**LESSON DEVELOPMENT 0NE**

**CONVERSION OF BASE 2 AND BASE 10**

|  |  |  |  |
| --- | --- | --- | --- |
| **STAGE/TIME** | **TEACHER’S ACTIVITIES** | **LEARNER'S ACTIVITIES – MIND/HANDS ON** | **LEARNING POINTS** |
| **Step 1****Introduction – Introductory Activities** **(5 minutes)** | Leads pupils to solve the following – 2^2, 2^3, 2^4, 2^5, 2^0… Lets them know that any number rise to the power of zero is equal 1. | 2^1 = 22^2 = 2 X 2 = 42^3 = 2 X 2 X 2 = 82^4 = 2 X 2 X 2 X 2 = 162^5 = 2 X 2 X 2 X 2 X 2 = 322^0 = 1 | Linking the Previous knowledge to the new lesson – Introduction to Binary Number System  |
| **Step 2** **Development** **(5 minutes)** **Grouping** | 1. Groups the learners into four groups – A, B, C, and D. 2. Guide the learners to choose a leader and secretary for your group. 3. Gives each group learning materials – Chart showing conversion of base 2 to base 10.  | 1. Belong to a group. 2. Choose their leader and secretary. 3. Received learning materials for their group.  | Learner’s group, leader and secretary confirmed. |
| **Step 3****Development – Groups Activities** **(10 minutes)** | Guides pupils to convert 111 and 1101 base 2 to base 10. | 111 = 1 x 2^2 + 1 x 2^1 + 1 x 2^0= 1 x 4 + 1 x 2 + 1 x 1 = 4 + 2 + 1 = 7 base 10. 1101= 1 x 2^3 + 1 x 2^2 + 0 x 2^1 + 1 x 2^0= 1 x 8 + 1 x 4 + 0 x 2 + 1 x 1= 8 + 4 + 0 + 1 = 13 base 10. | Conversion of base 2 to base 10 |
| **Step 4****Development – Groups Activities and Presentation** **(15 minutes)** | Groups work Convert the following to base 10.1. 10112. 1111 | 1011 = 1 x 2^3 + 0 x 2^2 + 1 x 2^1 + 1 x 2^0= 1 x 8 + 0 x 4 + 1 x 2 + 1 x 1= 8 + 0 + 2 + 1 = 11 base 10. | Groups Activities and Presentation  |
| **Step 5****Development****(5 minutes)**  | To conclude the lesson, the teacher revises the entire lesson and ask the key questions. **SUMMARY** To convert an expression in base ten notation to base two notation, just do the arithmetic. | The learners listen, ask and answer questions.**KEY QUESTIONT** Lets each pupil to convert the following base 10 to base 2 – 1. 11112. 1011 | Lesson Evaluation and Conclusion  |

***Instructional Materials***

******