**Poorna Learning Centre**

**Group 7 Lesson Plan (2018-19)**

**Chapter 1: Integers**

**Objectives:**

* + Review Natural Numbers(N), Whole Numbers(W) and Integers(Z). Represent them on Number line.
  + Perform the four major arithmetic operations on Integers
  + Understand and use the various properties of Integers

**Resource Material:**

NCERT Mathematics textbook for class 7

**Before We Begin:**

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| Terms | Methods |
| Number Types:   * Natural Numbers (N) * Whole Numbers (W) * Integers (Z) | Addition, subtraction, multiplication and division of:   * N, W |

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| Content | Teacher's Activity | Student's Activity | Assignments |
| 1.1/1.2 Review the various number systems from N to Z. | * Ask for examples of each number type * Ask to represent each number type on a number line. * Ask children to arrange integers in an order. * Elicit the real life uses of integers * Review addition of integers * Review subtraction of negative number   Ex: The difference between -3 and 6 = 9 (Children intuitively arrive at the answer by looking at the thermometer with integers marked on it)  Teacher helps children understand that the statement “difference between -3 and 6” can be mathematically written as 6-(-3) = 9.   * With multiple examples, children will conclude that negative of negative is positive. | * Give examples of different number types * Represent different number types on number line. * Arrange integers in order. * Give examples of integers in real life. * Solve addition and subtraction of integers | Worksheet on identifying and comparing Integers.  Worksheet on addition and subtraction of Integers.  Ex 1.1 |
| 1.3 Properties of Addition and Subtraction on Integers:   * Closure under Addition * Closure under Subtraction * Commutative * Associative * Additive Identity | * Remind children of the various properties covered last year for Natural numbers and Whole numbers. * Extend the examples with various integers and explain each property and conclude if it is true or not for the given integer set | * Solve various examples on properties. | * Ex 1.2 |
| 1.4 Multiplication of Integers:   * Positive and a Negative * Two Negative Integers * Three or more Negative Integers | * Recall multiplication as repeated addition for whole numbers. * Help children deduce that multiplication of positive and negative numbers results in negative number. * With the help of patterns, deduce that the product of two negative integers is a positive integer. * With the help of examples explain what the product of more than three negative integers is. | * Understand that product of positive and negative integer is negative. * Understand that product of two negative integers is positive. * Find the product of three or more negative integers | * Worksheet on integer multiplication |
| 1.5 Properties of Multiplication of Integers:   * Closure * Commutative * Associative * Distributive * Multiplication by Zero * Multiplicative Identity | * Remind children of the various properties covered last year for Natural numbers and Whole numbers. * Extend the examples with various integers and explain each property and conclude if it is true or not for the given integer set | * Solve various examples involving multiplication properties. | * Ex 1.3 |
| 1.6 Division of Integers  1.7 Properties of Division of Integers | * Recall division of whole numbers. * Extend the concept of multiplication of integers to division with the help of examples | * Divide integers   Ex: 8 ÷ (-2) = -4  Ex: -8/2 = -4 | * Ex 1.4 * Assessment |

**Remedial Plan:**

Scaffolding worksheets with simple numbers are given as homework. Children are regularly followed up as and when they are free.

**Challenging work:**

Children can solve questions from NCERT Mathematics textbook for class 8. Additionally, they are provided with worksheets having higher order questions.