**MATHEMATICS LESSON PLAN**

**GRADE 8**

**TERM 1: January – March**

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| PROVINCE: |  |
| DISTRICT: |  |
| SCHOOL: |  |
| TEACHER’S NAME: |  |
| DATE: |  |
| DURATION: | 1 Hour |

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| 1. **TOPIC: WHOLE NUMBERS: Properties of whole numbers (Lesson 1)** |
| 1. **CONCEPTS & SKILLS TO BE ACHIEVED:**   **By the end of the lesson learners should know and be able to recognise:-**   * the commutative; associative; distributive properties of whole numbers. * 0 in terms of its additive property (identity element for addition). * 1 in terms of its multiplicative property (identify element for multiplication). * and recognise the division property of 0, whereby any number divided by 0 is undefined. |

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| 1. **RESOURCES:** | Textbooks, DBE Workbook, Sasol-Inzalo Book, Calculator | | |
| 1. **PRIOR KNOWLEDGE:** | Properties of whole numbers and number operations done in Grade 7 | | |
| 1. **REVIEW AND CORRECTION OF HOMEWORK** (suggested time: 10 minutes)   Homework provides an opportunity for teachers to track learners’ progress in the mastery of mathematics concepts and to identify the problematic areas which require immediate attention. Therefore it is recommended that you place more focus on addressing errors from learner responses that may later become misconceptions. | | | |
| 1. **INTRODUCTION** (Suggested time: 10 Minutes) | | | |
| Revise the concepts using Mental maths type questions to include :   * Multiplication tables up to 12 x 12 * The commutative; associative; distributive properties of whole numbers. * Use addition and subtraction as inverse operations. * Use multiplication and division as inverse operations. * Use 0 in terms of its additive property (identity element for addition). * Use 1 in terms of its multiplicative property (identify element for multiplication). | | | |
| 1. **LESSON PRESENTATION/DEVELOPMENT** (Suggested time: 20 minutes) | | | |
| **Teaching activities** | | | **Learning activities**  **(Learners are expected to : )** |
| **Properties of numbers:**  Group learners into small groups. Give them activities like the ones below to work out and discover the commutative, associative and distributive properties. Ask them to compare the answers in each case and present their observations.   1. The *commutative property* of addition and multiplication:  |  |  | | --- | --- | | 1. 5 + 4 = | 4 + 5 = | | 1. 25 + 10 = | 10 + 25 = | | 1. 17 + 33 = | 17 + 33 = | | 1. 119 + 200 = | 119 + 200 = |   Ask learners to calculate the following and compare if their observation is the same when using subtraction.   |  |  | | --- | --- | | 1. 5 – 4 = | 4 – 5 = | | 1. 25 – 10 = | 10 – 25 = |   Ask learners to present their observations and engage in a whole class discussion. Ask probing questions to assist learners to make appropriate conclusions. **Example:**   * Why do you say 5 + 4 = 4 + 5? * Why do you say 5 – 4 is not the same as 4 – 5? | | | * Learners engage in group discussions to determine the answers of each pair of activities. * Learners record their answers and make conclusions about their observations.   **Example** of the possible answer: 5 + 4 = 9 and 4 + 5 = 9, but 5 – 4 =1 and 4 – 5 = -1.   * Learners use own words to present their findings and justify their conclusions.   **Example:** 5 +4 = 4 + 5 because …… |
| DO NOT provide them with answers immediately. After learners have, through the teachers’ assistance, discovered that 5 + 4 = 4 + 5 but the same is NOT true for subtraction, then introduce a general representation  as well as the concept of *commutative property* of whole numbers under addition (and **NOT** subtraction)  Follow the same approach to assist learners to investigate whether the commutative property holds for multiplication and division. | | |  |
| 1. The *associative (grouping) property* of addition and multiplication:   **NOTE:** During your **1+4 Cluster session**, follow a similar approach used in the investigation of the commutative property to guide learners to discover associative property for addition versus subtraction and multiplication versus division, i.e. **and** | | |  |
| 1. The *distributive property* of multiplication over addition and subtraction: Through whole class teaching, identify and use whole numbers to demonstrate the distributive property of numbers, namely | | | Learners respond to the probing questions posed by the teacher to investigate the distributive property. |
| 1. Addition and subtraction as *inverse operations*: 2. 35 + 5 - 5 = … 3. 54 234 + 233 – 233 = … 4. Multiplication and division as *inverse operations*:   20 x 5 = 100; 100 ÷ 20 = … and 100 ÷ 5 = …   1. 0 in terms of its additive property (*identity element for addition*) 2. 35 + 0 = …. 3. 2 356 + 0 = … 4. t + 0 = … 5. 1 in terms of its multiplicative property (*identify element for multiplication)* 6. 136 x 1 = …. 7. b x 1 = … 8. Recognise the *division property of 0*, whereby any number divided by 0 is undefined. | | | Learners do examples of their own as well as from a resource in exercise books.  Learners use a calculator to discover the division property of 0 |
| 1. **CLASSWORK** (Suggested time: 15 minutes) | | | |
| Carefully choose the exercises which show different cognitive levels from Sasol-Inzalo workbooks, DBE workbooks and any textbook used in your school. The following are some of the questions that can enhance understanding of the properties of whole numbers. | | | |
| Sasol-Inzalo Book | | DBE Workbook | Textbook |
| p 4 No. 4a; 7b, 2a  p 6 No. 4 d | | p. 6 No. 7a; 8b |  |

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| 1. **CONSOLIDATION/CONCLUSION & HOMEWORK** (Suggested time: 5 minutes) |
| 1. Emphasise that:  * The *commutative property* of whole numbers represented by and is applicable for addition and multiplication and NOT for subtraction and division. * The *associative property* of whole numbers, represented by **and**, is applicable for addition and multiplication and NOT for subtraction and division. * The *distributive property* of whole numbers represented by and is applicable to addition and subtraction.  1. The primary purpose of Homework is to give each learner an opportunity to demonstrate mastery of mathematics skills taught in class. Therefore Homework should be purposeful and the principle of ‘Less is more’ is recommended, i.e. give learners few high quality activities that address variety of skills than many activities that do not enhance learners’ conceptual understanding.   Carefully select appropriate activities from the Sasol-Inzalo workbooks, workbooks and/or textbooks for learners’ homework. The selected activities should address different cognitive levels. |
| 1. Homework  |  |  |  | | --- | --- | --- | | Sasol Inzalo | DBE workbooks | Textbooks | |  | Page 7. No 9a & 11 |  | |