



Queen Elizabeth's Girls' School

Educating Women of the Future

Computing Key Stage 3 Curriculum

	Topic	Focus	Enrichment
Year 7	Baseline Assessment (1 Lesson)	<ul style="list-style-type: none"> ● Assessment (Transition Year) <ul style="list-style-type: none"> ○ The baseline test provided with this course can be used to identify starting points and any key issues that need to be addressed before commencing specific topics. 	<ul style="list-style-type: none"> ● Weekly in-lesson quizzes ● Boost Learning (Hodder) ● Home Learning ● KS3 Coding Club
	Getting Started (6 Lessons)	<ul style="list-style-type: none"> ● Know and understand the following key concepts and principles: <ul style="list-style-type: none"> ○ Know the processes for logging into the school's network ○ Know the processes for sending and receiving emails ○ Understand how to save, rename and organise files ○ Understand how to access files stored in the cloud ○ Understand key principles of Internet safety ○ Understand the qualities of vector and bitmap graphics ● Apply knowledge and understanding of the following key concepts and principles: <ul style="list-style-type: none"> ○ Log into the school's network proficiently ○ Send and receive emails successfully, using appropriate language and content ○ Organise files and folders to facilitate ease of access and use ○ Demonstrate safe practices when using the Internet ○ Be able to create and manipulate images ● Analyse the following problems in computational terms: <ul style="list-style-type: none"> ○ Identify the most appropriate tools to use when editing an image ● Develop confident and responsible use of the following modern technologies: <ul style="list-style-type: none"> ○ Demonstrate proficiency in using the school's network and computing facilities ○ Use image editing software with confidence 	
	Introducing Spreadsheets (6 Lessons)	<ul style="list-style-type: none"> ● Know and understand the following key concepts and principles: <ul style="list-style-type: none"> ○ Understand how to write basic formulae in a spreadsheet ○ Understand the concept of replication and the uses of relative and absolute cell referencing ○ Understand how to name cells and ranges within a spreadsheet ○ Understand how to write a range of basic functions including SUM, AVERAGE, MAX, MIN, COUNT and IF ○ Understand how to use conditional formatting ○ Understand how to use data in a spreadsheet to create graphs and charts 	

		<ul style="list-style-type: none"> ● Apply knowledge and understanding of the following key concepts and principles: <ul style="list-style-type: none"> ○ Use a range of basic formulae to manipulate data ○ Use conditional formatting ○ Create graphs and charts to represent different types of information ● Analyse the following problems in computational terms: <ul style="list-style-type: none"> ○ Identify the most appropriate functions to use when developing a spreadsheet for a particular purpose ○ Identify the most appropriate chart or graph to display different types of information ● Develop confident and responsible use of the following modern technologies: <ul style="list-style-type: none"> ○ Become proficient in the use of spreadsheets to handle data in a variety of situations ○ Interpret data from spreadsheets
	<p>Computing: Past, Present and Future (6 Lessons)</p>	<ul style="list-style-type: none"> ● Know and understand the following key concepts and principles: <ul style="list-style-type: none"> ○ Know about important figures in the development of computing ○ Understand Moore's Law and how computer technology has developed and changed over time ○ Know how to format documents ○ Understand the importance of aesthetics when presenting information and have an awareness of factors that can inhibit this. ● Apply knowledge and understanding of the following key concepts and principles: <ul style="list-style-type: none"> ○ Present knowledge about computing using word processing and presentation software ○ Use formatting appropriately ○ Ensure that work has been proofread and that spelling and grammar has been checked ● Analyse the following problems in computational terms: <ul style="list-style-type: none"> ○ Select appropriate text and images for use in presentations ● Plan creative solutions to the following problems: <ul style="list-style-type: none"> ○ Design presentations to convey information effectively ● Develop confident and responsible use of the following modern technologies: <ul style="list-style-type: none"> ○ Use word processing and presentation software to present information effectively
	<p>Programming in Scratch (6 Lessons)</p>	<ul style="list-style-type: none"> ● Know and understand the following key concepts and principles: <ul style="list-style-type: none"> ○ Understand the concepts of sequencing, selection and iteration ● Apply knowledge and understanding of the following key concepts and principles: <ul style="list-style-type: none"> ○ Develop working programs in Scratch ● Analyse the following problems in computational terms: <ul style="list-style-type: none"> ○ Analyse the requirements of a program ○ Identify the processes needed to solve a problem ● Plan creative solutions to the following problems: <ul style="list-style-type: none"> ○ Design programs in Scratch to solve specific problems ● Develop confident and responsible use of the following modern technologies: <ul style="list-style-type: none"> ○ Use Scratch confidently to solve a range of problems

	<p>Computing Components (6 Lessons)</p>	<ul style="list-style-type: none"> ● Know and understand the following key concepts and principles: <ul style="list-style-type: none"> ○ Know about and understand the function of a range of input and output devices ○ Know about and understand different types of memory and storage and their use ● Apply knowledge and understanding of the following key concepts and principles: ● Analyse the following problems in computational terms: <ul style="list-style-type: none"> ○ Identify the correct input and output devices to use in a range of different situations ● Plan creative solutions to the following problems: ● Develop confident and responsible use of the following modern technologies:
	<p>Programming in Python: Sequence (6 Lessons)</p>	<ul style="list-style-type: none"> ● Know and understand the following key concepts and principles: <ul style="list-style-type: none"> ○ Understand a range of basic programming constructs in Python ○ Know how to print to the screen, perform calculations, take inputs and store them in suitably named variables ● Apply knowledge and understanding of the following key concepts and principles: <ul style="list-style-type: none"> ○ Develop working programs in Python to solve specific problems ● Analyse the following problems in computational terms: <ul style="list-style-type: none"> ○ Analyse the requirements of a program ○ Identify the processes needed to solve a problem ● Plan creative solutions to the following problems: <ul style="list-style-type: none"> ○ Design programs in Python to solve specific problems ● Develop confident and responsible use of the following modern technologies: <ul style="list-style-type: none"> ○ Use Python confidently to write simple programs

	Topic	Focus	Enrichment
Year 8	Introduction to the Network (6 Lessons)	<ul style="list-style-type: none"> ● Know and understand the following key concepts and principles: <ul style="list-style-type: none"> ○ Know the processes for logging into the school's network ○ Know the processes for sending and receiving emails ○ Understand how to save, rename and organise files ○ Understand how to access files stored in the cloud ○ Understand key principles of Internet safety ● Apply knowledge and understanding of the following key concepts and principles: <ul style="list-style-type: none"> ○ Log into the school's network proficiently ○ Send and receive emails successfully, using appropriate language and content ○ Organise files and folders to facilitate ease of access and use ○ Demonstrate safe practices when using the Internet ● Develop confident and responsible use of the following modern technologies: <ul style="list-style-type: none"> ○ Demonstrate proficiency in using the school's network and computing facilities 	<ul style="list-style-type: none"> ● Weekly in-lesson quizzes ● Boost Learning (Hodder) ● Home Learning ● KS3 Coding Club
	Advanced Spreadsheets (6 Lessons)	<ul style="list-style-type: none"> ● Know and understand the following key concepts and principles: <ul style="list-style-type: none"> ○ Understand the structure and use of a range of more advanced functions ○ Understand how to use validation to create dropdown lists ○ Know how to sort data and run simple queries ○ Understand the use of macros to automate processes and know how to record, edit and assign macros ● Apply knowledge and understanding of the following key concepts and principles: <ul style="list-style-type: none"> ○ Use a range of more advanced functions within spreadsheets ○ Use validation within spreadsheets to minimise user error ○ Develop and use macros to automate aspects of spreadsheets ● Analyse the following problems in computational terms: <ul style="list-style-type: none"> ○ Identify the most appropriate functions to use when developing a spreadsheet for a particular purpose ● Plan creative solutions to the following problems: <ul style="list-style-type: none"> ○ Design spreadsheets for a range of purposes making use of a range of more advanced functions ● Develop confident and responsible use of the following modern technologies: <ul style="list-style-type: none"> ○ Use spreadsheets to handle data in a variety of situations proficiently ○ Interpret data from spreadsheets 	
	Algorithms (6 Lessons)	<ul style="list-style-type: none"> ● Know and understand the following key concepts and principles: <ul style="list-style-type: none"> ○ Understand the concepts of abstraction, decomposition, pattern recognition and algorithms ○ Know how to read and develop flow diagrams ● Apply knowledge and understanding of the following key concepts and principles: <ul style="list-style-type: none"> ○ Use the principles of abstraction and decomposition to produce algorithms to solve a range 	

		<ul style="list-style-type: none"> ○ of problems ○ Write flow diagrams to sequence the steps involved in completing a task ● Analyse the following problems in computational terms: <ul style="list-style-type: none"> ○ Analyse different approaches to solving problems ● Plan creative solutions to the following problems: <ul style="list-style-type: none"> ○ Design algorithms to solve a range of computational problems
	Programming in Python: Selection (6 Lessons)	<ul style="list-style-type: none"> ● Know and understand the following key concepts and principles: <ul style="list-style-type: none"> ○ Understand how to use selection in Python ○ Understand how to program condition-controlled loops in Python ● Apply knowledge and understanding of the following key concepts and principles: <ul style="list-style-type: none"> ○ Develop working programs in Python to solve a range of problems ● Analyse the following problems in computational terms: <ul style="list-style-type: none"> ○ Analyse the requirements of a program ○ Identify the processes needed to solve a problem ● Plan creative solutions to the following problems: <ul style="list-style-type: none"> ○ Design programs in Python to solve a range of problems ● Develop confident and responsible use of the following modern technologies: <ul style="list-style-type: none"> ○ Use Python confidently to write a wider range of programs
	Cybersecurity and Encryption (6 Lessons)	<ul style="list-style-type: none"> ● Know and understand the following key concepts and principles: <ul style="list-style-type: none"> ○ Understand a range of malware and the effects they have ○ Know what precautions to take to maintain safety online ○ Understand the role of encryption in maintaining safety online ○ Know about a range of ciphers ● Apply knowledge and understanding of the following key concepts and principles: <ul style="list-style-type: none"> ○ Demonstrate safe practices when using the Internet ○ Use a range of ciphers to encrypt and decrypt text ● Develop confident and responsible use of the following modern technologies: <ul style="list-style-type: none"> ○ Use computer systems safely and confidently
	Binary and Computer Logic (6 Lessons)	<ul style="list-style-type: none"> ● Know and understand the following key concepts and principles: <ul style="list-style-type: none"> ○ Understand binary and why it is used in computing ○ Know how to convert between denary and binary ○ Understand how binary is used to encode text and images ○ Understand the concept of AND, OR and NOT gates and their use in computer programs ● Apply knowledge and understanding of the following key concepts and principles: <ul style="list-style-type: none"> ○ Carry out binary/denary conversions ○ Encode and decode text and images in binary ● Analyse the following problems in computational terms: <ul style="list-style-type: none"> ○ Identify the output from simple logic circuits ● Plan creative solutions to the following problems:

		<ul style="list-style-type: none"> ○ Design an app to meet a brief
	<p>Sound and Video (6 Lessons)</p>	<ul style="list-style-type: none"> ● Know and understand the following key concepts and principles: <ul style="list-style-type: none"> ○ Understand how to use audio editing software ○ Know about a range of effects that can be applied to sound files ○ Understand how to use video editing software ○ Know how to combine images and sound ● Apply knowledge and understanding of the following key concepts and principles: <ul style="list-style-type: none"> ○ Record and edit audio files ○ Develop and edit videos ○ Combine video and audio ● Plan creative solutions to the following problems: <ul style="list-style-type: none"> ○ Create a plan to develop a video ● Develop confident and responsible use of the following modern technologies: <ul style="list-style-type: none"> ○ Use audio and video editing software with confidence ○ Review and evaluate work involving audio and video files

	Topic	Focus	Enrichment
Year 9	Introduction to the Network (6 Lessons)	<ul style="list-style-type: none"> ● Know and understand the following key concepts and principles: <ul style="list-style-type: none"> ○ Know the processes for logging into the school's network ○ Know the processes for sending and receiving emails ○ Understand how to save, rename and organise files ○ Understand how to access files stored in the cloud ○ Understand key principles of Internet safety ● Apply knowledge and understanding of the following key concepts and principles: <ul style="list-style-type: none"> ○ Log into the school's network proficiently ○ Send and receive emails successfully, using appropriate language and content ○ Organise files and folders to facilitate ease of access and use ○ Demonstrate safe practices when using the Internet ● Develop confident and responsible use of the following modern technologies: <ul style="list-style-type: none"> ○ Demonstrate proficiency in using the school's network and computing facilities 	<ul style="list-style-type: none"> ● Weekly in-lesson quizzes ● Boost Learning (Hodder) ● Home Learning ● KS3 Coding Club
	Programming in Python: Iteration (6 Lessons)	<ul style="list-style-type: none"> ● Know and understand the following key concepts and principles: <ul style="list-style-type: none"> ○ Understand how to program count-controlled loops in Python ○ Understand the concept of nested loops ● Apply knowledge and understanding of the following key concepts and principles: <ul style="list-style-type: none"> ○ Develop working programs in Python to solve a wide range of problems ● Analyse the following problems in computational terms: <ul style="list-style-type: none"> ○ Analyse the requirements of a program ○ Identify the processes needed to solve a problem ● Plan creative solutions to the following problems: <ul style="list-style-type: none"> ○ Design programs in Python to solve a range of problems ● Develop confident and responsible use of the following modern technologies: <ul style="list-style-type: none"> ○ Use Python confidently to write a wider range of programs 	
	Networking and the Internet (6 Lessons)	<ul style="list-style-type: none"> ● Know and understand the following key concepts and principles: <ul style="list-style-type: none"> ○ Understand how data is sent across a network ○ Know the role of a range of basic hardware involved in networking, such as switches ○ Understand the role of IP addresses ○ Understand domain names and DNS ○ Know about a range of Internet services 	
	Ethics of Computing (6 Lessons)	<ul style="list-style-type: none"> ● Know and understand the following key concepts and principles: <ul style="list-style-type: none"> ○ Understand the role of algorithms in decision-making ○ Understand the importance of intellectual property and copyright ● Apply knowledge and understanding of the following key concepts and principles: <ul style="list-style-type: none"> ○ Make informed judgements about whether activities are morally acceptable or not ○ Ensure that copyright has not been infringed when using resources found online 	

		<ul style="list-style-type: none"> ○ Store data safely concerning current legislation ● Analyse the following problems in computational terms: <ul style="list-style-type: none"> ○ Consider the ethical implications of using modern information technologies ● Plan creative solutions to the following problems: <ul style="list-style-type: none"> ○ Research resources online, being mindful of copyright considerations and acknowledging sources ● Develop confident and responsible use of the following modern technologies: <ul style="list-style-type: none"> ○ Use modern information technologies responsibly
	Data Science (6 Lessons)	In this unit, learners will be introduced to Data Science, and by the end of the unit, they will be empowered by knowing how to use data to investigate problems and make changes to the world around them. Learners will be exposed to both global and local data sets and gain an understanding of how visualising data can help with the process of identifying patterns and trends. Towards the end of the unit, the learners will go through the steps of the investigative cycle to try to solve a problem in the school using data.
	Search and Sort Algorithms (3 Lessons)	The final two units before the end of the KS3 project will be a blend of GCSE Computer Science topics to help learners prepare for the GCSE course and know what to expect before starting the course in September. Learners will be exposed to content from the GCSE specification and will understand how to answer GCSE-level questions based on the unit content. By the end of the unit, the learners will build confidence knowing that they will be able to access the course and achieve.
	Binary, Denary and Hexadecimal (3 Lessons)	
	End of KS3 Project (6 Lessons)	<ul style="list-style-type: none"> ● Apply knowledge and understanding of the following key concepts and principles: <ul style="list-style-type: none"> ○ Develop a substantive product using a range of software and techniques studied at KS3 ● Analyse the following problems in computational terms: <ul style="list-style-type: none"> ○ Analyse the requirements of a substantive product ● Plan creative solutions to the following problems: <ul style="list-style-type: none"> ○ Plan a solution to develop a substantive product, including sub-tasks and timelines ● Develop confident and responsible use of the following modern technologies: <ul style="list-style-type: none"> ○ Use a range of software to produce a substantive product, concerning copyright issues ○ Review and evaluate project work