



## ICT, iMedia and Computer Science Curriculum: Intent, Implementation & Impact, St Dunstan's School 2021 - 2022

### St Dunstan's School Context

St Dunstan's cohort size is smaller than average. At the start of the year St Dunstan's had 398 students attending, this is 39.3% of the national average.

St Dunstan's has a higher proportion of students who are eligible for FSM (24.9%). This is higher than the average for state funded secondary schools (18.9%).

St Dunstan's has a more monocultural demographic than the national average (88.7% white British). The proportion of students with a first language, known or believed to be other than English, is 6.8% at St Dunstan's. This is far below the national average (19.3%).

### Intent

**The aim of ICT is to provide each and every student the skills and knowledge needed to access technology and use it to benefit their lives. A major focus is how to use computers safely and minimise any risks which may be present. Skills are built upon each year which lead into the two options available at GCSE level - Computer Science and iMedia. The scheme of work provides a rich experience of both practical skills as well as technical skills, setting students up for iMedia and Computer Science respectively.**

The St Dunstan's ICT curriculum intends to instil the St Dunstan's core values of Truth, Resilience, Awareness and Kindness (TRAK) as follows:

**Truth** - Students will seek truth by using judgement and knowledge to identify what information to trust on the internet. They will also be aware of implications of using technology, and that their digital footprint will be visible to future employers.

### Implementation

#### Key Stage 3

Students are given a taste of a variety of applications of computers. The main purpose of this is to help them discover if they have a passion for computers, and if so, which areas of the subject it includes.

The variety of topics keeps students engaged and helps them discover the wide array of potential uses of technology.

Software is used wherever possible to improve efficiency and, as mentioned, give students a variety of platforms to use for learning. Testing for KS3 has been streamlined and involves E assessment as well as practical work, allowing students to access more information about their learning as software can give direct feedback to students and allow them to see their areas of focus to improve upon.

Here is an example of what the software can produce:

### Impact on attainment/progress

When students join St Dunstans their experience of using computers varies considerably. Due to this, the scheme of work we use is designed to teach ICT from the ground up, allowing students to use computers for a wide range of applications.

Impact is measured through results, data, coursework and classwork which shows progress of students as well as how key subgroups are performing.

Moderation occurs online and via teach meets throughout each year, ensuring that the quality of teaching is consistent throughout the partnership.

#### Key Stage 3

As shown below, KS3 students study a wide range of topics which give them experience of a variety of applications of technology.

**Resilience** - During ICT lessons there are opportunities for students to make decisions and get things wrong. Trying is the important thing which is made clear to all students, and techniques are learnt to improve resilience by trying again if necessary.

**Awareness** - Students are aware of the impact of social media, fake news and scammers on the internet, and the threat they cause to people's wellbeing. Students are taught how to improve their online safety through privacy checks as well as how to spot a fraudulent email.

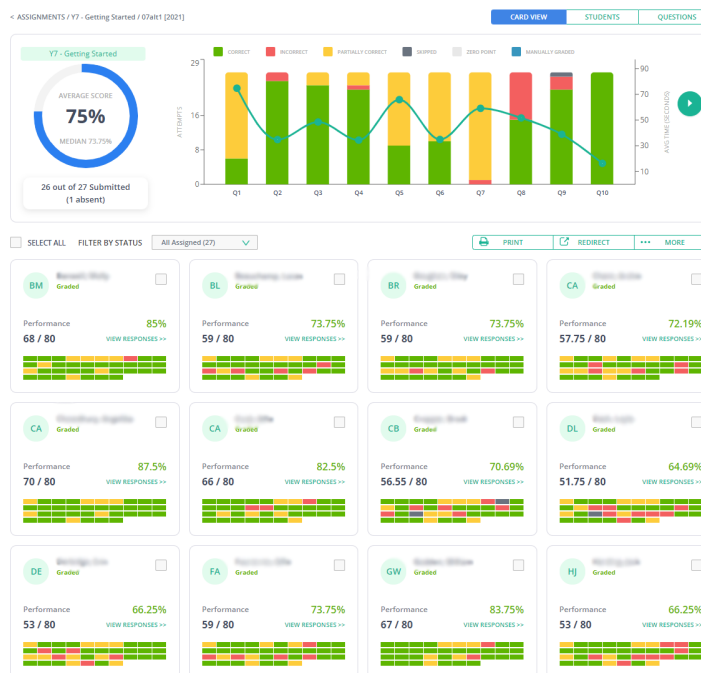
**Kindness** - The impact of cyberbullying can be very detrimental to a student's mental health. Over half of students have a social media account before they reach secondary school, so it is important that children understand the right way to use it as well as the rules and regulations associated with it.

### Key Stage 3

KS3 ICT at St Dunstan's is inline with the National Curriculum:

*The national curriculum for computing aims to ensure that all pupils:*

- can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- 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, analytically to solve problems



Work is recorded in a portfolio to show progress throughout each year, showing each student's progress and identifying areas to improve.

Assessment is consistent across the trust and moderation is used to ensure standards are met.

### Key Stage 4

The two options offered at KS4 give students experience of either coding or design using computers. These options continue to be popular choices and allow students to follow the ICT path that interests them the most, and in some cases students take both options at GCSE level.

iMedia is a coursework-heavy option with 75% of the final grade made up from three equally weighted projects. These projects allow students to experience projects such as designing a professional graphic, creating a website or creating an application.

In addition to this is an exam (Pre Production Skills) worth 25% of the final grade. This exam focuses on the different skills necessary to successfully complete a project, and ties the whole course together.

Computer Science is a challenging course which covers the following areas:

- Systems Architecture
- Data Representation
- Networks
- Security
- Impacts of technology
- Algorithms
- Programming
- Logic and Languages

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

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/239067/SECONDARY\\_national\\_curriculum\\_-\\_Computing.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/239067/SECONDARY_national_curriculum_-_Computing.pdf)

Alongside this, students will get the opportunity to undertake a programming project which allows them to experience coding an algorithm from scratch.

KS4 students are able to come to after school sessions to catch up on work and complete assignments.

### Key Stage 3 - Year 7

Intent		Implementation	Impact on attainment/progress
<b>Getting Started</b>	When students arrive in Y7 they are unfamiliar with the school systems. The <b>intention</b> of the first few lessons will familiarise students with the school network as well as the other essential tools they will need for their electronic life at school and at home.	Each lesson should be <b>implemented</b> as a separate lesson and led from the front. There are a series of lesson plans, presentations and worksheets to accompany the SOL. An electronic assessment should be completed at the end of the unit to check understanding.	It is crucial that this unit is completed thoroughly otherwise the wider <b>impact</b> on other subjects could also be detrimental. Results for this unit show a steady fall which we believe is largely down to a reduced amount of exposure to technology in Primary Schools.
<b>Computer Crime and Security</b>	The <b>intention</b> of this unit is to make students aware of how to stay safe, secure and tech savvy whilst using digital technology.	The lessons for this unit will be teacher led using a series of presentations and worksheets. Students will learn about Email Scams, Computer Misuse, Protecting Personal Data, Copyright and Health & Safety.	Students will be more aware of the dangers of the internet, how to spot them and resources to use if they spot something wrong.
<b>Computer Control</b>	This unit is the first of the programming and problem solving strands. Students learn how to create basic control systems such as traffic lights, burglar alarms and homes of	Pupils will start by producing systems that use simple loops and basic outputs, and then move on to look at systems that have multiple inputs and outputs. They will refine their solutions using subroutines and variables.	This unit introduces students to thinking logically, which is a building block for later programming modules.

	the future.		
<b>Algorithms</b>	In this unit pupils will be introduced to the Scratch programming environment and begin by reverse-engineering some existing games. The <b>intention</b> of this unit is to develop logical thinking and problem solving skills in a game development environment.	Students will plan and develop their own games, learning to incorporate variables, procedures, lists and operators. They should be able to create a fully working game with lives, scoring and some randomisation of objects. Finally they will learn to test and debug their programs.	Creating a program from scratch will enable students to see the potential of coding and serve as a gateway into the realm of programming.
<b>Understanding Computers</b>	The <b>intention</b> of this unit is to teach students how computers work in the way that they do. We all take for granted the 'magic' which happens when we surf the web, watch a film or write a letter. This unit opens the lid on how this all works.	The lessons for this unit will be teacher led using a series of presentations and worksheets. Students will learn about Computer Components, The CPU, Binary, Storage Devices and Technology Convergence.	Students will gain an understanding of the different components of computers, what their role is and hopefully spark an interest for some into hardware. Students are often keen to build their own computers and some have stayed after school to learn how to do this.
<b>Game Design</b>	The <b>intention</b> of this unit is to provide an introduction to the fundamentals of computer programming and games design via Kodu, a graphical development environment developed by Microsoft Games Lab.	Students create a series of arcade games including pacman, space invaders, mario, etc. Each lesson has a series of mini challenges which are differentiated.	Students will gain experience of using a different learning environment, giving an opportunity to show their creative side as well as how to navigate software which may be foreign to them.

### Key Stage 3 - Year 8

Intent		Implementation	Impact on attainment/progress
<b>Digital Graphics</b>	The <b>intention</b> of this unit is to prepare students for the iMedia course which many students will begin in Y9. This unit is an introduction to graphics and graphic file types. Students learn practical skills in order to create a series of different graphics.	Each lesson should be <b>implemented</b> as a separate lesson and led from the front. Students are taught advanced tools within Serif PhotoPlus. There are various tasks to complete such as a lion king bus stop ad, a playstation ad, a logo and record label.	Students will learn the basics of digital graphics editing, which is beneficial to both iMedia and GCSE Graphics at KS4. Skills learnt here will be built upon during later modules.
<b>Modelling</b>	The <b>intention</b> of this unit is to cover the principles of creating and formatting spreadsheets to produce and use computer models.	This is a video guided unit where students will work through a series of interactive videos. Students will create a concert booking system and will learn about formatting, functions, graphs/charts, macros and simple VBA.	The potential of using computers to simulate different real world scenarios is made clear by this module, which can spark interest into Business as well as Artificial intelligence.
<b>HTML &amp; CSS</b>	The <b>intention</b> of this unit is to teach	In the first three lessons, pupils will learn the basics of HTML and	Web Design has become very sought after due to the massive

	students the basic skills to make their own web applications and sites. This will be students' first experience of writing basic code and will form a good starting point for the programming unit later in the year.	CSS, and how to create a responsive webpage design. They will learn how to create text styles and add content, including text and graphics, in a specified position on a page, as well as navigation links to other pages on their website and to external websites.	increase in the amount of websites on the internet. This gives students some insight into how they are made from the ground up.
<b>Networks</b>	The <b>intention</b> of this unit is to teach students how the internet and computer networks operate. It opens the lid into the amazing work of data transfer and connectivity. We take it for granted that when we surf the web or send an email it happens in an instant, however it's an incredibly complex process which happens behind the scenes.	The lessons for this unit will be teacher led using a series of presentations and worksheets. Students will learn about The internet, connectivity, network topologies, client server networks and encryption.	With more and more modern appliances connecting to networks, it is an important area for students to get their head around. It is impossible to cover the complexity of networks but this module serves as an introduction which is built upon in GCSE Computer Science.
<b>Python (5 &amp; 6)</b>	The <b>intention</b> of this unit is to develop students' programming skills. The focus for this unit is on getting pupils to understand the process of developing programs, the importance of writing correct syntax, being able to formulate algorithms for simple programs and debugging their programs.	Each lesson should be <b>implemented</b> as a separate lesson and led from the front. Students will learn sequencing, selection and iteration along with the correct syntax and programming constructs.	The Python module runs over two terms - this will allow time for students to learn the fundamentals of programming, as well as the opportunity to test them out and create their own programs. Students who perform well and enjoy this topic are encouraged to consider computer science as an option

### Key Stage 3 - Year 9

Intent		Implementation	Impact on attainment/progress
<b>Understanding Computers</b>	The intention of this unit is to teach students how computers work in the way that they do. We all take for granted the 'magic' which happens when we surf the web, watch a film or write a letter. This units opens the lid on how this all works.	The lessons for this unit will be teacher led using a series of presentations and worksheets. Students will learn about Computer Components, The CPU, Binary, Storage Devices and Technology Convergence.	Students will gain an understanding of the different components of computers, what their role is and hopefully spark an interest for some into hardware. Students are often keen to build their own computers and some have stayed after school to learn how to do this.
<b>Intro to iMedia (Graphics)</b>	The <b>purpose</b> of this unit is to introduce students to the digital graphics elements of iMedia. Students have learnt about graphics previously but they now need to apply the	Each lesson should be <b>implemented</b> as a separate lesson and led from the front. There are a series of lesson plans, presentations and worksheets to accompany the SOL.	The iMedia course at KS4 involves a lengthy project which students must document at each step. This module provides a lighter experience of this process, as well as an opportunity to build on the graphics skills learnt in previous years.

	practical skills to real-life scenarios to ensure graphics are suitable for a client.		
<b>Networks</b>	The <b>intention</b> of this unit is to teach students how the internet and computer networks operate. It opens the lid into the amazing work of data transfer and connectivity. We take it for granted that when we surf the web or send an email it happens in an instant, however it's an incredibly complex process which happens behind the scenes.	The lessons for this unit will be teacher led using a series of presentations and worksheets. Students will learn about The internet, connectivity, network topologies, client server networks and encryption.	With more and more modern appliances connecting to networks, it is an important area for students to get their head around. It is impossible to cover the complexity of networks but this module serves as an introduction which is built upon in GCSE Computer Science.
<b>Artificial Intelligence</b>	The <b>intention</b> of this unit is to make students aware of how our world is changing because of AI and Machine Learning. We are now entering an age where computers are overtaking our intelligence as a human race. Students will learn about the science and ethics of this during this fascinating new unit.	The lessons for this unit will be teacher led using a series of presentations and worksheets. Students will learn about: Artificial Intelligence, Machine Learning, Ethics of AI, Image Recognition, Turing Tests and Chatbots.	Students will realise the power and potential of artificial intelligence, what impact it has on our lives and where it may lead to in the future.
<b>Duke of York</b>	As mentioned in 9.4, some students will not take IT or Computer Science at KS4. Therefore it is important they gain as much experience of IT before they finish KS3. The <b>intention</b> of this unit is to allow students to gain accreditation from the Duke of York Award in Digital Technology.	This unit should be <b>implemented</b> by allowing students to work their way through the course and aim to achieve at least the bronze certificate.	The impact of this unit is a qualification for students to put on their CV. This will give students a sense of achievement at the end of year 9, and every student something to show for their past three years in ICT lessons, even if they choose not to pursue it as an option subject.

#### Key Stage 4 - Year 10 and 11

Intent		Implementation	Impact on attainment/progress
<b>iMedia</b>	The <b>intention</b> of the iMedia course is to equip learners with a range of creative media skills and provide opportunities to develop, in context, desirable, transferable skills such as research, planning, and review, working with others and communicating creative concepts effectively.	The course should be <b>implemented</b> by firstly teaching the necessary skills required for the units and then allowing students an allotted amount of time to complete the controlled assessments released each year by OCR. Students should work independently on the tasks.	The impact of iMedia is to give students experience using computers to create digital media. The coursework heavy nature of this course will prepare students for many roles in the creative industry. The range of projects studied will give students a broad experience and aid them in deciding if they want to continue with the subject for further education.

<b>Computer Science</b>	<p>The intention of the Computer Science course is to allow pupils to:</p> <ul style="list-style-type: none"><li>● Understand and apply the fundamental principles and concepts of Computer Science, including abstraction, decomposition, logic, algorithms, and data representation</li><li>● Analyse problems in computational terms through practical experience of solving such problems, including designing, writing and debugging programs</li><li>● Think creatively, innovatively, analytically, logically and critically</li><li>● Understand the components that make up digital systems, and how they communicate with one another and with other systems</li><li>● Understand the impacts of digital technology to the individual and to wider society</li><li>● Apply mathematical skills relevant to Computer Science.</li></ul>	<p>The course has been designed to transition seamlessly into Computer Science at AS Level and/or A Level. Students will take what they have learned in KS3 and expand their knowledge to reach greater depths.</p>	<p>This specification/qualification will enable students to develop valuable thinking and programming skills that are extremely attractive in the modern workplace. Students will gain a deep understanding of computational thinking and how to apply it through a chosen programming language.</p> <p>The demand for Computer Scientists is the highest it has ever been and this course will give students the tools they need to pursue this career.</p>
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