

Playground Mathematics

Mathematics | Activities for the Mathematics class | June 2012

Grade Level

Class 6-8

Curricular Connection

Applicable to all curricula

Introduction

Visual representation of information highlights the power of compression. That is the reason why the National Curriculum Framework says “Mathematics is amazingly compressible: one may struggle a lot, work out something, perhaps by trying many methods. But once it is understood it creates one of the great joys of mathematics. A major goal of the upper primary stage is to introduce the student to this particular pleasure. Data handling, representation and visualization are important mathematical skills which can be taught at this stage. They can be of great use as “life skills”.

This activity aims at visual representation and its interpretation of data collected from the classroom itself.

About the Author

Rajkishore has taught mathematics & science in the Blue Mountains School, Ooty, a Krishnamurti-inspired alternative school. He has also worked as a Science Communicator in world’s largest mobile science exhibition train, Science Express, an Indo-German collaboration where he put to use his expertise in hands-on mathematics and science. He can be contacted at rajkishore.patnaik@azimpremjifoundation.org

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**Materials Needed**

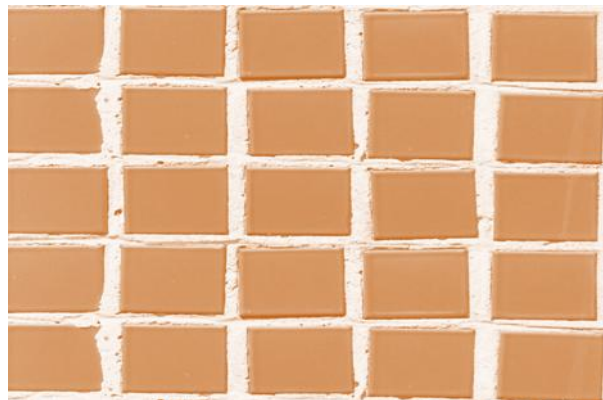
Measuring tape, stones of similar size, long thread, sticks, volunteers

Place

School playground

Before the Game

The teacher makes groups for the entire class. The children can choose a name for their group. The teacher asks the children to come up with a large rectangle with similar sized grids on the ground using sticks & thread.



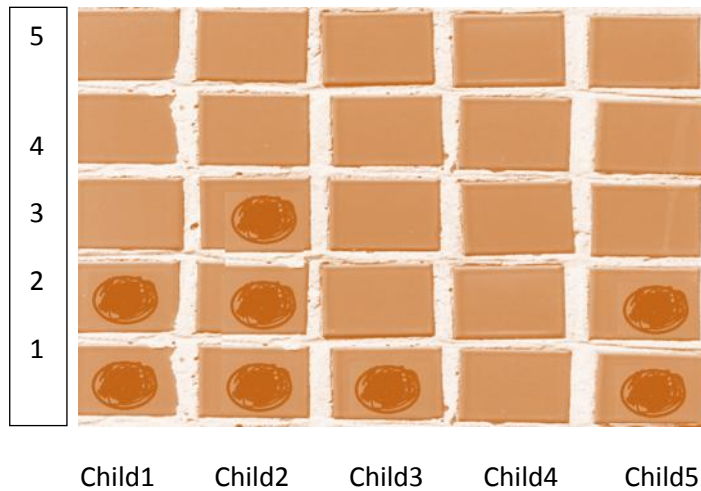
On the horizontal side of the grid, they can write their individual names using sticks.

Game One

The first part is to play the game within the group. The children can be asked to count and tell number of siblings they have. Each child adds the total number of siblings and puts one stone per grid (for each sibling) one upon the other starting from the bottom most grid and no stone if the child is a single child (for example, for Child4 below).



For example,



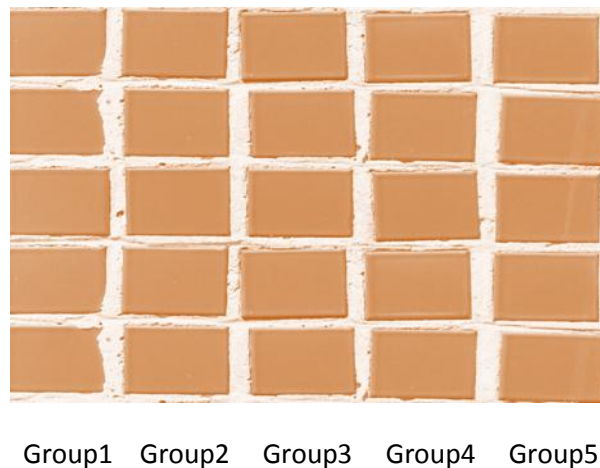
Each child of each group repeats the game. They draw how it looks as a whole. Members of other group are encouraged to guess which group has the most number of siblings, which group has the least number of siblings visually (without counting) and then they count it to check the correctness.

They can play the game for the “number of sisters only”, “number of brothers only” etc., till they get the hang of it.

In the end, the children are asked to count the total number of siblings in their group. That number will be needed for the next game.

Game Two

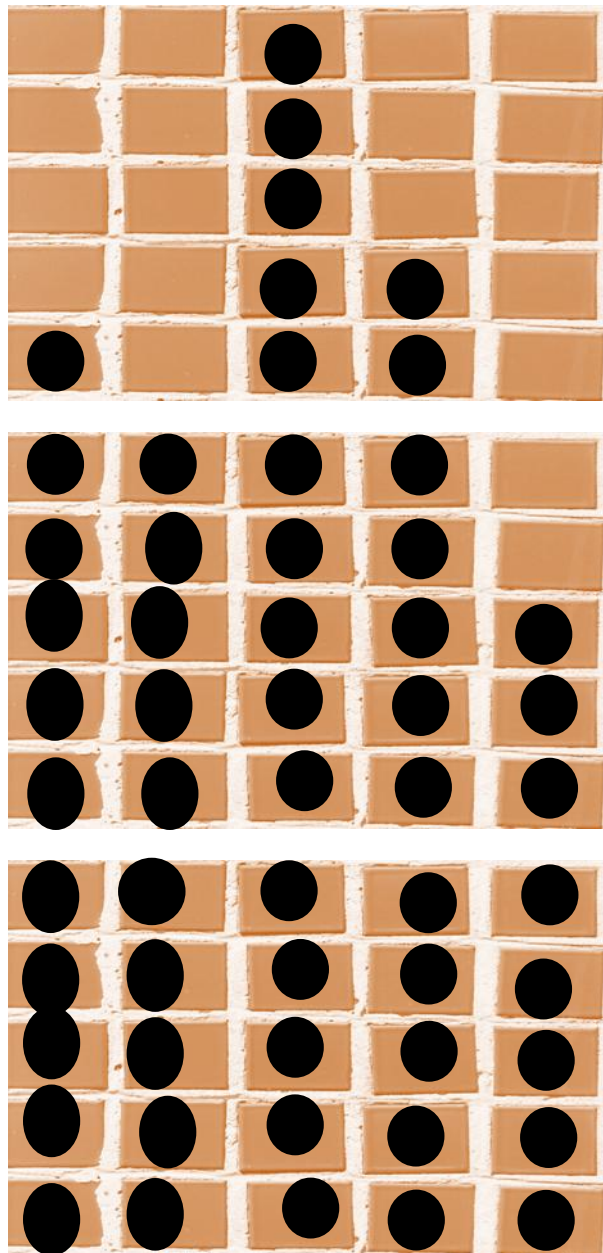
Now the children are asked to rename the horizontal grids after their group names. They already knew the total number of siblings their group had. Now they are asked to represent that number putting one stone per grid



Unlike the previous game, here the total number of siblings for each group is a large number and the number of available grids in the vertical line is limited.

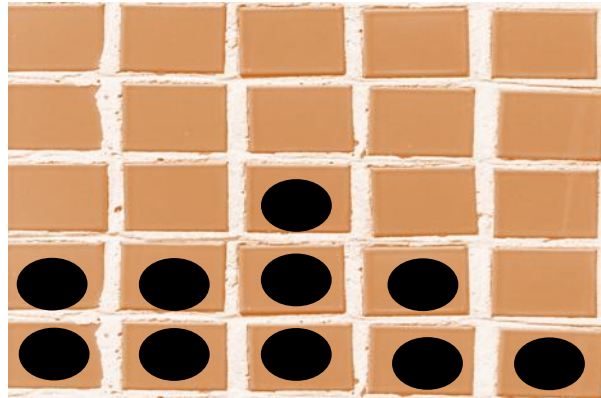
The teacher asks the children to come up with a solution to this problem. One solution could be using larger space i.e. making a bigger grid to accommodate bigger numbers.

For example,



Group1 Group2 Group3 Group4 Group5

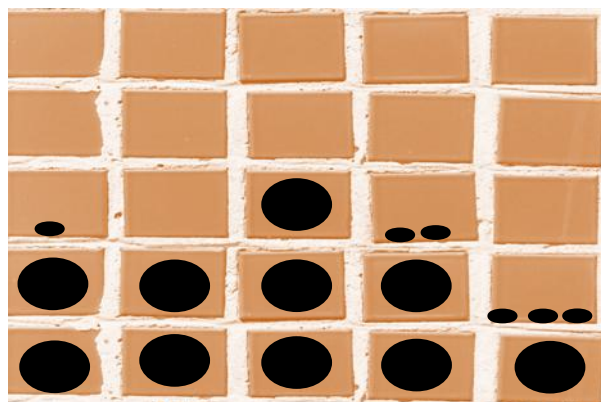
That may not be practically possible. Then the teacher/a bright spark among the children might suggest, “Can we represent one stone for five people (in place of one stone for one person as earlier)?”, thereby solving the problem of lack of space.



Group1 Group2 Group3 Group4 Group5

Another child may say it helps only when the total number is in five’s table. What about the numbers those are not? Then the idea of fractions will aid the child to know that she can use smaller stones in each grid (5 small stones make 1 big stone).

The final visual solution is,



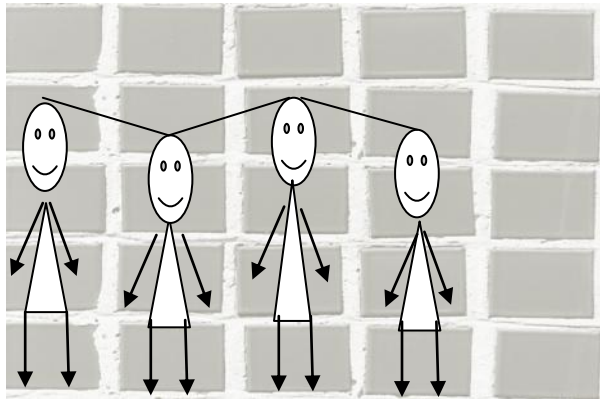
Group1 Group2 Group3 Group4 Group5

Further Games

On the same grid, in place of group name if they take weekdays & vertically if they take water consumption that helps them realize the need for water saving.



On the classroom wall, children can be encouraged to stand up & their heights can be marked vertically. And those points can be joined to show them how it looks like. They can check their growth after three months.



Child1 Child2 Child3 Child4

Once the child learns and applies the given information visually, the teacher may introduce the use of graph papers, plot graphs and interpret them.

