Home-School Learning Collaboration – Computing

Topics in this cycle: Computer Processes	**Taught:** Spring 2	**Year Group: 7**

Key knowledge/concepts to be learnt ('Tell me about….')	**Websites/blogs/YouTube links and further reading to deepen and consolidate learning**

- **What is the difference between computer hardware and software?**
  Identify hardware devices and software programs.
  Describe the different type of computer hardware and software programs.
  Explain how different hardware devices and software programs can be used for different purposes.

- **How does the input, process, output cycle work in a computer system?**
  Identify different input and output devices.
  Describe how input & output devices work together within a computer system.
  Explain the input, process, output cycle works using real world examples.

- **What is a CPU?**
  Identify the different parts of a CPU.
  Describe the main features of a CPU.
  Explain how the Fetch-Decode-Execute cycle works.

- **How is data represented as Binary?**
  Identify the 2 different number systems.
  Describe how data is represented as Binary.
  Explain how we convert between the Binary and Denary number system.

- **What is the method for Binary addition & Subtraction?**
  Describe the rules for binary addition & subtraction.
  Explain the method for adding and subtracting two Binary numbers.

- **What are the advantages and disadvantages of different storage devices?**
  Identify different data units.
  Describe the different types of storage.
  Explain the advantages and disadvantages of different storage devices.

Notes/Information

Software
What is software? | BBC Bitesize | KS3 Computer Science | Hardware and Software

The CPU & Fetch-Decode-Execute Cycle
The CPU & the Fetch-Decode-Execute Cycle | BBC Bitesize | KS3 | Computer Science | Hardware and Software

Binary Data – Conversions & Adding Binary Numbers
Binary Data | BBC Bitesize | KS3 | Computer Science | Data Representation

Videos

Hardware
Types of Hardware | Make It Easy Education | YouTube

Input, Process, Output
CS Basics: Input, Process, Output | Mr Matthews | YouTube

Storage Devices
Storage Devices | Simply Coding | YouTube

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Key Vocabulary and Definitions To Be Learnt	
Hardware	The physical components that a computer system requires to function
Software	A set of instructions, data, or programs used to operate a computer and carry out specific tasks.
Data	information that is stored and processed digitally on a computer
Process	Is a series of actions which are carried out to achieve a particular result.
Input	Any information or data that is entered into or received by a computer.
Output	How the computer presents the results of the process, such as text on a screen, printed materials, or sound from a speaker.
Binary	a numbering scheme in which there are only two possible values - 0 or 1
Denary	is the number system most used by people. Containing the numbers 0 - 9
Storage	the component of your computer that allows you to store and access data on a long-term basis
Internal Device	Internal describes a device that's installed inside the computer
External Device	Any device that is not housed inside the computer cabinet.

What Will The Assessment Look Like?

Extended writing – The advantages and disadvantages of different storage devices.

End of Unit test: 35 minutes/25 marks

- Short answer questions
- Extended writing
- 3 marks for SPAG

Family Learning Opportunities

Binary conversion game – Try to complete as many levels as possible converting between Binary and Denary numbers as fast as you can.
Binary Numbers Game

Spin the wheel activity- Spin the wheel and take turns with your family explaining the use of the different hardware and software used by a computer.
Spin The Wheel - Hardware & Software

Devise a quiz on the advantages and disadvantages of different storage devices and test your family.