



# Knowledge Organiser: Yr 9

## Computing; Cybersecurity

### 1 Data and Information

Lists of words, collections of numbers or tables of characters are all examples of data. Data is the raw figures and characters which tell us nothing until we do something with them.

Information is created when data is processed, for example by putting it into a graph or analysing trends in it to give us useful facts and ideas the data is providing.



### 2 Laws Relevant to Cybersecurity

The two laws we need to know about in year 9 are:

- Data Protection Act 2018: sets out how organisations must collect, store, protect and use data and provides people with rights over the data organisations hold about them.
- Computer Misuse Act – makes it illegal to use computers in certain ways such as to hack into other computers to gain unauthorised access to data.



### 3 General Purpose Devices Vs Purpose Built Devices

Threats to data and computer systems:

- DDOS Attack – where multiple computers are used to flood a network or server with internet traffic in order to disrupt service
- Hacking Attack – Using a computer to infiltrate a network or other computer in order to steal data or to plant a virus
- Brute Force Attack – Where a human or bot repeatedly tries passwords for a username until the right one is found.
- Malware – any software which has been created to cause harm to data or a computer system or allow somebody to gain access to the system
- Virus – code which has been written so that it is able to copy itself and causes harm to a computer or system
- Worm – a type of virus which can copy itself without needing a human to run it or help it do so
- Trojan – a type of virus which disguises itself as something useful so that a human will be fooled into running it.
- Key Logger – software which records every key a user presses and may also send this information to a third party automatically.

### 4 Protecting Systems

There are a number of measures which can be taken to reduce the threats to a system:

- Anti virus software – scans for and prevents viruses attacking a system
- Firewall software – monitors data being received by a computer and blocks it if it thinks it is a hacking attack
- Two factor authentication – using two methods to log in, such as user name and password, combined with a fingerprint.
- Setting user permissions – only giving users the permissions they need to do their job and removing any permissions they should not need which could allow them to compromise the system
- CAPTCHA – systems which prevent bots from logging into a service

Leave blank to allow students to glue.



# How do we use Knowledge Organisers in Computing?

## How can we use knowledge organisers at home to help us?

- **Retrieval Practice:** Read over a section of the knowledge organiser, cover it up and then write down everything you can remember. Repeat until you remember everything.
- **Flash Cards:** Using the Knowledge Organisers to help on one side of a piece of paper write a question, on the other side write an answer. Ask someone to test you by asking a question and seeing if you know the answer.
- **Mind Maps:** Turn the information from the knowledge organiser into a mind map. Then reread the mind map and on a piece of paper half the size try and recreate the key phrases of the mind map from memory.
- **Sketch it:** Draw an image to represent each fact; this can be done in isolation or as part of the mind map/flash card.
- **Teach it:** Teach someone the information on your knowledge organiser, let them ask you questions and see if you know the answers.

## How will we use knowledge organisers in Computing?

- **Revision:** We will access this knowledge organiser electronically as part of revision homework tasks, using the techniques above to help us revise prior learning.
- **Test:** We will do regular low stakes tests to check our ability to retrieve information from memory.
- **Mark our answers:** Once we have done a low stakes test we can mark our work using the knowledge organiser.
- **Improve our work:** Once we have finished a piece of work we might use this knowledge organiser to see if there is any information on it that we could add into an answer.
- **Pre-reading:** We may sometimes read sections of the knowledge organiser before we cover them in lesson as homework and note down specific questions we may have or specific concepts we are finding more challenging to understand ready to share in lesson.

Date	Section of knowledge organiser	Score