St Denys Captivating Curriculum

COMPUTING

Intent

Curriculum Drivers	Well Being	Creativity	Communication	Choice	Challenge
Our curriculum drivers shape, personalise and underpin our curriculum, bring about the aims and values of our school, and respond to the particular needs of our learners.	Our curriculum has physical, mental and emotional well-being at its heart. Children only learn if they are safe, well and happy.	Our curriculum harnesses the power of possibility and fosters creative thought, enabling children to solve problems and express themselves in different ways	Our curriculum ensures that children develop the skills necessary to communicate their thoughts, ideas and feelings successfully in a wide range of different forms.	Our curriculum provides children with the knowledge, skills and understanding to make informed choices	Our curriculum provides challenge for all learners, teaches learners to seek challenge and develops the resilience they need to embrace it

A high-quality computing education equips pupils to use creativity to understand and change the world. At St Denys, we will ensure children become digitally literate so that they are able to express themselves and develop their ideas through information and computer technology safely, in order to ready themselves for the future workplace and as active participants in a digital world.

Children are taught the principles of information and computation, how digital systems work, and how to put this knowledge to use through programming.

Making connections across the curriculum, whether with English, Mathematics, Science, Art, History, Geography, D&T or Music, we will ensure that children recognise those links and understand how acquiring a high level of digital competence will prove support their education now and in the future, as well as their future employment prospects. We will also ensure that children recognise the responsibilities they have to be a good digital citizen and how to keep themselves safe online.

These are the characteristics of learning that children will develop in computing: -

Characteristics of a computer scientist: -

The ability to connect with others safely and respectfully, understanding the need to act within the law and with moral and ethical integrity.

The ability to collect, organise and manipulate data effectively.

Competence in coding for a variety of practical and inventive purposes, including the application of ideas within other subjects.

An understanding of the connected nature of devices.

The ability to communicate ideas well by using applications and devices throughout the curriculum.

This is what we aim for children to achieve in Computing by the end of each Milestone :-

Pebbles Milestone Early Years Foundation Stage	**Milestone 1** Years 1 & 2	**Milestone 2** Years 3 & 4	**Milestone 3** Years 5 & 6

Subject - End of Milestone Outcomes	
By the end of **the Pebbles Milestone**, children will be able to...	Computing lessons in the EYFS ensure that children develop listening skills, problem-solving abilities and thoughtful questioning — as well as improving subject skills across the seven areas of learning. Our Computing scheme for the EYFS is centred around play-based, unplugged (no computer) activities that focus on building children's listening skills, curiosity and creativity and problem solving, as well as using age-appropriate technology
By the end of **Milestone 1**, children will be able to...	• 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 **Milestone 2**, children will be able to...	• 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
By the end of **Milestone 3**, children will be able to…	• 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

Implementation

Our whole curriculum is shaped by our school vision which aims to enable all children, regardless of background, ability, additional needs, to flourish, be creative and make choices in order to be the best version of themselves. The St Denys Captivating Curriculum in Computing has been designed to meet the needs of our learners in our context, meeting the requirements of the National Curriculum, informed by research and the principles of the National Centre for Computing Education "Teach Computing" Curriculum. It is supported by clear skills and knowledge progression with a clear vocabulary advancement. This ensures that skills and knowledge are built on year by year, sequenced appropriately and reinforced regularly to maximise learning for all children. It is important that the children develop the progressive skills of a Computer Scientist throughout their time at St Denys and do not just learn a series of facts/procedures related to the subject. In lessons, children are encouraged to use the skills of a Computer Scientist. These are skills that will help them in their adult life.

At St Denys, computing is taught weekly as well as integrated into every day teaching and learning. Planning is informed by the Teach Computing Curriculum, to ensure effective subject coverage and progression; this ensures children are able to develop depth in their knowledge and skills over the duration of each of their computing topics.

Knowledge and skills are mapped across each topic and year group to ensure systematic progression. Planning ensures that skills and knowledge are incremental year on year.

Each class has a half-class set of laptops in their classroom and there are mobile class sets of Chromebooks and iPads to ensure that all year groups have the opportunity to use a range of devices and programs for many purposes across the wider curriculum, as well as in discrete computing lessons. Employing cross-curricular links motivates pupils and supports them to make connections and remember the steps they have been taught. The implementation of the curriculum also ensures a balanced coverage of: Digital Systems & Networks; Creating Media; Data & Information; Programming. The children will have experiences of all three strands in each year group, but the subject knowledge imparted becomes increasingly specific and in depth, with more complex skills being taught, thus ensuring that learning is built upon.

The whole school overview for Computing is as follows :

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Autumn	**Examples of Computing in Reception include:** Taking a photograph with a camera or tablet Searching for information on the internet Playing games on the interactive whiteboard Exploring mechanical toys Using a Beebot Watching a video clip Listening to music	**Computing Systems & Networks:** Technology Around Us **Creating Media:** Digital Painting	**Computing Systems & Networks:** IT Around Us **Creating Media:** Digital Photography	**Computing Systems & Networks:** Connecting Computers **Creating Media:** Stop-Frame Animation	**Computing Systems & Networks:** The Internet **Creating Media:** Audio Production	**Computing Systems & Networks:** Systems & Searching **Creating Media:** Video Production	**Computing Systems & Networks:** Communication and Collaboration **Creating Media:** Web Page Creation
Spring		**Programming:** Moving a Robot **Data and Information:** Grouping Data	**Programming:** Robot Algorithms **Data and Information:** Pictograms	**Programming:** Sequencing Sounds **Data and Information:** Branching Databases	**Programming:** Repetition in Shapes **Data and Information:** Data Logging	**Programming:** Selection in Physical Computing **Data and Information:** Flat-file Databases	**Programming:** Variables in Games **Data and Information:** Introduction to Spreadsheets
Summer		**Creating Media:** Digital Writing **Programming** Programming an Animation	**Creating Media:** Digital Music **Programming:** Programming Quizzes	**Creating Media:** Desktop Publishing **Programming:** Events and Actions in Programs	**Creating Media:** Photo Editing **Programming:** Repetition in Games	**Creating Media:** Introduction to Vector Graphics **Programming:** Selection in Quizzes	**Creating Media:** 3D Modelling **Programming:** Sensing Movement

Our planning overviews set out the learning journey for each term. Our weekly/unit planning identifies the specific learning intentions and relevant vocabulary. Our success criteria show the context of the lesson/series of lessons, the specific learning intentions (using 'I can' format) and the associated key vocabulary.

Example of subject success criteria:-

As a computer scientist, I am learning to explain how search results are ranked 	**Me**	**Mr H**	**Vocabulary**
I can explain that search results are ordered			Ranking, search engine, search engine optimisation, links, web crawlers
I can explain that a search engine follows rules to rank relevant pages			
I can suggest some of the criteria that a search engine checks to decide on the order of results			

Our learning resources are carefully chosen and build and sustain engagement. The purpose of the learning is driven by subject specific intent.

Impact

By the time the children at St Denys leave our school they should have developed a strong digital competency and literacy so that they are able to express themselves and develop their ideas through information and computer technology safely, in order to ready themselves for the future workplace and as active participants in a digital world.

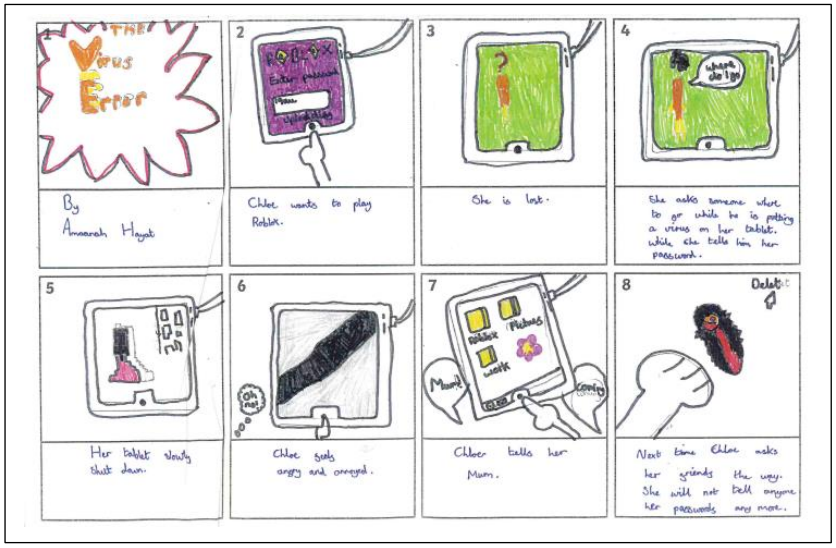
Our approach to the curriculum results in a fun, engaging, and high-quality computing education. Teachers use assessment to inform their future planning, and as a topic-based approach continues to be developed, teachers are able to revisit misconceptions and knowledge gaps in computing when teaching other curriculum areas.

This supports varied paces of learning and ensures all pupils make good progress. Much of the subject-specific knowledge developed in our computing lessons equip pupils with experiences which will benefit them in secondary school, further education and future workplaces. From

research methods, use of presentation and creative tools and critical thinking, computing at St Denys gives children the building blocks that enable them to pursue a wide range of interests and vocations in the next stage of their lives.

As children progress throughout the school, they develop a deep knowledge, understanding an appreciation of technology. Vulnerable groups are carefully considered and adaptations are made to ensure that they are included and well supported. Data is collected at the end of the school year and recorded on Depth of Learning Tracker so teachers can see year on year which pupils are exceeding, meeting or working towards national expectations.

We capture a summary of the learning in Computing using 2 page spreads and by using the technology children are learning to use, such as DTP software, Spreadsheet software and animation software.



Our main aim is for children to leave St Denys having used and developed the characteristics of a Computer Scientist and they will continue to use these in their future lives.