Topic: Unit 1.2.1 & 1.2.2 Primary (Memory) and Secondary Storage

Key vocabulary:	**Core knowledge questions**	**Powerful knowledge crucial to commit to long term memory**	**Links to previous and future topics**
BIOS Characteristic CPU – Central processing unit Disk Thrashing/Swapping Estimate External Firmware Flash memory Hard disk Hardware Internal Magnetic Non-Volatile Optical Overheads Portable Primary Storage RAM – Random Access memory ROM – Read Only Memory Secondary Storage Solid state Storage Volatile	1. Why do computers have primary storage? 2. What is RAM and ROM? 3. What are the key characteristics of RAM and ROM? 4. Why might virtual memory be needed in a system? 5. How does virtual memory work? (Transfer of data between RAM and HDD when RAM is filled) 6. Why do computers have secondary storage? 7. Recognise a range of secondary storage devices/media 8. What are the differences between each type of storage device/medium? 9. What are the advantages/disadvantages for different storage devices? 10. Apply knowledge in context within scenarios 11. How are characters represented in binary? 12. How are the number of characters stored limited by the bits available? 13. What are the differences between and impact of each character set? 14. How are character sets logically ordered? 15. How are pixels colours represented in binary? 16. What is the effect on image size and quality when changing colour depth and resolution? 17. What additional image information does Metadata store? 18. How are analogue sounds stored in binary? 19. What is: Sample Rate; Duration; Bit Depth in relation to Sound? 20. List scenarios where compression may be needed 21. What are the advantages and disadvantages or different types of compression? 22. What are the effects on different file types for each type of compression?	• Two main forms of memory are ROM and RAM • What is the need for ROM and RAM? • RAM is used for short term storage • ROM is permanent storage and keeps it memory • What is the difference between ROM and RAM? • RAM is Volatile ROM is non-Volatile • What is the impact of the amount of RAM on performance? • What is Virtual Memory, why is it needed, why is it different RAM, and where is it located? • What are the advantages and disadvantages of Virtual Memory? • What is Flash Memory, how is it different to RAM? • List examples of Flash Memory • Understand the need for secondary storage • Understand the different types of storage (optical, magnetic, solid state) • What are the different characteristics of different types of storage? • What should be considered when recommending a storage device for a situation? • How to estimate the data capacity requirements for a range of file types	• Memory and Storage are covered in Y7 and Y8 • Memory and Storage is fundamental to Computer Science and will be revisited throughout the course.

We will develop these skills:

Impressive reading	**Impressive speaking**	**Impressive writing**	**Resilience**	**Numeracy via:**	**Digital Literacy via:**	**Employability via:**
Research using the Internet to find relevant and appropriate information about RAM and ROM. Interpreting scenarios to recommend appropriate storage types	Discussion of research findings. Discussion in groups of RAM & ROM and Storage Device characteristics	Recording research findings appropriately. Writing key terms for RAM and ROM. Writing definitions. Answering exam questions	Developing ability to consistently amend and refine work. Listen to others' opinions	Estimate file sizes using the appropriate formulae. Convert file size calculations into an appropriate measurement	Use of the Internet Use of MS Office Suite	Teamwork – working in groups Flexibility – taking on opinions of others Problem Solving – using information to assess appropriate storage capacities and appropriateness

SEND

- Peer Support - Some students may be more aware of RAM, ROM and different types of storage device – use these students as Lead Students
- Differentiated Activities and Tasks, choice of tasks for certain activities, support sheets
- Questioning
- Flipped Learning resources for students to study either prior to or after lesson
- Peer Assessment / Support on labelling tasks