Computing at Cox Green
Curriculum Plan

Key Stage 3
Year 7

Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
E-safety	**Database**	**Programming**	**Spreadsheet and modelling**	**Web design**	**How data is represented in computers?**
How to communicate with ICT and stay safe. Benefits and risks of sharing information online. Software: E-mail software, Word, PowerPoint, Photoshop. Assessment: Students create a poster and presentation to advise the audience on e-safety. An evaluation of the work. Justify the choice of and independently combine and use multiple digital devices. Evidence of the poster and presentation. Planning and evaluation of the work. Justify the choice of and independently combine	Students create a flat base database forma business scenario. Software: Access • Give examples of databases used by organisations which are accessible to the public via the Internet • Create a database table using several fields with different data types • State the purpose of a primary key in a database • Add features to an input form to make it more user-friendly • Fully customise their input forms and reports	Students will use programming software to create a product. Software: Python • Run simple Python programs in Interactive and Script mode • Write pseudocode to outline the steps in an algorithm prior to coding • Write programs using different types of data (e.g. strings and integers) • Correctly use different variable types (e.g. integer and floating point), assignment statements,	Students will use a spreadsheet to model a given scenario. Software: Excel Assessment: Use spreadsheet software to model a business scenario Creating the spreadsheet undertake creative projects that collect, analyse, and evaluate data to meet the needs of a known user group. Students will learn how to use spreadsheets for given purposes. Cells Formulas Functions.	Students will make a website for a client and audience. Software: Dreamweaver, HTML/ CSS code, Fireworks, Photoshop Assessment: Working for a web-design company Create a website to promote a business or pop group. Plan the website. How does my website compare to other websites? Test the website Comparative report and evaluation. What makes a good website? Learn the introduction to web design Creating Templates	What is a computer? Computer Laws. Software: Computer Hardware and software. Assessment: Build a computer and network for a given customer. Computer exam Function and purpose of a computer Software provides instructions for the computer Identify the main component parts of a computer Role of the main computer components Define the term 'software' Software provides instructions for the

multiple digital devices. Identify and explain how the use of technology can impact on society. Use technologies and online services securely, and I know how to identify and report inappropriate conduct. Consider the possible benefits and risks of sharing information online. Recognize the importance of context in posting or viewing online images. Choices needed to protect the privacy of others online. Skills: Graphics Communication SMSC/ British Values: *Investigating moral values and ethical issues.* *Identify and explain how the use of technology can impact on society.* *Recognise ethical issues surrounding the application of information technology beyond school.* *Show empathy for and generate solutions to*	• Create the relationship between two linked tables • Create a complex query which uses two tables in a relational database Assessment: Create a database for a business to monitor stock and customers. Evidence of the final flat file Database Validations. Justify the choice of and independently combine and use multiple digital devices. Importing data. Create tables. Validation. Verification. Forms. Queries. Reports.	arithmetic operators Distinguish between syntax and logic errors and be able to find and correct both types of error Assessment: Create a system using programming to solve a problem. Students will be introduced to computer programming Selection & Writing Algorithms Numbers and Arithmetic Introduction to Python While loops use logical reasoning to explain how an algorithm works and distinct from its expression in a programming language Evaluate the effectiveness of algorithms and models for similar problems. Effect of the scope of a variable e.g. a local variable can't be accessed from outside its function.	Conditional formatting. Fill cells with different data types: number formats (integer, currency, percentages, decimal places and fraction). Use format techniques on cells: font formats (style, size, colour), text alignment (horizontal and vertical), text wrap, merging cells, cell borders and shading. Skills: Numeracy	Introduction to HTML and CSS code Linking pages Justify the choice of and independently combine multiple digital devices Identify and explain how the use of technology can impact on society. Evaluation of the work Skills: Planning, Creation, Testing, Evaluation of Website *SMSC/ British Values:* *Identify and explain how the use of technology can impact on society.* *Recognise ethical issues surrounding the application of information technology beyond school.*	computer Distinguish between system software and application software Names of hardware e.g. hubs, routers, switches, and the names of protocols e.g. SMTP, iMAP, POP, FTP, TCP/IP, and networking systems. Reasons for hardware and protocols within a network system Skills: Building a computer *SMSC/ British Values:* *The disposal of old ICT equipment and how this could potentially be passed onto more disadvantaged people.* *Identify and explain how the use of technology can impact on society*

tackle cyber-bulling.	Skills: Importing and exporting. Validations, forms, queries and reports. *SMSC/ British Values:* *Computer Laws* *Identify and explain how the use of technology can impact on society.* *Recognise ethical issues surrounding the application of information technology beyond school.*	Skills: Numeracy, Responding to an audience.			*Moral values and ethical issues of using computers.* *Digital Divide*

Enrichment/Extra Curriculum:

- *We run additional workshops to develop skills during the Computer Club and link to a number of businesses including the O2 and CISCO Challenge.*

Computing at Cox Green
Curriculum Plan

Key Stage 3
Year 8

Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Computer systems	**Graphics**	**Database**	**Programming**	**Web design**	**Networks**
How to build a computer system. Software: various Theory lessons looking at computer systems • Distinguish between hardware and software • Give examples of computer hardware and software • Draw a block diagram showing CPU, input, output and storage devices • Name different types of permanent storage device • Suggest appropriate input and output devices for a simple scenario • Explain what RAM and ROM are used for	Creating graphics and editing posters Software: Photoshop Students will explain that bitmap images are made up of individual pixels • Explain that in the case of a vector graphic, properties such as position, fill, stroke colour and dimensions are stored • Create and manipulate a simple group of objects to form a logo design • Change the saturation, brightness and contrast in an image • Add text to a	Creating a relational database. Software: Access • Give examples of databases used by organisations which are accessible to the public via the Internet • Create a database table using several fields with different data types • State the purpose of a primary key in a database • Add features to an input form to make it more user-friendly • Fully customise their input forms and reports • Create the relationship between two linked	Introduction to Python. Software: Database • Use relational operators to control the order in which program statements are executed and in what order (if and while statements) • Use comments to document their programs and explain how they work • Write an error-free, well-documented program involving selection and iteration, but with some help given • Write an error-free, well-documented program involving selection and iteration	Create a website for a client and given audience. Software: Dreamweaver, Flash, Fireworks, Photoshop Students will Learn the introduction to web design. Creating Templates. Introduction to HTML and CSS code. Linking pages. Justify the choice of and independently combine multiple digital devices Identify and explain how the use of technology can impact on society. Marquee code. Evaluate the security of a website. Evaluate the way that a product or service deals with users' privacy. Explore the reasons why	Introduction to Networks Software: Various Hardware: computer network components Students will cover the basic principles and architecture of local and wide area networks. Pupils will learn that the World Wide Web is part of the Internet, and how web addresses are constructed and stored as IP addresses. Client-server, peer-to-peer networks and the concept of cloud computing are all described. Ways of keeping data secure and simple encryption techniques are also covered. In the final lesson, pupils will sit a multiple choice test which will form the Unit assessment. • Understand the

• Show how numbers and text can be represented in binary • Explain the impact of future technologies • Identify input and output devices for more complex scenarios • Explain how characters are encoded using the ASCII system • Use an ASCII reference chart to convert a character into binary and its decimal equivalent Assessment: Build a computer and network for a given customer. Write an evaluation on the chosen system and	graphic • Use a graphics package to create an artwork; for example, a movie poster • Use the advanced facilities of a graphics package, for example to manipulate, cut out, and alter images Assessment: Pupils will put their final creations in an Assessment Portfolio. The assessment describes grades as Basic, Intermediate, Advanced or Expert. It	tables • Create a complex query which uses two tables in a relational database • Create a report which uses data from linked tables • Edit a report structure and add subtotals and/or a total to the report Assessment: Create a relational database for a business to monitor stock and customers. Explain the effects on	• Describe how a binary search is carried out • Explain the advantages of a binary search over a linear search for an ordered list • Devise their own algorithms to solve reasonably complex problems, e.g. a binary search • Test and debug their programs, and correct both syntax and logic errors • Make allowances in their programs for user input errors, ensuring that the program still runs to a successful conclusion – which may include printing an error message and stopping the run Assessment: Create a system using programming to solve a problem.	inappropriate material exists online and the consequences for families and individuals. • Use HTML and CSS to create their web page template • Use the template to design a multi-page website with a consistent look and feel to each page • Use responsive design techniques in creating their website so that the web pages will adapt to any size of screen Assessment: Create a website to promote a business or pop group. Justify your decisions and impact of your site on users and audience. What makes a good website? • Write HTML code to create a simple web page and	hardware and software components that make up computer systems, and how they communicate with one another and with other systems • Understand a range of ways to use technology safely, respectfully, responsibly and securely • Explain the meaning and significance of bandwidth • Explain what is meant by buffering and why it is used • State the advantages and disadvantages of different network topologies • Design a simple network layout • Identify some of the extra hardware components used in a LAN • Compare the uses of peer-to-peer networks and client-server networks • Describe the concept of cloud computing and some of the benefits it

impact of the user Explaining the parts of a computer and networks Know the purpose of the hardware and protocols associated with networking computer systems. Know the client-server model inc: how dynamic web pages use server-side scripting and that web servers process and store data entered by users. Know that processors have instruction sets and that these relate to low-level instructions carried out by a computer. Students will explain the hardware associated with networking computer systems, including WANs and LANs They will know the purpose and how they work, including MAC addresses. Skills: Research Building computers and networks	is expected that teachers will map these onto their own school assessment structure for Computing and ICT. Students can explain the effects on society of editing images. Show evidence of taking images and editing them for the audience. Graded on the final images' editing Evaluation of their work against the criteria. Explanation of the law of copyright.	society and security in storing data including the DPA. Creation of a relational database. Boolean searches. Tables. Validation. Verification. Data input through importing and Forms. Question the database by using complex queries. If, not, =, < >, between Passwords. Collect, analyse, and evaluate data to meet the needs of a known user group. Evaluate the way that a product or service deals with users' privacy.	Justify your choice of code. Understand that processors have instruction sets. Selection & Writing Algorithms Numbers and Arithmetic. Introduction to Python. While loops. Use logical reasoning to explain how an algorithm works. Know that the design of an algorithm is distinct from its expression in a programming language. Evaluate the effectiveness of algorithms and models for similar problems. Know the effect of the scope of a variable e.g. a local variable can't be accessed from outside its function. Understand simple Boolean logic (e.g. AND, OR and NOT) Understand some of Boolean logic's uses in circuits and programming. Understand how numbers can be represented in binary and carry out simple operations on binary numbers. Skills: Numeracy	display it in a browser • Write CSS to define the styles used in a web page • Create a simple navigation system using HTML • Use a design to create a template for a web page using HTML • Create their own multi-page website • Insert text, images and links on their web pages • Use a range of HTML tags to create well laid out web pages • Write CSS code to define the styles of different parts of a web page Skills: To develop contextual knowledge of web design and matching work to an audience including local and globally.	brings to individuals and organisations Assessment: Students will sit an end-of-unit test. It is expected that teachers will map the results onto their own school assessment structure for Computing and ICT Skills: Photography Image editing Cloning *SMSC/ British Values:* *Copyright,* *Laws: DPA,* *Computer Misuse Act.* *Respect.* *Explain the effects on society of editing images.*

SMSC/ British Values: *The disposal of old ICT equipment and how this could potentially be passed onto more disadvantaged people.* *Effects of computers on society.* *Digital Divide.*	Skills: Research Editing and manipulating images *SMSC/ British Values:* *The disposal of old ICT equipment and how this could potentially be passed onto more disadvantaged people.* *Effects of computers on society.* *Digital Divide.*	Skills: Importing data Preventing mistakes through validation Questioning the data	Selection Writing algorithms While loops Searching Procedures Functions *SMSC/ British Values:* *Effects of ICT on society.*	*SMSC/ British Values:* *Moral use of internet.*	
Enrichment/Extra Curriculum: *We run additional workshops to develop skills during the Computer Club and link to a number of businesses including the O2 and CISCO Challenge.*					