

Scheme of works for JSS2 Computer Science

1. UNITS OF STORAGE IN COMPUTER (ii)
2. PROGRAMMING LANGUAGE
3. BASIC (I)
4. BASIC (II)
5. GRAPHICS PACKAGES
6. PRACTICALS (BASIC)
7. WORKING WITH MS-PAINT ENVIRONMENT
8. PRACTICALS (GRAPHICS PACKAGES)

WEEK 1

TERM: First Term

SUBJECT: COMPUTER STUDIES

TOPIC: UNITS OF STORAGE IN COMPUTER (1)

CLASS: JSS 2

NUMBER IN CLASS:

AVERAGE AGE: 12

PREVIOUS LESSON:

MAIN AIM: To help the students understand the various units of storage in the computer system

SUBSIDIARY AIMS: By the end of the lesson, the students should be able to:

- ✓ Understand the various units of storage in the computer,
- ✓ List and explain the various units of storage in the computer,
- ✓ Convert from one unit of storage to the other.

PERSONAL AIM: To assist the students understand the various ways to convert from one unit of storage to another.

ASSUMPTION: it is assumed that the students do not know the various units of measurement in computer storage and processing.

ANTICIPATED PROBLEMS: The students have difficulty in knowing the capacity of a unit from the other.

POSSIBLE SOLUTION: the teacher takes students through the various units of measurement and their capacity.

TEACHING AIDS: marker, chalk, computer, mobile phone, Flash Drive.

STEP: UNITS OF STORAGE IN COMPUTERS

The various units of storage in computer science are the means of representing, storing and measuring data and information in the computer.

These unit ranges from the small capacity units such as Bit to the big capacity units such as Petabyte.

1. **Bit:** This means (binary digits) either 0 or 1 in the binary number system. In computer processing and storage, a bit is the smallest unit of information handled by a computer.
2. **Byte:** The **byte** is a unit of information consisting of 8 bits. In the computer processing and storage, a byte is equivalent to a single character, such as a letter, a numeral, or a punctuation mark.
3. **Nibble:** This is the computing term for a four-bit aggregation, or half an octet (an octet beign an 8-bit byte. In some computer systems, four bytes constitute a word, a unit that a computer processor can be designed to handle efficiently as it reads and processes each instruction.
4. **Kilobyte:** A Kilobyte (kb or Kbyte) is a unit of measurement indicating approximately one thousand and twenty-four bytes (1,024 bytes).
5. **Megabyte (MB):** Is a unit of measurement indicating either one million bytes or 1,048,576 bytes or 2^{20} i.e. 1024×1024 bytes.
6. **Word:** A word is a string of bits stored in the computer memory; large computers use words upto 64 bits long.
7. **Gigabytes (GB):** A gigabyte is one billion bytes. A gigabyte can also be either 1000 megabytes or 1024 megabytes, i.e. $1024 \times 1024 \times 1024$ bytes.
8. **Terabyte (TB):** Terabyte stands for one trillion bytes, i.e. 1024 gigabytes i.e. $1024 \times 1024 \times 1024 \times 1024$ bytes.
9. **Petabyte:** This is a unit of information that is equal to 1024 terabytes i.e. $1024 \times 1024 \times 1024 \times 1024 \times 1024$ bytes.

STEP 2: Putting it differently:

4bits = 1 nibble

8bits = 1byte
 16bits = 2bytes (1 word)
 1,000bytes = 1 kilobyte (1kb)
 1, 000,000 (10⁶) bytes =1 megabyte (1MB)
 1,000,000,000 (10⁹) bytes = 1 gigabyte (1GM)
 1,000,000,000,000 (10¹²) bytes = 1 terabyte (1TB)
 1,000,000,000,000,000 (10¹⁵) bytes = 1petabyte (1PB)

Storage	Exact Size	Approximate Size (In Bytes)
Kilobyte	1024B	1,000
Megabyte	1024KB	1,000,000
Gigabyte	1024MB	1,000,000,000
Terabyte	1024GB	1,000,000,000,000
Petabyte	1024TB	1,000,000,000,000,000

Converting from one storage to Another

Example:

1. Convert 700mb to bytes

Solution:

$$\begin{array}{rcl} 1MB & = & 1,000,000\text{bytes} \\ 700MB & = & x \end{array}$$

$$\text{Therefore, } x = 700 \times 1,000,000\text{bytes}$$

$$\text{Ans} = \underline{700,000,000\text{bytes}}$$

2. Convert 700MB to words

Solution:.....