**MATHEMATICS LESSON PLAN**

**GRADE 8**

**TERM 1: January – March**

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

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| 1. **TOPIC: WHOLE NUMBERS: Factors and multiples (Lesson 3)** |
| 1. **CONCEPTS & SKILLS TO BE ACHIEVED:**   **By the end of the lesson learners should know and be able to:-**   * determine Prime factors of numbers to at least 3-digit whole numbers. * determine the LCM and HCF of numbers to at least 3-digit whole numbers, by inspection or factorization. |

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| 1. **RESOURCES:** | Textbooks, DBE Workbook, Sasol-Inzalo Book, Calculator. | |
| 1. **PRIOR KNOWLEDGE:** | Factors, prime factors, LCM and HCF, factorising whole numbers and multiples all 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 * Multiples and factors, * Prime factors of numbers * LCM and HCF of numbers. | | |
| 1. **LESSON PRESENTATION/DEVELOPMENT** (Suggested time: 20 minutes) | | |
| **Teaching activities** | | **Learning activities**  **(Learners are expected to : )** |
| **Multiples and factors:(Revision of work done in grade 7)**   * Revise and define **multiples and factors**   A multiple is the product of two natural numbers e.g. 8 1  Multiples of 8 = {8; 16; 24; … }  A factor is a number that divides exactly into a whole number  with no remainder e.g. 8 2  Factors of 12 = { 1; 2; 3; 4; 6; 12}  When 12 is divided by any one of its factors there is no  remainder. | | Familiarise themselves with the different definitions and consolidate their understanding with their own examples. |
| Explain the concepts to learners using the following information and examples:  (Additional examples must be done to consolidate the concepts to full extend.)  **Prime numbers (A number that cannot be expressed as a product of two whole numbers, except as the product of *1 × the number itself*)** are the building blocks of whole numbers. A whole number can either be a prime number or a product of prime numbers | | Work in pairs to find the multiples and factors of whole numbers |
| * Revise and define **prime factors** e.g. Prime factors of 12 = { 2; 3;} * **Product of Prime numbers**: i.e. Write a number as a product of its prime factors   Example: 24 = 2 x 2 x 2 x 3. Show learners a systematic way of finding prime factors i.e. start with the first prime numbers and try the consecutive prime numbers 2; 3; 5; 7; ... as possible factors. | | Working in pair, learners write whole numbers as products of their prime factors. |
| * Revise **composite numbers**: Numbers with more than one factor i.e. numbers that are not prime numbers. | |  |
| * **Highest common factor( HCF)**: The biggest number that will divide exactly (remainder is zero) into all the numbers in question e.g.   **factors of 12**: 1, 2, 3, 4, 6, 12 12 =  **factors of 30**: 1, 2, 3, 5, 6, 10, 15, 30 **OR** 30 =  **Common factors** are 2 ,3 and 6 HCF =  HCF is **6**. = 6 | | Work in pairs the HCF of whole numbers. |
| * **Lowest common multiple (LCM**): The smallest number that can be divided by all the numbers in question with remainder equal to zero. e.g. multiples of **6:** 6; 12; 18 ;24 ...   Multiples of 8; 8; 16; 24; 32; …  For both numbers 24 is a multiple and it is the lowest, therefore  The LCM is **24.** | | Work in pairs the LCM of whole numbers.  Work in pairs, explain their answers and methods to each other and to the whole class. They may use a calculator to check their answers. |

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| 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 factors and multiples. | | |
| Sasol-Inzalo Book | DBE Workbook | Textbook |
| Page 18 - 23 | Page 8 No. 4  Page 13 No. 2 |  |
| 1. **CONSOLIDATION/CONCLUSION & HOMEWORK** (Suggested time: 5 minutes) | | |
| 1. Emphasise that:  * 1 is not considered a prime number although it cannot be expressed as a product of two whole numbers except as the product of 1 *the number itself.* * to find all the factors of a number you can write the number as the product of prime factors, first by writing it as the product of two convenient (composite) factors and then by splitting these factors into smaller factors until all factors are prime. Then you take all the possible combinations of the products of the prime factors. * factorising whole numbers lays the foundation for factorisation of algebraic expressions. | | |
| 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.  **Recommended Homework:** DBE workbook No. 7 on page 9 and No. 4 on page 11. | | |