De Lisle College Curriculum

“Rooted and grounded in Love”.

Computer Science

Intent – 'Rooted and grounded in Love'

Intent – Rooted

It is our mission to enable all students to become confident, compassionate, and discerning users and creators of technology and digital media.
Our Computer Science and Digital Media curriculum is designed to equip students with the skills, knowledge, and values they need to flourish in a fast-moving and ever-changing digital world. From Year 7 through to post-16 study, our aim is to nurture problem-solvers and critical thinkers—young people who are reflective, analytical, and adaptable, prepared to take their place in the future with both technical expertise and a strong moral compass.

Our curriculum develops technical skill alongside ethical awareness. We teach programming and digital design through a structured, progressive model that enables students to understand not just how digital systems work, but why they are built the way they are—and how they impact individuals, society, and the planet. Students will learn to design digital content, code responsibly, and analyse media with clarity and purpose, always asking how technology can be used for good.

At Key Stage 3, all students experience a broad and inclusive curriculum. In Computer Science, they begin with the fundamentals of algorithms, problem-solving, and the text-based programming language of Python. We introduce elements of digital media and students explore the creation and analysis of multimedia content, considering both audience impact and the ethical use of digital tools. The KS3 curriculum is the ideal preparation for students to be able to make informed options choice for their GCSEs.

By the end of Year 9, students will have developed a secure understanding of core concepts such as logic, data, and systems architecture, and will be able to analyse media through lenses such as purpose, representation, and bias. These foundations prepare them for the demands of GCSE Computer Science or BTEC Creative Media Production and beyond. Students can deepen their expertise through real-world problem-solving, media production, and the application of theory to complex scenarios.

At Key Stage 5, students can specialise in A-Level Computer Science or A-Level Media Studies, or both. In Computer Science, they are challenged to think abstractly and systematically -- developing secure programming skills, working on extended practical projects, and exploring topics such as CPU architecture, searching and sorting algorithms, cybersecurity, and ethics in technology. In Digital Media, students develop their practical media production skills while studying the media industry, the psychology of media consumption, and the power of narrative in visual storytelling.

Our curriculum is rooted in the Catholic values of compassion, truth, and service. Inspired by the example of Christ, students are encouraged to use technology not just for innovation, but for inclusion and justice. Whether designing a program or analysing a media campaign, students are asked: *Who is this for? Who might it exclude? How can we make it better for all?* We draw on Catholic Social Teaching to reflect on issues such as digital poverty, misinformation, and the responsible use of AI.

We take inspiration from St. Isidore of Seville, the patron saint of the internet and technology, who devoted his life to gathering and sharing knowledge for the good of others. His legacy reminds us that information should be used to build understanding and community—not division. In his spirit, our students are called to be ethical digital citizens and creators—thoughtful, informed, and guided by a commitment to the common good. Through this curriculum, our students grow in understanding of themselves, of others, and of the digital world they will shape.

Computer Science

Year 7

De Lisle College
A Catholic Voluntary Academy

Curriculum Outline

Link to Catholic Social Teaching:

Dignity of All People - Students learn to communicate safely and respectfully online, understanding the value of each person's digital identity.
The Common Good - Technology is taught as a tool to serve society, support others, and promote truth in the digital world.
Solidarity - Lessons emphasise teamwork and show how digital communication connects people and communities across the world.
Subsidiarity - Pupils are encouraged to take responsibility for their digital actions and develop independent problem-solving skills through coding.
Participation - All students are given opportunities to actively engage with technology through hands-on tasks and creative projects.
Stewardship of Creation - Students consider the environmental impact of computers and how to use technology sustainably.
Option for the Poor - Digital inequality is explored by discussing access to technology and the importance of designing for inclusion.

Advent 1	7.1 What is a computer?	**Advent 2**	7.1 What is a computer?
Description	• Bootcamp 1 – De Lisle Essentials • How do we use a computer (Skills 1) - Online Accounts and Email • Types of computers • Using a desktop computer (Skills 2)	Description	• Input and Output Devices • Parts of a computer • What is software? • Settling-in assessment
Lent 1	7.2 How do we program a computer?	**Lent 2**	7.2 How do we program a computer?
Description	Introduction to Python programming • What is a program? • What is a variable and datatype? • How can we input and output data? • How does the computer perform calculations?	Description	• How does the computer to make decisions? • How can we make the computer repeat instructions? • How can we combine techniques? (Part 1) • How can we combine techniques? (Part 2)

Pentecost 1	7.3 Staying Safe Online	**Pentecost 2**	7.3 Staying Safe Online
Description	• Staying Safe Online • Bias and Reliability • Computer Laws • The Internet and Communication	Description	• Search Engines • Using software to create a campaign poster • End of year assessment

Computer Science

Year 8

De Lisle College
A Catholic Voluntary Academy

Curriculum Outline

Link to Catholic Social Teaching:

Dignity of All People - Students learn to design inclusive media and write respectful, user-focused programs that consider everyone's needs.
The Common Good - Programming, binary data, and media skills are taught as tools to serve others and to communicate messages that uplift and inform society.
Solidarity - Students explore how media and technology can unite people, challenge stereotypes, and amplify voices from different communities.
Subsidiarity - Pupils are encouraged to take ownership of their learning by solving programming challenges and making thoughtful design choices.
Participation - All students contribute creatively in coding and media projects, using their skills to express ideas and take part in the digital world.
Stewardship of Creation - Lessons on data storage and file size help students understand the environmental cost of digital media and how to minimise waste.
Option for the Poor - Charity campaign work and digital access discussions highlight the importance of using media and technology to support and advocate for those in need.

Advent 1	8.1 How do we program a computer? (Pt2)	**Advent 2**	8.1 How do we program a computer? (Pt2)
Description	A recap and build Python programming unit, working on the foundations from Year 7 unit 7.2. • Variables and Datatypes • Input and Ouput • While Loops • FOR Loops	Description	• Selection • User INPUT • Combining Skills - Challenges

Lent 1	8.2 What is binary data?	**Lent 2**	8.2 What is binary data?
Description	In this unit students are taught about binary and how everything that we see on a computer can be represented using binary numbers. • Data and Units • Binary Numbers • Adding Binary Numbers • Hexadecimal Numbers	Description	• Writing Techniques - Long answer questions • Text and ASCII • Storing Images • Images and File Size
Pentecost 1	8.3 Media and game design	**Pentecost 2**	8.3 Media and game design

Description	In this unit students are given a condensed introduction to Media production. Students learn about types of media products, how to analyse them and how to create them.
	• Types of media product
	• Media genres
	• Audience and stereotypes
		Description	• Media Creation Skills –
			  ○ Typography
			  ○ Layering
			  ○ Colour schemes
			  ○ Composition
			• Media Project – Charity Campaign poster

Computer Science

Year 9

De Lisle College
A Catholic Voluntary Academy

Curriculum Outline

Link to Catholic Social Teaching:

Dignity of All People - Students explore how digital systems and online content should respect privacy, promote truth, and serve people with fairness and care.
The Common Good - Understanding the internet and creating websites empowers students to use technology to benefit their communities and share useful, accurate information.
Solidarity - Lessons on the internet's global impact highlight how digital connection can promote unity, understanding, and shared responsibility across nations.
Subsidiarity - Programming and algorithm tasks support independent thinking, encouraging students to make responsible, informed choices in their digital work.
Participation - Students build their own websites and applications, enabling them to actively engage in digital culture and express their ideas meaningfully.
Stewardship of Creation - Learners consider the environmental impact of networks and data use, promoting mindful and sustainable digital habits.
Option for the Poor - Web projects for local causes or businesses show how technology can be used to support those in need and reduce barriers to participation.

Advent 1	9.1 How does the internet work?	**Advent 2**	9.1 How does the internet work?
Description	In this unit students learn about networks, leading to an understanding of how the internet works and the impact it has had on our lives. • Introduction to networks • How to build a network • Network addressing • Network topologies	Description	• How do devices communicate? • What is the internet? • How has the internet impacted our lives? • Assessment Point 1

Lent 1	9.2 Programming, problem solving and algorithms	**Lent 2**	9.2 Programming, problem solving and algorithms
Description	Having learnt about network and the internet in the previous unit, students now learn how to create content that is viewable over the World Wide Web. • What are webpages and HTML? • Basic HTML tags for structure • HTML – Colour and Images • CSS Rules for formatting	Description	• Hyperlinks – Internal and External • Javascript - Basics • Javascript – Calculations and IF statements • Creating a website for a local business
Pentecost 1	9.3 Algorithms and Programming	**Pentecost 2**	9.3 KS3 Review
Description	In this unit students will revist and develop their Python programming once more. This unit introduces more advanced techniques and standard algorithms. • Variables and Data Types • Calculations – (inc Casting, MOD and DIV) • Selection • Boolean Operators • Iteration – For Loops and Nested For loops	Description	• Iteration – While Loops • Lists and arrays • Linear Search • Bubble Sort • End of Year Assessment Revision • End of Year Assessment

Computer Science

Year 10

De Lisle College
A Catholic Voluntary Academy

Curriculum Outline

Link to Catholic Social Teaching:

Dignity of All People
Students are taught to create programs and handle data with integrity, respecting users' privacy, accessibility needs, and digital rights.
The Common Good
Learners use programming and problem-solving to design purposeful digital solutions that can benefit others and serve the wider community.
Solidarity
Projects encourage students to reflect on how computing connects people and can be used to address real-world issues, promoting empathy and action.
Subsidiarity
Through independent programming tasks and projects, students take responsibility for planning, decision-making, and solving problems effectively.
Participation
All learners have opportunities to design, code, and build their own digital creations, contributing actively to their digital environment.
Stewardship of Creation
Discussions around data compression and storage promote awareness of responsible digital resource use and the environmental impact of computing.
Option for the Poor
Students consider how simple, efficient, and inclusive design in software can help bridge digital divides and support underserved users.

Advent 1	Programming Techniques	**Advent 2**	Programming Techniques
Description	• Program Constructs • Program Flow - Variables and Datatypes • Strings and String Manipulation • Boolean Operators - Same sheet • Selection • Iteration - For Loops	Description	• Iteration - While Loops • Sub Routines - Procedures • Sub Routines – Functions • Assessment • Computational Thinking

Lent 1	Data Representation & Algorithms	**Lent 2**	Data Representation
Description	Data Representation • Units and Storage • Binary Numbers and Binary Addition • Hexadecimal • spare/practice Algorithms • Lists and Arrays • Algorithms - Searching Algorithms – Sorting	Description	• Characters Sets, ASCII and Unicode • Images and Compression Sound
Pentecost 1	Programming Project	**Pentecost 2**	Year 10 Review
Description	• Project - Analysis • Project - Design • Project - Development 1 • Project - Development 2 • Project - Development 3	Description	• Revision for End of Year assessments • End of Year assessment • Introduction to Computer Systems • CPU Architecture • Von Neumann and the FDE cycle

Computer Science
Year 11

De Lisle College
A Catholic Voluntary Academy

Curriculum Outline

Link to Catholic Social Teaching:

Dignity of All People
Students explore ethical computing and the importance of protecting users' rights, data privacy, and online safety.
The Common Good
Lessons on networks and systems show how technology supports communities and essential services, promoting shared benefit and wellbeing.
Solidarity
Discussions around global networks and internet access encourage students to recognise the unifying potential of technology across cultures.
Subsidiarity
Through revision, troubleshooting, and coding tasks, students are supported to think independently and make responsible digital decisions.
Participation
Students are empowered to understand and influence the digital world through coding, system knowledge, and evaluating real-world technologies.
Stewardship of Creation
Exploration of hardware, memory, and data efficiency highlights the importance of sustainable technology use and reducing e-waste.
Option for the Poor
Topics on digital access and ethical computing invite reflection on how technology can close or widen gaps between communities.

Advent 1	System Architecture & Operating Systems	**Advent 2**	Networks
Description	System Architecture • CPU • Memory • Storage • Operating Systems	Description	Networks • Types of network • Network Hardware • Network Security

Lent 1	Networks	**Lent 2**	Targeted Revision
Description	• Boolean Logic • Low Level and High Level Languages • IDEs and Translators • Legal and Ethical Issues	Description	/
Pentecost 1	Targeted Revision and Immersion	**Pentecost 2**	COURSE COMPLETED
Description	/	Description	/