key computing skills each term. Assessing computing work is an integral part of teaching and learning and central to good practice. It should be process orientated - reviewing the way that techniques and skills are applied purposefully by pupils to demonstrate their understanding of the concepts of computing. As assessment is part of the learning process it is essential that pupils are closely involved. Assessment of children's work in computing is ongoing. Children's work is saved to the server for reference throughout the year to provide an online portfolio of their achievements that is added to and available to staff and children the following academic year. Achievement is reported to parents at the end of each academic year. An annual review of standards will inform future teaching and learning, and indicate the need for future investment in staff development and new hardware or software. We use the Depth of Learning program to record teacher assessment from Year 1 to Year 6.

		Milestone 1 **(Year 1 & 2)**	**Milestone 2** **(Year 3 & 4)**	**Milestone 3** **(Year 5 & 6)**
To code	*Motion*	• Control motion by specifying the number of steps to travel, direction and turn.	• Use specified screen coordinates to control movement.	• Set IF conditions for movements. Specify types of rotation giving the number of degrees.
	Looks	• Add text strings, show and hide objects and change the features of an object.	• Set the appearance of objects and create sequences of changes.	• Change the position of objects between screen layers (send to back, bring to front).
	Sound	• Select sounds and control when they are heard, their duration and volume.	• Create and edit sounds. Control when they are heard, their volume, duration and rests.	• Upload sounds from a file and edit them. Add effects such as fade in and out and control their implementation.
	Draw	• Control when drawings appear and set the pen colour, size and shape.	• Control the shade of pens.	• Combine the use of pens with movement to create interesting effects.
	Events	• Specify user inputs (such as clicks) to control events.	• Specify conditions to trigger events.	• Set events to control other events by 'broadcasting' information as a trigger.
	Control	• Specify the nature of events (such as a single event or a loop).	• Use IF THEN conditions to control events or objects.	• Use IF, THEN, ELSE conditions to control events or objects.

		Milestone 1 (Year 1 & 2)	Milestone 2 (Year 3 & 4)	Milestone 3 (Year 5 & 6)
To code (continued)	*Sensing*	• Create conditions for actions by waiting for a user input (such as responses to questions like: What is your name?).	• Create conditions for actions by sensing proximity or by waiting for a user input (such as proximity to a specified colour or a line or responses to questions).	• Use a range of sensing tools (including proximity, user inputs, loudness and mouse position) to control events or actions.
	Variables and lists	• From Year 3 onwards.	• Use variables to store a value. • Use the functions define, set, change, show and hide to control the variables.	• Use lists to create a set of variables.
	Operators	• From Year 3 onwards.	• Use the Reporter operators () + () () - () () * () () / () to perform calculations.	• Use the Boolean operators () < (), () = (), () > (), ()and(), ()or(), Not(), to define conditions. • Use the Reporter operators () + (), () - (), () * (), () / () to perform calculations. Pick Random () to (), Join () (), Letter () of (), Length of () (), Mod (), This reports the remainder, after a division calculation, Round (), () of ().

	Milestone 1 (Year 1 & 2)	Milestone 2 (Year 3 & 4)	Milestone 3 (Year 5 & 6)
To connect	• Participate in class social media accounts. • Understand online risks and the age rules for sites.	• Contribute to blogs that are moderated by teachers. • Give examples of the risks posed by online communications. • Understand the term 'copyright'. • Understand that comments made online that are hurtful or offensive are the same as bullying. • Understand how online services work.	• Collaborate with others online on sites approved and moderated by teachers. • Give examples of the risks of online communities and demonstrate knowledge of how to minimise risk and report problems. • Understand and demonstrate knowledge that it is illegal to download copyrighted material, including music or games, without express written permission, from the copyright holder. • Understand the effect of online comments and show responsibility and sensitivity when online. • Understand how simple networks are set up and used.
To communicate	• Use a range of applications and devices in order to communicate ideas, work and messages.	• Use some of the advanced features of applications and devices in order to communicate ideas, work or messages professionally.	• Choose the most suitable applications and devices for the purposes of communication. • Use many of the advanced features in order to create high quality, professional or efficient communications.
To collect	• Use simple databases to record information in areas across the curriculum.	• Devise and construct databases using applications designed for this purpose in areas across the curriculum.	• Select appropriate applications to devise, construct and manipulate data and present it in an effective and professional manner.

6.   **Inclusion**

The School aims to provide every pupil with opportunities to use ICT according to their needs, and the needs of children with special educational needs are taken into account through specialist software and teacher input. We also recognise that there are wide variations in computing experience through access to ICT and computing equipment outside the School, and recognise the need to challenge appropriately according to the needs and level of exposure to ICT of every individual. Our curriculum planning provides carefully differentiated activities, and a wide range of strategies to fulfil these expectations. We believe that all children have the right to access ICT and computing. In order to ensure that children with special educational needs and disabilities achieve to the best of their ability, it may be necessary to adapt the delivery of the computing curriculum for some pupils. We teach computing to all children, whatever their ability.

Computing forms part of the national curriculum to provide a broad and balanced education for all children. Through the teaching of computing we provide learning opportunities that enable all pupils to make progress. We do this by setting suitable learning challenges and responding to each child's different needs. Where appropriate, computing can be used to support SEND children on a one to one basis where children receive additional support. Hayton C of E Primary School 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 SEND children and gifted & talented will be made available to support and challenge appropriately.

7.   **Resources**

The school acknowledges the need to continually maintain, update and develop its resources and to make progress towards a consistent, compatible pc system by investing in resources that will effectively deliver the strands of the national curriculum and support the use of computing across the school. Teachers are required to inform the Head computing co-ordinator of any faults as soon as they are noticed. Resources if not classroom based are located in the computer suite. A service level agreement with Jay By Jay Software Ltd is currently in place to help support the Head to fulfil this role both in hardware and software.

ICT and computing network infrastructure and equipment has been sited so that:
- Every classroom from EYFS to Y6 has a laptop connected to the school network and an interactive whiteboard with sound, DVD and video facilities.
- There are also at least two working computers for the children to use in each classroom.
- There is a computing suite of 20 desktops.
- Each class from y1 – y6 has an allocated time slot in the computer suite for teaching of specific computing skills.

- The Computing resources and the computer suite are available for use throughout the school day as part of computing lessons and for cross curricular use.
- Pupils may use ICT and computing equipment independently, in pairs, alongside a TA or in a group with a teacher.
- The Computer Suite and the PCs distributed around the school, along with a range of other resources such as digital cameras and programmable toys, will be used to help pupils access the computing curriculum.
- The school has an agreement with Jay By Jay Software Ltd that a computing technician is available to visit school as and when required.
- A governor will be invited to take a particular interest in computing in the school.
- The Head and computing subject leader will continually monitor the resources required to deliver the computing element of the national curriculum.

8. **Health and Safety**

The school is aware of the health and safety issues involved in children's use of ICT and computing.
- All fixed and portable electrical appliances in school are tested by the Site Manager every three years.
- 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 the Site Manager and Head who will arrange for repair or disposal.
- 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
- Staff and pupils should avoid standing directly in front of the whiteboard projector. The projector beam should not be looked at directly.
- Children should avoid continuous focus on the screen and teachers should model at regular intervals.
- E-safety guidelines will be set out in the Online Safety Policy and Procedures.
- The Jay by Jay Ltd will be responsible for regularly updating anti-virus software.
- All pupils and parents will be aware of the school rules for responsible use of ICT and computing and the internet and will understand the consequence of any misuse.
- The agreed rules for safe and responsible use of ICT and computing and the internet will be displayed in all ICT and computing areas (see E-Safety Policy).
- Parents will be made aware of e-safety and encouraged to promote this at home and attend regular e-safety workshops run by school (see E-Safety Policy).

9.   **Extra-Curricular Activities**

Children are encouraged to take part in after school computing activities in partnership with the local high schools in our area. Year 5 and 6 pupils take part in a transition project working with staff at William Howard involving participation in a Code Club. This is part of a nationwide network of volunteer-led after school coding clubs for children aged 9-11. Children from Y2-Y6 have the opportunity to join an after school Minecraft Club run on a volunteer basis.

Parents are encouraged to support the implementation of ICT and computing where possible by encouraging use of ICT and computing skills at home during home-learning tasks and through the school website. They will be made aware of e-safety and encouraged to promote this at home.

10.   **Staff Development and Training Opportunities**

The Head and computing subject leader will oversee the daily running of the school system, and further develop the expertise of all staff through training sessions and classroom support. The Head and 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 computing subject leader of attendance at courses etc. Teachers will be encouraged to use ICT and computing to produce plans, reports, communications and teaching resources.