## Year 7—Unit 1 Computer crime and cyber security

With more and more people relying on digital technology on a day-to-day basis, criminals attempt to use technology to carry our various crimes, and often target digital users. It is therefore important that you know what the dangers are and how to protect yourself from them.

### Keywords

Phishing		Criminals set up a fake website or send a phishing email in order to steal people's person- al data. The fake website and phishing email will look like they are from a genuine compa- ny, and will attempt to fool people into providing there personal details.			
	Hacking	Gaining access to a computer , with the intention of stealing data or causing damage.			
	Malware	Software created with ill intent. It can be a key logger, spyware, virus and other s			
	Virus	A piece of program which makes copies of itself by attaching itself to another program. A virus can change or destroy data., crash a network.			
	Trojan	A type of malware which is disguised as another software to trick the user to download it.			
	Spam	An email that is sent to a large number of people and mostly consists of advertising			
	Logic bomb	A type of malware inserted into an application or system, which activates when a certain condition is met. For example it may run the malicious code on a certain date.			
	Geo-tagging	Include a tag on an image, video or social media which shows a geographic location.			
	Data harvesting (web scraping)	A process where a script (programming code) is used to extract data from a website and use it for other purposes. E.g. you can have a script which extracts age, gender and loca- tion from a social media page			
	Cybercrime	Any crime committed by using a computer, networked device or a network			
	RSI	Repetitive Strain Injury– caused by prolonged repetitive movements such as using a com- puter keyboard. It is a painful condition which causes the tendons in the wrists and lower arms to become inflamed.			
	Copyright	The protection available for original pieces of work, which can be for books, music, soft- ware etc.			
	Plagiarism	The act of presenting someone else's work as your own			
	E-waste	Electronic products which become unwanted, non-working or obsolete.			
	Cyberbullying	The bullying of another person using the internet, mobile phones and other digital devic- es, with the intent to deliberately upset them			

### Laws relating to computer crime:

- Computer Misuse Act 1990
- Data Protection Act 1990 & GDPR 2018
- Copyright, Design and Patents Act 1988

### Creating a good password:

A strong password is:

- at least eight characters long
- a mixture of numbers, uppercase and lowercase letters and other symbols, e.g. !@#£\$
- not a real word
- •impossible to guess

### Features to look out for when determining whether an email is a phishing email or not:

- Greeting. The phishers don't know your name just your email address, so the greeting is not personalised
- The sender's address is often a variation on a genuine address
- Forged link. The link looks genuine, but it may not link to the website given. Roll your mouse over it to check
- Request for personal information. Genuine organisations never do this
- Sense of urgency. Criminals try to persuade you that something bad will happen if you don't act fast
- Poor spelling and grammar



### Protection from online bullying and

### harassment

Cyberbullying is an extremely unpleasant and upsetting experience. There are several authorised websites that offer advice on how to stay safe online and what to do if Cyberbullying occurs:

BBC Webwise: www.bbc.co.uk/webwise

Childline: http://www.childline.org.uk

ThinkUKnowrun by the Child Exploitation and

Online Protection centre (CEOP):

https://www.thinkuknow.co.uk/

The Bullying UK helpline: 0808 800 2222

Childline can be contacted on 0800 1111

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## Keywords for Binary :

Binary	A binary number is made up of just 2 digits and is known as base 2.
Denary	A denary number is made up of 10 digits and is known as base 10.
Data	The characters, or symbols, on which operations are performed by a computer, which may be stored and transmitted in the form of electrical signals and recorded on media.
Convert	To change the form, character, or function of something
lexadecimal	Hexadecimal (or hex) is a base 16 system used to simplify how binary is represented.

# Year 7- Unit 2 Encryption

Computers use binary numbers, the digits 0 and 1, to store data. This is because computer systems use switches to represent data and switches have only two states: ON and OFF

### Why do computers use binary numbers?

ON corresponds to 1 and OFF corresponds to 0. All computer programs, must therefore be translated into binary code for the computer to understand and execute the instruction.

Note : Humans cannot use this system easily.

### Converting from binary to denary

To convert a **binary** number to denary, start by writing out the binary place values. In denary, the place values are 1, 10, 100, 1000, etc – each place value is 10 times bigger than the last. In binary, each place value is 2 times bigger than the last (i.e. increased by the power of 2). The first few binary place values look like this:

16	8	4	2	1	
1	0	0	1	1	
16 + 2 + 1 = 19					

To convert a binary number into a denary number, add the *numbers in the column headings* for the columns that contain a **1**.

There is a **1** in 16, 2 and 4 columns, so add these together to find the denary number of 19.

### **Converting Denary to binary**

1. To convert 13 to a binary number, set the table.

## 13



2. Add a 0 in the first column heading

#### 13 is under 16 so the first digit will be 0

16	8	4	2	1
0				

3. As 13 is over 8 place 1 in the column heading 8.

## **13** is over 8 so the next digit will be 1 then subtract 8 from 13

16	8	4	2	1
Ο	1			

4. Now 13 - 8 = 5, so to make 5 I need 4 and 1.

16	8	4	2	1
0	1	1		

#### 5. Place a 0 in the empty column.

16	8	4	2	1
0	1	1	0	1