

OPA Curriculum Explained – Year 7 Computer Science

What will my child be learning in Spring Term – 2024

(Thursday 4th January 2024 to Thursday 28th March 2024)

Y7			
Spring Term	Programming with Blockley		
	Week 1	Week 2	Week 3
	Blockley - Sequencing instructions	Blockley - repeating instructions	Blockley – Using Nexted Repeats
	Write programs with Forward, Turn Left, Right Turn blocks	In addition to using sequencing command, students get to use repeat command	Writing programs which has repeat codes that already uses repeat commands.

Week 4	Week 5	Week 6
Blockley – Setting and Using random colours	Blockley – Setting and Using functions within programmes	Blockley – Combining all the above in solving problems.
Writing programs which uses random colours .	Writing programs which uses blockleys functions . Functions are re-usable program codes.	Writing programs which bring together all that has been learnt in the past couple of weeks.

Spring Term			
Spring Term	Impact of Technology - Collaborating Online Respectfully		
	Week 7	Week 8	Week 9
	Account security	Respectful communication	Cyberbullying
	Evaluate effective password, evaluate appropriate username, describe and assess benefits and risks of sharing information online.	Define respectful communication, Describe what is appropriate to say and do, Explain how your online presence can influence other's opinion	Describe the term Cyberbullying, Explain the effect of cyberbullying, Demonstrate how to get help

Week 10	Week 11	Week 12
Recognise and report	Use presentation tools	Create a presentation
Check who you are talking to online, Recognise inappropriate content and contac, Recognise when and how to report abuse online to CEOP	Refine online searches, Use presentation tools effectively, consider accessibility, design a presentation	Learn to create presentation. Learn key features which make great presentation

Year 7 Computer science Spring Term Assessment Focus with Date

(Including resources to help students prepare for the assessment)

Week	Week commencing	Nature of assessment	Area of concentration
5	07 – 02 - 2024	Half termly assessment	Covers all the key blockly concepts taught that half term
11	08 – 04 - 2024	Half termly assessment	Covers all the key concepts taught that half term

Year 7 Computer science Spring Term Homework Focus

Year 7s only get one hour of lesson each week so no weekly homework set. However, we periodically set 30mins homework where it furthers the learning of certain topics.

OPA Curriculum Explained – Year 8 Computer Science

What will my child be learning in Spring Term 2024

(Thursday 4th January 2024 to Thursday 28th March 2024)

Y8			
Spring Term	Programming in Python: Focus on using Selection		
	Week 1	Week 2	Week 3
	Selection	Decisions based on Calculation	Using If else
	how to write an algorithm for a program that includes a decision	how to write a program in Python that makes a decision based on the outcome of a calculation	how to write a program in Python that uses multiple if statements and an else statement to consider a number of conditions when making a decision

Week 4	Week 5	Week 6
Compare "Strings" and "Numbers"	Using "Elif"	Using multiple "Elif"
write a program in Python that involves random number generation	use elif statements with if else to check multiple conditions	use multiple elif statements with if else to compare multiple conditions

Spring Term	Ethics of Computing		
	Week 7	Week 8	Week 9
	Logic gates	More about Logic gates	Introducing Binary
	To learn that digital devices rely on Logic Gates to make the decisions	To simulate how different logic gates are used to build systems	To learn what binary system is and how binary numbers relate to denary numbers

Week 10	Week 11	Week 12
Introducing Binary	Representing Character with ASCII code	Representing Images with ASCII code
To learn what binary system is and how binary numbers relate to denary numbers	To learn how ASCII codes are used to represent characters on a keyboard	To learn how images are encoded onto a computer screen

Year 8 Computer science Spring Term Assessment Focus with Date

(Including resources to help students prepare for the assessment)

Week	Week commencing	Nature of assessment	Area of concentration
5	07 – 02 - 2024	Half termly assessment	Python program using if statement, if else statement and if-elif-else statement.
11	08 – 04 - 2024	Half termly assessment	Logic Gates – AND/OR/NOT Gates

Year 8 Computer science Spring Term Homework Focus

Year 8s only get one hour of lesson each week so no weekly homework set. However, we periodically set 30mins homework where it furthers the learning of certain topics.

OPA Curriculum Explained – Year 9

Computer Science

What will my child be learning in Spring Term 2024

(Thursday 4th January 2024 to Thursday 28th March 2024)

Y9			
Spring Term	Programming in Python: <i>Focus on Iteration (Loop)</i>		
	Week 1	Week 2	Week 3
	Repeating Instructions	User-defined loops	Using <i>for loops</i> with Strings
	To learn to write programs with loops where repeating certain lines of codes are repeated.	Learn to write programs with user-defined <i>for loops</i> .	To learn how to write Python programs that uses <i>for loops</i> to manipulate strings
Spring Term	Week 4	Week 5	Week 6
	Using <i>for loops</i> with lists	Using <i>for loops</i> to search value in a list	Using <i>while loop</i>
	To learn how to write Python programs that uses <i>for loops</i> to manipulate lists	To learn how to write Python programs that uses <i>for loops</i> to search values in a list	To learn how to write Python codes that uses <i>while loops</i> to repeat lines of code.
Spring Term	Ethics of Computing		
	Week 7	Week 8	Week 9
	Sourcing content responsibly	Using Technology Responsibly	Technology and the Environment
	To learn the importance of crediting content creators. Also to learn how to find out who originally created posted content.	To learn the difference between morality and immorality. Also to learn how technology can be used immorally.	To learn that technological advancements can have negative impacts on the environment.
Spring Term	Week 10	Week 11	Week 12
	Technology and the Law	How Technology creates Morale Dilemmas	How Technology creates Morale Dilemmas Pt 2
	To learn about the main laws that govern data protection in the UK. Also to apply understanding of data protection Laws to scenarios.	To learn how technology creates moral dilemmas. Also to learn the moral dilemmas created by technology.	To learn how technology creates moral dilemmas. Also to learn the moral dilemmas created by technology.

Year 9 Computer science Spring Term Assessment Focus with Date

(Including resources to help students prepare for the assessment)

Week	Week commencing	Nature of assessment	Area of concentration
5	07 – 02 - 2024	Half termly assessment	Python programmes using loops, while and for loops.
11	08 – 04 - 2024	Half termly assessment	Morality vs immorality, technology and the environment and laws

Year 9 Computer science Spring Term Homework Focus

Year 9s only get one hour of lesson each week so no weekly homework set. However, we periodically set 30mins homework where it furthers the learning of certain topics.

OPA Curriculum Explained – Year 10 Computer Science

What will my child be learning in Spring Term – 2024

(Thursday 4th January 2024 to Thursday 28th March 2024)

Spring 1		
Week 1	Week 2	Week 3
Data storage – sound	Designing, creating, and refining algorithms	Architecture of the CPU - Purpose of CPU
To learn how computers store sound files. Also learn about factors affecting audio quality and size.	To learn key concepts for designing, creating, and refining programming algorithm.	To learn the purpose of CPU. Also, to learn the key functions of CPU within a computer system.

Spring 1		
Week 4	Week 5	Week 6
Practical programming	Architecture of the CPU - CPU Components and functions	Architecture of the CPU - CPU Components and functions
Practice basic python programming skills using sequence, selection and iteration programming constructs.	To learn and describe common CPU components and their functions.	To learn and describe common CPU components and their functions.

Spring 2		
Week 7	Week 8	Week 9
Characteristics and Performance of CPU	Programming: Data Types	Vonn Neumann computer architecture
To learn key characteristics of CPU and factors which affect performance. Example, number of cores, clock speed etc	To learn the different data types used in programming like integer, float, boolean etc	To learn the key features of Vonn Neumann architecture – MAR, MDR, PC and Accumulator.

Spring 2		
Week 10	Week 11	Week 12
Programming: Programming fundamentals	CPU performance	Programming: Programming fundamentals
To learn basic python programming techniques which includes the use of variables.	To learn common CPU characteristics which affects performance – number of cores, cache size and clock speed.	To learn basic python programming techniques which includes the use of operators.

Year 10 Computer science Spring Term Assessment Focus with Date

(Including resources to help students prepare for the assessment)

Week	Week commencing	Nature of assessment	Area of concentration
3	22 – 01 - 2024	Quarter-termly assessment	Unit 1.2.4 and Unit 2.1
5	07 – 02 - 2024	Half termly assessment	Unit 1.2.4 and Unit 2.1

Year 10 Computer science Spring Term Homework Focus

Week	Home learning Focus
1 & 2	Unit 1.2.4
3 & 4	Unit 2.1
5 & 6	Unit 1.2.4 and unit 2.1