NAVNIRMITI LEARNING FOUNDATION

Stepping Stones for Ratio Proportions

1) Make 2 in different ways on two slates by division by portions. Four apples divided by 2 apples portion. Two apples divided by one apple. Six cubes divided by 3 cubes.

   Numerically we write this as 2/1 = 4/2 = 6/3

2) Revise equivalent fractions. Make fractions which are equivalent to ½ using jodo cubes, using the two slate method. Show how ½ = 2/4 by joining pairs of cubes in 2/4

3) Make equivalent fractions of 2/3 using jodo cubes and slates.

4) Make a rod stand upright outside on a flat surface in the sun. Measure the length of the shadow with unit cubes. Now stand two rods one atop the other. Guess the length of the shadow. Use three rods, guess the length of the shadow.

5) Draw a right angled triangle with base 3 and height 2 cm on graph paper. Extend the base to six centimetres. Extend the diagonal of earlier triangle to make the new right angled triangle triangle having the base as 6 cm.. What happens to the height? Extend the base to 9 centimetres. What will be the height ? Take all the equivalent fractions from problem 4, and look at the triangles formed by taking the denominator as base in centimetres (on graph paper).

6) Take two fractions which are equivalent to each other, (a/b = c/d)the four numbers a b c d are written as a : b = c : d. They are in same proportion. Apply this to problem 5.

7) Similar shapes and proportion. All circles have the same shape. All circles have their circumference and their radii in the same proportion .

8) Make similar triangles by drawing an angle and drawing different lines opposite this angle which are parallel to each other. We get many similar triangles. Verify that their corresponding sides are in proportion. Use a scale with millimeter markings and a calculator .

9) Inverse proportion : Take 48 cubes. Make different rectangles. Note the number of rows and columns in each rectangle . Make a table.
   Observe that R1 : R2 = C2 : C1

10) Children in the class. Take 24 children . Make 2 groups, 3 groups, 4 groups or 6 groups.   Make a table, and in one column record the number of groups (m) , in the other column the number of children in each group (n).
   Observe that m1 : m2 = n2 : n1