|  |  |
| --- | --- |
| **THEME:** | Binary numbers |
| **DATE**: | 16 – 09 – 2024 |
| **CLASS**: | Js 3 |
| **TIME**: | 8:40-09:20am |
| **DURATION** | 40 MINUTES |
| **SUBJECT**: | Mathematics |
| **UNIT TOPIC:** | Binary Numbers |
| **LESSON TOPIC:** | Addition and subtraction of binary numbers |

**SPECIFIC OBJECTIVE**: By the end of the lesson, students should be able to

1. Define Binary number system
2. Add numbers in binary form
3. Subtract numbers in binary form.

**INSTRUCTIONAL RESOURCES:**  Flash Cards and charts

**LESSON PRESENTATION**

|  |  |  |  |
| --- | --- | --- | --- |
| **STEP 1** | **PREVIOUS KNOWLEDGE:** the students have knowledge of binary numbers from js2 where they were taught how to convert numbers from base 10 to base 2. | | Students recall. |
| **STEP 2** | **EXPLORATION:**  The teacher introduces the topic with the following questions:   1. What is binary numbering system? 2. Can you add numbers in binary form? 3. Can you subtract numbers in binary form? | | Students make attempt to answer the questions. |
| **STEP 3** | **DISCUSSION: *The teacher starts the discussion by explaining the concept of binary number system:***  ***Objective1:***  A binary number system is one of the four types of number system. In computer applications, where binary numbers are represented by only two symbols or digits, i.e. 0 (zero) and 1(one).  Numbers in base two are called binary numbers and is made up two digit 0 and 1  Binary numbers can be converted to base 10 numerals or decimals. This is done by expressing the given binary number as a sum of multiples of powers of base 2. This sum gives a number in base 10.  ***Objective 2 and 3:***  Binary numbers can also be added and subtracted  Examples   1. Subtract 100112 from 1011112 2. Add 1011112 and 100112   Solution  1. 1011112 2. 1011112   * 100112 +100112   111002  10000102 | | Students listen attentively and take down notes. |
| **STEP 4** | **APPLICATION:** Add these numbers in binary form 1011 and 1011  Solution  1011 + 1011  101102 | | Students ask questions on the topic which the teacher answers. |
| **STEP 5** | **EVALUATION:** the teacher evaluates the students with the following questions:   1. What is binary number system? 2. Add 11112 and 1002 3. Subtract 1102 from 11102 | | The students answer the questions. |
| **Assignment**   1. Convert 11001102 to a number in base 10 2. Add 10112, 11112 and 10002   **References**  **New concept mathematics for Jss3 by A. A. Arigbabu et al.**  **New general mathematics for Jss3 by M/ F. Macrae et al.** | |  |