MATH LAB FOR HIGH SCHOOL

Any lab work differs from other kinds of teaching and learning [t & l] . According to us lab work in maths can follow the pattern of lab work in physics - one can also call them experiments - Start with *the aim of the experiment* etc. Here the methods, tabulation , results etc are very important – since it is maths, one has to change variables with some thinking and guidance from teachers – other than these small differences maths lab can and should be done **by the students** and a **record book** can and should be maintained.

Many lay persons [parents, non-science teachers] misunderstand the concept of maths lab . There are other methods like puzzles, riddles, fun with maths, exhibition demos, educational aids, models, etc. There are also other disciplines like abacus, vedic mathematics, computer aided teaching along with graphics . Each of them has its own merits and advantages. We have tried our own methods of indoor [sometimes outdoor] games related to the subject - e.g a deck of playing cards [to play *rummy*] based on binary , octal, decimal and hexadecimal number systems . learning trigonometry by measuring the height of a tree in the campus.

LIST OF CHAPTERS 1OTH STANDRED

1. AP - see sheet
2. TRIANGLES - many possibilities –rich source with geo. Box
3. First order SIMULTANEOUS EQNS. - see dk's sheet on 'intro. To graphs '–
   Graphical and algebraic methods – do and compare
4. AND 5 CIRCLES [see dk's 'pie day' hand-out]
5. See 4
6. SOME CONSTRUCTIONS - tailor made for lab work
7. COORDINATE GEOMETRY - can easily made into lab work
8. NATURAL NUMBERS - needs thinking
9. POLYMOMIALS - only quadratic - extension of #3 above
10. QUADRATIC EQUATIONS - only quadratic - extension of #3 above
11. TRIGONOMETRY - needs thinking- CAN BE EASILY DONE
12. APPLICATIONS OF TRIGONOMETRY- do card board models for lab work
13. STATISTICS - 40 pages of the textbook – dk suggests using a computer with suitable software
14. Too abstract
15. AREA AND VOLUME - tailor made for lab work
16. MATHEMATICAL ANALYSIS 1 AND 2 - Too abstract

This list is given so that anyone who wonders whether maths. Lab. Is a feasible idea , can see that 10 to 30 % of the contents can be done by lab method .

The list here is for creating a practical manual for std 10.

ADDITIONAL SUGGESTION

A GENERAL SET OF useful and feasible experiments can be generated , along with methods and also the materials needed- ideas for variations can also be included - these can include the standard branches of maths , like **arithmetic, algebra, geometry, trigonometry and statistics for the high school level**- calculus and analytical geometry **at puc level** lend themselves to experimental method and are rich sources of experimentation for an informed , interested and willing educator.

Unlike other branches of science, maths does not depend on one standard set of experiments and corresponding expected results. Each batch and each student can have specific experiment on the same topic with the same aim of the experiment .