**MATHEMATICS LESSON PLAN**

**GRADE 7**

**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: Multiple and factor (Lesson 6)** |

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| 1. **CONCEPTS & SKILLS TO BE ACHIEVED:**   **By the end of the lesson, learners should be able to:**   * list prime factors of number to at least 3 – digits whole numbers * find the LCM and HCF of numbers to at least 3 – digits whole numbers, by inspection or factorization. |

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| 1. **RESOURCES:** | Sasol-Inzalo Book, DBE workbook 1, Textbooks |
| 1. **PRIOR KNOWLEDGE:** | * Multiples of 2 – digits and 3 – digits whole numbers * Factors of 2 – digits and 3 – digits whole numbers * Prime factors of numbers to at least 100 |
| 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. | |

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| 1. **INTRODUCTION** (Suggested time: 10 Minutes)   Explain the following with examples   |  |  | | --- | --- | | **Multiples of a number** | **Factors of a number** | | Find the multiples of 6 and 8 | Find the factors of 18 and 24 | | Solutions.  : 6 ;12;18;24; 30;36; 42;48 ;54 ;60; …  : 8 ;16;24;32;40;48;56;64;72;80 ;… | Solutions  : 1 ; 2 ; 3 ; 6; 9 ; 18  : 1 ; 2 ; 3 ; 4 ; 6 ; 8 ; 12 ; 24 | | **Prime Factorization** of a number: Use factor tree **and** ladder **methods** | | | 792 composite number  **8 99**    **2 4 9 11**    **2 2 3 3**  **Red numbers are prime factors of 792** | 2 792  2 396  2 198  3 99  3 33  11 11  1 | | **Prime number** | **Composite number** | | Is a number that can only be divided by itself and 1. E.g. 7 (only two factors) | Numbers with more than two factors. E.g 9.  (more than two factors) | | **Prime Factorization**    Expressed in index notation | | |

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| 1. **LESSON PRESENTATION/DEVELOPMENT** (Suggested time: 20 minutes) | |
| **Teaching activities** | **Learning activities**  (Learners are expected to: |
| Express with examples a composite number as a product of prime factors only is called prime factorization   |  |  | | --- | --- | | **Find the prime factorization of 702** | | | Step 1: Divide 702 by the first prime number: |  | | Step 2: Continue to factorize, if possible | | Step 3: Continue to factorise, if possible | | Step 4: Stop when the last row of the tree shows the prime factors. The product of all the prime factors in the tree is the prime factorization of the given number. | | Prime Factorization | Index Notation | | 702 = | 702 = |   **Activity 1**  Divide learners into 5 groups and ask them to complete the following activity   |  |  | | --- | --- | | Find the prime factorization of the following and express the answer in index notation | | | a) | 180 | | b) | 735 | | c) | 616 | | d) | 126 | | e) | 256 | | * discuss in pairs asking questions, give their example and work out them. * complete the activity in groups, discuss and give answers |
| Activity 2  Explain with example  HIGHEST COMMON FACTOR (HCF)  NB: The highest common factor (HCF) of two or more positive whole numbers is the largest positive integer that divides the numbers without a remainder  1. The **factors** of 18 and 24  = **1** ; **2** ; **3** ; **6** ; 9 ; 18  =**1** ; **2** ; **3** ; 4 ; **6** ; 8 ; 12; 24  NB: **1** ; **2** ; **3** and **6** are the **common factors** of 18 and 24. Among them, the **largest** **common factor is 6**. We say that **6** is the **HCF** of 18 and 24**.**    **OR**  18 24    2 9 2 12  3 3 2 6  2 3  18 =  24 =  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  HCF =  = 6  **OR**     |  |  |  | | --- | --- | --- | | 2 | 18 | 24 | | 2 | 9 | 12 | | 3 | 9 | 6 | |  | 3 | 2 | |  |  |  |     HCF = 9 is carried over the next column as it cannot be divided  = 6 by 2. Which means the first 2 can divide the two number  and 3 can divide both number. 2 and 3 on the left hand  side are common factors of 18 and 24.  2.2 Find the HCF of 225 and 750 using prime factorization.  Step 1: find the prime factorization of each.  and  and  Step 2: Visualise the process of taking common factors      \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_    HCF =  = 75  NB: The HCF is obtained by multiplying the lowest power of each common prime factor ( of the given numbers.  Activity 2   1. Find the HCF of 252 and 245 2. Find the HCF of 84 , 126 and 245 3. Find the HCF of 154, 330 and 396   3 Explain with example  LOWEST COMMON MULTIPLE  NB: The lowest common multiple (LCM) of two or more whole numbers is the smallest common multiple of the numbers  3.1 The first 10 multiples of 6 and 8  = 6 ; 12; 18; 24; 30; 36; 42; 48; 54; 60; …  =8 ; 16; 24; 32; 40; 48; 56; 64; 72; 80; …  What do you notice about the multiples of both numbers?  **Answer:** Some of the multiples are common to both numbers.  24 and 48 are the common multiples of 6 and 8. The smallest common multiple of 6 and 8 is 24. We say that 24 is the lowest common multiple (LCM) of 6 and 8. | * listen, discuss in pairs * work in pairs and complete * listen, discuss in pairs and answer the question |

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| 3.2 Find the LCM of 24 and 90  Step 1: Find the prime factorisation of each number.  and    Step 2: Visualise the process of identifying all the different factors:        \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  **LCM**    NB: LCM is obtained by multiplying the highest power of each prime factor ( of the given numbers.  LCM    Activity 3  Find the LCM of the following.   |  |  | | --- | --- | | a. | 40 and 150 | | b. | 26 and 99 | | c. | 54, 84 and 110 | |  |  | |  |  | | * work in pairs, visualised and complete the activity. |
| 1. **CLASSWORK** (Suggested time: 15 minutes | |
| **Answer the following questions**   1. Find the LCM of each group of numbers. 2. 9 , 12 and 30 3. 22, 132 and 253 4. 28, 42 and 105 5. The prime factorisation forms of two numbers are:   and .  Find:   1. The HCF of these two numbers in prime factorisation form. 2. The LCM of these two numbers in prime factorisation form. | |

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| 1. **CONSOLIDATION/CONCLUSION & HOMEWORK (Suggested time: 5 minutes)** |
| 1. Emphasis that:  * 1 is not a prime number and 2 is the only even prime number.  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 books, workbooks and/or textbooks for learners’ homework. The selected activities should address different cognitive levels.  **Recommended Homework**:   1. Find the HCF of each group of numbers 2. 70, 210 and 350 3. 66, 110 and 847 4. 48, 84 and 144 5. Find the LCM of each group of numbers. 6. 18 and 30 7. 28, 42 and 105 8. 22, 132 and 253 |