



ST. JOSEPH'S CATHOLIC PRIMARY SCHOOL ALDERSHOT A VOLUNTARY ACADEMY IN THE DIOCESE OF PORTSMOUTH POLICY FOR COMPUTING (September 2019 - 2022)

The school aims to provide for the spiritual welfare, academic progress, physical development, aesthetic awareness and pastoral care of every child, within a secure, stable and stimulating atmosphere conducive to effective learning that reflects St Joseph's strong Catholic ethos.

Teaching and Learning at St Joseph's

Structure and the belief that all children can achieve is key to all learning at St Joseph's. In all subjects, **recalling pre-knowledge and skills** is fundamental to our rationale for all curriculum areas. This means that essential linked knowledge/ skills are **revised** and links made with children's current learning in all subjects. Key concepts/ end points for each topic are highlighted and **over-learning** of these areas occurs through **repetition, modelling and scaffolding of learning**. Through our subject-specific Schemes of Work, we make sure that learning for all is progressive and sequential. In addition, reading and vocabulary are emphasised in all subjects. Thus, key concepts become embedded in the **long-term memory**.

Vision Statement

As a Catholic family we welcome all and value Christ in everyone, whilst seeking the highest possible achievements.

As such, we plan and resource pupils' learning, in line with the school curriculum policy. The School's Vision and Mission Statements underpin all aspects of our planning, our chosen pedagogy and our delivery to enable all pupils to make good and sustained progress in computing. We believe that all have the ability to achieve their best and our curriculum and varied choice of pedagogy enables all children to do this. This includes those with special educational needs and disability and those identified as most able.

Intent of the Computing Curriculum

The computing curriculum is designed by the curriculum co-ordinator, management team and governors to allow pupils to transfer key knowledge to their long-term memory. Computing comprises a variety of systems for the programming, control, creation, publication, storage and retrieval of information. It is treated as a subject in itself as well as being integrated into a variety of curricular subjects to ensure breadth, balance, continuity and progression. This results in building new skills and knowledge based upon what has been taught before, allowing all pupils to **work towards clearly defined end points**.

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, through encompassing **memorable learning opportunities** for example, designing their own games and animations which they are

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able to access at home. The school provides a coherently planned curriculum, sequenced towards cumulatively sufficient knowledge, skills and cultural capital through informative teaching and learning activities and enhancement experiences.

The 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)
- 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. Children are also encouraged to use, 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.

We therefore intend that all pupils will:

- Taught a relevant, challenging and enjoyable curriculum for computing for all pupils.
- Understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- Analyse problems in computational terms and have repeated practical experiences of writing computer programs in order to solve such programs
- evaluate and apply computing technology, including new or unfamiliar technologies analytically to solve problems
- Equipped pupils with the confidence and capability to use computing throughout their later life.
- Focus, build-upon and learn key vocabulary to develop understanding of concepts and computing knowledge.
- Read a variety of different books or internet resources to promote over-learning and the development of pre-skills and to develop understanding of concepts and computing knowledge to embed learning in the long-term memory.
- Build in memorable experiences to promote deep learning.
- Develop the understanding of how to use computing safely and responsibly.

We use a range of **pedagogical practices** in the teaching of computing to ensure that we are successful with our Intent. This can range from small group tasks, individual tasks, whole class tasks. We focus a lot on teacher modelling, expert questioning, giving children memorable experiences and over-learning to ensure that key knowledge is transferred to children's **long-term memory**.

Implementation of Computing Curriculum

Subject Leadership:

Computing has a **progressive and sequential Scheme of Work** which has been written by the subject leader to meet the needs of all pupils at St Joseph's.

The subject leader is responsible for:

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- The design, review and implementation of the Scheme of Work (overseen by Phase Leaders, the Headteacher and the Governors.)
- The budget in their subject they are accountable to governors in relation to this.
- Observing and giving feedback to teachers on lessons across the key stages.
- Conducting pupil interviews to gain an idea of the pupil's thoughts and feelings about the computing topics they have studied and feed these into computing moderation, ensuring that all children make at least good progress.

The implementation of this computing policy is the responsibility of all staff engaged in the learning and teaching of computing. Within the curriculum, uniquely, computing has no time element dedicated to its teaching. It is envisaged that all computing skills, including the generic ones such as loading, saving, mouse skills, printing, etc... are taught through tasks which themselves are generated within the other existing subjects.

Subject Knowledge (breadth and depth of computing Scheme of Work):

- The subject leaders ensure that teachers have good subject knowledge and the subject leader is appropriately trained to provide support, sharing and informing knowledge.
- The Scheme of Work provides a **focused learning environment and clear learning objectives to embed learning in the long-term memory through encompassing memorable learning experiences.**
- Our computing curriculum covers the skills outlined in the National Curriculum through broad, challenging and inspiring topics. It is envisaged that all computing skills, including the generic ones such as loading, saving, mouse skills, printing, etc... are delivered within a **meaningful context and wherever possible cross-curricular links are exploited** particularly links with geography, history, British Values, School Values, English and Maths.
- **Pre-knowledge and skills are retrieved and built upon** at the beginning of each topic as outline on the Scheme of Work.
- At a classroom level, **key concepts are presented clearly so that they are embedded in the long-term memory and over-learning is prevalent**, this is also monitored by the subject leader.
- Individual lessons are planned to inspire, engage and challenge pupils in response to their needs.
- Children are given a wide variety of experiences both in the classroom and out. Pupils to undertake **memorable learning opportunities** by having visitors into school for example computing club organised by computer explorers to enable the children to gain first-hand experiences to support their learning and influence further learning.
- Reading and computing vocabulary are emphasised and taught to embed these skills in the pupils long-term memory.
- Set books are borrowed on a termly basis from the school library to support topic work. Children are able to borrow books to enrich their learning and understanding at home as well as at school. **This develops home school links, cultural capital and reading.**
- Teachers will remind the children how their school and home environments are valuable resources. The children have the opportunity to use some of the school programmes at home such as 'timetables rockstars' and 'scratch.'

At Key Stage 1: Children are taught to safely and respectfully, keep all personal information private, through their own personal folders. This is also repeated in their PSHE lessons. Children are encouraged to explore and discover various programmes, allowing them to produce information with words, pictures and sounds. Children are encouraged to think about everyday devices they see and use and taught to recognise that they respond to signals, commands and programmes. They are introduced to the idea that these programmes are executed following a precise and unambiguous set of instructions, pupils explore this idea using SCRATCH, a coding

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programme, where they can predict the behaviour of simple programmes. Children are introduced to this through modelling of programs which enables them to create computer generated representations of ideas. Children are given the opportunity to use a variety of multimedia to develop their own idea and experiment with the implementation of those ideas, pupils are encouraged and taught to review, modify and evaluate their work as it progresses, recognising how they could improve and exploring ways to fix mistakes as well as being able to identify what they have used to produce their work. In key Stage 1, children study computing for a minimum of 1 hour per a week.

At Key Stage 2: Children continuously repeat and overlearn key aspects of Key Stage 1 with the addition of monitoring, appreciating the use of sensors to monitor physical changes in the environment and the input process-output stages of a simple monitoring system. Pupils are given the opportunity to learn and explore programs into which data and formulae maybe entered and in which calculations may be performed, reinforcing and deepening knowledge they have learnt in Mathematics. Pupils are able enrich their understand of programing by beginning to debug programs that accomplish specific goals, including but not limited to controlling or simulating physical systems, as well as detecting and correcting errors in algorithms. Pupils are able to Master how computer networks operate including how the internet works and e-safety. Children are taught the underpinning knowledge and behaviours that helps them to navigate the online world safely and confidently regardless of the device, platform or app. In Key Stage 2, Children study computing for a minimum of 1 hour and 30 minutes per a week.

Computing underpins English to a great extent across both Key Stages through word processing and, in particular desktop publishing, allow children to produce documents to an almost professional standard regardless of the child's artistic ability, presentational skills or handwriting style when working with pencil-and-paper. Computing does not seek to replace these skills, but can increase the self-esteem of some children and their appreciation of what they are capable of. There are also many links to the Mathematics curriculum these are spreadsheets, calculators, line and shape drawing programmes, such as Logo, scratch, art programmes as well as the Year 4 timetables assessment.

The school is equipped with PC computers running on the "Windows" operating system. The total number of computers available to the children in the computing suite is 36. In individual classrooms there are 24 computers, a staff workroom facilitating 4 computers, cluster areas providing 16 computers, a French Language Suite with 12 computers; making a total of 86 computers in total. At present there are 480 children on roll giving a per capita ratio of 6 children per computer.

Of the 86 computers;

- all are networked and internet connected via an ISDN line
- 36 of the above are available in a compact suite subject to timetable
- all can send and receive e-mail through any of the allocated e-mail addresses

In all classes there are interactive whiteboards. In addition to this, there is also an allocation of one ipod to each class. To further enhance children's learning there are headphones.

Equitable Delivery

- Computing is taught through a variety of individual, group and whole class activities.
- Active participation is encouraged through all children being able to have their own computer when attending the computing suite and all computers having up-to-date software and programmes.

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- The subject leader is accountable for their own annual budget to purchase a variety of resources, training and school visits/visitors to improve outcomes for pupils.
- Enrichment days are organised in relation to particular topics covered across the key stages.

Assessment

- It will comply with the school's assessment policy. Computing will be assessed through summative and formative methods at the end topic. The class teacher will assess the child's achievement against the overall main learning outcome and end points. The teacher will assess every child as working below, developing, working securely, working above or at mastery level. This description indicates the child's performance against the learning expectations being recorded.
- Each child will be given the opportunity to appraise his / her work and progress through discussion with the teacher, either individually, or in small groups in the context of a practical task being investigated.
- Collect examples of children's work for evidence of progress throughout the school year. At the end of each lesson, all children across all year groups are to save their work as evidence.

Impact of Computing Curriculum

- Our thorough tracking and assessment system enables teachers to check children's progress in relation to the curriculum and provide targeted intervention if needed.
- Computing is monitored by the subject leader and phase leaders in all year groups after each topic, through work scrutiny, review of assessment, pupil interviews and lesson observation to discuss learning and look at the impact. This is reported to the Headteacher and appropriate changes made.
- At St Joseph's, pupils achieve highly across the curriculum in English and Maths, the sciences, humanities, art, language and physical education and the use of transferrable skills is promoted.
- Pupils use the knowledge and skills learnt to meet the challenges of the next part of their educational journey and to do so with confidence and concentration.

Health and Safety

- All computers and associated equipment are checked for safety in line with the school's health and safety regulations.
- Children are not permitted to insert or remove mains plugs from sockets.
- All teachers are responsible for making sure the hardware and software are used correctly and safely on a day-to-day basis. Any problem should be reported to the computing technician and the computing coordinator. All equipment is regularly PAT tested and any problems are dealt with.
- We appreciate the importance of good posture therefore computers in the computing suite are placed on tables at the correct height and position for the children in the class. The children should be taught to sit upright on a chair using the back support with their arms horizontal to the keyboard.
- The children are shown how to switch the computers on and off, the correct way to use a mouse, and how to insert and remove a CD. They are shown how to adjust the brightness and contrast of the screen and to position the monitor to avoid reflections from lights to windows. Children are also taught how to zoom in and out so that they are not staring too closely at the screen.

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Internet Safety

At St Joseph's, we want to equip our pupils with the knowledge needed to make the best use of the internet and technology in a safe, considered and respectful way, so they are able to reap the benefits of the online world. Internet access is planned to enrich and extend learning activities across the curriculum. However, we have acknowledged the need to ensure that all pupils are responsible and safe users of the Internet and other communication technologies both in school and outside. Internet use is displayed in the computer suite. To ensure the safety of the children we will teach all pupils the rights and responsibilities of using the Internet by embedding teaching about online safety and harm within a whole school approach. At St Joseph's to teaching internet safety appropriate we use the teaching online safety in schools guidance (Department for Education, 2019) which outlines how us as a school can ensure our pupils understand how to stay safe and behave online as part of our curriculum requirement. Furthermore, there are also other curriculum subjects which include content relevant to teaching pupils how to use the internet safely for example PSHE.

Equal Opportunities

No distinction is made in the use of computing with reference to gender, ability, race or belief or any other protected characteristic. The acquisition of knowledge, especially through directed use of the Internet, should encourage respect for the culture and beliefs of others.

The principles and practice of diversity and race equality are integrated into the teaching and learning of computing. Attainment and progress data is monitored and supportive action will be taken to improve any underachievement due to racial bias and that assessments are free of any cultural bias.

At our school, we teach computing to all children, whatever their ability and individual needs. This is in line with the school's curriculum policy of providing a broad and balanced education to all children. Through our computing teaching, we provide learning opportunities that enable all pupils to make good progress. We strive to meet the needs of those pupils with special educational needs, those with disabilities and those deemed as more able and talented.

Software to support specific learning difficulties have been acquired such as Clicker 7 and it is the school's policy that the computing support market is monitored with a view to the identification and possible future purchase of items of software or hardware, that are deemed to be useful by the SENCO and/or the computing co-ordinators.

Background Documentation

This document is a statement of the aims and strategies for teaching and learning computing in St. Joseph's Catholic School Aldershot. It was developed by Mr Sam Kelly in consultation with the Staff, Headteacher and Directors/Governors.

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September 2019

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September 2022

Signed: Mrs D. McNeill
Headteacher

Dr Campbell McCafferty CBE
Chair of Governors