**MATHEMATICS LESSON PLAN**

**GRADE 7**

**TERM 4: October – December**

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

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| 1. **TOPIC: INTEGERS:** COUNTING, ORDERING AND COMPARING INTEGERS **(Lesson 1)** |

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| 1. **CONCEPTS & SKILLS TO BE ACHIEVED:**   **By the end of the lesson, learners should be able to :**   * count forwards and backwards in integers for any interval * recognise, order and compare integers |

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| 1. **RESOURCES:** | 2013 ANA question paper, DBE workbook 2, Sasol-Inzalo book 2, Textbooks |
| 1. **PRIOR KNOWLEDGE:** | * real number system: counting numbers, whole numbers * negative whole numbers in the context of time zone * number line and placement of whole numbers on the number line |
| 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)   **Remember:** it is the first time learners are introduced to the concept of integers in Grade7.  Ask learners to do the following:  **Note**: Make copies for ANA 2013 question paper page 12 question 22 for each learner to see time zone map.    **Activity**   1. What number is represented by UTC in the map above?   Zero   1. What is the time difference between Cape Town and Rio de Janeiro?   4hrs   1. Draw a number line representing natural numbers.      1. Draw a number line representing whole numbers.      1. What is the difference between the two number lines you have drawn above?   Natural numbers do not include zero whilst whole numbers include zero  **Note:** Whole numbers are natural numbers including **a zero.** Whole numbers is a set of natural numbers and a zero and are denoted by | |
| 1. **LESSON PRESENTATION/DEVELOPMENT** (Suggested time: 20 minutes) | |
| **Teaching activities** | **Learning activities**  (Learners are expected to:) |
| **Activity**   1. Draw a number line and show the two cities indicated on the time zone map   http://www.mathgoodies.com/lessons/vol5/images/no_line_intro.gif  Rio de Janeiro  Cape Town   1. What do you notice about the number line above?   **Note**: Explain to learners that there is also a set of numbers which are called **integers.** They are whole numbers, anywhere from zero to positive or negative infinity. Fractions are excluded from this set of numbers.  The set of integers can be represented as follows:  It is important to highlight that the spaces between the numbers on a number line must be equal; the **positive** and **negative** numbers are equidistant from zero but have opposite signs e.g. if a point is on positive 3 (positive denoted as on the number line from zero, then negative (denoted as) is also 3 units from zero but in the **opposite** direction (. Zero is neutral, it is neither nor. It is called the origin because that is where movement starts. The following number line represents integers:  http://www.mathgoodies.com/lessons/vol5/images/no_line_intro.gif   1. Have you ever watched weather focus on television? 2. What happens when the temperature increases? 3. What happens when the temperature decreases? 4. Which temperature reading do you think is colder between 4°C and 2°C?     **Note:** All negative numbers are smaller than zero and the further away a negative number is from zero, the more smaller it becomes i.e. 6 is smaller than 5;4;3; 2; 1 and 0 but greater than 7; 8 and 9. This is evident in weather focus. If the temperature is 4, it is much colder than it would be if it is 0. All positive numbers are greater than zero. When we represent integers on a horizontal number line, we always have zero separating the positive and the negative numbers where the positive numbers are on the right and negative numbers on the left in relation to zero.  number line showing negative numbers to the left of zero  When we represent integers on a vertical number line, we always have zero separating the positive and the negative numbers where the positive numbers are above the zero and negative numbers below the zero. See number line below: N.B. learners can be shown the readings on the thermometer – thermometers from the science laboratory could be borrowed.  Blank thermometer  Negative and positive numbers on a vertical number line  If there is no sign written in front of a number, the number is positive e.g. 8 is the same as 8, as it is shown on the thermometer and the number line above.  **Note**: it is important to highlight the inequalities in terms of which numbers must be included or excluded in the list e.g. greater than; less than or equal to. Learners must read the questions carefully in order not to make mistakes.  **Activity 2**  Identify the following numbers using the number line:   1. What number is 2 more than zero? What number is its opposite?   2 2   1. What number is 2 less than 6? What is its opposite?   4 4   1. What number is 4 more than 2? What is its opposite?   6 6   1. What number is 4 more than 5? What is its opposite?   1 1 | * listen to teachers’ presentation and draw a number line from the time zone map * answer questions on each activity through group discussion. |

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| 1. **CLASSWORK** (Suggested time: 15 minutes) |
| Write an integer to represent each description.  (a) 5 units to the left of 4 on a number line. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  (b) 20 below zero. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  (c) The opposite of 271. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  (d) 8 units to the left of –3 on a number line. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  (e) 8 units to the right of –3 on a number line. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  (f) 16 above zero. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  (g) 14 units to the right of –2 on a number line. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  (h) 7 units to the left of –8 on a number line. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  (i) The opposite of –108. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  (j) 15 below zero. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

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| 1. **CONSOLIDATION/CONCLUSION & HOMEWORK (Suggested time: 5 minutes)** |
| 1. Emphasise that:  * positive numbers are always greater than negative numbers * negative numbers are always less than positive numbers * when using a number line, numbers increase as you move to the right and decrease as you move to the left * the number zero is neutral. It is neither negative nor positive  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**:  Sasol-Inzalo Book 2 – page 121 no 4 |