

# 2. CURRICULUM IMPLEMENTATION OVERVIEW PLAN

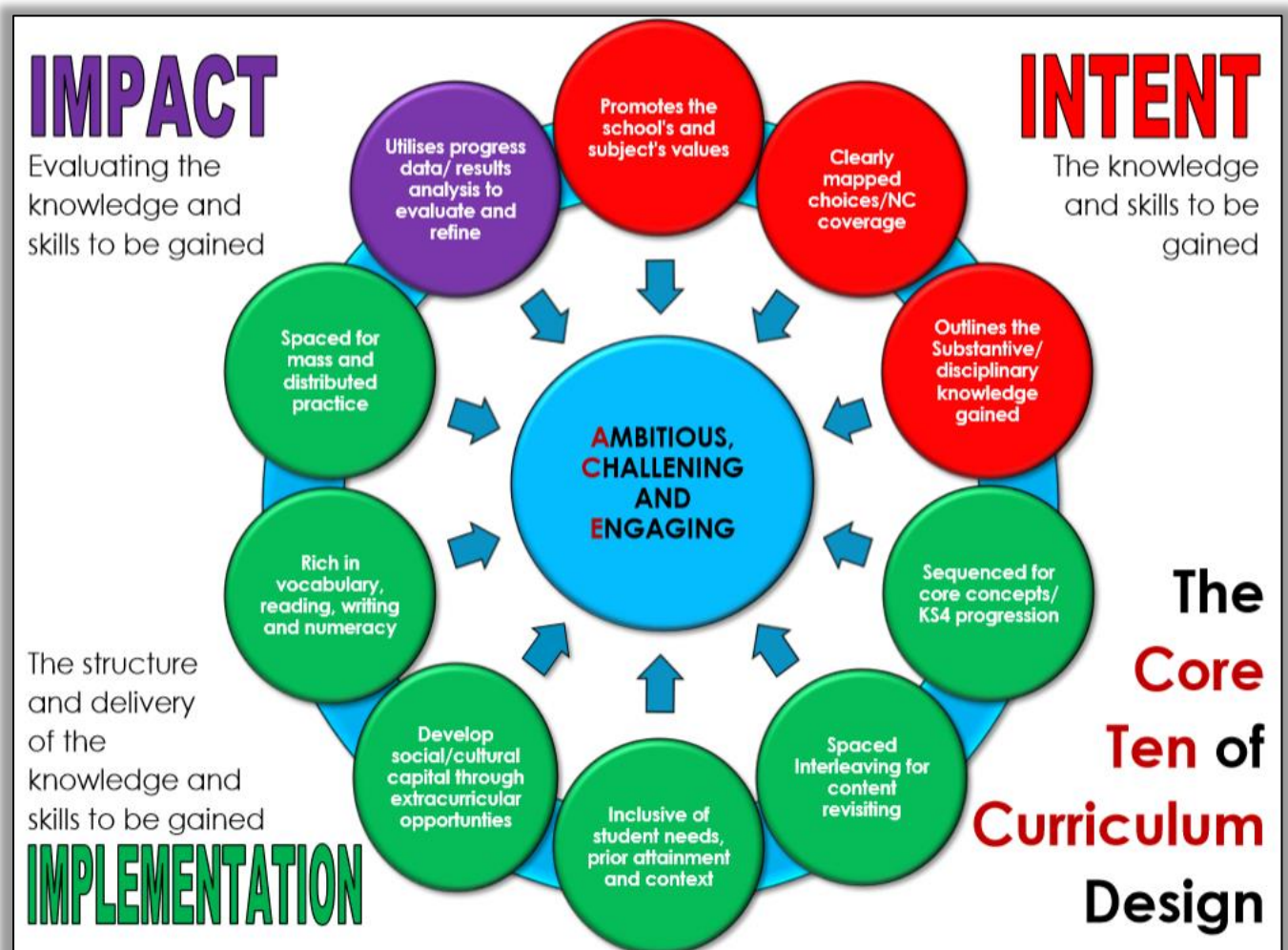
## Key Stage 4

Subject: AQA GCSE Computer Science

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Document(s) which inform this Curriculum Implementation are:

1. Curriculum Intent Overview Plan (KS4)

## THINKING PROCESS - CURRICULUM IMPLEMENTATION OVERVIEW PLAN – KS4

### IMPLEMENTATION – SEQUENCING AND PRACTICE

**How are your topics sequenced below so as to ensure the following:**

- key concepts are ordered and taught, so as to support progression to more challenging material
- content and concepts ordered to support progression from KS3 and to KS5
- topics are spaced between unrelated topics, to allow thinking time; then revisited and furthered
- mass practice (end of topic assessments) are used to evaluate the knowledge and skills gained
- distributed practice (mini assessments) are used where content/topics are reassessed in shortened versions, at later spaced out intervals

YEAR	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
<b>10</b>	<b>Unit/Topic</b>  Unit: Fundamentals of algorithms  Topics: Decomposition Abstraction Flow Charts Pseudo code	Unit: Programming  Topics: Basics of Programming Iteration Repetition Functions Arrays Files Dictionaries Robust Programming	Unit: Data Representation  Topics: Number Bases Conversion Units Binary Arithmetic Representing Images Representing Sounds Data Compression	Unit: Computer Systems  Topics: Hardware / Software Boolean Logic Systems architecture	Unit: Networks  Topics: Wired / Wireless LANS Security Protocols Cyber Security	Unit: Impact of Technology  Topics: Ethical Legal Environmental Society Privacy

	<b>Specification/ Assessment Objective</b>	3.1.1 Representing algorithms 3.1.2 Efficiency of algorithms 3.1.3 Searching algorithms 3.1.4 Sorting algorithms	3.2.1 Data types 3.2.2 Programming concepts 3.2.3 Arithmetic operations in a programming language 3.2.4 Relational operations in a programming language 3.2.5 Boolean operations in a programming language 3.2.6 Data structures 3.2.7 Input/output and file handling 3.2.8 String handling operations in a programming language 3.2.9 Random number generation in a programming language 3.2.10 Structured programming and Subroutines (procedures and functions) 3.2.11 Robust and secure programming	3.3.1 Number bases 3.3.2 Converting between number bases 3.3.3 Units of information 3.3.4 Binary arithmetic 3.3.5 Character encoding 3.3.6 Representing images 3.3.7 Representing sound 3.3.8 Data compression	3.4.1 Hardware and software 3.4.2 Boolean logic 3.4.3 Software classification 3.4.4 Classification of languages and translators 3.4.5 Systems architecture	3.5 Fundamentals of computer networks	3.6.1 fundamentals of Cyber security 3.6.2 Cyber security threats 3.6.3 Methods to detect and prevent cyber security threats 3.7 relational databases and structured query language (SQL) 3.7.1 relational databases 3.7.2 SQL 3.8 Ethical, legal and environmental impacts of digital technology on wider society, including issues of privacy
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	<p><b>Powerful Knowledge</b></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>How data is stored.</p>	<p>Use of the office package.</p> <p>To know the difference between hardware and software and their uses.</p>	<p>To know the properties of different networks and their uses.</p>	<p>How to stay safe online in relation to their age.</p> <p>How to use relational database, how to use SQL to retrieve data efficiently</p> <p>Consider Ethical, Legal, Environmental, Society and Privacy issues</p>
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	<p><b>Mass Practice</b></p>	<p>Decomposition: definition, application to a client brief. Centre designed brief covers the project assessed through written answers to extended questions.</p> <p>Abstraction: definition, application to a client brief. Centre designed brief covers the project assessed through progression towards targets in a client brief.</p> <p>Flow Charts: definition, types, uses, application to a client brief. Creation. Centre designed brief covers the project assessed through ability to independently present information relevant to the scenario.</p> <p>Pseudo code: Definition, types, uses, application to a client brief. Centre designed</p>	<p>This unit follows the principles of group discussion, modelling, independent programming, review and amend work.</p> <p>Basics of Programming: different languages, commands.</p> <p>Iteration: definition, types and uses. Application to a client brief.</p> <p>Repetition: definition, types and uses. Application to a client brief.</p> <p>Functions: definition, types and uses. Application to a client brief.</p> <p>Arrays: definition, types and uses. Application to a client brief.</p> <p>Files: definition, types and uses. Application to a client brief.</p> <p>Dictionaries: definition, types and</p>	<p>This unit follows the principles of group discussion, modelling, independent programming, review and amend work.</p> <p>Number Bases: definition, types and uses. Application to a client brief.</p> <p>Conversion: definition, types and uses. Application to a client brief.</p> <p>Units: definition, types and uses. Application to a client brief.</p> <p>Binary Arithmetic: definition, types and uses. Application to a client brief.</p> <p>Representing Images: definition, types and uses.</p> <p>Representing Sounds: definition, types and uses.</p> <p>Data Compression: definition, types and uses.</p>	<p>This unit is primarily assessed through online quizzes, multiple choice, short form and extended answers based on a case study.</p> <p>Hardware / Software: definition, types and uses.</p> <p>Boolean Logic: definition, types and uses. Application to a client brief. Logic gates and circuits.</p> <p>Systems architecture: definition, types and uses.</p> <p>Formal assessment with a mixture of multiple choice, short form and extended answers</p>	<p>This unit is primarily assessed through online quizzes, multiple choice, short form and extended answers based on a case study.</p> <p>Wired / Wireless: definition, types and uses.</p> <p>LANs: definition, types and uses.</p> <p>Security: definition, types and uses.</p> <p>Protocols: definition, types and uses.</p> <p>Cyber Security: definition, types and uses.</p> <p>Formal assessment with a mixture of multiple choice, short form and extended answers</p>	<p>This unit is primarily assessed through online quizzes, multiple choice, short form and extended answers based on pupil research.</p> <p>There is a specific focus on developing pupils extended answer and synoptic skills in this unit.</p> <p>Ethical: impacts on a business / user and other considerations.</p> <p>Legal: impacts on a business / user and other considerations.</p> <p>Environmental: impacts on a business / user and other considerations.</p> <p>Society: impacts on a business / user and other considerations.</p> <p>Privacy: impacts on a business / user and other considerations.</p>
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		<p>brief covers the project assessed through ability to write own code relevant to the scenario brief.</p> <p>Independent group project allows pupils to display all skills covered so far followed by a formal assessment with a mixture of multiple choice, short form and extended answers.</p>	<p>uses. Application to a client brief.</p> <p>Robust Programming: error checking and prevention.</p> <p>Formal assessment with a mixture of multiple choice, short form and extended answers</p>	<p>Formal assessment with a mixture of multiple choice, short form and extended answers</p>			
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	<p><b>Distributed Practice</b></p>	<p>Revisits and builds upon skills / knowledge developed in Year 7 programming project, year 9 algorithms project.</p> <p>Integrated office skills e.g. creating flow charts in publishing software.</p> <p>Assessments designed to not be linear and contain previous learning.</p> <p>Exam style question practice enabling pupils to spot command word and form an appropriately structured response. For example calculate, compare, complete, convert, define, discuss, draw, explain, justify.</p> <p>Beberas DNA tasks require logical / applied maths skills for example worded maths problems.</p>	<p>Revisits and builds upon skills / knowledge developed in year 7 programming project, year 8 programming project and year 9 problem solving in python project.</p> <p>Integrated office skills e.g. digital note taking skills.</p> <p>Assessments designed to not be linear and contain previous learning.</p> <p>Exam style question practice enabling pupils to spot command word and form an appropriately structured response. For example calculate, compare, complete, convert, define, discuss, draw, explain, justify.</p> <p>Beberas DNA tasks require logical / applied maths skills for example worded maths problems.</p>	<p>Revisits and builds upon skills / knowledge developed in year 7 / 8 representation projects, year 9 binary projects.</p> <p>Integrated office skills e.g. using spreadsheet software to convert data.</p> <p>Assessments designed to not be linear and contain previous learning.</p> <p>Exam style question practice enabling pupils to spot command word and form an appropriately structured response. For example calculate, compare, complete, convert, define, discuss, draw, explain, justify.</p> <p>Beberas DNA tasks require logical / applied maths skills for example worded maths problems.</p>	<p>Revisits and builds upon skills / knowledge developed in year 7 programming, year 8 representation and year 9 logic gates projects.</p> <p>Integrated office skills e.g. presentation software to create logic gates.</p> <p>Assessments designed to not be linear and contain previous learning.</p> <p>Exam style question practice enabling pupils to spot command word and form an appropriately structured response. For example calculate, compare, complete, convert, define, discuss, draw, explain, justify.</p> <p>Beberas DNA tasks require logical / applied maths skills for example worded maths problems.</p>	<p>Revisits and builds upon skills / knowledge developed in year 7 networks projects, and year 8 cyber security.</p> <p>Integrated office skills e.g. safely and efficiently using the internet.</p> <p>Assessments designed to not be linear and contain previous learning.</p> <p>Exam style question practice enabling pupils to spot command word and form an appropriately structured response. For example calculate, compare, complete, convert, define, discuss, draw, explain, justify.</p> <p>Beberas DNA tasks require logical / applied maths skills for example worded maths problems.</p>	<p>Revisits and builds upon skills / knowledge developed in year 7 introduction, year 8 cyber security, hardware / software and year 9 ethics project</p> <p>Integrated office skills e.g. word processing to effectively display information in a business context.</p> <p>Assessments designed to not be linear and contain previous learning.</p> <p>Exam style question practice enabling pupils to spot command word and form an appropriately structured response. For example calculate, compare, complete, convert, define, discuss, explain, justify.</p> <p>Beberas DNA tasks require logical / applied maths skills for example worded maths problems.</p>
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<b>What are the key concepts to be covered?</b>	<p>Concept of computational thinking and programming literacy. Ability to transfer these skills between topics and languages.</p> <p>Understand and apply the fundamental principles and concepts of computer science, including abstraction, decomposition, logic, algorithms, and data representation</p> <p>Analyse problems in computational terms through practical experience of solving such problems, including designing, writing and debugging programs</p> <p>Think creatively, innovatively, analytically, logically and critically</p> <p>Understand the components that make up digital systems, and how they communicate with one another and with other systems</p> <p>Understand the impacts of digital technology to the individual and to wider society</p> <p>Apply maths skills relevant to computer science.</p>
<b>What prior knowledge, at KS3, are you assuming they have?</b>	<p>How to stay safe when using computers at home and in school. More advanced computational thinking with developing skills in logic games, abstraction and decomposition. Basic coding skills that could be transferred between languages. Proficiency in 2 computer languages.</p>
<b>What knowledge do they need to have a successful start to Year 11?</b>	<p>As above but in more refined detail with greater ability to problem spot, solve and code independently. Ability to understand exam questions / requirements and structure responses in accordance with this.</p>
<b>How are topics spaced between unrelated topics?</b>	<p>The 2 exam components are interwoven following a unit of each structure to ensure that topics are interwoven and not to linear. The NEA is scheduled to be completed upon release in T1 of year 11 so as not to conflict with exam revision.</p>

<b>11</b>	<b>Unit/Topic</b>	<p>Programming (NEA)</p> <p>Designing the solution Creating the solution Testing the solution Potential enhancements and refinements</p>	<p>Fundamentals of algorithms / Programming</p> <p>Topics: Revisiting all topics from Year 10</p>	<p>Data Representation / Computer Systems</p> <p>Topics: Revisiting all topics from Year 10</p>	<p>Networks / Impacts of Technology.</p> <p>Topics: Revisiting all topics from Year 10</p>	<p>Revision</p> <p>Topics dependent on knowledge audit / mock exam analysis.</p>	<p>N/A</p>
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	<b>Specification/ Assessment Objective</b>	<b>Programming skill project (non assessed component)</b> Centre designed programming skills project that assess students ability to: <ul style="list-style-type: none"> <li>• Design</li> <li>• Write</li> <li>• Test</li> <li>• Refine</li> </ul>	Revisiting algorithms / Programming assessment objectives from Year 10	Revisiting Data Representation / Computer Systems assessment objectives from Year 10	Revisiting Networks / Impacts of Technology assessment objectives from Year 10	Assessment objectives dependent on knowledge audit / mock exam analysis.	N/A
	<b>Powerful Knowledge</b>	How to program / Concepts of programming  Abstraction and Decomposition.	How to program / Concepts of programming  Abstraction and Decomposition.	How data is stored.	To know the properties of different networks and their uses.	Dependent on knowledge audit / mock exam analysis.  Exam Technique.	N/A

	<p><b>Mass Practice</b></p>	<p>This is a controlled assessment unit focused on independent programming. The unit is not formally assessed. Teacher and pupils will review progress to identify topics for review later in the year.</p> <p>Designing the solution: reading client brief and planning</p> <p>Creating the solution: producing a coded program that meets the needs of the brief.</p> <p>Testing the solution: ensuring the product works and problem solving.</p> <p>Potential enhancements and refinements: suggesting ways to develop the program further.</p>	<p>No new learning, Repeat of mass practice from following year 10 topics:</p> <p>Fundamentals of algorithms / Programming</p>	<p>No new learning, Repeat of mass practice from following year 10 topics:</p> <p>Data Representation / Computer Systems</p>	<p>No new learning, Repeat of mass practice from following year 10 topics:</p> <p>Networks / Impacts of Technology.</p>	<p>Revision</p> <p>Topics dependent on knowledge audit / mock exam analysis.</p>	<p>N/A</p>
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	<p><b>Distributed Practice</b></p>	<p>Project management skills: time keeping, organisation, Gaant charts, meeting the customer brief, peer and self - review.</p> <p>Revisits and builds upon skills / knowledge developed in year 10 exam 2 (programming unit).</p> <p>Assessments designed to not be linear and contain previous learning.</p> <p>Exam style question practice enabling pupils to spot command word and form an appropriately structured response. For example calculate, compare, complete, convert, define, discuss, draw, explain, justify.</p> <p>Beberas DNA tasks require logical / applied maths skills for example worded maths problems.</p>	<p>Revisits and builds upon skills / knowledge developed in year 10 exam 1 (computational thinking) and exam 2 (programming unit).</p> <p>Integrated office skills e.g. creating flow charts in publishing software.</p> <p>Assessments designed to not be linear and contain previous learning.</p> <p>Exam style question practice enabling pupils to spot command word and form an appropriately structured response. For example calculate, compare, complete, convert, define, discuss, draw, explain, justify.</p> <p>Beberas DNA tasks require logical / applied maths skills for example worded maths problems.</p>	<p>Revisits and builds upon skills / knowledge developed in 10 exam 1 (computational thinking)</p> <p>Integrated office skills e.g. conversions in spreadsheet software.</p> <p>Assessments designed to not be linear and contain previous learning.</p> <p>Exam style question practice enabling pupils to spot command word and form an appropriately structured response. For example calculate, compare, complete, convert, define, discuss, draw, explain, justify.</p> <p>Beberas DNA tasks require logical / applied maths skills for example worded maths problems.</p>	<p>Revisits and builds upon skills / knowledge developed in 10 exam 1 (computational thinking)</p> <p>Integrated office skills e.g. e.g. presentation software to create logic gates</p> <p>Assessments designed to not be linear and contain previous learning.</p> <p>Exam style question practice enabling pupils to spot command word and form an appropriately structured response. For example calculate, compare, complete, convert, define, discuss, draw, explain, justify.</p> <p>Beberas DNA tasks require logical / applied maths skills for example worded maths problems.</p>	<p>Revisits and builds upon skills / knowledge developed in 10 exam 1 (computational thinking) and exam 2 (programming unit).</p> <p>Integrated office skills e.g. creating flow charts in publishing software</p> <p>Assessments designed to not be linear and contain previous learning.</p> <p>Exam style question practice enabling pupils to spot command word and form an appropriately structured response. For example calculate, compare, complete, convert, define, discuss, draw, explain, justify.</p> <p>Beberas DNA tasks require logical / applied maths skills for example worded maths problems.</p>	<p>N/A</p>
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<p><b>What are the key concepts to be covered?</b></p>	<p>How to stay safe when using computers at home and in school. More advanced computational thinking with developing skills in logic games, abstraction and decomposition. Basic coding skills that could be transferred between languages. Proficiency in 2 computer languages.          Ability to problem spot, solve and code independently.          Ability to understand exam questions / requirements and structure responses in accordance with this.</p> <p>Understand and apply the fundamental principles and concepts of computer science, including abstraction, decomposition, logic, algorithms, and data representation          Analyse problems in computational terms through practical experience of solving such problems, including designing, writing and debugging programs          Think creatively, innovatively, analytically, logically and critically          Understand the components that make up digital systems, and how they communicate with one another and with other systems          Understand the impacts of digital technology to the individual and to wider society          Apply maths skills relevant to computer science.</p>
<p><b>What knowledge do they need to have a successful start to Year KS5?</b></p>	<p>All the above with enhanced focus on the "whys" and "whats" if each topic.          Ability to apply the core principle of abstraction, decomposition and computation thinking to any scenario or language.          Ability to actively reflect on work and use this to adapt practice and products,</p>
<p><b>How are topics spaced between unrelated topics?</b></p>	<p>The 2 exam components are interwoven following a unit of each structure to ensure that topics are interwoven and not to linear. The NEA is scheduled to be completed upon release in T1 of year 11 so as not to conflict with exam revision.</p>

**IMPLEMENTATION – STUDENT NEEDS AND SUPPORT**

**How is student learning supported below so as to ensure the following:**

- extracurricular/career opportunities which develop social and cultural capital
- key vocabulary, reading, writing and numeracy opportunities
- support for SEND and students with Low Prior Attainment, as well as challenge for students with High Prior Attainment

YEAR	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
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10	<b>Social/ Cultural Capital</b>	<p>Master slide links each lesson to relevant careers for example systems analyst.</p> <p>Providing students with essential workplace skills for example abstraction (identifying key information) and decomposition (breaking down difficult tasks).</p> <p>Weekly CatchUp – Club to support lower ability, stretch all and give pupils the ability to code independently on a topic of their choice.</p> <p>Support KS3 clubs – give pupils a chance to develop leadership skills and confidence to pass on their knowledge to younger users.</p>	<p>Master slide links each lesson to relevant careers for example software developer.</p> <p>Further development of problem solving through abstraction and decomposition, with continued exposure to text based language.</p> <p>Weekly CatchUp – Club to support lower ability, stretch all and give pupils the ability to code independently on a topic of their choice.</p> <p>Support KS3 clubs – give pupils a chance to develop leadership skills and confidence to pass on their knowledge to younger users.</p> <p>Careers Task: Systems Analyst</p>	<p>Master slide links each lesson to relevant careers for example software engineer.</p> <p>Providing students with essential workplace skills for example application of maths to the real world.</p> <p>Weekly CatchUp – Club to support lower ability, stretch all and give pupils the ability to code independently on a topic of their choice.</p> <p>Support KS3 clubs – give pupils a chance to develop leadership skills and confidence to pass on their knowledge to younger users.</p>	<p>Master slide links each lesson to relevant careers for example systems manager.</p> <p>Providing students with essential workplace skills for example hardware / software purchasing knowledge.</p> <p>Weekly CatchUp – Club to support lower ability, stretch all and give pupils the ability to code independently on a topic of their choice.</p> <p>Support KS3 clubs – give pupils a chance to develop leadership skills and confidence to pass on their knowledge to younger users.</p> <p>Lloyds Banks Careers Webinar. Based on a careers in ICT.</p>	<p>Master slide links each lesson to relevant careers for example network manager.</p> <p>Providing students with essential workplace skills for example staying safe and effective use of the internet.</p> <p>Weekly CatchUp – Club to support lower ability, stretch all and give pupils the ability to code independently on a topic of their choice.</p> <p>Support KS3 clubs – give pupils a chance to develop leadership skills and confidence to pass on their knowledge to younger users.</p>	<p>Master slide links each lesson to relevant careers for example IT architect</p> <p>Providing students with essential workplace skills for example legal implications of ICT.</p> <p>Weekly CatchUp – Club to support lower ability, stretch all and give pupils the ability to code independently on a topic of their choice.</p> <p>Support KS3 clubs – give pupils a chance to develop leadership skills and confidence to pass on their knowledge to younger users.</p> <p>Visit to Bletchley Park – history of the Computer.</p>
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	<p><b>Tier 2/3 Vocabulary</b></p>	<p>Use of key terms throughout and revisiting in starters and plenaries for example decomposition, abstraction and pseudo code.</p> <p>Key terms on master slide throughout.</p> <p>Revisiting key vocabulary form KS3 and building upon it.</p> <p>Focus on developing pupils understanding of GCSE exam command words. For example calculate, compare, define, describe, Develop, discuss, draw, explain, extend, justify, and convert.</p>	<p>Use of key terms throughout and revisiting in starters and plenaries for example subroutines, iteration and selection.</p> <p>Key terms on master slide throughout.</p> <p>Revisiting key vocabulary form KS3 and building upon it.</p> <p>Focus on developing pupils understanding of GCSE exam command words. For example calculate, compare, define, describe, Develop, discuss, draw, explain, extend, justify, and convert.</p>	<p>Use of key terms throughout and revisiting in starters and plenaries for example binary, hex, denary.</p> <p>Key terms on master slide throughout.</p> <p>Revisiting key vocabulary form KS3 and building upon it.</p> <p>Focus on developing pupils understanding of GCSE exam command words. For example calculate, compare, define, describe, Develop, discuss, draw, explain, extend, justify, and convert.</p>	<p>Use of key terms throughout and revisiting in starters and plenaries for example CPU, FDE, RAM.</p> <p>Key terms on master slide throughout.</p> <p>Revisiting key vocabulary form KS3 and building upon it.</p> <p>Focus on developing pupils understanding of GCSE exam command words. For example calculate, compare, define, describe, Develop, discuss, draw, explain, extend, justify, and convert.</p>	<p>Use of key terms throughout and revisiting in starters and plenaries for example protocol, layers, WIFI.</p> <p>Key terms on master slide throughout.</p> <p>Revisiting key vocabulary form KS3 and building upon it.</p> <p>Focus on developing pupils understanding of GCSE exam command words. For example calculate, compare, define, describe, Develop, discuss, draw, explain, extend, justify, and convert.</p>	<p>Use of key terms throughout and revisiting in starters and plenaries for example privacy, legislation, copyright.</p> <p>Key terms on master slide throughout.</p> <p>Revisiting key vocabulary form KS3 and building upon it.</p> <p>Focus on developing pupils understanding of GCSE exam command words. For example calculate, compare, define, describe, Develop, discuss, draw, explain, extend, justify, and convert.</p>
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	<p><b>Reading</b></p>	<p>Read briefs, case studies, tasks. For example reading large amounts of texts and abstracting key information in a methodical way.</p> <p>Reading / writing is a professional, customer focused tone for example abstraction / note taking skills.</p> <p>Eedi tests to check understanding of key terms and highlight misconceptions.</p> <p>Focus on developing pupils understanding of GCSE exam command words. For example calculate, compare, define, describe, Develop, discuss, draw, explain, extend, justify, and convert.</p>	<p>Read briefs, case studies, tasks. For example reading a design brief based on a fictional customers business requirements.</p> <p>Reading / writing is a professional, customer focused tone for example writing code using correct programming etiquette (grammar).</p> <p>Eedi tests to check understanding of key terms and highlight misconceptions.</p> <p>Focus on developing pupils understanding of GCSE exam command words. For example calculate, compare, define, describe, Develop, discuss, draw, explain, extend, justify, and convert.</p>	<p>Read briefs, case studies, tasks. For example being able to read binary code and strings. Importance of not skim reading.</p> <p>Reading / writing is a professional, customer focused tone for example writing binary conversions in the correct format.</p> <p>Eedi tests to check understanding of key terms and highlight misconceptions.</p> <p>Focus on developing pupils understanding of GCSE exam command words. For example calculate, compare, define, describe, Develop, discuss, draw, explain, extend, justify, and convert.</p>	<p>Read briefs, case studies, tasks. For example reading logic circuits.</p> <p>Reading / writing is a professional, customer focused tone for example extended exam questions.</p> <p>Eedi tests to check understanding of key terms and highlight misconceptions.</p> <p>Focus on developing pupils understanding of GCSE exam command words. For example calculate, compare, define, describe, Develop, discuss, draw, explain, extend, justify, and convert.</p>	<p>Read briefs, case studies, tasks. For example reading network layers and protocols.</p> <p>Reading / writing is a professional, customer focused tone for example annotating network topography's.</p> <p>Eedi tests to check understanding of key terms and highlight misconceptions.</p> <p>Focus on developing pupils understanding of GCSE exam command words. For example calculate, compare, define, describe, Develop, discuss, draw, explain, extend, justify, and convert.</p>	<p>Read briefs, case studies, tasks. For example news stories on ethics.</p> <p>Reading / writing is a professional, customer focused tone for example extended exam questions.</p> <p>Eedi tests to check understanding of key terms and highlight misconceptions.</p> <p>Focus on developing pupils understanding of GCSE exam command words. For example calculate, compare, define, describe, Develop, discuss, draw, explain, extend, justify, and convert.</p>
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	<b>Writing</b>	<p>Reading / writing is a professional, customer focused tone for example abstraction / note taking skills.</p> <p>Introduction of exercise books to improve note taking / revision skills.</p> <p>Exam style questions practiced at regular intervals.</p> <p>Digital writing skills in Office and Outlook support other subjects. For example note taking.</p>	<p>Reading / writing is a professional, customer focused tone for example writing code using correct programming etiquette (grammar).</p> <p>Introduction of exercise books to improve note taking / revision skills.</p> <p>Exam style questions practiced at regular intervals.</p> <p>Digital writing skills in Office and Outlook support other subjects. For example proof reading.</p>	<p>Reading / writing is a professional, customer focused tone for example writing binary conversions in the correct format.</p> <p>Introduction of exercise books to improve note taking / revision skills.</p> <p>Exam style questions practiced at regular intervals.</p> <p>Digital writing skills in Office and Outlook support other subjects. For example professional email etiquette.</p>	<p>Reading / writing is a professional, customer focused tone for example extended exam questions.</p> <p>Introduction of exercise books to improve note taking / revision skills.</p> <p>Exam style questions practiced at regular intervals.</p> <p>Digital writing skills in Office and Outlook support other subjects. For example annotation skills.</p>	<p>Reading / writing is a professional, customer focused tone for example annotating network topography's.</p> <p>Introduction of exercise books to improve note taking / revision skills.</p> <p>Exam style questions practiced at regular intervals.</p> <p>Digital writing skills in Office and Outlook support other subjects. For example report writing.</p>	<p>Reading / writing is a professional, customer focused tone for example extended exam questions.</p> <p>Introduction of exercise books to improve note taking / revision skills.</p> <p>Exam style questions practiced at regular intervals.</p> <p>Digital writing skills in Office and Outlook support other subjects for example effective internet searches.</p>
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	<p><b>Numeracy</b></p>	<p>Beberas DNA tasks require logical / applied maths skills for example worded maths problems.</p> <p>Representation and substitution.</p> <p>Flow charts and data representation.</p>	<p>Beberas DNA tasks require logical / applied maths skills for example worded maths problems.</p> <p>Use maths operators e.g. add multiply subtract and division in Python Syntax.</p>	<p>Beberas DNA tasks require logical / applied maths skills for example worded maths problems.</p> <p>Collecting, presenting and interpreting mathematical data, e.g. bias, graphs etc.</p> <p>Binary maths skills; addition and subtraction etc. Binary conversion.</p> <p>Flow charts / graphs / representing data.</p>	<p>Beberas DNA tasks require logical / applied maths skills for example worded maths problems.</p> <p>Costings – planning activities based on a client's brief.</p>	<p>Beberas DNA tasks require logical / applied maths skills for example worded maths problems.</p> <p>Networks; covering packet sizes / losses. Bits and bytes etc.</p>	<p>Beberas DNA tasks require logical / applied maths skills for example worded maths problems.</p>
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<p><b>How does the PoS support students with SEND needs?</b></p>	<p>Levelled masterslide with clear outcomes.  Eedi test identify misconception and trends for teacher to address with SEN.  Seating plans.  Differentiation in tasks.  Individual support based on individual pupils needs.  Sequencing supports development of core skills at the start.  Setting / pathways between computer science and iMedia.  Afterschool catch up club.  One 2 one support.</p> <p>Applying whole school practices of:  Staff SEN champion  Teach around the student meeting.  Differentiated and accessible work  Small chunked up elements  Visual clues/dual coding  Introduction of new vocabulary using visual imagery and/or etymology  Students asked to demonstrate learning in a variety of ways- eg-drawing/video/mind maps/audio  Students in a varied mix of groupings- 1:1/pairs/small gps and whole class  Students are taught different ways of remembering eg) highlighting/step by step lists/mnemonics/cartoon strips /maps etc  Efforts are always rewarded- verbally and through system  Learning is revisited for consolidation  Learning is exciting/competitive where possible  QA: staff attend SEND training/progress is tracked/referrals are made/parents and carers are informed</p>
<p><b>How does the PoS support students with low prior attainment/challenge those with high prior attainment?</b></p>	<p>Support:  Levelled masterslide with clear outcomes.  Seating plans.  Differentiation in tasks.  Individual support based on individual pupils needs.  Sequencing supports development of core skills at the start.  Setting / pathways between computer science and iMedia.  Afterschool catch up club.  One 2 one support</p> <p>Challenge:  Modelled answers / access to previous learners work to better understand level of detail required in controlled assessments.  Stretch task available for each lesson focusing on independent programming skills/ and higher level skills in the exam unit to ensure pupils understand the requirements of analysis and synoptic questions.</p>

	<b>How does the PoS offer contextual content appropriate to Amington students?</b>	Data suggests for computer science gap between PP and non PP. SEN and non SEN. Lack of female uptake. Eedi test identify misconception and trends for teacher to address with SEN. Seating plans. External speakers could be female role models. Ensure that case studies / tasks represent all particularly females.					
11	<b>Social/ Cultural Capital</b>	<p>Master slide links each lesson to relevant careers for example software developer.</p> <p>Providing students with essential workplace skills for example project management, analytical approach to problem solving.</p> <p>Weekly CatchUp – Club for CA absences / support / additional requirements.</p> <p>Support KS3 clubs – give pupils a chance to develop leadership skills and confidence to pass on their knowledge to younger users.</p>	<p>Master slide links each lesson to relevant careers for example software developer.</p> <p>Further development of problem solving through abstraction and decomposition, with continued exposure to text based language.</p> <p>Weekly CatchUp – Club to support lower ability, stretch all and give pupils the ability to code independently on a topic of their choice.</p> <p>Support KS3 clubs – give pupils a chance to develop leadership skills and confidence to pass on their knowledge to younger users.</p> <p>Careers Talk: Computing at University.</p>	<p>Master slide links each lesson to relevant careers for example software engineer.</p> <p>Providing students with essential workplace skills for example application of maths to the real world.</p> <p>Weekly CatchUp – Club to support lower ability, stretch all and give pupils the ability to code independently on a topic of their choice.</p> <p>Support KS3 clubs – give pupils a chance to develop leadership skills and confidence to pass on their knowledge to younger users.</p>	<p>Master slide links each lesson to relevant careers for example network manager.</p> <p>Providing students with essential workplace skills for example staying safe and effective use of the internet</p> <p>Weekly CatchUp – Club: Exam revision with a focus on exam technique and stretch and challenge.</p> <p>Support KS3 clubs – give pupils a chance to develop leadership skills and confidence to pass on their knowledge to younger users.</p>	<p>Master slide links each lesson to relevant careers Providing students with essential workplace skills for example.</p> <p>Weekly CatchUp – Club Exam revision with a focus on exam technique and stretch and challenge.</p> <p>Support KS3 clubs – give pupils a chance to develop leadership skills and confidence to pass on their knowledge to younger users.</p>	N.A.

	<b>Tier 2/3 Vocabulary</b>	<p>Use of key terms throughout and revisiting in starters and plenaries for example pseudo code, debug, breakpoint.</p> <p>Key terms on master slide throughout.</p> <p>Revisiting key vocabulary form KS3 and building upon it.</p> <p>Focus on developing pupils understanding of GCSE exam command words. For example calculate, compare, define, describe, Develop, discuss, draw, explain, extend, justify, and convert.</p>	<p>Use of key terms throughout and revisiting in starters and plenaries for example subroutines, iteration and selection.</p> <p>Key terms on master slide throughout.</p> <p>Revisiting key vocabulary form KS3 and building upon it.</p> <p>Focus on developing pupils understanding of GCSE exam command words. For example calculate, compare, define, describe, Develop, discuss, draw, explain, extend, justify, and convert.</p>	<p>Use of key terms throughout and revisiting in starters and plenaries for example for example binary, hex, denary</p> <p>Key terms on master slide throughout.</p> <p>Revisiting key vocabulary form KS3 and building upon it.</p> <p>Focus on developing pupils understanding of GCSE exam command words. For example calculate, compare, define, describe, Develop, discuss, draw, explain, extend, justify, and convert.</p>	<p>Use of key terms throughout and revisiting in starters and plenaries for example s protocol, layers, WIFI.</p> <p>Key terms on master slide throughout.</p> <p>Revisiting key vocabulary form KS3 and building upon it.</p> <p>Focus on developing pupils understanding of GCSE exam command words. For example calculate, compare, define, describe, Develop, discuss, draw, explain, extend, justify, and convert.</p>	<p>Use of key terms throughout and revisiting in starters and plenaries for example</p> <p>Key terms on master slide throughout.</p> <p>Revisiting key vocabulary form KS3 and building upon it.</p> <p>Focus on developing pupils understanding of GCSE exam command words. For example calculate, compare, define, describe, Develop, discuss, draw, explain, extend, justify, and convert.</p>	N.A.
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	<p><b>Reading</b></p>	<p>Read briefs, case studies, tasks. For example reading a design brief based on a fictional customers business requirements. (Exam board release).</p> <p>Reading / writing is a professional, customer focused tone for example formal business report.</p> <p>Eedi tests to check understanding of key terms and highlight misconceptions.</p> <p>Focus on developing pupils understanding of GCSE exam command words. For example calculate, compare, define, describe, Develop, discuss, draw, explain, extend, justify, and convert.</p>	<p>Read briefs, case studies, tasks. For example reading a design brief based on a fictional customers business requirements.</p> <p>Reading / writing is a professional, customer focused tone for example writing code using correct programming etiquette (grammar).</p> <p>Eedi tests to check understanding of key terms and highlight misconceptions.</p> <p>Focus on developing pupils understanding of GCSE exam command words. For example calculate, compare, define, describe, Develop, discuss, draw, explain, extend, justify, and convert.</p>	<p>Read briefs, case studies, tasks. For example being able to read binary code and strings. Importance of not skim reading.</p> <p>Reading / writing is a professional, customer focused tone for example writing binary conversions in the correct format.</p> <p>Eedi tests to check understanding of key terms and highlight misconceptions.</p> <p>Focus on developing pupils understanding of GCSE exam command words. For example calculate, compare, define, describe, Develop, discuss, draw, explain, extend, justify, and convert.</p>	<p>Read briefs, case studies, tasks. For example reading network layers and protocols.</p> <p>Reading / writing is a professional, customer focused tone for example annotating network topography's.</p> <p>Eedi tests to check understanding of key terms and highlight misconceptions.</p> <p>Focus on developing pupils understanding of GCSE exam command words. For example calculate, compare, define, describe, Develop, discuss, draw, explain, extend, justify, and convert.</p>	<p>Read briefs, case studies, tasks depended on areas highlighted for development.</p> <p>Reading / writing is a professional, customer focused tone depended on areas highlighted for development.</p> <p>Eedi tests to check understanding of key terms and highlight misconceptions.</p> <p>Focus on developing pupils understanding of GCSE exam command words. For example calculate, compare, define, describe, Develop, discuss, draw, explain, extend, justify, and convert.</p>	<p>N.A.</p>
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	<b>Writing</b>	<p>Reading / writing is a professional, customer focused tone for example formal business report.</p> <p>Introduction of exercise books to improve note taking / revision skills.</p> <p>Exam style questions practiced at regular intervals.</p> <p>Digital writing skills in Office and Outlook support other subjects. E.g. formal business report.</p>	<p>Reading / writing is a professional, customer focused tone for example writing code using correct programming etiquette (grammar).</p> <p>Introduction of exercise books to improve note taking / revision skills.</p> <p>Exam style questions practiced at regular intervals.</p> <p>Digital writing skills in Office and Outlook support other subjects. For example proof reading.</p>	<p>Reading / writing is a professional, customer focused tone for example writing binary conversions in the correct format.</p> <p>Introduction of exercise books to improve note taking / revision skills.</p> <p>Exam style questions practiced at regular intervals.</p> <p>Digital writing skills in Office and Outlook support other subjects. For example professional email etiquette.</p>	<p>Reading / writing is a professional, customer focused tone for example annotating network topography's.</p> <p>Introduction of exercise books to improve note taking / revision skills.</p> <p>Exam style questions practiced at regular intervals.</p> <p>Digital writing skills in Office and Outlook support other subjects. For example report writing.</p>	<p>Reading / writing is a professional, customer focused tone depended on areas highlighted for development.</p> <p>Introduction of exercise books to improve note taking / revision skills.</p> <p>Exam style questions practiced at regular intervals.</p> <p>Digital writing skills in Office and Outlook support other subjects, depended on areas highlighted for development</p>	N.A.
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	<p><b>Numeracy</b></p>	<p>Beberas DNA tasks require logical / applied maths skills for example worded maths problems.</p> <p>Use maths operators e.g. add multiply subtract and division in Python Syntax</p>	<p>Beberas DNA tasks require logical / applied maths skills for example worded maths problems.</p> <p>Use maths operators e.g. add multiply subtract and division in Python Syntax</p>	<p>Beberas DNA tasks require logical / applied maths skills for example worded maths problems.</p> <p>Collecting, presenting and interpreting mathematical data, e.g. bias, graphs etc.</p> <p>Binary maths skills; addition and subtraction etc. Binary conversion.</p> <p>Flow charts / graphs / representing data</p>	<p>Beberas DNA tasks require logical / applied maths skills for example worded maths problems.</p> <p>Networks; covering packet sizes / losses. Bits and bytes etc.</p>	<p>Beberas DNA tasks require logical / applied maths skills for example worded maths problems, depended on areas highlighted for development.</p>	<p>N.A.</p>
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<p><b>How does the PoS support students with SEND needs?</b></p>	<p>Levelled masterslide with clear outcomes.  Eedi test identify misconception and trends for teacher to address with SEN.  Seating plans.  Differentiation in tasks.  Individual support based on individual pupils needs.  Sequencing supports development of core skills at the start.  Setting / pathways between computer science and iMedia.  Afterschool catch up club.  One 2 one support.</p> <p>Applying whole school practices of:  Staff SEN champion  Teach around the student meeting.  Differentiated and accessible work  Small chunked up elements  Visual clues/dual coding  Introduction of new vocabulary using visual imagery and/or etymology  Students asked to demonstrate learning in a variety of ways- eg-drawing/video/mind maps/audio  Students in a varied mix of groupings- 1:1/pairs/small gps and whole class  Students are taught different ways of remembering eg) highlighting/step by step lists/mnemonics/cartoon strips /maps etc  Efforts are always rewarded- verbally and through system  Learning is revisited for consolidation  Learning is exciting/competitive where possible  QA: staff attend SEND training/progress is tracked/referrals are made/parents and carers are informed</p>
<p><b>How does the PoS support students with low prior attainment/challenge those with high prior attainment?</b></p>	<p>Support:  Levelled masterslide with clear outcomes.  Seating plans.  Differentiation in tasks.  Individual support based on individual pupils needs.  Sequencing supports development of core skills at the start.  Setting / pathways between computer science and iMedia.  Afterschool catch up club.  One 2 one support</p> <p>Challenge:  Modelled answers / access to previous learners work to better understand level of detail required in controlled assessments.  Stretch task available for each lesson focusing on independent programming skills/ and higher level skills in the exam unit to ensure pupils understand the requirements of analysis and synoptic questions.</p>



<p><b>How does the PoS offer contextual content appropriate to Amington students?</b></p>	<p>Data suggests for computer science gap between PP and non PP. SEN and non SEN. Lack of female uptake. Eedi test identify misconception and trends for teacher to address with SEN. Seating plans. External speakers could be female role models. Ensure that case studies / tasks represent all particularly females.</p>
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**How does the Implementation Plan meet the ACE curriculum design?**

<p><b>Ambitious</b></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.          Covers a wide range of topics including all of NC.          Linked to intent and careers document.          Modelled answers / access to previous learners work to better understand level of detail required in extended questions.          Stretch task available for each lesson focusing on independent programming in coursework and higher level skills in the exam unit to ensure pupils understand the requirements of analysis and synoptic questions.</p>
<p><b>Challenging</b></p>	<p>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          Differentiation. Berbaras tasks are levelled.          Modelled answers / access to previous learners work to better understand level of detail required in extended questions.          Stretch task available for each lesson focusing on independent programming in coursework and higher level skills in the exam unit to ensure pupils understand the requirements of analysis and synoptic questions.</p>
<p><b>Engaging</b></p>	<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.          Extra curricular activities support and lifelong love of programming.</p>

**What are the current strengths of the Implementation Plan?**

Fulfils the national curriculum criteria.  
 Gives pupils the required building block skills to succeed at KS5 / 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.  
 Strong interweaving and building on prior knowledge.  
 Created in conjunction with and checked by NCCE.  
 Total rework of previous offering to keep up with developments in subject. Significant amount of training undertook by whole department.

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

- Core concept changes;
- Space interleaving 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.

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 be 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.

Strong interweaving and building on prior knowledge.

Explore CPD opportunities for CMI and GMA.

Created in conjunction with and checked by NCCE, regular updates and QA to take place. NCCE partner to be invited into Academy at regular intervals.

Use support network of trust and partner schools through the NCCE.

Use governors / external links to create a clear program for extra-curricular activities such as trips and speakers.

Review the mass practice delivered in year 11 based upon current cohort. Will content be delivered as quickly as planned or will it need spacing out more?