Computing Policy

St Patrick's Catholic Voluntary Academy

Approved by:	Headteacher	**Date:** November 2023
Last reviewed on:	September 2024	
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Contents

1. Rational and Objectives:

A high-quality computing education equips pupils to use computational thinking and creativity to understand and change the world. The use of computers and computer systems is an integral part of the National Curriculum and knowing how they work is a key life skill. 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. The purpose of this policy is to state how the school intends to make this provision.

This policy should be read in conjunction with the Computing Content and Concept Organiser which states the intended learning and end points. This is used to create detailed medium-term plans and individual sessions.

Audience:

This document is intended for:

- All teaching staff and staff with classroom responsibilities.

- School governors.

- Parents

- LA Advisor/ Inspectors

- Inspection Teams.

Copies are provided for staff and governors, as well as published on the School Website.

Paper copies of all documents are available upon request from the School Office or from the Curriculum Lead.

2. Aims:

The school's aims are to:

• Provide a broad, balanced, challenging and enjoyable curriculum for all pupils.

• Develop pupil's computational thinking skills that will benefit them throughout their lives.

• Meet the requirements of the national curriculum programs of study for Computing at Key Stage 1 and 2

• Respond to new developments in technology

• 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 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

• are responsible, competent, confident and creative users of information and communication technology.

The school believes that IT, computer science and digital literacy:

• Are essential life skills necessary to fully participate in the modern digital world.

• Allows pupils to become creators of digital content rather than simply consumers of it.

• Provides access to a rich and varied source of information and content.

• Communicates and presents information in new ways, which helps pupils understand, access and use it more readily.

• Can motivate and enthuse pupils to aspire further.

• Offers opportunities for positive relationships by means of communication and participation in collaboration through group working.

• Has the flexibility to meet individual needs while developing the talents and confidence of each pupil.

This policy should be read in conjunction with the following school policies:

• Online Safety Policy (appended to this document)

• Assessment Policy

• Marking and Feedback Policy

• SEND Policy

• Equality Policy

3. Statutory requirements:

This policy reflects the requirements of the National Curriculum programmes of study, which all maintained schools in England must teach. It also reflects requirements for inclusion and equality as set out in the Special Educational Needs and Disability Code of Practice 2014 and Equality Act 2010, and refers to curriculum-related expectations of governing boards set out in the Department for Education's Governance Handbook. In addition, this policy acknowledges the requirements for promoting the learning and development of pupils set out in the Early Years Foundation Stage (EYFS) statutory framework.

4. Intent:

The knowledge and use of computers and computer systems is an integral part of the National Curriculum. At St. Patrick's Catholic Voluntary Academy, we have a bespoke Computing Curriculum which is board and ambitious, designed to give all our pupils, particularly those that are disadvantaged and pupils with SEND, the knowledge and cultural capital they need to succeed in life.

We will ensure equal access to learning for all pupils, with high expectations for every pupil and appropriate levels of challenge and support so that all pupils experience, enjoy and make progress. Through confident and well-designed teaching of computing, utilising the opportunities that computing provides, we will encourage pupils to become ambitious, eager and independent in pursuit of skill development and in the application of computational thinking to approach problems. Faced with problems, pupils acquire, resilience, discipline and endurance, which are also real-life universal skills, in order to persevere.

All these abilities, in conjunction with instruction in living well together through E-Safety tuition, empower pupils to achieve what is necessary to become confident, compassionate, and digitally literate members of their modern community. Our intent is to equip pupils with a solid foundation of tools and experiences in the use of computational thinking to independently carry these forwards to support them through secondary education and beyond - to make sense of and take their place as active participants in an ever-increasing digital world and give them choices in future such as an industry full of opportunities. This policy is a statement of the aims, principles and strategies for the teaching, learning and assessment of Computing at St. Patrick's Catholic Voluntary Academy and how the school intends to make this provision.

Early years (see also early year's policy)

Pupils recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes. It is important in EYFS to give pupils a broad, play-based experience of IT and computing in a range of contexts, including unplugged activities and outdoor play. Computing is not just about computers. Early years learning environments can raise delight by featuring IT scenarios based on experience in the real world, such as in role play. Pupils establish the foundation of computational thinking skills either through role-play or cross curricular activities which involve sequence, patterns, logical steps and repetition. Pupils gain knowledge, control and language skills through opportunities such as 'programming' each other using instructions or directional language to find toys/objects, creating artwork using digital drawing tools and controlling programmable toys. Relationships established in early play and developing social skills involved in friendships, compassion, and living well together is the underpinning for E-Safety teaching in creating positive social norms online for a respectful online community. Outdoor exploration is an important aspect and using digital recording devices such as video recorders, cameras and microphones can support

pupils in developing communication skills. This is particularly beneficial for the participation of pupils who have English as an additional language.

5. Expectations:

By the end of key stage 1 pupils are taught to:

• understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following a sequence of instructions

• write and test simple programs

• use logical reasoning to predict the behaviour of simple programs

• organise, store, manipulate and retrieve data in a range of digital formats

• communicate safely and respectfully online, keeping personal information private, being able to identify where to go for help when they have concerns, and recognise common uses of information technology beyond school.

By the end of key stage 2 pupils are taught to:

• design and write 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; generate appropriate inputs and predicted outputs to test programs

• use logical reasoning to explain how a simple algorithm works 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

• describe how internet search engines find and store data; use search engines effectively; be discerning in evaluating digital content; respect individuals and intellectual property; use technology responsibly, securely and safely

• Select, use and combine a variety of software (including internet services) on a range of digital devices to accomplish given goals, including collecting, analysing, evaluating and presenting data and information.

6. Progression

In the Early Years, pupils experience science through Understanding the World, through activities that allow them to think creatively and critically. Staff encourage pupil's curiosity by being play partners, asking 'wondering' questions about what they are doing and what would happen if they were to do something another way.

Learning from the Early Years is built upon in Key Stage One and in Key Stage Two. Previous learning is revisited before new learning occurs, to ensure misconceptions are addressed and that pupils are gaining a deeper understanding as they build upon their current knowledge with new knowledge. Learning is broken down into small steps to support this and reduce cognitive overload.

7. Implementation:

Our staff have high expectations of all pupils, irrespective of ability, and encourage them to be successful and achieve their full potential in every lesson.

Our scheme of work for Computing is adapted from the 'Teach Computing' and the 'Sheffield Scheme of Work' Curriculum and covers all aspects of the National Curriculum. Our Computing Curriculum is designed in a way that allows pupils to transfer key knowledge to long-term memory; it is sequenced so that new knowledge and skills build on what has been taught before and towards defined end points. It has been created by subject expert and based on the latest pedagogical research. We invest as a school in support offered by a Computing Advisor from the Locality and our Curriculum content is clearly organised on a Content and Concept Organiser which identifies key concepts, knowledge, skills and objectives.

The curriculum aims to equip young people 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 5 strands:
Key skills, Communicating / Multimedia, Data Handling, Programming / Computational thinking and Online safety / Digital literacy with the aims of our curriculum reflecting these.

8. Content and delivery

Our bespoke scheme of work is taught once a week during a timetabled slot and reinforced through the use of ICT within other subjects in the curriculum.
- It offers a comprehensive yet balanced approach in addressing safety and security concerns, including ethics and behaviour issues, as well as digital literacy skills

- It provides child-centred, media-rich lesson materials that emphasize skill building, critical thinking, ethical discussion, media creation, and decision making
- It addresses the whole community by providing materials to educate parents and families about digital citizenship
- It provides additional resources and links and suggestions for curriculum opportunities

E-Safety and Digital Citizenship

A key part of implementing our computing curriculum was to ensure that safety of our pupils is paramount. We take online safety very seriously and we aim to give pupils the necessary skills to keep themselves safe online. Pupils have a right to enjoy childhood online, to access safe online spaces and to benefit from all the opportunities that a connected world can bring them, appropriate to their age and stage.

Within each year group topics include:

Key Skills:
Within this unit pupils are taught how to access content on digital devices. Recognise digital devices, what the components of a computer are and how they are used. Pupils are shown how to share content, save work, open files, use file names and organise using folders. Pupils are expected to copy, paste and cut text and images using keyboard shortcuts and understand operating systems.

Multimedia:
This unit allows pupils to select media for purpose, edit and change content, present ideas by combining media, edit and improve media content and how choices need to relate to the audience and purpose of a project.

Data handling:
Within this unit pupils sort objects into categories, use simple software for simple charts, create branching data bases and recognise errors within existing data bases. Pupils will evaluate databases, learn the difference between data and information and collect data around a theme. Pupils understand the difference between physical, wireless and mobile networks and use simple formulae to make databases.

Programming:
Pupils will learn how to repeat an action to trigger an outcome, record the success or failure of an action, follow instructions to control devices and that we control computers. They will experience simple programmes for outcomes, write algorithms and identify and express patterns. They will learn how the order of instructions links to the outcomes success and evaluate the success of algorithms. Pupils will remix or change existing programmes, use infinite loops in a programme, recognise variables in programmes, create programmes with repeating loops and combine variables with relational operations.

Online safety:

Pupils will learn online content could be inappropriate, information can be public or private, personal information and the need to keep it private. Pupils will discover why we have passwords and their significance, we need to be kind and thoughtful when online, people lie online and not all information online is reliable. Pupils will learn why we have copyright and ratings on games, TV, film, the benefits and risks of apps and the laws around the purchase, production, sending and storage of images and games. Pupils will also be sign posted to ways to report any concerns they may have when online.

9. Impact:

Our approach to the teaching of Computing at Saint Patrick's Catholic Voluntary Academy will result in engaging, high quality computing education which provides pupils with an understanding of the ever-changing world around them. Pupils will see themselves as Computer Scientists, no matter what age they are, with an awareness of possible future roles and careers in the technological world. Pupils will be able to question ideas and reflect on knowledge. Our pupils will work practically and collaboratively, they will be able to articulate their understanding of computing concepts and be able to express and reason using specific technological language. High quality programs and resources are used to enable a rich curriculum delivery.

The impact of learning will be assessed by the subject lead with the curriculum leader through a triangulation of activities, which include: lesson observations, planning scrutinies, book looks, pupil voice, staff voice and expected subject content and progression.

10. Classroom Organization and Teaching Style:

Class Teachers are responsible for their own class organization and teaching style in relation to Computing, whilst at the same time ensuring these, complement and reflect the overall aims and philosophy of the school.

In classes pupils are taught in a variety of ways, with an emphasis on adaptive teaching. This may be:

- Individually
- In groups to support one another, to encourage investigative skills, co-operation and effective learning together.
- As a class, where introductions, modelling and discussions are appropriate.

11. Resources:

We have a computer suite of 20 computers and two iPad trolleys containing 20 iPads each. These are timetabled for use by all pupils. We keep resources for ICT and computing, including software, in a central store. Interactive Whiteboards are available for all pupils to access daily. The computing suite is available for use throughout the school day as part of timetabled computing lessons as well as for cross-curricular use.

12. Inclusion:

We are a fully inclusive school and activities are carefully planned and adapted according to the needs of our pupils. Teachers set high expectations for all pupils and every effort must be made by teachers to ensure that pupils with SEN or disability are enabled to participate as fully and as effectively as possible in all computing activities. We use appropriate assessment to set ambitious targets and plan challenging work for all groups, including - More able pupils - Pupils with low prior attainment - Pupils from disadvantaged backgrounds - Pupils with SEN - Pupils with English as an additional language (EAL). Teachers will use adaptive teaching activities and ideas which are suggested within the medium-term plans for each lesson, as well as their own adaptive teaching techniques, so that all pupils can access appropriate Computing lessons to all pupils, regardless of their academic ability or Special Educational Need.

We aim for all pupils, regardless of their race, gender or ability to develop their knowledge and achieve skills and understanding of computing to enable them to make informed choices, dealing appropriately with different situations and making positive contributions to society. We consider prior learning, knowledge and skills already gained.

Pupils with English as an additional language are supported in a variety of ways, including but not limited to; reading of questions, repeating of instructions, translated instructions and practical demonstration of skills.

Gifted and Talented:

For gifted and talented pupils, teachers provide additional opportunities to take responsibility, develop leadership skills, think creatively and use their talents for the good of the class or the wider community. In order to stretch and challenge pupils should generally be catered within the class by use of a variety of extension activities, by greater depth in questioning and understanding and by an emphasis on work involving higher order thinking skills. Furthermore, these pupils should be given opportunities to explain their knowledge, thinking and learning using high-level technical vocabulary with precision. Suggested activities for stretch and challenge are present on all medium-term lesson plans for each session.

The words “gifted” and “talented” can be used in many different ways. The Department for Education and Skills uses the following definitions:

Gifted: the top 5%-10% of pupils per school measured by actual or potential achievement in English, Maths, Science, History, Geography, Modern Foreign Languages, RE, ICT or Design and Technology.

Talented: the top 5%-10% of pupils per school measured by actual or potential achievement in the subjects of Art, Music, PE or the Performing Arts. However, one element of this description should be emphasized: it is the top 5%-10% of pupils, *per school, regardless of the overall ability profile of the pupils.*

How to identify the More Able in Computing:

Parent and Pupil Feedback: a student might have interests outside of school that teachers are unaware of. Parents should be invited to communicate this information to teachers. Equally pupils should be encouraged to identify their own individual strengths and weaknesses.

Teacher identification: teachers are often best placed to identify which students are gifted or talented. They may also be aware of when students with gifted and talented potential are underachieving.

What support should More Able pupils be given?

Once the More Able pupils have been identified, our school will begin a coherent and consistent provision strategy. This will usually involve a combination of the following methods of support.

Enrichment: when pupils are encouraged to go beyond the usual limits of a subject or topic. Enrichment activities might involve extra classroom exercises or more open-ended project work.

Extension: when pupils are given activities that develop higher order thinking skills and work practices. Extension activities help pupils to work with greater autonomy and self-discipline.

13. Assessment

- Assessment for Learning is used in every science lesson across the school to assess whether pupils have understood a concept or if misconceptions have occurred. This allows for misconceptions and gaps to be addressed, ensuring we are building on secure scientific understanding. Specific PRIMM-DO (predict, run, investigate, modify, make – debug and order) tasks are used throughout the lesson sequence to assess the progress of pupils and their understanding as well as a range of plugged and unplugged activities. End of topic tasks/quizzes are also used to assess. Parents and Carers are informed of their child's progress and achievements in their end of year report.

The pupil's work is to be saved digitally using SeeSaw.

- Within computer science or I.T. based lessons, screen shots or embeddings of pupil's work alone would not be sufficient to evidence attainment as it may be the case that all the students produced the same work. Screenshots or embeddings should be accompanied by an independent statement by the pupil using key vocabulary as this will provide an opportunity for students to demonstrate their level of understanding of the learning objectives and ownership of the skills and vocabulary taught. This should enable teachers to discern between pupils achieving, exceeding or not having met the learning objectives.

14. Parental Involvement:

At St. Patrick's Catholic Voluntary Academy, we encourage parents to be involved by encouraging use of IT and computing skills at home for home-learning tasks and use of the school website. The school offers access to TTRockstars and Mathletics programmes as well as offering Spelling Shed online to facilitate home learning using technology.

Parents are made aware of issues surrounding E-Safety (for example through 'Wake Up Wednesday' shared information and weekly on the newsletter) and encouraged to promote this at home.

Reporting in Computing will be done in accordance with the school's reporting policy.

15. Roles and responsibilities

15.1 The governing board

The governing board will hold the headteacher to account for the implementation of this policy.

The governing board has delegated the approval of this policy to the headteacher.

15.2 The headteacher

The headteacher is responsible for ensuring that Computing is taught consistently across the school.

15.3 Staff

Staff are responsible for:

- Delivering Computing in a consistent way
- Modelling positive attitudes to Computing
- Monitoring progress
- Responding to the needs of individual pupils

The Role of the Computing Subject Leader

- Supports colleagues in their teaching by keeping them informed about current developments in the subject.
- Provide a summary of the pupil's work and observe Computing lessons across the school.
- Plan CPD for staff.
- Monitor provision of the curriculum and resources across the whole school.
- Monitor the progress pupils have made pre and post teaching through assessment activities, not just assessing against the intended end points.
- Provide adequate resources for all classes which are catalogued, stored and replenished as required.

- Attend 3 yearly meetings with a representative from Learn Sheffield to ensure our curriculum is up to date and meeting the needs of our pupils.
- Attend 3 yearly meetings associated with the local authority to gain knowledge of updates to national procedures and keep abreast of national assessment criteria.

15.4 Pupils

Pupils are expected to engage fully in Computing and, when discussing issues, treat others with respect and sensitivity.

16. Security

- The Computing technician (AAG) will be responsible for regularly updating anti-virus software and maintaining the effectiveness of filtering and monitoring systems used within school.
- AAG will be responsible for providing filtering and monitoring reports when requested by school.
- AAG are responsible for completing actions, changes or upgrades following system checks or concerns raised by school.
- Use of ICT and computing will be in line with the school's 'acceptable use policy'/ I.T. Code of Conduct.
- All staff, volunteers and pupils will receive copy of the schools AUP / I.T. Code of Conduct
- Parents will be made aware of the 'acceptable use policy' at school entry
- All pupils will be aware of the school rules for responsible use on login to the network and will understand the consequence of any misuse.

17. Monitoring arrangements

The monitoring of the teaching of computing and pupil progress is the shared responsibility of teachers, subject leader and the senior leadership team. The work of the subject leader includes supporting colleagues in the teaching of computing, keeping up to date with current developments as well as providing a strategic lead and direction for the subject. The school's governing body receive regular updates to inform them of the vision for continually driving forward the curriculum based on a selection of the following each term:

- Learning Walks
- Seesaw evidence
- Planning Scrutinies
- Lesson Observations
- Pupil Voice
- Staff Voice.

18. Policy Monitoring and Review:

This policy is monitored by the Computing Leader. It is evaluated and reviewed by the whole staff and Governors annually or sooner to ensure that it continues to meet the needs of the pupils, staff and parents, and that it is in line with current DfE advice and guidance.

19. Links with other policies

This policy links particularly to the following policies and procedures:

- Child Protection Policy.
- Behaviour Policy.
- Anti-bullying Policy.
- Online Safety Policy
- SEND Policy.
- Early Years Foundation Stage Policy (EYFS Policy)
- Relationships and Health Education Policy. (RHE Policy)
- Personal, Social, Health, Economic Education Policy. (PSHE Policy)
- Marking and Feedback Policy.

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