Mathematricks

- Sreenivasa Rao Ainapurapu.

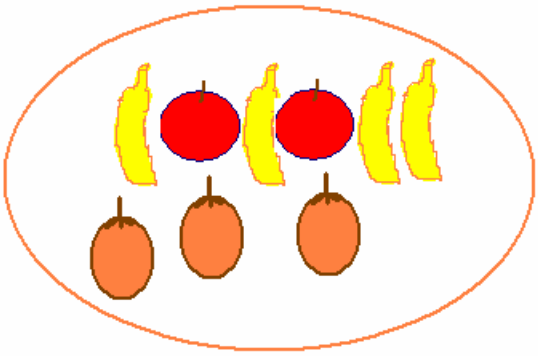
During spring holidays, Srinivasa Ramanujan Mathematricks Club organized Mathematics Seminar on March 14th and Medhavadhanam 2009 on March 28th. This article is trying to bring the summary of the program for the benefit of readers.

> ***Note :*** *You should teach these techniques to kids only after they learn ordinary methods. Then only they can appreciate these tips and the concepts behind. It is always better to use normal methods to verify till you are comfortable.*

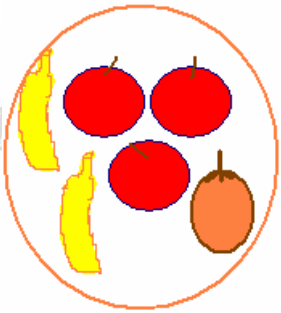
Mathematics seminar at Thornhill library conference room focused more on psychology of kids and the techniques to teach them in an interesting way. Explaining certain topics in a certain way gives better understanding of the topic. We need to choose right gadgets to explain. For example, while teaching first grader, we use cars, dolls, candies etc. for counting rather than using numbers as such. It is human tendency to pay attention for interested things only and rest seems boring & difficult. Let us see some nice examples in the areas of Algebra, Arithmetic, areas and volumes etc.

Many of us experienced this. When we were learning algebra, we had confusion with algebraic expression 'a' and '1a'. Even though teachers explained that both are same, still that was a doubt. Suppose show an apple to a kid learning algebra and ask what that is. They say 'An apple' or 'Apple', but rarely they say 'One apple'. Suppose if you show them 3 apples and ask the same question, they say 'Three apples'. It clearly indicates if there is one item, we do not tell the count. This example clears the doubt and clarity rises. Take 2 apples, 4 bananas and 3 coconuts in one basket; take 3 apples, 2 bananas and 1 coconut in another basket. Now if you keep everything in one basket, ask them what the result is. They say 5 apples, 6 bananas and 4 coconuts.

Now we can put the same thing algebraically as shown below. Let us represent an apple with '***a***', banana with **'b'**, Coconut with **'c'**, then the first and second baskets respectively contains



2 apples + 4 bananas + 3 coconuts
2a + 4b + 3c



3 apples + 2 bananas + 1 coconut
3a + 2b + c

Adding all those (2a +4b + 3c) + (3a + 2b + c) = 5a + 6b + 4c. Here we can not add apples to bananas or bananas to coconuts. So the result is 5 apples, 6 bananas and 4 coconuts.

Let us now think about an arithmetic problem. Ask a 2nd grade kid "If you can finish a cake in 2 days, how many days do you need to consume half a cake?" You get the answer immediately. In kids case 'Time and Work', 'Time and distance' are difficult because they like playing rather than studying. If we use cake or candy for explaining they like to hear. Ask another question "If you can finish a cake in 4 days, how much cake can you consume in 2 days?" They naturally come up with an answer 'half a cake'.

We better give them some tricky questions and answers to sharpen their thinking. For example, ask this. "There was a pond. One day there was one lotus, next day there were 2, third day there were 4. In 30 days the pond was full of lotus flowers. Can you tell (i) in how many days the pond was half filled with lotus flowers. (ii) In how many days the pond was one-fourth filled with lotus flowers?"

(Let us continue in the next issue, till then good bye!)