



Madras Dyslexia Association

15, Sambasivam Street, Behind Jeeva Park, T. Nagar, Chennai 600 017 Tel: 2815 6697, 2815 7908

E-mail: ananyamdachennai@gmail.com Website: www.mdachennai.com

IN THIS ISSUE ...

Effective Teaching of Mathematics

- Page 1 to 4

Awareness and Setting up of Resource Rooms

- Page 5

Children's Page

- Page 6

News at MDA / ANANYA

- Page 7

MDA News Snippets

- Page 8



Moving.....

The Administrative Office of MDA is in the process of moving to the 1st Floor of "Park View" near Jeeva Park, 94, G.N.Chetty Road, T.Nagar. No changes in the telephone numbers.

Effective Teaching of Mathematics

by Mr.V. Sundaram

This is transcribed from his presentation at MDA's Samyukth 2013 with his kind permission. The speaker describes some of the guidelines that he has internally developed which seem to work in real life. He clarifies about how Mathematics can be learnt by the children in an effective way.

Math versus Language

How many of us believe that in Primary school that Math should be easier than language? Very few! With his vast experience, he is convinced that Math learning is inherently easy for children. Language cannot be learnt without an external source but Mathematics springs from our own internal experience. Children see patterns around them. All children intuitively understand concepts like more & less though they may lack the vocabulary to express it. Any child who is presented with 2 packets of sweets when asked to choose a packet may pick up the larger one as he knows it has more.

The Math which arises within us is made more complicated and has become difficult is because of 2 reasons:

- The language through which Math is taught. (Word problems are more a language issue rather than a Math issue)
- The way Math is taught in schools. (Little or no allowance is given to the nature of Math and the nature of the Primary Child)

Math is often taught in a very artificial way. It is taught like any other subject. We use text books, home work, black board like in the teaching of other subjects. Each subject taught in school is a varying mix of:

- Concepts which need to be **understood**.
- Skills which need to be **practiced**
- Facts which need to be **remembered**

Teaching of Math and English are different

- Languages are mostly facts (vocabulary) and skills and less of concepts (grammar & phonetic rules)
- Math is mostly abstract concepts and skills and less of facts. Hence there should be almost no need for memorising.
- Therefore Language and Math need to be taught differently.

The only facts in Math are the way the 9 numerals and some symbols are written and in fact everything else can be derived from one's thinking. There is no need to memorize anything if it is learnt in the proper way.

Nature of the Primary School child

- Developmentally he/she is still in the *concrete operations* stage
- Abstract concepts need to be presented *visually* or with activity materials
- Facts need to be remembered by *repeated use* in the appropriate context
- Skills need to be *practiced* with understanding

The Primary Child, according to Jean Piaget, is in the concrete operation stage. When we teach him about photosynthesis, he can repeat the word like repeating the word patriotism. Repeating the words has no connection to understanding.

Concepts should be presented visually or with activity materials.

Odd and Even Numbers: Suppose a question is put whether the people in this room are an odd or even number? Instead of dividing by 2 if a pairing game is played, if 1 is left without a pair it is odd, if all have pairs then it is even. Then they realise

Odd number + even number = odd number

Even number + odd number = odd number

Even number + even number = even number

Odd number + odd number = even number

We all know 54 is an even number. When 5 is an odd number why don't we look at 5 and why are we looking at 4 and call it even? This is because 5 is not 5 but 50. Any multiple of 10, 20, 30 is automatically an even number. Children will not understand these kind of concepts by lectures, they need to look at concrete materials. They need to have bundles of sticks (10) and understand that each bundle is divisible by 2 and can be shared equally between two people. This is the idea of even number. This is a visual understanding of relations as otherwise it results only in mugging up with no understanding.

Place Value: It is normally taught that 23 is 2 tens & 3 units and this does not make any sense to a child though he/she is able to repeat it. If place value is not mastered properly children have difficulty in addition, subtraction and afterwards multiplication and division.

The basic numbers are only 0-9. The answer is in our hands as we have only 10 fingers. All other numbers are combinations of the 9 numbers only. It is advisable to teach upto number 9 only, in the Kindergarten classes and 0 upto 99, for 2 years in

Classes 1 & 2 because it takes 2 years for them to understand and represent numbers and play with materials.

Various visual interpretations of "multiplying" and "dividing" can be given. While multiplying 3 by 4 we can have an array or 3 baskets of 4 fruits or 4 baskets of 3 fruits. Dr. A.R.Rao's book "Proof by sight" will throw a lot of light on those concepts that are obvious and don't need explanations.

Angles and Triangles: First let the children understand the meaning of concepts. What is the definition of an angle? They are never clear about what is an angle and what is a triangle. They don't realize it is about the amount of rotation. Concepts like ray, line and segment should come after Primary when they are ready to understand it. Unnecessary knowledge can be done away with in the lower classes.

Concepts are also understood by playing around with materials. While some activities can be done in class, others need a special class like Math Lab. Math Museum is different from a Math lab, as in the former you mainly look at the exhibits. In the lab you prove by doing experiments and demonstrate in terms of materials, how numbers are different. The total cost of Math Lab materials will not exceed Rs.200 as bottle tops, ice-cream sticks, cardboard strips, rubber bands are adequate.

Focus on understanding rather than labels

It is good to see that a child understands a concept before you introduce the terms for it. When you teach fractions more time should be spent on understanding the connection between the number on top and number at the bottom. The new terms numerator and denominator and their spellings should not be the focus. When the child becomes comfortable then the terminology can be taught, otherwise they come in the way of understanding.

Words in Math are often never used outside the classroom, for e.g: predecessor, scalene, numerator, denominator, improper number, surds, vulgar fractions etc. There are words in Maths which have different meanings outside the classroom rather than inside, for e.g. acute, principal, interest, left (Social and Math). We don't make an effort to make them understand, same word with a different meaning in other spheres and in Math. So Math language becomes a difficulty and playing games is a good way of teaching it.

Right Angle: It is good to understand the importance

of the right angle and why it was called that. Also why is the right angle the basis of classification? If we take a sheet of paper and fold it to make a right angle we can see it. We can also see what is less than and more than the right angle. This is better than using a protractor and getting confused. Why was the right angle called the right angle? Some children thought it was drawn to the right and so called that. It is because a right angle can be made anywhere on the Earth and it is the same as any other right angle made on this earth. Euclid says all right angles are equal. A mason builds a wall which is perpendicular. The right angle is the easiest standard, it is a concept.

Where do 90 and 360 come from? In olden days, they counted the number of days that the Earth takes to go around the Sun as 360, and divided it by 4. It gives 4 right angles and each quarter is 90 degrees. The teacher needs to know how to explain a concept in the form of a story, so that the concept will not be forgotten.

Reduce writing

- Understanding is achieved by listening, speaking and arguing.
- In the initial stages of understanding, writing takes away time available for understanding.
- Writing steps etc can be done after understanding has been achieved.
- Same is applicable in Geometry where a lot of time is wasted in drawing geometrical figures rather than understanding about them.

In a 40 minute period not many problems can be solved and written. When they have a difficulty in writing, it becomes worse. In the time it takes to write 2 problems, 10 problems can be discussed. Understanding is more important and writing is the last step. In Geometry, don't ask them to construct angles as they waste a lot of time. Give them 3 sticks. Make an obtuse angle or acute angled triangle which is more meaningful than wasting a whole period in construction.

Irrelevance of pass mark in Math

- Math concepts are built hierarchically like a house of cards.
- In Primary School, while learning basic skills, whatever is learnt should be learnt 100%
- If a child has not mastered 1 digit addition there is no way he/she can learn 2 digit additions.

- Hence reduce the curriculum to the essentials and ensure that these are learnt thoroughly.
- 35% (pass mark) may really mean 100% in addition, 50% in subtraction and 0% in multiplication.

The basic concepts have to be learnt thoroughly by all children and more so in the Primary. Like toilet training which can be 100%, children need to have 100% basic knowledge in Math. Only when you can do addition of 1 digit number can you go on to doing addition for 2 digit numbers.

Word problems

There are two kinds of issues with word problems.

- Understanding the language in which the problem has been presented
- Relating the real life situation to a "Math operation concept"

Let us have a story for $5-3=2$. I have 5 chocolates and I ate 3. If we say 5 birds are there, 3 fly away, it's a different story. I have 5 chocolates, my brother has 3 less than me. How many does he have? Subtraction has come out of different life experiences, though mathematically it can be summarized into 5-3, take away, compare, less than, adding to subtract.

These are different life experiences in order to give concrete form in the classroom.

Let us not call it a problem, but call it a Math story. Let the children make problems with things that are close to them, rather than the population or voters etc.

Pitfalls of textbooks

- Math curriculum is best covered in a spiral manner, revisiting the same concept periodically at ever increasing levels of understanding.
- Textbooks force us to cover the curriculum in a linear fashion.
- When we cover fractions in 2 months and then decimals in the next 2 months during which fractions are never revisited, students tend to forget whatever they learnt of fractions.
- Use textbooks with care.

Give smaller numbers for the children to understand the concept and to work with ease. 4 Kgs makes more sense rather than 4000 gms. Giving a mixture of problems is more useful than giving problems with the same concept. When a child was asked where would you find a subtraction sum she answered at the end of a subtraction chapter.

Autonomy to students

- Motivation levels of students increase if they have a degree of autonomy in the classroom.
- Let students make their own problems & explore the results.
- Encourage group work, discussions and peer interactions.

Proof of the Pudding

The speaker shares these experiences with conviction as he has seen the results.

- Many of these methods were tried out in Math and in English in his previous school.
- In 3 years, Math went from being the most hated subject to the most loved subject and even first generation students were able to express themselves in simple English by Class 2.

So Maths has to be done at a spiral way. It has to be revisited and then should go higher and higher building on the basics. Math is full of such surprises,

let's bring it into the classroom. Ask them to choose numbers from 1-9 and do a 3 into 2 digit multiplication. Teachers may wonder if you give so many different kinds, then how can you check. Give a calculator and let them check. Let them involve their parents, siblings and be happy doing it. Joy of learning and working should be instilled, so that they are motivated to work.

The speaker Mr.V.Sundaram is a B.Tech from IIT Mumbai, has an MBA from IIMA. After 17 years in private industry, he shifted to School Education, since his basic interest and core competency is in education. His experience ranges from being the Bursar of Rishi Valley School to a Principal, Teacher-Trainer and Educational Consultant. He has recently retired from the Reliance School, Jamnagar. He is very much interested in Primary Math and has worked with teachers in his own school and conducted many workshops in this area. He wishes to acknowledge the Late Mr.P.K.Srinivasan who has been his guiding force and he feels he owes all his Math understanding to him.

Some Happy Drills for Practising Math skills:

1. Number Play

- Pick up any 6 digits between 1 and 9.
- Without repeating the digits, make as many 1 digit, 2 digit and 3 digit numbers.
- How many numbers do you get in all?
- Arrange all of them in ascending order.
- Sort them into Odd & Even numbers and Prime & Composite numbers.
- In case of the Composite numbers, write down all the factors.

2. 1234

- Write numbers 1,2,3 & 4 in the same sequence.
- Insert any accepted mathematical operator like +, -, x, ÷, () etc. You can use others also as long as they are accepted in Mathematics.
- The numbers can be above or below others as in 2^3 . But 3 should come after 2.
- Insert them in such a way that the result is any number between 0 and 99.
- E.g $1+2+3+4=10$
- Challenge: In how many ways can you get the result 1?

3. Odd & Even chain

- Take any 2 digit number
- If it is even, divide by 2 and write the number below the first number.
- If it is odd, multiply by 3 then add 1 and write the resulting number below the first number.
- Repeat process until you get a surprise result.

Look for some more happy drills provided by the speaker in our next issue.

Awareness & School Centres - A Summary

An Exclusive Awareness Wing for Dyslexia

Awareness of dyslexia is one of the prime objectives of MDA. We have been doing these in both English and Tamil and in the print and electronic media, since our inception. However, we do realise this needs to be an ongoing process and touch various people in the community so that no child goes unidentified. With the tremendous potential these children have, identification and intervention are critical. The earlier it is done, the better it is for the child. Considering this, at the beginning of this academic year, an awareness wing was started in order to go about

awareness with more vim and vigour than before.

Schools, social clubs, and corporate organisations have been our target. The response has been excellent with many of the above coming forward with wanting awareness programmes as well as follow-up workshops.

Mrs. Harini Mohan has conducted awareness programmes at JRM School, JRK School, VanaVani, Viswaksena Global School, Amrita Vidyalayam, Vel's Vidyashram, MGR Janaki College, a radio programme at M.O.P. Vaishnav College, Latent View and TCS.

Setting up of School Resource Rooms with MDA's Collaboration

Setting up of Resource Rooms in schools has been one of MDA's earliest activities in the 90s. While about ten schools came forward to set up centres at that time, presently only five of the centres are functioning. They have been consistently and successfully helping children for a decade and more, since their inception.

At Samyukth 2013, the Principals of these five schools were felicitated with a citation commending the help provided to the dyslexic children in their schools. They surely are the role models to the other schools, having helped many children with dyslexia cope with their problems. The last two years have seen a revival of interest by schools to have a resource room of their own.

Why a School Resource Room?

When children get remedial help within the school itself it has many advantages. It saves time after school, with no travelling involved and gives the scope for the class teacher and remedial teacher to work in tandem. Children often write the tests and exams in the resource room where the paper is read out, the child writes without any distractions and could be given the extra time needed.

So what does setting up a Resource Room in the school involve?

It mainly needs strong conviction on the part of the school authorities to want to help children with dyslexia. The other needs are:

Space: A large classroom or two small ones

Remedial teachers: At least two trained in handling children with dyslexia.

Some financials for buying materials and books.

How does MDA help?

The school enters into an arrangement with MDA.

MDA provides help starting from conducting awareness programmes for teachers and parents, workshops for teachers to actually setting up the Resource Room.

This is followed by weekly monitoring which involves screening, planning, implementation of the lesson plans, documentation and review.

What are some of the school projects?

- A pilot project was done earlier on, and a Resource Room was set up for the Junior and the Senior students of Ramakrishna Matriculation School, Bazullah Road.
- The next Resource Room is at Vana Vani Matriculation Higher Secondary School, IIT campus. With two teachers trained at MDA, they have started their operations helping the Primary class children.
- Amrita Vidyalayam has joined the elite group of schools that have their own Resource Room in July 2014. With two MDA trained teachers, many students have been identified as part of the early intervention programme in Class 1 itself. A pre-skill training programme for these students have been started, while screening for each child is going on

Continued on Page 6

Children's Page

Mango tree by V. Jhanavi, class 7

I am a mango tree. Everyone likes my fruit because it is fresh and ripe. I don't like children throwing stone on me. I become available in plenty during the summer month.

Jackfruit tree by Daval Lakhani, class 7

Hi, I am 30 year old jackfruit tree. Someone ate jackfruit and threw the seed out. The seed got stamped by someone and got buried into the sand. Then I grew into a sapling in a year. After 8 years, I grew into a big tree and started bearing fruit. Everyone tasted my fruit and loved it.



Jackfruit is a good source of Potassium, Magnesium and Iron. The wood is widely used in manufacturing musical instruments, construction, furniture, doors and windows. The root of jackfruit tree is a remedy for skin diseases. All the parts of tree are very useful.

Apple tree by Siddartha, class 7

I am an apple tree. I give apple. I am very big. I am near Ananya School. Children like my apple but people cut me.

I give oxygen for people. My fruits have lot of nutrients. There is a proverb "an apple a day keeps doctor away". The smell of my apples attracts the children. Ananya school children take my apple and eat. My branches are big and I give shade to everyone. Sometimes my apples fall on ground and get spoilt. This makes me very sad.



Continued from Page 5

simultaneously. This endeavour is possible only with the whole-hearted support of the management, principal and teachers.

In the pipeline are many more schools who want to set up their Resource Rooms. Business organisations are coming forward to do this as part of their Corporate Social Responsibility and want to run an after-school centre in places where there is no proper remedial help available.

The sky is the limit! This is the beginning. Many more such Resource Rooms will be coming up in the near future. These would provide the necessary support for children with specific learning difficulties. Our dream is that each school has its own facility to ensure that no dyslexic child is left behind.

Contact person: Mrs. Vilasini Diwakar

Dr. Emma Gonzalves is no more. She was a counsellor par excellence and has helped both the young and old and many of our parents and children. This is indeed a big loss to our community and leaves a void that is hard to fill.

News at MDA / ANANYA

Winners always

Eight students of Class X cleared their Boards in May with ease. Seven of them have gone back to Mainstream Schools to do Plus 2 and one has stayed back at Ananya to continue his Senior Secondary through NIOS. All six of the NIOS Class XII students have gone to various city colleges pursuing courses in Arts, Music and Commerce.

The Annual Soroptimist International competitions held in the month of July saw our students winning prizes in art, music and dramatics. Darshan of Junior school, Sarayu, Sumedha, Joe Pinto, Rosy, Neha, Mirudula, Keerthana, Nandhini, Gautam, Christopher, Amarnath, Mahatheeswaran and Anoush from the Senior school were the winners.

In-house mini-projects

This year the junior school children had two projects; sight word reading and phonemic awareness that are the most essential components of skill building for reading. The children became teachers and showed how they have learnt to read better to the visitors. Keep it up children!

Summer workshop

The need of the hour is to conduct bilingual workshops in both English and Tamil. This will enable many more people to understand how to identify the dyslexic child and how to help. We tried two such endeavours in the month of May which were of longer duration. Our 5-day training at Madurai was organised by Manickavasagam Trust for about fifty teachers from schools under the Thiagarajar Group. It was a first in conducting a full-fledged training programme for mainstream teachers outside Chennai and in bilingual mode too. Then, a 3-day workshop was also conducted in Chennai in the month of May. Parents, teachers, educators as well as those interested in knowing more about dyslexia benefited from it. The bilingual workshop and training was well received and could be a forerunner for many more to come.

The 15th Annual Sports Day

The Sports Day was celebrated with the usual vigour and enthusiasm at the RKM playground off G.N. Chetty Road on 12th September. Ms. Sharanya Vidyut, the Junior National Tennis Champion was the chief guest who gave away the prizes to the children. There was another special guest on that day, Mrs. Nirmala Venkateswaran, who has been our Consultant Occupational Therapist for nearly two decades. She addressed the parents and teachers giving some valuable inputs about these children. We are tremendously thankful to Mrs. Nirmala for all the help given to us directly and through intervention to many of our children. The Chennai OT fraternity, learning centres as well as the parents are going to feel the void and miss the expertise and experience of Mrs. Nirmala, who is settling down in Cochin. We wish her all the best and hope to have some more opportunities to interact with her in the years to come.



Announcement

Weekend Teacher Training

- ◆ MDA announces its Weekend Training Programme for eight Saturdays starting from 25th October.
- ◆ Open to Mainstream Teachers, Counselors and Therapists who are working with children with learning issues.
- ◆ Interested persons can call MDA office for more details.



MDA News Snippets

- 12.05.14 & 23.05.14 Workshop for the second year Special B.Ed trainees and a half-day training programme for first year Spl.B.Ed trainees at SPASTN, conducted by Geetha.R.
- 30.05.14 Workshop for Junior and Senior School teachers at Kalaimagal Vidyalaya, Royapuram conducted by Sujatha.R, Latha.V and Harini.M.
- 03.06.14 Dyslexia Workshop at A.M.Jain School Meenambakkam conducted by Subha.V and Harini.M.
- 19.06.14 Dyslexia Workshop at Airforce School Avadi conducted by Subha.V and Harini.M.
- 21.06.14 Workshop for the Resource Room Teachers of BVM Group of Schools at Bala Vidya Mandir, Gandhi Nagar conducted by Subha.V and Savithri.K.
- 05.07.14 Workshop for the Junior teachers at Chennai Public School conducted by Sujatha.R and Latha.V.
- 05.07.14 Workshop at Vanavani School in IIT campus conducted by Subha.V and Latha.V.
- 11.07.14 Math Workshop for mainstream teachers from Muscat, Oman as part of the Inclusion Training offered by Vidyasagar conducted by Sujatha.R.
- 12.07.14 Inter-school meet on Inclusive Education organized by Mirra Foundation, Chennai. Janaki.R participated.
- 21.07.14 Start of 8-week Intensive Teachers Training Course at MDA.
- 25 & 26 07.14 MDA stall at 'Seva Mela' organized by CIOSA at Ethiraj College for Women.
- 29.07.14 Dyslexia Workshop at Amrita Vidyalayam School conducted by Sujatha.R and Latha.V.
- 29.07.14 Workshop on remedial strategies for forty volunteers who are helping children in Pondicherry, organized by Dr.B.Balachandar, conducted by Sujatha.R and Latha.V.
- 18.08.14 1-day workshop organized by Alpha to Omega on Developmental, Emotional and Behavioural disorders attended by Vilasini.D and Viasalskhi.I.

Our Editorial Team - Indu Ramesh, Kamala Ramaraj, Geetha Raghavan and Vilasini Diwakar

For Private Circulation Only

BOOK POST

If undelivered, please return to:
 Madras Dyslexia Association
 15, Sambasivam Street, Behind Jeeva Park,
 T. Nagar, Chennai 600 017