




# Computing Year 9 Unit: Cybersecurity

## Threshold concept—

- Understand the difference between data and information
- Understand the basics of the legislation which relate to computers
- Understand some threats and prevention methods which can be used in Cybersecurity

Keyword	Definition
Data	Facts and statistics collected together for reference or analysis.
Information	Facts provided or learned about something or someone
Data privacy	Intended to keep data safe against improper access, theft or loss
Data Protection Act	Controls how your personal information is used by organisations, businesses or the government
Hacking	The gaining of unauthorised access to data in a system or computer.
DDoS	A denial of service technique that uses numerous systems to perform the attack simultaneously.
Computer Misuse Act	An Act to make provision for securing computer material against unauthorised access or modification
Brute force attack	A brute-force attack consists of an attacker submitting many passwords or pass-phrases with the hope of eventually guessing correctly.
Malware	Software that compromises the operation of a system by performing an unauthorised function or process.
Malicious	Intending or intended to do harm.
Network	One or more computers connected together

<p><b>Data</b></p> <p>Data is just facts and figures:</p> <p>Man City 1 Liverpool 2 Chelsea 3</p>	<p><b>Information</b></p> <p>Information is created when that data is given context:</p> <p>These are football teams that play in the premier league and their positions in the league table.</p>
<p><b>Data Protection Act (2018)</b></p>  <p><b>Organisations must use data:</b></p> <ul style="list-style-type: none"> <li>• Fairly, openly and in accordance with the law</li> <li>• For a specific and stated reason</li> <li>• Only in a way that is necessary and sufficient for the purpose for which it was collected</li> <li>• Which is accurate and up to date</li> <li>• Only for as long as it is needed</li> </ul> <p>They must also protect data from loss, damage, and unauthorised access.</p>	<p><b>The Computer Misuse Act (1990)</b></p> <p>Makes it illegal to:</p> <ul style="list-style-type: none"> <li>• Gain unauthorised access to computer material</li> <li>• Gain unauthorised access to computer material with intent to commit or facilitate other offences</li> <li>• Impair the operation of a computer without the authorisation to do so</li> </ul>
<p><b>Unethical hackers</b></p> 	<p><b>Types of hackers</b></p> <p>Gain unauthorised access to or control of a computer system.</p> <p><b>Reasons someone might do unethical hacking:</b></p> <ul style="list-style-type: none"> <li>• To steal data</li> <li>• To disrupt services</li> <li>• For financial gain</li> <li>• For political reasons</li> <li>• For fun</li> </ul>
<p><b>Ethical hackers</b></p> 	<p>Gain access to a computer system with the permission of its owner to help them identify vulnerabilities in their computer systems.</p> <p>Companies pay <b>penetration testers</b> to hack into their computer systems and tell them how to improve the security of their computer systems. These <b>penetration testers</b> are ethical hackers.</p>

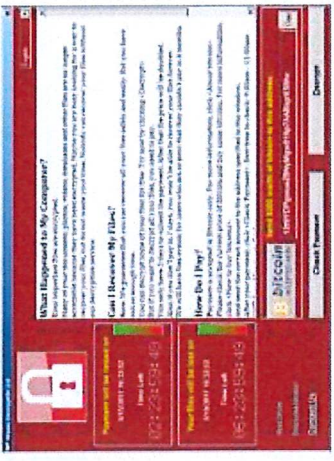
**Viruses**



**Common ways to catch a computer virus:**

- Downloading it from an email attachment
- Clicking on a webpage pop-up window without reading it
- Downloading files from illegal websites

**Case study: WannaCry**  
In 2017, the WannaCry ransomware spread globally through computers running Microsoft Windows. Many organisations were impacted from hospitals to schools, banks and charities.



# Computing Year 9 Unit: Media— Photo Editing

## Threshold concept—

- Understand what a real-world problem is.
- Draw basic vector shapes
- Understand what the purpose of a vector graphic is

## Keyword

Graphics

Graphic refers to a design or visual image displayed on a variety of surfaces, including canvas, paper, walls, signs, or a computer monitor. They are created for entertainment, branding, or providing information.

Pixels

Small squares which make up a graphic

RGB

Red Green Blue

CMYK

Cyan Magenta Yellow Black

Toolbar

Holds the many tools we have to work with. There are tools for making selections, for cropping and re-touching images, for adding shapes and type, and many more!

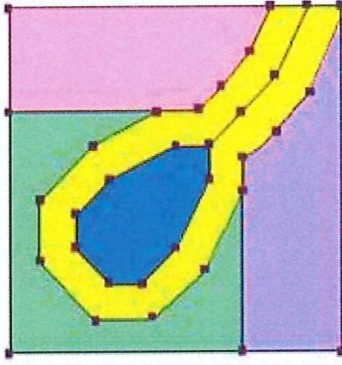
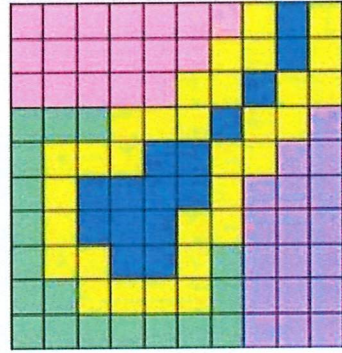
Layer

layering is stacking various images, graphics, or text on top of one another.

Filter

Filters are digital effects used to modify images and selections to create effects, repair images, and move pixels.

## Bitmap vs Vector



Images are represented pixels (Picture Elements).  
TVs and monitors produce pixel colours using Red, Green and Blue light (RGB)  
All screen colours can be produced just from RGB



Printed media pixel colours are produced from Cyan, Magenta and Yellow ink (CMY).  
It is very difficult to colour match between CMY and RGB

Common vector image file types	
File Type	Disadvantages
.EPS (vector)	Not widely supported in editing software Generally Adobe only software
.SVG (vector)	Not widely supported in software Files sizes can be large with many elements
.PDF (vector)	Not free to edit PDF files Text difficult to edit, text is treated as images Small file size

## Vector Drawing

- Vector drawings are computer graphic images that are made using 2-D shapes.
- The drawings are connected by lines and curves to form polygons and other shapes, forming a complete picture.
- There are lots of different apps and programs that can help us to complete vector drawings, including Google Drawings and Adobe Illustrator.
- Many techniques, e.g. zooming, rotating, resizing & duplicating, can help to create accurate images.