

Easy way to Play Fractions.

Children generally have difficulties in understanding the concepts of fraction. In my own experience as student and as a teacher, I found that the concept of fraction is inscrutable. When I started tutoring school children, I tried to teach fractions to a seventh grade child after several attempts I miserably failed to make him understand the concept. When I joined my master studies at Centre for Research and Interdisciplinary, I had the opportunity to do lot of research projects and I chose to do one project about fraction.

When I started researching about fractions, I came to know that it was me who did not understand the concept properly and it made it more difficult for the child to understand. It made me dig deeper into the concept and pushed me to explore various pedagogic techniques around the world. After reading a lot about numbers and fractions, I came up with a design for an interactive physical model to learn fractions easily.

At some point I thought to myself “is it only me that who did not understand the concept?” so I started carrying a pen and paper inside my class asking my class mates to solve and explain the basic fraction addition problem.

Surprisingly ninety percent of them were able to solve it but they were not able to explain it conceptually. All of them knew how to add two fraction numbers using the methods they learnt in schools but did not know exactly what it meant.

In my first semester, I had the opportunity to go back to India for a project. So I decided to take it another level, I asked the same question to a public high school mathematics teacher who had a masters in mathematics unfortunately he was not able to explain the concept and he told me that “that’s how I have been taught” my teachers gave me steps and rules to follow in order to solve the problem and I am doing the same.

This paper made a sincere attempt to explain why fraction is considered as one of the difficult mathematical concepts for school children? and proposed an alternative method to make it easier to teach and learn. Lots of research papers showed that fractions are crucial for overall mathematical understanding, and if understanding magnitudes is crucial for understanding fractions, then Understanding of fraction magnitudes should be strongly related to proficiency at fractions.

These difficulties in learning fractions led the National Mathematics Advisory Panel (2008 p. 18) to conclude, “The most important foundational skill not presently developed appears to be proficiency with fractions (including decimals, percent, and negative fractions). The teaching of fractions must be acknowledged as critically important and improved before an increase in student achievement in algebra can be expected.” It is so obvious that it affects the overall mathematical proficiency of the students. So this project is an interactive approach to deal with fractions.

Dodecagon

Dodecagon is a 12 sided polygon made of woods and it consists of 6 dodecagons each split into pieces of 12, 6, 4, 3, 2, 1 respectively.

Step 1 – Students will be asked to add two pieces of dodecagons of different split for example -take one piece from a dodecagon which is split into 3 and the other piece which is split into 6 and let them add .

Step 2- Explain the students why two different things cannot be added and give them the challenge to add those two different shapes without changing the magnitude.

Step3 – If students finds it difficult then clues can be given like they can change the shape of the pieces by splitting into required shape and add.

After few rounds of this exercise students can be introduced with the numerical representations of those volumes.

By this way students will learn about basic elements of fractions and understand the concept behind magnitude and its representation in numbers.

A three dimensional representation of the models.

