

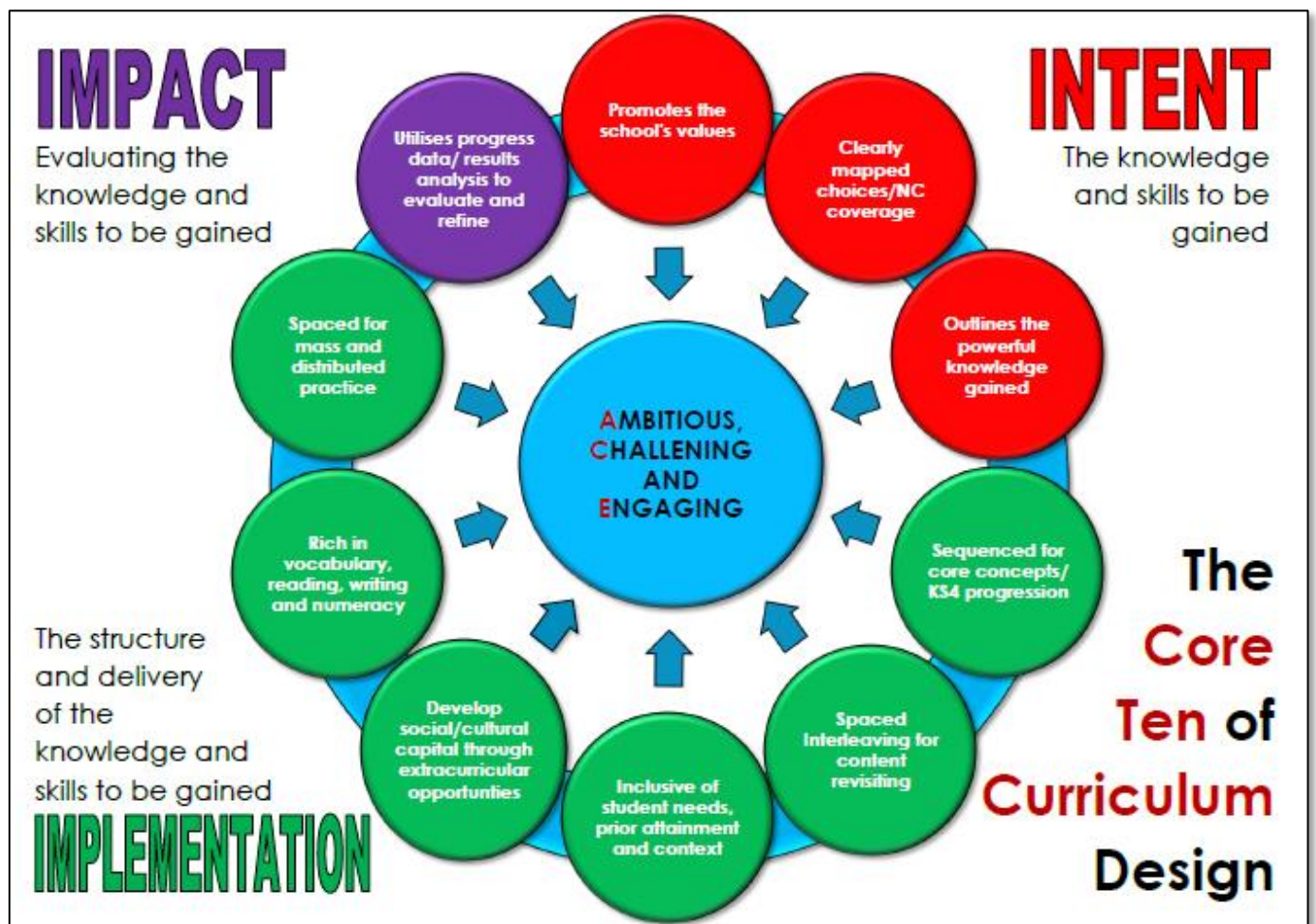
1. CURRICULUM INTENT OVERVIEW PLAN Key Stage 3

Subject: Computer Science

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THINKING PROCESS - CURRICULUM INTENT OVERVIEW PLAN (KS3)

Intent Statement – at Landau Forte Amington, we believe learning powerful knowledge helps students achieve and creates a fairer society.

How are you trying to accomplish this, with this Programme of Study (PoS)?

DEFINITION: Powerful Knowledge is described as knowledge which enriches students' lives and creates a fairer society by providing students with intellectual power. It is knowledge which support students in engaging with the world and communicating with people regardless of background or social standing.

Computer science at Landau aims to equip pupils to use computational thinking and creativity to understand and change the world. 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.

Aims – what do you want pupils to be able to know and do by the time they finish this Programme of Study (PoS)?

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

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

Become digitally literate in order to able to use, and express themselves and develop their ideas through, information and communication technology

Become digitally literate in order to become active participants in a digital society and workplace.

To make informed pathway and career choices.

Academy Values – at Landau Forte Amington, we want students to be ambitious, brave and kind. How are these values promoted in this PoS?

Brave: Empower pupils to become digitally literate in order to able to use, and express themselves and develop their ideas through, information and communication technology.

Ambitious: Delivery of challenging concepts and ideas.

Kind to become digitally literate in order to become active participants in a digital society and workplace.

KS3 Curriculum Choices – what topics are taught and does it ensure breadth and depth, as well as meet the legal requirements of the National Curriculum (NC)? (Please note - the sequencing of topics will be explored in the implementation overview, the main purpose at this stage is to know what is taught)

YEAR	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
	Unit/Topic Unit: Introduction to ICT Topics: 1. Emails 2. Presentation Skills 3. E Safety 4. British Values	Unit: Modelling Data Topics 1. Spreadsheet Basics 2. Spreadsheet Calculations 3. Collecting Data 4. Data Analysis	Unit: Networks Topics: 1. Networks and Protocols 2. Hardware and Software 3. Wired / Wireless networks 4. The internet	Unit: Programming Topics: 1. Animation and Movement 2. Game Basics 3. Graphics 4. Variables	Unit: Programming Topics: 1. IF function 2. Boolean Logic 3. Broadcasting 4. Lists	Unit: Representation Topics: 1. Types of representation 2. Encoding / decoding 3. Binary
7	KS3 NC covered undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users Understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and privacy; recognise inappropriate content, contact and conduct and know how to report concerns.	undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users	understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems	use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; make appropriate use of data structures [for example, lists, tables or arrays]; design and develop modular programs that use procedures or functions	use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; make appropriate use of data structures [for example, lists, tables or arrays]; design and develop modular programs that use procedures or functions understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming; understand how numbers can be represented in binary, and be able to carry out simple operations on binary numbers [for example, binary addition, and conversion between binary and decimal]	understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming; understand how numbers can be represented in binary, and be able to carry out simple operations on binary numbers [for example, binary addition, and conversion between binary and decimal] understand how instructions are stored and executed within a computer system; understand how data of various types (including text, sounds and pictures) can be represented and manipulated digitally, in the form of binary digits

8	Unit/Topic	<p>Unit: Representation</p> <p>Topics:</p> <ol style="list-style-type: none"> 1. Measuring and Converting Units 2. Binary <p>Unit: Cyber Security</p> <p>Topics:</p> <ol style="list-style-type: none"> 1. Cyber Security 2. Primary and Secondary Data 	<p>Unit: Cyber Security</p> <p>Topics:</p> <ol style="list-style-type: none"> 1. Gathering Data 2. Analysing Data 3. Testing 	<p>Unit: Programming</p> <p>Topics:</p> <ol style="list-style-type: none"> 1. Input / Output 2. Variables 3. Operators 4. Data Types 5. IF statements 	<p>Unit: Programming</p> <p>Topics:</p> <ol style="list-style-type: none"> 1. Loops 2. Arrays <p>Unit: Web Design</p> <p>Topics:</p> <ol style="list-style-type: none"> 1. HTML 2. Structuring Webpages 3. Navigation 	<p>Unit: Web Design</p> <p>Topics:</p> <ol style="list-style-type: none"> 1. Banners 2. Animation 3. Sorts 	<p>Unit: Hardware / Software</p> <p>Topics:</p> <ol style="list-style-type: none"> 1. Word Processing 2. Ethics 3. House style 4. Impacts of Technology
	KS3 NC covered	<p>understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming; understand how numbers can be represented in binary, and be able to carry out simple operations on binary numbers [for example, binary addition, and conversion between binary and decimal]</p> <p>understand how instructions are stored and executed within a computer system; understand how data of various types (including text, sounds and pictures) can be represented and manipulated digitally, in the form of binary digits</p> <p>undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users</p> <p>create, re-use, revise and re-purpose digital artefacts for a given audience, with attention to trustworthiness, design and usability</p> <p>understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and privacy; recognise inappropriate content, contact and conduct and know how to report concerns.</p>	<p>undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users</p> <p>create, re-use, revise and re-purpose digital artefacts for a given audience, with attention to trustworthiness, design and usability</p> <p>understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and privacy; recognise inappropriate content, contact and conduct and know how to report concerns.</p>	<p>use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; make appropriate use of data structures [for example, lists, tables or arrays]; design and develop modular programs that use procedures or functions</p>	<p>use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; make appropriate use of data structures [for example, lists, tables or arrays]; design and develop modular programs that use procedures or functions</p>	<p>undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users</p> <p>create, re-use, revise and re-purpose digital artefacts for a given audience, with attention to trustworthiness, design and usability</p>	<p>understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems</p> <p>design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems</p> <p>design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems</p>

9	Unit/Topic	<p>Unit: Problem Solving in Python</p> <p>Topics:</p> <ol style="list-style-type: none"> 1. Programming basics 2. Inputs 3. Variables and Operators 4. Iteration 5. Data Structure 6. Subroutines 	<p>Unit: Binary</p> <p>Topics:</p> <ol style="list-style-type: none"> 1. What is Binary 2. Binary maths 3. Binary conversion 4. Sound representation 5. Representing Images 	<p>Unit: Logic Gates</p> <ol style="list-style-type: none"> 1. Boolean Logic 2. Boolean Circuits <p>Topics:</p> <p>Unit: Algorithms</p> <p>Topics:</p> <ol style="list-style-type: none"> 1. Decomposition 2. Abstraction 3. Pseudo Code 	<p>Unit: Ethics</p> <p>Topics:</p> <ol style="list-style-type: none"> 1. Privacy 2. Legislation 3. Environmental issues 4. Legal issues 5. Social Impacts 	<p>Unit: Digital Graphics</p> <p>Topics:</p> <ol style="list-style-type: none"> 1. Software Skills 2. Purpose of Graphics 3. Legal Issues <p style="text-align: center;">Or</p> <p>Unit: Digital Graphics</p> <ol style="list-style-type: none"> 1. Properties, Purpose and Audience 2. Digitising 3. Making a digital image 	<p>Unit: Fundamentals of algorithms</p> <ol style="list-style-type: none"> 1. Decomposition 2. Abstraction 3. Algorithms 4. Flow Charts <p style="text-align: center;">Or</p> <p>Unit: Digital Graphics</p> <ol style="list-style-type: none"> 1. Properties, Purpose and Audience 2. Digitising 3. Making a digital image
	KS3 NC covered	<p>use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; make appropriate use of data structures [for example, lists, tables or arrays]; design and develop modular programs that use procedures or functions</p>	<p>understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming; understand how numbers can be represented in binary, and be able to carry out simple operations on binary numbers [for example, binary addition, and conversion between binary and decimal]</p> <p>understand how instructions are stored and executed within a computer system; understand how data of various types (including text, sounds and pictures) can be represented and manipulated digitally, in the form of binary digits</p>	<p>understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming; understand how numbers can be represented in binary, and be able to carry out simple operations on binary numbers [for example, binary addition, and conversion between binary and decimal]</p> <p>understand several key algorithms that reflect computational thinking [for example, ones for sorting and searching]; use logical reasoning to compare the utility of alternative algorithms for the same problem</p>	<p>understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and privacy; recognise inappropriate content, contact and conduct and know how to report concerns.</p>	<p>understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and privacy; recognise inappropriate content, contact and conduct and know how to report concerns.</p> <p>Understand the purpose and properties of digital images.</p> <p>Plan the creation of digital graphic</p>	<p>understand several key algorithms that reflect computational thinking [for example, ones for sorting and searching]; use logical reasoning to compare the utility of alternative algorithms for the same problem</p> <p>or</p> <p>create, re-use, revise and re-purpose digital artefacts for a given audience, with attention to trustworthiness, design and usability iMedia Unit R082</p> <p>Understand the purpose and properties of digital images.</p> <p>Plan the creation of digital graphic</p> <p>Create a digital graphic</p>

National Curriculum content missing from this PoS and why?	Content taught in addition to the National Curriculum and why?
None.	Unit: Digital Graphics To allow learners to make informed choices when selecting pathways by giving opportunity to study skills / knowledge needed for the iMedia course. Breadth of study: To expose pupils to the creative / artistic side of ICT / Computing

Powerful Knowledge Choices – what powerful knowledge is included in this PoS? Consider what knowledge is it important for our students to know, so that when they leave school they can engage in and lead discussions, with people from the most advantaged backgrounds? (Please note - the sequencing of topics will be explored in the implementation overview, the main purpose at this stage is to know what powerful knowledge is gained)

YEAR		Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
7	Powerful Knowledge	How to send an email effectively. How to stay safe online in relation to their age.	Use of the office package. Data Interpretation.	To know the difference between hardware and software and their uses.	How to program / Concepts of programming Abstraction and Decomposition.	How to program / Concepts of programming Abstraction and Decomposition.	How data is stored.

	<p>Why it is important to know</p>	<p>Supporting Other Subjects: Email is core skill needed in all subjects across the Academy.</p> <p>Preparation for Employment: Allows pupils to be able communicate effectively in the workplace.</p> <p>Safety / Moral Obligation: So pupils stay safe and within the law.</p> <p>Digital Literacy: Equipping pupils with the skills needed to survive in the digital age.</p>	<p>Objective thinking: To develop pupils ability to compare, contrast and make balanced decisions based on evidence.</p> <p>Preparation for Employment: Allows pupils to be computer literate in the Microsoft Office package which is a key component in most forms of employment</p> <p>Digital Literacy: Equipping pupils with the skills needed to survive in the digital age.</p>	<p>Purchasing Decisions. To allow pupils to make informed purchasing decisions in the future based on their requirements.</p> <p>Digital Literacy: Equipping pupils with the skills needed to survive in the digital age.</p>	<p>Cultural Capital: Problem solving and splitting up a bigger problem into smaller chunks.</p> <p>Developing a systematic approach to problem solving.</p> <p>Preparation for Employment: Skills gap and sought after skill set from employers.</p>	<p>Cultural Capital: Problem solving and splitting up a bigger problem into smaller chunks.</p> <p>Developing a systematic approach to problem solving.</p> <p>Preparation for Employment: Skills gap and sought after skill set from employers.</p>	<p>Supporting Other Subjects: Supporting maths skills and logical thinking and core maths skills.</p>
8	<p>Powerful Knowledge</p>	<p>How data is stored.</p> <p>How to stay safe online in relation to their age.</p>	<p>How to stay safe online in relation to their age.</p>	<p>How to program / Concepts of programming</p> <p>Abstraction and Decomposition.</p>	<p>How to program / Concepts of programming</p> <p>Abstraction and Decomposition.</p>	<p>Use of the office package.</p>	<p>Use of the office package.</p> <p>To know the difference between hardware and software and their uses.</p>

	<p>Why it is important to know</p>	<p>Supporting Other Subjects: Supporting maths skills and logical thinking and core maths skills.</p> <p>Safety / Moral Obligation: So pupils stay safe and within the law.</p>	<p>Safety / Moral Obligation: So pupils stay safe and within the law.</p> <p>Cultural Capital: Data Interpretation looking at bias, source of material.</p> <p>Digital Literacy: Equipping pupils with the skills needed to survive in the digital age.</p>	<p>Cultural Capital: Problem solving and splitting up a bigger problem into smaller chunks.</p> <p>Developing a systematic approach to problem solving.</p> <p>Preparation for Employment: Skills gap and sought after skill set from employers.</p>	<p>Cultural Capital: Problem solving and splitting up a bigger problem into smaller chunks.</p> <p>Developing a systematic approach to problem solving.</p> <p>Preparation for Employment: Skills gap and sought after skill set from employers.</p>	<p>Preparation for Employment: Allows pupils to be computer literate in the Microsoft Office package which is a key component in most forms of employment</p> <p>Preparation for Employment: Skills gap and sought after skill set from employers.</p> <p>Digital Literacy: Equipping pupils with the skills needed to survive in the digital age.</p>	<p>Purchasing Decisions. To allow pupils to make informed purchasing decisions in the future based on their requirements.</p> <p>Preparation for Employment: Allows pupils to be computer literate in the Microsoft Office package which is a key component in most forms of employment</p>
9	<p>Powerful Knowledge</p>	<p>How to program / Concepts of programming</p> <p>Abstraction and Decomposition.</p>	<p>How data is stored.</p>	<p>How to program / Concepts of programming</p> <p>Abstraction and Decomposition.</p>	<p>How to stay safe online in relation to their age.</p>	<p>How to use creative software.</p>	<p>How to program / Concepts of programming</p> <p>Abstraction and Decomposition.</p> <p>Or</p> <p>How to use creative software.</p>

	<p>Why it is important to know</p>	<p>Cultural Capital: Problem solving and splitting up a bigger problem into smaller chunks.</p> <p>Developing a systematic approach to problem solving.</p> <p>Preparation for Employment: Skills gap and sought after skill set from employers.</p>	<p>Supporting Other Subjects: Supporting maths skills and logical thinking and core maths skills.</p>	<p>Cultural Capital: Problem solving and splitting up a bigger problem into smaller chunks.</p> <p>Developing a systematic approach to problem solving.</p> <p>Preparation for Employment: Skills gap and sought after skill set from employers.</p>	<p>Safety / Moral Obligation: So pupils stay safe and within the law.</p> <p>Cultural Capital: Data Interpretation looking at bias, source of material.</p>	<p>Safety / Moral Obligation: So pupils stay safe and within the law.</p> <p>Preparation for Employment: Skills gap and sought after skill set from employers.</p> <p>Preparation for Employment: Linking ICT with the creative arts / industries.</p> <p>Expression of Creativity. – Allows : To expose pupils to the creative / artistic side of ICT / Computing</p>	<p>Cultural Capital: Problem solving and splitting up a bigger problem into smaller chunks. Developing a systematic approach to problem solving.</p> <p>or</p> <p>Safety / Moral Obligation: So pupils stay safe and within the law.</p> <p>Preparation for Employment: Skills gap and sought after skill set from employers.</p> <p>Preparation for Employment: Linking ICT with the creative arts / industries.</p>
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How does the Curriculum Intent meet the ACE curriculum design?

<p>Ambitious</p>	<p>Ambitious: Delivery of challenging concepts and ideas. Can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation</p>
<p>Challenging</p>	<p>Ambitious: Delivery of challenging concepts and ideas. Lessons created at high level of stretch for age group. Can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems</p>

Engaging	<p>Interweaving and spacing of content over the 3 year cycle. Year 7 topics plug any gaps in knowledge from prior learning to ensure future progress for all. Year 9 pathways split to ensure engagement is high and pupils are provided with the right skills for future pathways.</p>
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What are the current strengths of the Curriculum Intent?

Fulfils the national curriculum criteria.
 Gives pupils the required building block skills to succeed at KS4.
 Allows pupils to make informed pathway decisions.
 Cultural Capital: Become digitally literate in order to able to use, and express themselves and develop their ideas through, information and communication technology / Become digitally literate in order to become active participants in a digital society and workplace.

What specific actions have to be taken in response to the above? Please consider:

- KS3 Curriculum content changes;
- Powerful knowledge changes;
- Modifications to ensure an ACE curriculum design;
- CPD for teachers in your subject area;
- Additional research you have to consider as part of this review.

No changes to content to the content/ skills / knowledge as recently developed with the NCCE, outstanding schools links and MAT partners.

Lessons may need reviewing for LPA / Discuss Setting

ACE – engagement through afterschool club. Increased employer / FE engagement / trips

CPD – Continued contact with NCCE and MAT Hub. NCCE course for all non specialists,