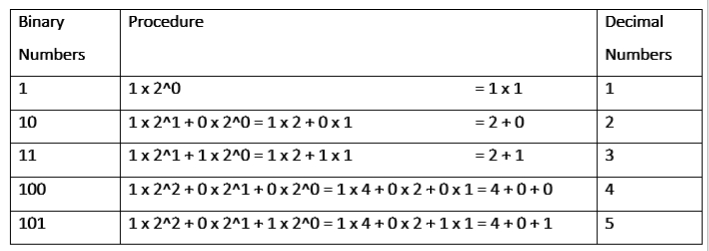
**LESSON DEVELOPMENT 0NE**

**CONVERSION OF BASE 2 AND BASE 10**

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| **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 = 2  2^2 = 2 X 2 = 4  2^3 = 2 X 2 X 2 = 8  2^4 = 2 X 2 X 2 X 2 = 16  2^5 = 2 X 2 X 2 X 2 X 2 = 32  2^0 = 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. 1011  2. 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. 1111  2. 1011 | Lesson Evaluation and Conclusion |

***Instructional Materials***

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