



St Philip Howard Catholic Voluntary Academy Department Planning 2025-26



Long Term Mapping 2025 – 26

KS3 – Year 8 – Computer Science

Subject Intent/ Aims:

At St Philip Howard the Computer Science department provides a high quality computing education that challenges the pupils to use an apply computational thinking and creativity to understand how they can have impact in the wider world through Computer Science.

The core aspects of the computer science curriculum are to support the pupils to develop an understanding of key computational principles; allowing them to learn how digital computer systems work and put this knowledge to use through the progressive use of programming.

The subject's intent is for pupils to build on the knowledge and skills each year as they progress from year 7 to year 11; with the overall aim being that the pupils will leave the school knowing and appreciating the opportunity they were given to learn and develop in an engaging subject that has a huge impact of the wider world.

As well as the Computer Science content delivered through the curriculum there is also an intention to ensure that pupils are given the chance to become digitally literate and be able to express themselves through the key aspects of information and communication technology.

The Computer Science department has a programme of study the follows the aims of the national curriculum. Within this, pupils are given the opportunity to learn how to understand and apply basic principles of computer science, analyse problems whilst confidently providing solutions, and acquire competency in using information and communication technology.

The overall intention of the computer science department at St Philip Howard to provide the pupils with a safe and engaging learning environment, that will foster a love for learning computer science and acquire a wide range of knowledge and skills that could have a huge benefit on their lives in and out of school.



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Key Concepts - Advent	Key Concepts - Lent		Key Concepts - Pentecost
Term 1 and 2	Term 3	Term 4 & 5	Term 6
Project	Data Representation L2	Programming L1	End of Term Exam
National Curriculum Coverage	National Curriculum Coverage	National Curriculum Coverage	National Curriculum Coverage
<ul style="list-style-type: none"> Engage in imaginative projects by selecting and integrating multiple apps, creating and repurposing digital content tailored to specific audiences with a focus on trustworthiness, design, and usability, while ensuring the responsible, respectful, and secure use of technology. 	<ul style="list-style-type: none"> Gain knowledge of binary number representation, basic binary operations, and their application in computation, along with understanding how computer systems store, execute instructions, represent various data types, and process instructions and data. 	<ul style="list-style-type: none"> Utilize programming languages to solve computational problems, working with various languages while learning to store data in variables, manage different data types like numbers, strings, and Booleans, and effectively incorporate them into your programs. 	<ul style="list-style-type: none"> All of the previous
Components	Components	Components	Components
<p>Analyze and plan e-safety solution, design e-safety learning tool.</p> <p>Develop e-safety tool, test e-safety tool functionality, evaluate e-safety system impact.</p>	<p>Understand and be able to convert between ASCII, Binary, Denary, and HEX number systems</p>	<p>Basic programming syntax and error identification</p> <p>Creating programs with built-in functions and programming constructs</p>	<p>To learn how to revise and revisit content from the whole year.</p>
HO Knowledge	HO Knowledge	HO Knowledge	HO Knowledge
<ul style="list-style-type: none"> ❖ Critical thinking: analyze and evaluate existing solutions, make informed decisions about tool design and development. ❖ Problem-solving: define problem, identify target audience needs, develop plan to address problem. ❖ Creativity: design innovative and effective e-safety tool. ❖ Evaluation: assess impact of tool on target audience, gather feedback for future revisions. 	<ul style="list-style-type: none"> ❖ Analyzing and solving problems with number systems. ❖ Paying attention to details when working with number systems. ❖ Understanding concepts of number systems and conversions. 	<ul style="list-style-type: none"> ❖ Select appropriate syntax to solve computational problems. ❖ Experiment with the different lines of code to solve computational problems. ❖ Can implement a solution to solve computational problems efficiently. 	<ul style="list-style-type: none"> ❖ Can recognize previous learning. ❖ Can schedule revision and prep for exams. ❖ Can execute revision developed in lessons through the exam.



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Composite Skills		Composite Skills		Composite Skills		Composite Skills	
<ul style="list-style-type: none"> ✓ Define e-safety problem and target audience. ✓ Research existing solutions and evaluate effectiveness. ✓ Plan and design e-safety tool. ✓ Develop e-safety tool. ✓ Test e-safety tool functionality. ✓ Evaluate e-safety tool impact and gather feedback. 		<ul style="list-style-type: none"> ✓ Understanding number systems and bases ✓ Knowing how to convert between number systems ✓ Familiarity with ASCII encoding ✓ Knowledge of binary representation and operations ✓ Understanding of denary (decimal) numbers ✓ Familiarity with HEX number representation and conversion 		Basic programming syntax and error identification <ul style="list-style-type: none"> ✓ Understanding and applying basic syntax rules and commands ✓ Debugging skills to identify and fix errors in code ✓ Knowledge of how to store data in variables correctly Creating programs with built-in functions and programming constructs <ul style="list-style-type: none"> ✓ Familiarity with built-in functions and how to use them in programs ✓ Understanding of programming constructs such as selection and iteration, and how to incorporate them into programs 		<ul style="list-style-type: none"> ✓ Retrieve, revisit and recall knowledge from the previous topics. ✓ Apply revision techniques. ✓ Complete exam. 	
Final composition/ Deliberate Practice		Final composition/ Deliberate Practice		Final composition/ Deliberate Practice		Final composition/ Deliberate Practice	
<ul style="list-style-type: none"> ○ Creating an E-safety interactive information presentation. ○ Create an evidence portfolio 		<ul style="list-style-type: none"> ○ Completing a binary exam 		<ul style="list-style-type: none"> ○ Complete ongoing evidence documents of solved programs. 		<ul style="list-style-type: none"> ○ Complete the end of year exam. 	
Assessment/s (Formative and Summative)		Assessment/s (Formative and Summative)		Assessment/s (Formative and Summative)		Assessment/s (Formative and Summative)	
<ul style="list-style-type: none"> • Key terms tests • Multiple choice quizzes • Questioning • Exams • Annotated Evidence documents 		<ul style="list-style-type: none"> • Key terms tests • Multiple choice quizzes • Questioning • Exams 		<ul style="list-style-type: none"> • Key terms tests • Multiple choice quizzes • Questioning • Exams • Annotated Evidence documents 		<ul style="list-style-type: none"> • Key terms tests • Multiple choice quizzes • Questioning • Exams 	
Key Terms		Key Terms		Key Terms		Key Terms	
Software Development	Assessment	Number systems	Sequence	All terms from the last two years.			
Life Cycle	Testing	Bases	Editor				
Project	Evaluation	Conversion	Shell				
Interactive	Improvements	ASCII	Translator				
Learning Tool	E-safety	Binary	Syntax				
Analysis	Social media	Denary	Input				
Success Criteria	Cyberbullying	Decimal	Output				



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Target Audience Design Brief Navigational Chart Hyperlinks	Trolling	HEX Representation Operations	Print Comments Data Types String Integer Float/Decimal Calculation Average Import	
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Literacy/ Numeracy/ Cross-Curricular Links	Literacy/ Numeracy/ Cross-Curricular Links	Literacy/ Numeracy/ Cross-Curricular Links	Literacy/ Numeracy/ Cross-Curricular Links
Literacy ✓ Participants will improve literacy skills through reading, writing, communicating, and using digital tools. Numeracy ✓ Students will improve numeracy skills by analyzing data, creating schedules, and using math in tool design and testing. Cross-Curricular ✓ Science: The project can incorporate principles of computer science, such as algorithms and programming, as well as concepts related to the way the internet and other digital technologies work.	Literacy: ✓ This module will focus on learning new terminology and using key term tests to measure understanding. Numeracy: ✓ This module will primarily focus on mathematics, specifically on converting between binary, denary, and HEX. Cross-Curricular: ✓ This module will utilize math concepts, specifically basic addition and subtraction, in a cross-curricular manner	Literacy ✓ This will come in the form of learning new vocab. ✓ Starter activities which get them to continue the basics of literacy. Numeracy ✓ This topic will involve a lot of math's in all aspects. ✓ Understanding math's operators to create a calculator. ✓ Applying angles when developing turtle graphics. Cross-Curricular ✓ Art, students will work on programs that create shapes and using colouring. ✓ Math's, to apply operators and logic to problems.	All from the previous.

SMSC	BV	RSHE
✓ Multiple opportunities for spiritual development through creative learning and program creation. ✓ High expectations and emphasis on morality helps students understand right and wrong. ✓ Expected to share moral views and respect others' opinions in the classroom. ✓ Many topics and tasks encourage social skills development, including teamwork and collaboration.	✓ <i>Students will develop internet and social media skills in accordance with British values.</i> ✓ <i>Students will learn to respect and appreciate others' viewpoints and act as responsible digital citizens.</i> ✓ <i>Students will learn to select valid and reliable information and demonstrate British values in their use of the internet and social media</i>	✓ <i>The students will receive instruction on how to be safe online and recognize potential dangers.</i> ✓ <i>The students will be educated on the potential risks and consequences of online relationships, including issues related to sexual behavior.</i> ✓ <i>The students will be regularly reminded of the importance of maintaining physical and mental health while using computers, and will receive guidance on how to prevent overuse.</i>



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Adaptive Curriculum Content Programming	Adaptive Curriculum Content Advanced Binary Understanding	Adaptive Curriculum Content Spreadsheets	Adaptive Curriculum Content Project	Adaptive Curriculum Content Exam
<ul style="list-style-type: none"> ✓ Lesson job lists. ✓ Time taken to work on specific programming techniques is adapted accordingly. ✓ High achieving classes may be introduced to some topics from the following year, this is judged on class analysis. ✓ Adapted handouts for practical tasks. <ul style="list-style-type: none"> ○ Full versions ○ Partially complete ✓ Extended time provided for certain students. ✓ The end of topic online exam modified to reflect the topics covered by certain classes and ability levels. 	<ul style="list-style-type: none"> ✓ Lesson job lists. ✓ Adapted handouts. ✓ Not all parts of binary (math's) with be covered by all groups based on numeracy ability. ✓ Calculators will be used for some students. ✓ The end of topic online exam modified to reflect the topics covered by certain classes and ability levels. 	<ul style="list-style-type: none"> ✓ Lesson job lists. ✓ Adapted handouts. ✓ Most students (classes) will be introduced to text-based programming by the end of topic. ✓ Some students (classes) will stay on scratch throughout the topic. 	<ul style="list-style-type: none"> ✓ Lesson job lists. ✓ Expectations around the number of specific tasks in the project is adapted. ✓ Expectations around number of explanations on tasks is based on ability levels. ✓ Examples of projects completed for different ability levels. 	<ul style="list-style-type: none"> ✓ Lesson job lists. ✓ Adapted revision material <ul style="list-style-type: none"> ○ Ability level specific. ✓ Assessments adapted to cater for the students ability and what they have covered specifically in the year.

Adaptive Implementation Practices

This is a summary of the practices used throughout the department/curriculum in line with school requests.

Differentiated Instruction: Tailoring class instructions to meet the diverse needs of students by providing varied materials, activities, and assessments.	Scaffolded Instruction: Break down complex concepts into smaller, more manageable steps, providing additional support and guidance as students' progress through the material.	Formative Assessment: Use ongoing assessments, such as quizzes, discussions, and peer reviews, to continuously monitor student progress and provide timely feedback.	Self-Paced Learning Job Lists: Create self-paced lesson job lists or learning paths that allow students to progress through the lessons at their own speed, enabling them to take ownership of their learning process.
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