

Cycle 1 Year 8: Computer Crime & Cyber Security
Reading: <https://www.bbc.co.uk/bitesize/guides/zrtrd2p/revision/3>

Name:		TARGET					
HWK Mark		Assessment Result:	SBE	BE	E	AE	SAE

KEYWORDS			Unit Description			
Phishing	Hacking	Malware	<p>This unit covers some of the legal safeguards regarding computer use, including overviews of the Computer Misuse Act, Data Protection Act and Copyright Law and their implications for computer use. Phishing scams and other email frauds, hacking, “data harvesting” identity theft and safe use of social media are discussed together with ways of protecting online identity and privacy. Health and Safety Law and environmental issues such as the safe disposal of old computers are also discussed.</p> <p>Homework is given for each lesson. These consist of a mixture of short, factual questions assessing knowledge in isolation and longer questions in which students are asked to analyse a situation or justify their answer to questions.</p> <p>The final assessment is a multiple choice set of questions covering content from this unit of study.</p>			
Virus	Trojan	Logic Bomb				
Geo-Tagging	Data Harvesting	Cybercrime				
RSI	Copyright	E-Waste				
NATIONAL CURRICULUM LINK						
understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and privacy; recognise inappropriate content, contact and conduct and know how to report concerns						

Please Tick off Criteria that you have met during this cycle of work		✓
7-9	Describe the effects on individuals and companies of illegally downloading copyright material, e.g. music, images and movies	
	Respond effectively and appropriately to emails	
	Briefly describe the content of the major Acts concerning computer use	
6 - 7	Find out what data is held about them by companies such as Google	
	Recognise fraudulent emails and protect themselves effectively from unwittingly giving personal information (e.g. account numbers and passwords) or otherwise being defrauded	
	Use computers sensibly and safely with regard to physical hazards such as backache, eyestrain, RSI etc.	
5	Adhere to Copyright Law when using written text, downloading music etc.	
	Name the major Acts concerning computer use	
	Protect their online identity using Privacy settings and by not uploading personal details	
	Identify some of the signs of fraudulent emails and respond appropriately	
4	Describe how to safely dispose of an old computer	
	List some of the Health and Safety hazards associated with computer use	
	Describe briefly ways of protecting online identity	
	Describe briefly some of the dangers of putting personal data on social networking sites	

PREVIOUS LEARNING

No previous knowledge is required

Cycle 2 Year 8: First Steps in Small Basic
Reading: <https://www.bbc.co.uk/bitesize/topics/zhy39j6>

Name:					TARGET		
HWK Mark		Assessment Result:	SBE	BE	E	AE	SAE

KEYWORDS		Unit Description
Syntax	variable	<p>This unit is an introduction to programming in a textual language designed to make programming easy and approachable for beginners. It starts by introducing Turtle graphics, leading to the use of variables and For...EndFor loops. Simple programs using the Text window are used to introduce input, output and selection. Pupils will get used to these programming statements while having fun producing coloured graphics and making a simple screensaver. They will learn the importance of writing statements accurately, documenting their programs and finding out for themselves in a very visual way how different program statements work.</p> <p>Homework is given for each lesson. These consist of a mixture of short, factual questions assessing knowledge in isolation and longer questions in which students are asked to analyse a situation or justify their answer to questions.</p> <p>Pupils will complete an assessment portfolio at the end of the Unit. They will amend an existing program to create a screensaver, paste in evidence of their finished program and complete a brief self-assessment.</p>
programming environment	loop	
Intellisense	selection	
graphics window	random number	
NATIONAL CURRICULUM LINK		
Use two or more programming languages, one of which is textual, to solve a variety of computational problems; make appropriate use of data structures; design and develop modular programs that use procedures and functions.		

Please Tick off Criteria that you have met during this cycle of work		✓
7-9	Create an effective screensaver which runs until the user stops it	
	Add scoring to their quiz game	
6 - 7	Use variables effectively to create repeating patterns	
	Use the graphics window to draw different shapes in random colours	
5	Find and correct logic errors in a program	
	Use a While...EndWhile loop in a program	
4	Identify and correct syntax errors in a program	
	Create a simple quiz game	
	Write and run programs in Small Basic using For...EndFor loops, variables, input output and selection statements	

PREVIOUS LEARNING

No previous knowledge of programming is required

Cycle 3 Year 8 : HTML & Web Development
Reading: <https://www.bbc.co.uk/bitesize/guides/z8nk87h/revision/4>

Name:		TARGET					
HWK Mark		Assessment Result:	SBE	BE	E	AE	SAE

KEYWORDS			Unit Description			
HTML	Internal	style	<p>They will learn how to create text styles and add content, including text and graphics, in a specified position on a page, as well as navigation links to other pages on their website and to external websites. The basics of good design are covered and, with the help of worksheets, pupils will develop their own templates in a text editor such as Notepad. They will decide on a topic for their websites, document their designs and collect suitable text and images. They will then use their HTML templates to create their websites, including a web form. Pupils can view the data collected by the web form into a simulated database. This also helps to stimulate discussion on the privacy of data.</p> <p>Homework is given for each lesson. These consist of a mixture of short, factual questions assessing knowledge in isolation and longer questions in which students are asked to analyse a situation or justify their answer to questions.</p> <p>Pupils will put evidence of their final website in an Assessment Portfolio. They will also answer questions on HTML, CSS and web design principles in order to demonstrate understanding</p>			
Tags	Embedded	element				
Attribute	External	text editor				
Property	template	web browser				
CSS	hyperlink	navigation				
Inline	responsive design					
NATIONAL CURRICULUM LINK						
<ul style="list-style-type: none"> Undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users Create, re-use, revise and re-purpose digital artefacts for a given audience, with attention to trustworthiness, design and usability 						

Please Tick off Criteria that you have met during this cycle of work		✓
7-9	Add enhancements or additional features to the original basic design	
	Construct a good-looking, well-formatted interactive website that is suitable for its intended audience	
	Use responsive design techniques in creating their website so that the web pages will adapt to any size of screen	
6 - 7	Create a simple web form to collect user data	
	Use the template to design a multi-page website with a consistent look and feel to each page	
	Use HTML and CSS to create their web page template	
5	Write CSS code to define the styles of different parts of a web page	
	Use a range of HTML tags to create well laid out web pages	
	Use a design to create a template for a web page using HTML	
	Create a simple navigation system using HTML	
4	Insert text, images and links on their web pages	
	Write HTML code to create a simple web page and display it in a browser	
	Create their own multi-page website	

PREVIOUS LEARNING

Basic IT skills such as finding images and sizing or cropping them to fit a given space, selecting and editing text will be useful. Pupils should be aware of image size and its relevance to speed of loading a web page containing images

Cycle 4 Year 8 : Database Development

Reading: <https://www.bbc.co.uk/bitesize/guides/zswnb9q/revision/1>

Name:		TARGET						
HWK Mark		Assessment Result:	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">SBE</td> <td style="width: 15%;">BE</td> <td style="width: 15%;">E</td> <td style="width: 15%;">AE</td> <td style="width: 15%;">SAE</td> </tr> </table>	SBE	BE	E	AE	SAE
SBE	BE	E	AE	SAE				

KEYWORDS			Unit Description	
Flat-file database	record	criterion	<p>It is a practical unit covering the basic theory, creation and use of a single-table database and a simple relational database involving two tables in a one-to-many relationship. Pupils will start by looking at an existing single-table database, learning how to add records and make queries. In subsequent lessons they will create:</p> <ul style="list-style-type: none"> a flat-file or two-table relational database of their own, using suitable field types and adding in appropriate validations an input form with help text, combo boxes and list boxes queries and a report using data from one or both tables a front end menu for their application linking to the database input form and report <p>MS Access is used in this unit. Homework is given for each lesson. These consist of a mixture of short, factual questions assessing knowledge in isolation and longer questions in which students are asked to analyse a situation or justify their answer to questions.</p> <p>Assessment will be by means of an Assessment Portfolio.</p>	
relational database	field	criteria		
table	query	primary key		
column	parameter	linked tables		
NATIONAL CURRICULUM LINK				
<p>understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems</p>				

Please Tick off Criteria that you have met during this cycle of work		✓
7-9	Edit a report structure and add subtotals and/or a total to the report	
	Create a report which uses data from linked tables	
	Create a complex query which uses two tables in a relational database	
6 - 7	Create the relationship between two linked tables	
	Add features to an input form to make it more user-friendly	
	Fully customise their input forms and reports	
5	Create a front-end application menu with buttons linking to a form and a report	
	Create a basic report with suitable headings	
	Query the database using more than one criterion to find answers to user queries	
	Create a basic input form to input data	
4	State the purpose of a primary key in a database	
	Create a database table using several fields with different data types	
	Give examples of databases used by organisations which are accessible to the public via the Internet	
Prior Learning		
<p><i>No previous learning is necessary with this unit.</i></p>		

Cycle 5 Year 8 : Data Representation

Reading: <https://www.bbc.co.uk/bitesize/topics/zxnfr82>

Name:		TARGET					
HWK Mark		Assessment Result:	SBE	BE	E	AE	SAE

KEYWORDS	Unit Description												
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">Binary</td> <td style="width: 33%;">Hexadecimal</td> <td style="width: 33%;">Right Shift</td> </tr> <tr> <td>Compression</td> <td>Sound</td> <td>Left Shift</td> </tr> <tr> <td>Lossey</td> <td>Lossless</td> <td>Images</td> </tr> <tr> <td>Denary</td> <td>Convert</td> <td>0 1</td> </tr> </table>	Binary	Hexadecimal	Right Shift	Compression	Sound	Left Shift	Lossey	Lossless	Images	Denary	Convert	0 1	<p>In this unit you will explore how computers use binary to represent binary. You will perform some conversions from Denary to Binary & Hexadecimal and look at how images & sound are represented in binary.</p> <p>Homework is given for each lesson. These consist of a mixture of short, factual questions assessing knowledge in isolation and longer questions in which students are asked to analyse a situation or justify their answer to questions.</p> <p><u>Assessment will be based on an end of unit test</u></p>
Binary	Hexadecimal	Right Shift											
Compression	Sound	Left Shift											
Lossey	Lossless	Images											
Denary	Convert	0 1											
NATIONAL CURRICULUM LINK													
<ul style="list-style-type: none"> Understand how instructions are stored and executed within a computer system; understand how data of various types (including text, sounds, and pictures) can be represented and manipulated digitally, in the form of binary digits; be able to convert between binary and decimal, and perform simple binary arithmetic 													

Please Tick off Criteria that you have met during this cycle of work		✓
7-9	Explain how different file compression systems work and how they affect the sound quality	
	Add two 8-bit binary integers and explain overflow errors which may occur	
6 - 7	Explain how each pixel is represented in binary	
	Explain the term character set and the use of binary codes to represent characters	
5	Understand that the number of bits per pixel determines the number of available colours for an image	
	Explain the use of hexadecimal numbers to represent binary numbers	
	Explain the relationship between file size and image resolution	
4	Convert positive denary whole numbers (0-255) into 8-bit binary numbers and vice versa	
	Convert between binary and hexadecimal equivalents of the same number	

PREVIOUS LEARNING

Students have gained some prior knowledge from the understanding computer unit. They have a basic understanding of binary and its use to represent text and images from previous years. They may also have an understanding of input and output devices and their role in the Input – Process – Output sequence.

Cycle 6 Year 8: Introduction to Python

Reading: <https://www.bbc.co.uk/bitesize/guides/zts8d2p/revision/1>

Name:		TARGET					
HWK Mark		Assessment Result:	SBE	BE	E	AE	SAE

KEYWORDS			Unit Description			
data type	logic error	IDLE	<p>The unit is an introduction to Python, a powerful but easy-to-use high-level programming language. Although Python is an object-oriented language, at this level the object-oriented features of the language are barely in evidence and do not need to be discussed. The focus is on getting pupils to understand the process of developing programs, the importance of writing correct syntax, being able to formulate algorithms for simple programs and debugging their programs. The pupils' final programs are put into a learning portfolio with evidence of correct running, for assessment purposes.</p> <p>Homework is given for each lesson. These consist of a mixture of short, factual questions assessing knowledge in isolation and longer questions in which students are asked to analyse a situation or justify their answer to questions.</p> <p>For the assessment Pupils will write and run a program and submit the code and screenshots of the program running in a learning Portfolio.</p>			
integer	debug	interactive mode				
float	binary search	Script mode				
round	Variable	String				
BIDMAS	Syntax	Sequence				
Selection	Iteration	syntax error				
NATIONAL CURRICULUM LINK						
<ul style="list-style-type: none"> Use two or more programming languages, one of which is textual, to solve a variety of computational problems; make appropriate use of data structures; design and develop modular programs that use procedures and functions Understand several key algorithms that reflect computational thinking [for example, ones for sorting and searching]; use logical reasoning to compare the utility of alternative algorithms for the same problem. 						

Please Tick off Criteria that you have met during this cycle of work		✓
7-9	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	
6 - 7	Write an error-free, well-documented program involving selection and iteration	
	Explain the advantages of a binary search over a linear search for an ordered list	
	Distinguish between syntax and logic errors and be able to find and correct both types of error	
	Use relational operators to control the order in which program statements are executed and in what order (if and while statements)	
5	Describe how a binary search is carried out	
	Correctly use different variable types (e.g. integer and floating point), assignment statements, arithmetic operators	
	Write pseudocode to outline the steps in an algorithm prior to coding	
4	Write programs using different types of data (e.g. strings and integers)	
	Use comments to document their programs and explain how they work	
	Run simple Python programs in Interactive and Script mode	

PREVIOUS LEARNING

*No previous learning is necessary with this unit. Pupils may have had some experience of using variables and with a variety of relational operators such as **If** and **Repeat** in graphical block-based languages such as Scratch. Applying this knowledge will help their understanding of a text-based language such as Python.*