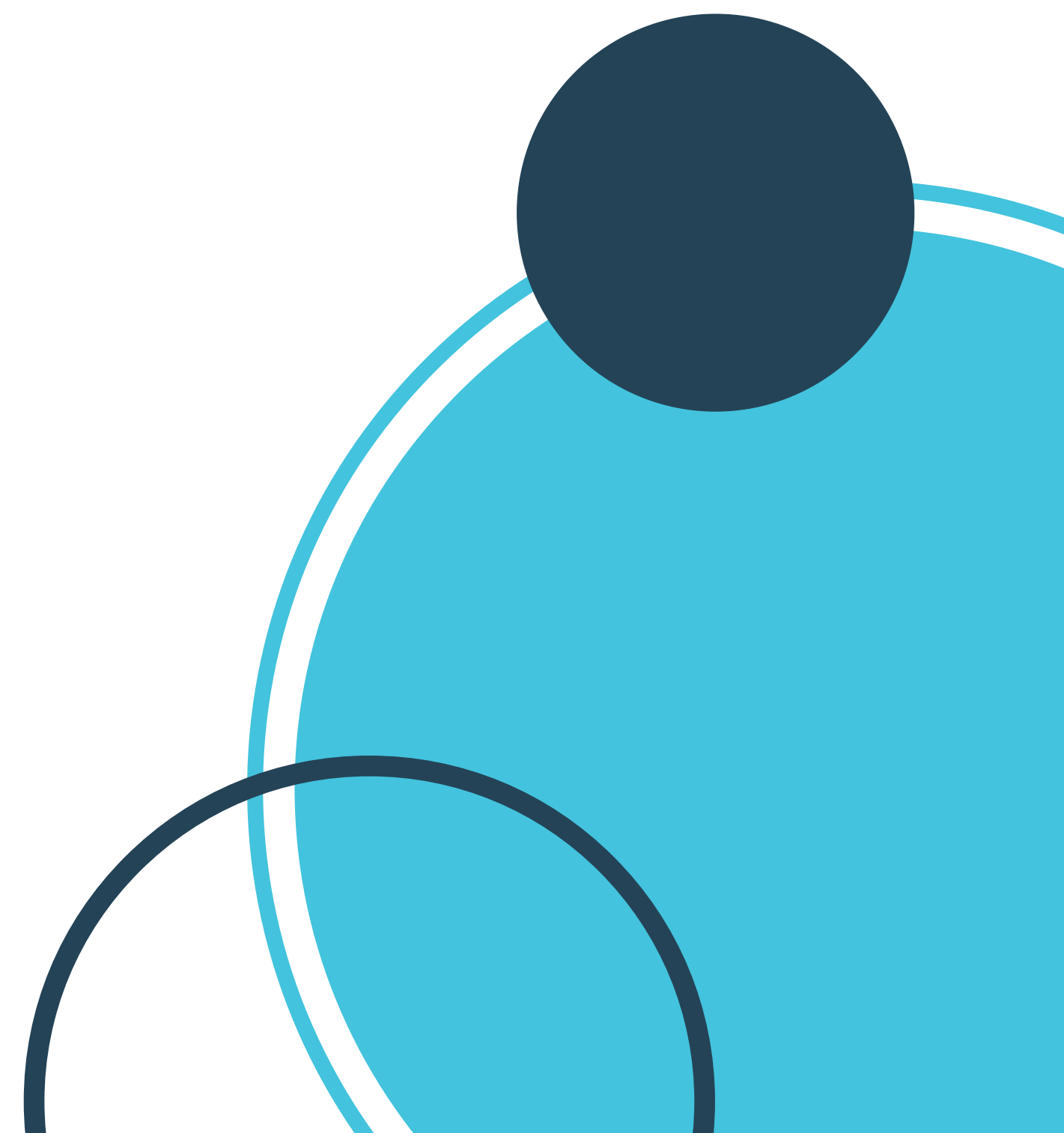


**MATHEMATICS**

# Teaching Learning Material

Vikram A Sarabhai Community Science Centre

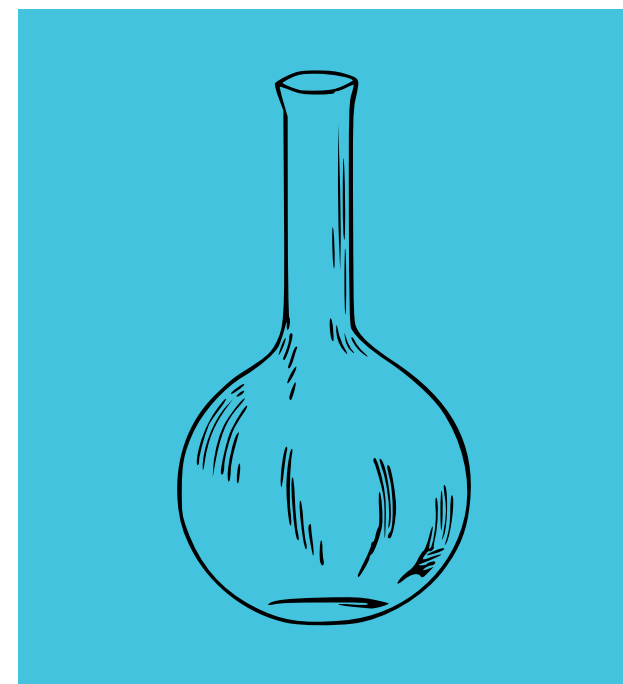
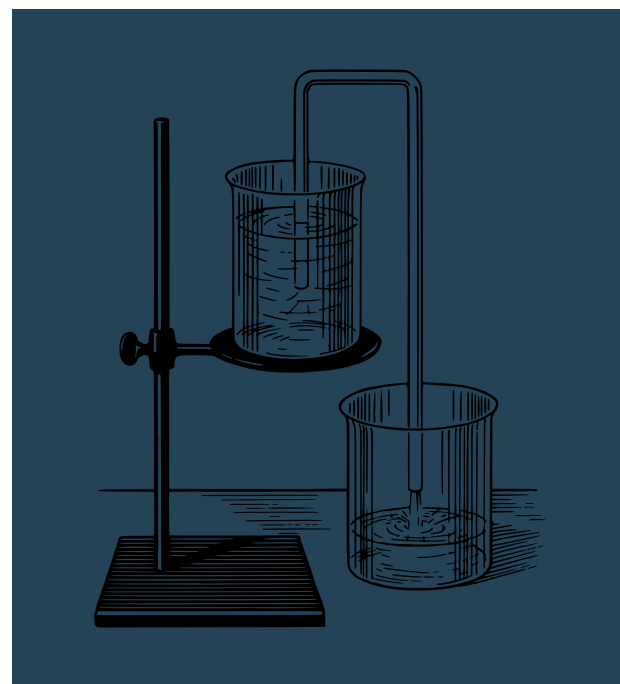
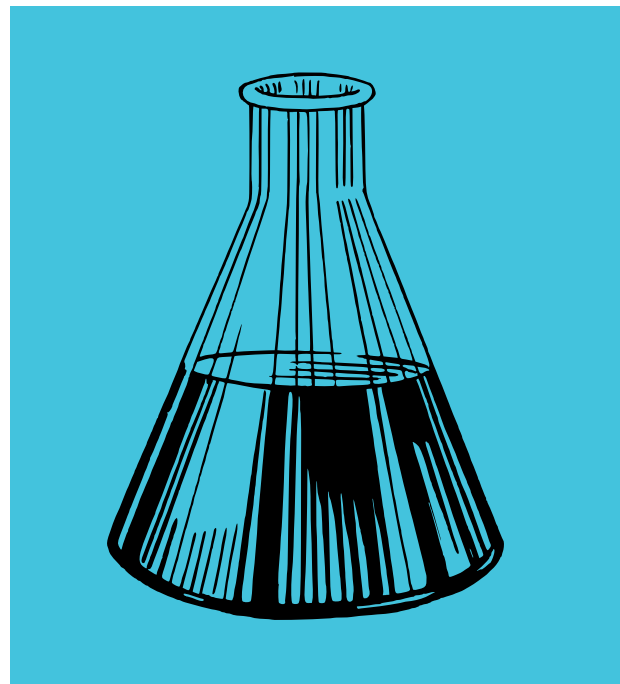
Science Shop



# WHO WE ARE

Vikram A Sarabhai Community Science Centre (VASCSC), Ahmedabad, is a pioneering community science centre which aims to nurture young minds and direct them towards scientific thinking with methods and techniques which make the process of enquiry and learning a fun filled, enjoyable and lasting experience. It was way back in 1966 that India's renowned scientist - Dr. Vikram Sarabhai founded the Centre to encourage scientific thinking and innovative teaching. (Website: [www.vascsc.org](http://www.vascsc.org))





# THE VISION

VASCSC is dedicated for promoting among students, teachers and lay public:

- An understanding of the fundamental concepts involved in the Physical, Chemical & Biological Sciences and Mathematics
- The acquisition of scientific knowledge and insights as far as possible by the process of inquiry through experiment, audio-visual media and other means
- To stimulate interest, encourage and expose the principles of science and the scientific method to students, teachers and the general public
- To be concerned with the role of education and ways of improving education in relation to the individual and the community as a whole
- To make clear the social implication of science and technology

# TEACHING AND LEARNING MATERIAL



VASCSC has developed a wide range of innovative TLM and publications for teachers and students. The TLM aims to help teachers in effective teaching of science and mathematics, using hands-on and activity-based methodology. At the same time, it aids to provide better and lasting understanding of difficult concepts to the students by developing their interest towards science and mathematics and satisfying their curiosity through hands-on process. The TLM consists of interactive models, kits, publications, model making templates and charts.

## MATHS LAB PRIMARY PACKAGE



Mathematics Lab primary package aims to mainstream non-formal, hands-on approach in teaching and learning of mathematics. Ideal for setting up Mathematics lab. An excellent collection of TLM's containing 31 models made from good quality durable material. These TLMs are useful in understanding concepts based on topics covered in the syllabus of Standards I to VII.

Std. 1-7

Rate: ₹ 9900

Language : E/G/H

Mathematics Lab secondary package aims to mainstream non-formal, hands-on approach in teaching and learning of mathematics. Ideal for setting up Mathematics lab. An excellent collection of TLM's containing 41 models made from good quality durable material. These TLMs are useful in understanding the concepts based on topics covered in the syllabus of Standards VIII to XII.

Std. 8-12

Rate: ₹ 11900

Language: E/G/H

## MATHS LAB SECONDARY PACKAGE





## NUMBER STRIPS

A great visual aid to understand various concepts related to numbers like number recognition, create a number using different combinations, addition & subtraction with ease. It has wooden number strips of 10 different lengths ranging from 1 unit to 10 units.

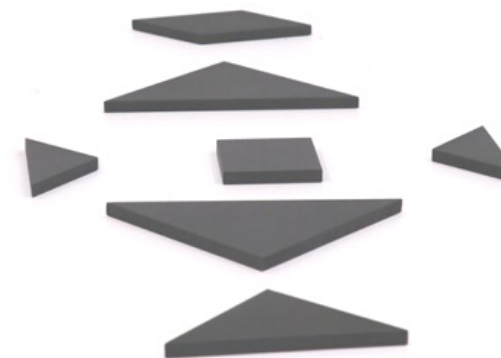
Rate: ₹ 400  
Language: E/G/H



## GEOMETRICAL SOLID

A pack of six wooden basic geometrical solids. It contains cone, cube, cuboid, sphere, tetrahedron & cylinder which can be used to understand faces, edges and vertices along with concepts like surface area, volume and different properties of solid shapes.

Rate: ₹ 180  
Language: E/G/H



## TANGRAM

Tangram is a famous traditional dissection puzzle which helps in building spatial skills. It has 7 different shapes that can be rearranged to form many different shapes. Includes a booklet containing silhouette challenges to solve which is fun for any age group and solutions. One can even form their own design.

Rate: ₹ 100  
Language: E/G/H

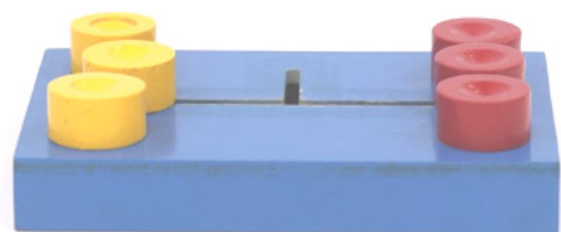


## TWO CONGRUENT RIGHT TRIANGLE

An interesting way to understand congruent right triangles through a puzzle. The challenge is to fit the given congruent right triangles in different quadrilateral and other shaped grooves. It helps to understand and visualize basic geometrical concepts in a playful way!

Rate: ₹ 350  
Language: E/G/H

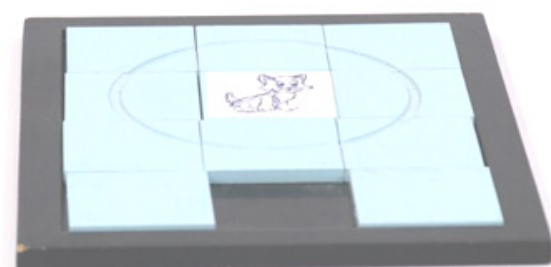
**STD. 1 +**



## PARKING PUZZLE

A very interactive puzzle where the challenge is to interchange all the three red and three yellow counters in minimum number of moves. A perfect food for mind!

Rate: ₹ 90  
Language: E/G/H



## BRING THE CAT OUT

Cat wants to be out! A very addictive and unique sliding puzzle, here one has to move the cat out of the circular ring, by only sliding 11 square pieces in the tray. The challenge is to achieve the target in minimum moves. Once cat is out, it's time to move it back into the circle!

Rate: ₹ 150  
Language: E/G/H



## PENTAMINOES

The Pentaminoes puzzle is a perfect way to introduce important concepts such as 2D shapes, symmetry, area and perimeter. It is a set of 12 shapes related by joining 5 equal squares side-to-side. Use these 12 different shapes to solve various challenges.

Rate: ₹ 90  
Language: E/G/H



## MAKE A CUBE

A perfect puzzle for cube lovers. It has 8 small cubes and one 4x4 cube which is the target. One of the challenges is to arrange smaller cubes to match the target cube. This is not the end, try other challenge for the inner faces of the cube. It's not as simple as it looks like!

Rate: ₹ 275  
Language: E/G/H

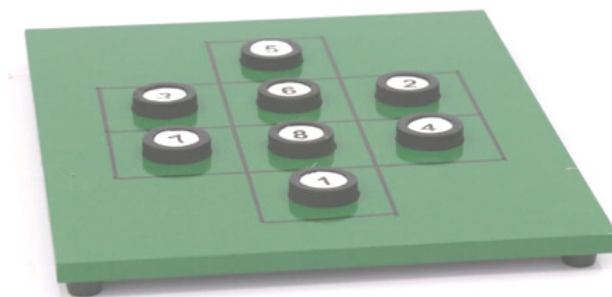
**STD. 3 +**



## NUMBER GAME 1-6

An interesting way to explore consecutive numbers! Here a wooden tray with hexagonal grid and grooves at each vertex along with 6 numbered counters are provided. Objective is to arrange the counters in grooves in such a way that they don't appear sequentially in connecting lines.

Rate: ₹ 180  
Language: E/G/H



## NUMBER GAME 1-8

A sturdy wooden puzzle tray with 8 circular grooves inside 8 squares and 8 numbered counters. Arrange the numbered counters in such a way that they don't appear sequentially in adjacent slots - horizontally, vertically or diagonally. Interesting way to explore consecutive numbers!

Rate: ₹ 200  
Language: E/G/H



## FRACTION STRIPS

An interesting model with a tray containing colourful wooden strips that represent different fractions. This visual aid allows visualizing fractions, concept like equivalent fraction, mixed fractions along with their addition and subtraction operations.

Rate: ₹ 220  
Language: E/G/H



## 4 X 4 SQUARE PUZZLE

Coloured tiles need to be arranged on a square grid so that no colour is repeated in any row, column or main diagonals. What makes it more challenging? Each coloured tiles is not a single piece, but its joined as trominoes or dominoes!

Rate: ₹ 90  
Language: E/G/H

**STD. 3 +**

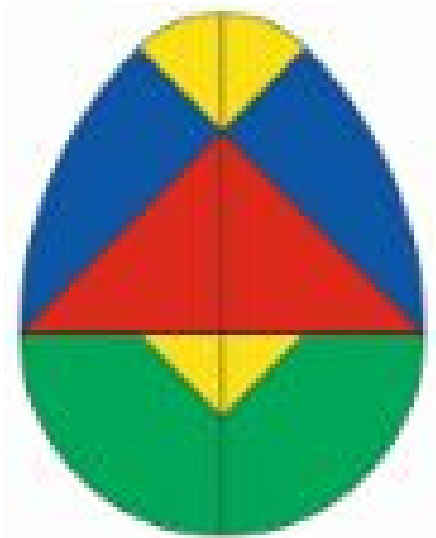


## THE CARDIO TANGRAM

The Cardio Tangram is another variant of traditional Tangram dissection puzzle, which adds more fun in learning new shapes. It contains 9 pieces and a booklet that includes 40+ of silhouette challenges solving which is fun for any age group and solutions to the challenges are also given.

Rate: ₹ 100  
Language: E/G/H

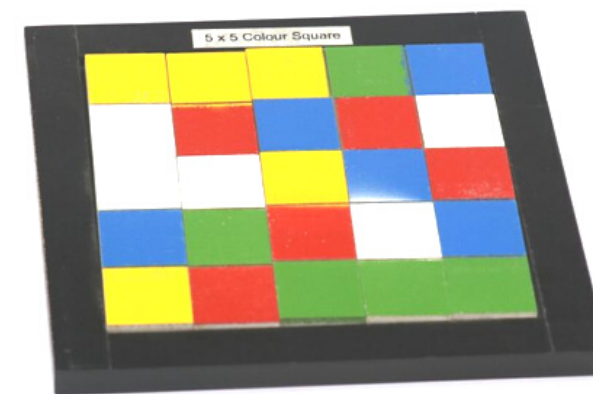
**STD. 3 +**



## EGG PUZZLE

The Egg puzzle is another variant of traditional Tangram puzzle. It contains 10 pieces and a booklet that includes 40+ of silhouette challenges solving which is fun for any age group and solutions to the challenges. Hatch the egg and get started!

Rate: ₹ 100  
Language: E/G/H



## 5 X 5 SQUARE PUZZLE

Coloured tiles need to be arranged on a square grid so that no colour is repeated in any row, column or main diagonals. What makes it more challenging? Each coloured tiles is not a single piece, but its joined as trominoes or dominoes!

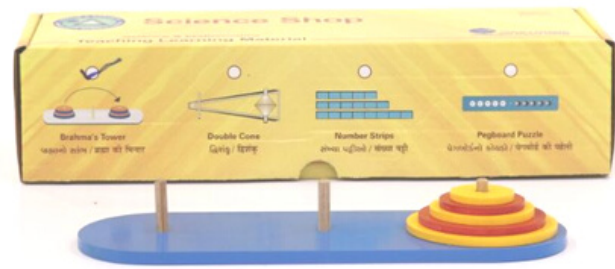
Rate: ₹ 150  
Language: E/G/H



## DODECAGON & SQUARE

Mathematical dissection puzzle in which a regular dodecagon is cut into 6 pieces which needs to be rearranged to obtain a square and vice versa.

Rate: ₹ 220  
Language: E/G/H



## BRAHMA'S TOWER

A very well known puzzle, that consists of three rods and number of disks of different sizes. The puzzle starts with disks neatly stacked in ascending order of size on one rod, the smallest at the top. The objective of the puzzle is to move the entire stack to another rod, obeying few simple rules.

Rate: ₹ 125  
Language: E/G/H

**STD. 5 +**



## MAKE A SQUARE

Puzzle contains three pairs of congruent pieces that are to be arranged to form a square. One also learns about area and perimeter of a square and rectangle.

Rate: ₹ 120  
Language: E/G/H



## SOMA CUBE

Exercising the brain is great for all ages! It comes with 7 different pieces and a booklet with challenges, hints and solutions. Imagination and spatial awareness is required to complete these puzzles. Pick a puzzle from the book and arrange the pieces to solve it.

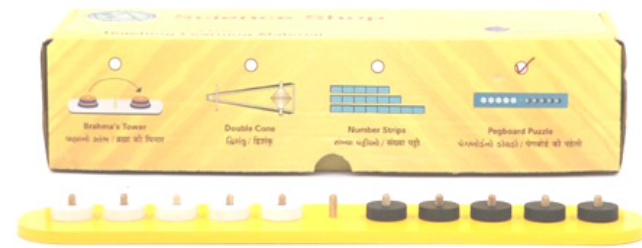
Rate: ₹ 180  
Language: E/G/H



## SUM OF ANGLE OF TRIANGLE

An interesting wooden puzzle where one can form a triangle out of three pieces and then demonstrate easily that "Sum of interior angles of a triangle is always 180 degree."

Rate: ₹ 100  
Language: E/G/H



## PEGBOARD PUZZLE

A shifting puzzle in which you have to interchange 5 white and 5 black counters by observing few rules. Seems to be a challenge! Try and find out by solving this puzzle.

Rate: ₹ 100  
Language: E/G/H

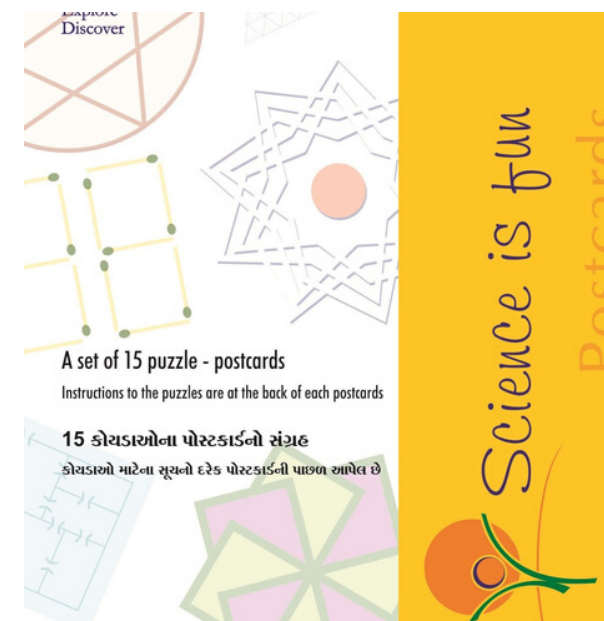
**STD. 5 +**



## CRAZY CUBE

The "Crazy Cubes" puzzle consists of four cubes with faces colored with four colors. The objective of the puzzle is to stack these cubes in a column so that each side (front, back, left, and right) of the stack shows each of the four colors. The distribution of colors on each cube is unique that will drive you crazy to solve the challenge, hence the name.

Rate: ₹ 200  
Language: E/G



## SIF POST CARDS (SET OF 15)

This is set of 15 postcards each having a unique puzzle to solve. Its ideal to gift some one as souvenir from science centre!

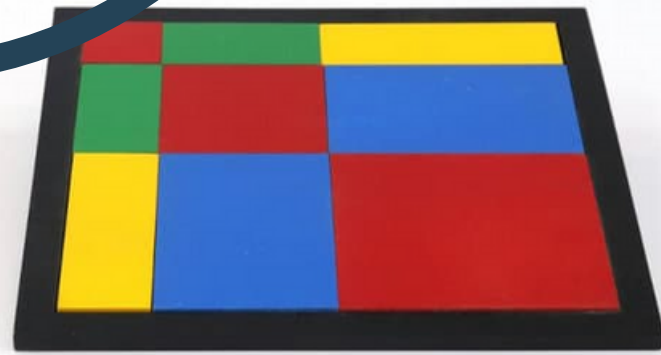
Rate: ₹ 25  
Language: E/G



## 3D SHAPES (SET OF 3D NETS)

Understanding complex 3D shapes with just 2D diagram may not be that easy. This DIY kit contains 20 sheets (thick paper) with nets drawn on it of different 3D shapes. Using these templates, total of 26 3D shape models can be prepared. A very interesting visual aid to study 3D shapes, as one can see, feel and touch shapes and the properties of solids can be verified.

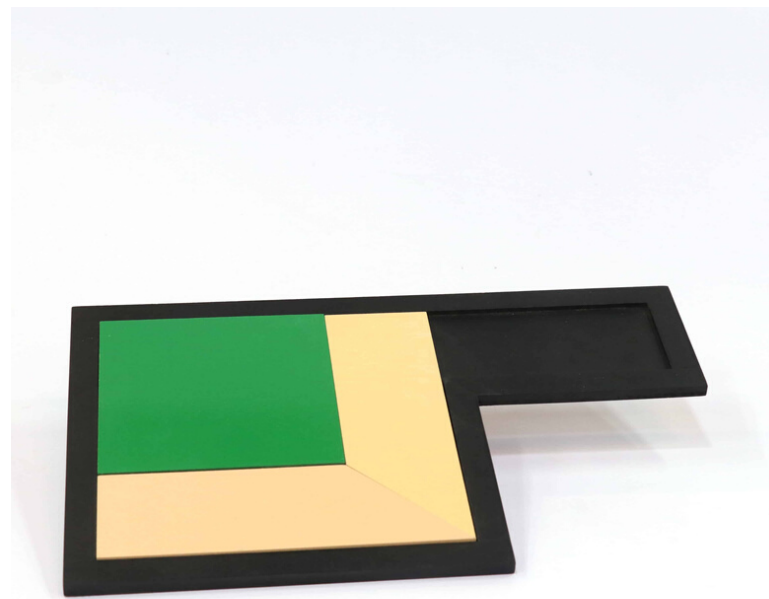
Rate: ₹ 200  
Language: E/G/H



$$(a+b+c)^2$$

Algebraic identities, at times, are hard to prove and understand through usual chalk and board method. This wooden teaching aid allows you to visually verify the  $(a+b+c)^2$  algebraic identity and help to clear concepts and make learning fun.

Rate: ₹ 220  
Language: E/G/H



$$a^2 - b^2 = (a+b)(a-b)$$

Algebraic identities, at times, are hard to prove and understand through usual chalk and board method. This wooden teaching aid allows you to visually verify the  $a^2 - b^2$  algebraic identity and help to clear concepts and make learning fun.

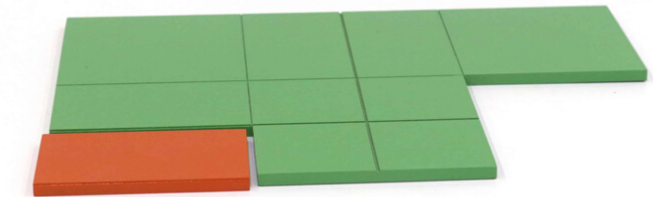
Rate: ₹ 220  
Language: E/G/H



$$(a+b)^2 - (a-b)^2 = 4ab$$

Algebraic identities, at times, are hard to prove and understand through usual chalk and board method. This wooden teaching aid allows you to visually verify the  $(a+b)^2 - (a-b)^2$  algebraic identity and help to clear concepts and make learning fun.

Rate: ₹ 200  
Language: E/G/H

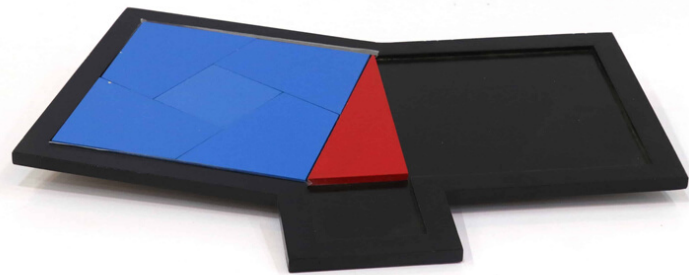


$$(a+b)^2 + (a-b)^2 = 2a^2 + 2b^2$$

Algebraic identities, at times, are hard to prove and understand through usual chalk and board method. This wooden teaching aid allows you to visually verify the  $(a+b)^2 + (a-b)^2$  algebraic identity and help to clear concepts and make learning fun.

Rate: ₹ 200  
Language: E/G/H

**STD 7 +**



## PYTHAGORAS THEOREM MODEL - 1

The Pythagorean Theorem is a very well-known theorem that describes a special relationship between the sides of a right triangle. This is teaching aid helps to prove how the Pythagoras theorem works in an interactive and fun way.

Rate: ₹ 220  
Language: E/G/H

**STD. 8 +**



## PYTHAGORAS THEOREM MODEL - 2

The Pythagorean Theorem describes a special relationship between the sides of a right triangle. This is teaching aid helps to verify the Pythagoras theorem through a different variation.

Rate: ₹ 200  
Language: E/G/H



## FIFTEEN BLOCK PUZZLE

Try this sliding number puzzle, where there is a square tray with 1-15 numbered tiles and 1 empty space. Arrange 1-15 tiles in random pattern and rearrange them in natural sequence by only sliding the tiles. This puzzle is fun, simple and entertaining.

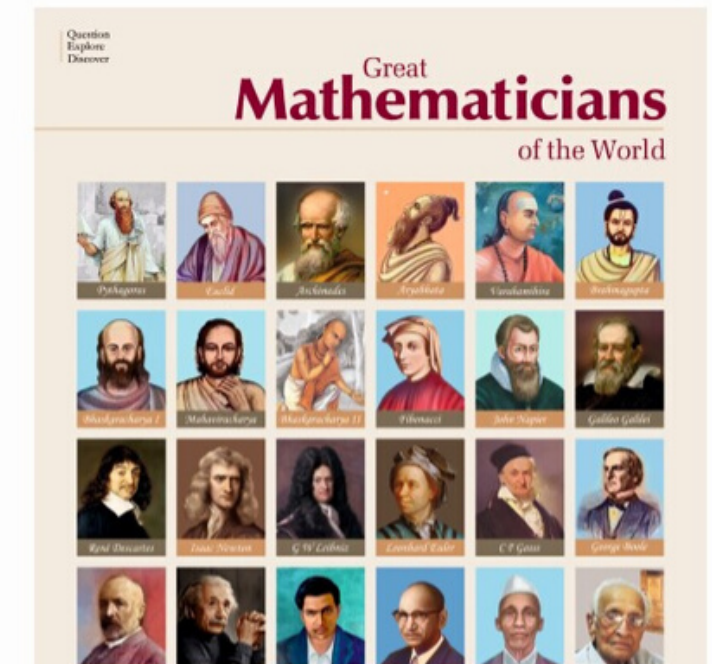
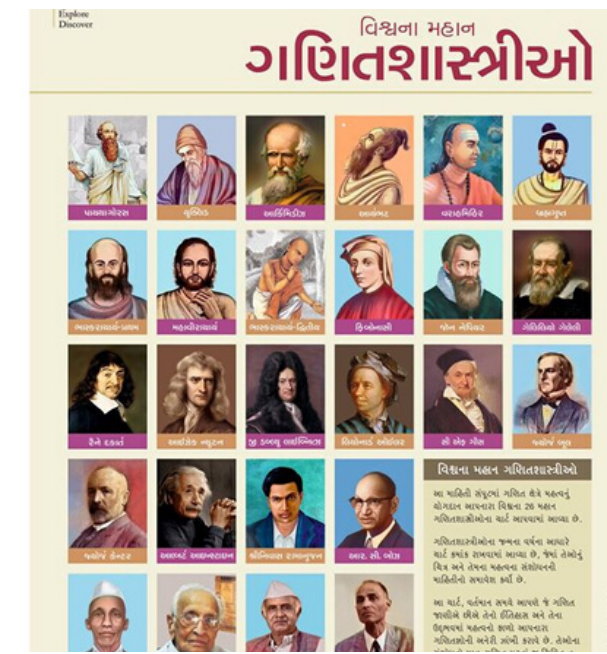
Rate: ₹ 250  
Language: E/G/H



## $(A+B)^3$

Algebraic identities, at times, are hard to prove and understand through usual chalk and board method. This wooden teaching aid allows you to visually verify the  $(a+b)^3$  algebraic identity and help to clear concepts and make learning fun.

Rate: ₹ 200  
Language: E/G/H



## HEXAGONAL SECTION OF A CUBE

It is possible to cut a cube in half by a plane and get a section that is a regular hexagon. This hexagonal section cut of a cube can be clearly shown using this model rather than showing traditional 2D drawing

Rate: ₹ 350  
Language: E/G/H

## $\sum N^2 = N(N+1)(2N+1)/6$

This teaching aid is a mathematical model which is used to verify the formula for sum of the squares of the first n natural numbers using visual medium  $\sum n^2 = n(n+1)(2n+1)/6$ .

Rate: ₹ 300  
Language: E/G/H

## VISHWANA MAHAN GANITSHASTRIYO

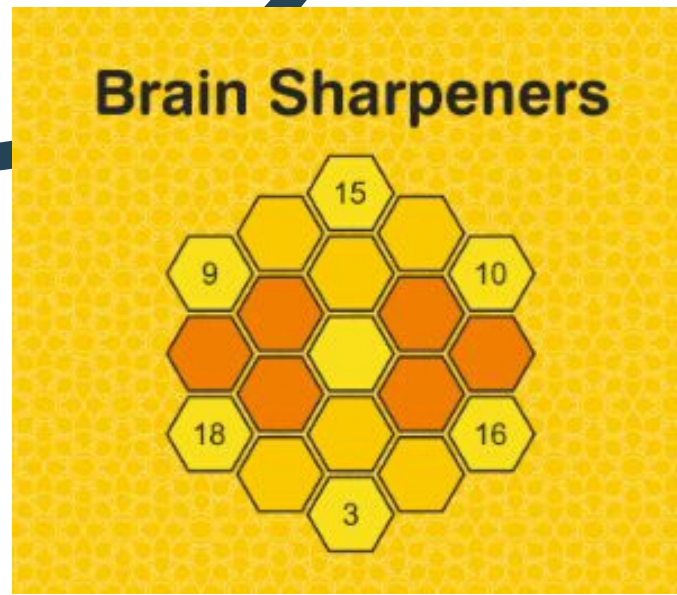
A set of 26 charts on great mathematicians from across the world. These charts contains the mathematicians' portrait and their key contribution to evolution of the mathematics that we study today. These charts can be used as teaching aid, as an exhibition module or for display in mathematics laboratory.

Rate: ₹ 400  
Language: Gujarati

## MATHEMATICIAN OF THE WORLD

A set of 26 charts on great mathematicians from across the world. These charts contains the mathematicians' portrait and their key contribution to evolution of the mathematics that we study today. These charts can be used as teaching aid, as an exhibition module or for display in mathematics laboratory.

Rate: ₹ 400  
Language: English

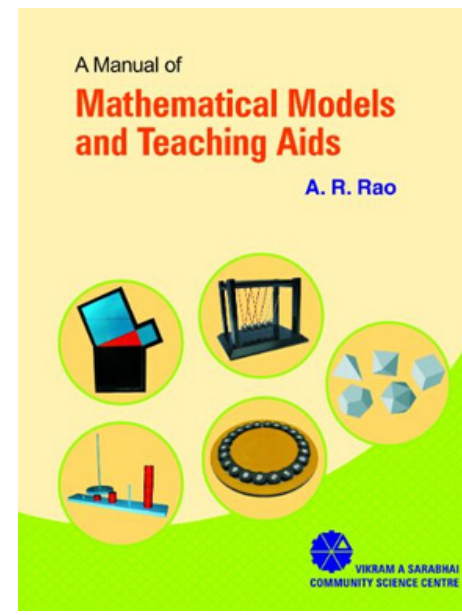


## BRAIN SHARPENERS

This is a very popular publication authored by renowned mathematician Prof. A. R. Rao. It has a treasure of 117 mathematical puzzles on varied topics. It also contains hints, for those who need a push, complete solutions as well as a comments section for anyone interested in generalized solution.

Rate: ₹ 120  
Language: English

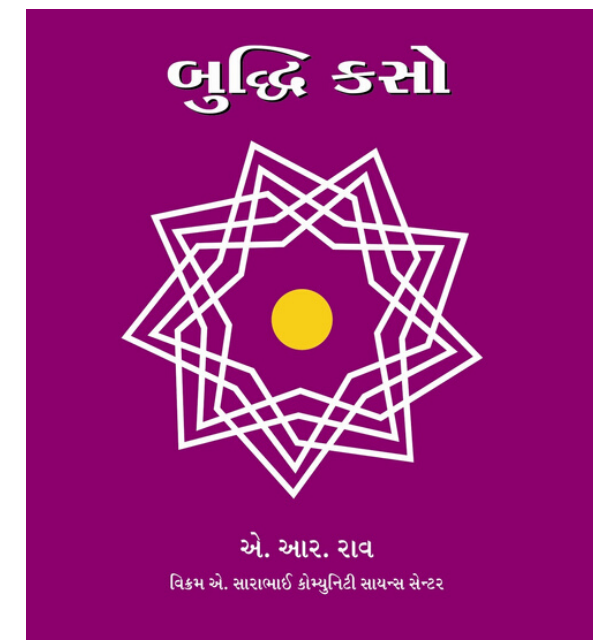
**STD. 7 +**



## MATHEMATICAL MODEL AND TEACHING AID

This book authored by Prof. A. R. Rao is a teacher manual for 66 Visual aids innovated at the VASCSC. It includes guidance on how to prepare low-cost versions of these. Useful for mathematics teachers, educators and practitioners & those interested in developing and using mathematical models.

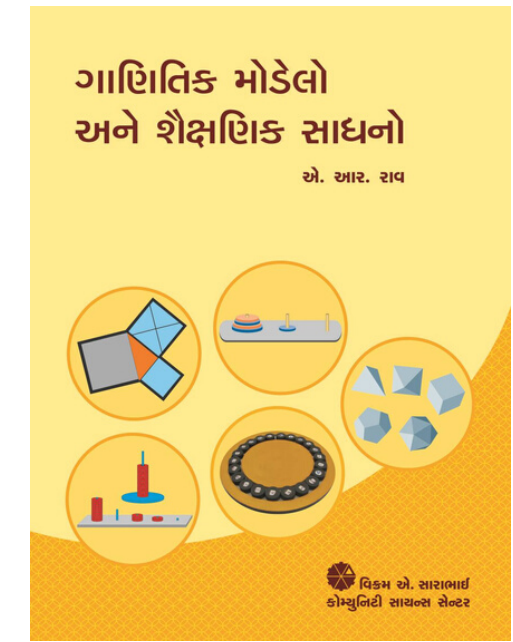
Rate: ₹ 150  
Language: English



## BUDDHI KASO

This is a very popular publication authored by renowned mathematician Prof. A. R. Rao. It has a treasure of 116 mathematical puzzles on varied topics. It also contains hints, for those who need a push, complete solutions as well as a comments section for anyone interested in generalized solution.

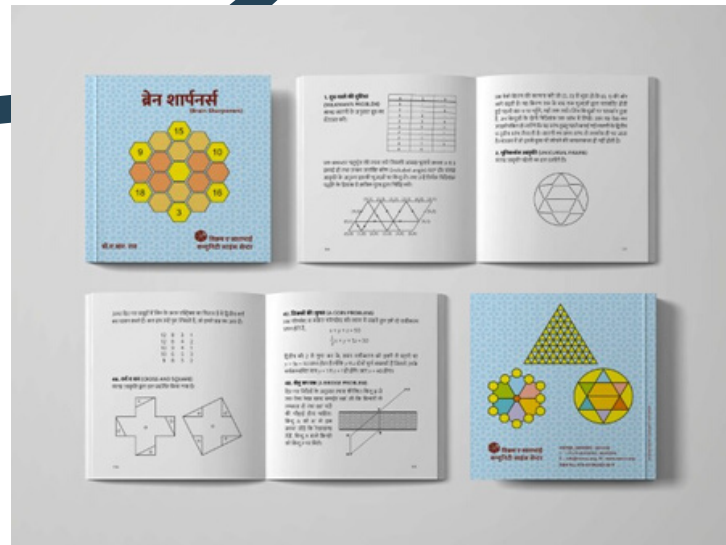
Rate: ₹ 120  
Language: Gujarati



## GANITIK MODEL ANE SHAIKSHANIK SADHANO

This book authored by Prof. A. R. Rao is a teacher manual for 66 Visual aids innovated at the VASCSC. It includes guidance on how to prepare low-cost versions of these. Useful for mathematics teachers, educators and practitioners & those interested in developing and using mathematical models.

Rate: ₹ 150  
Language: Gujarati

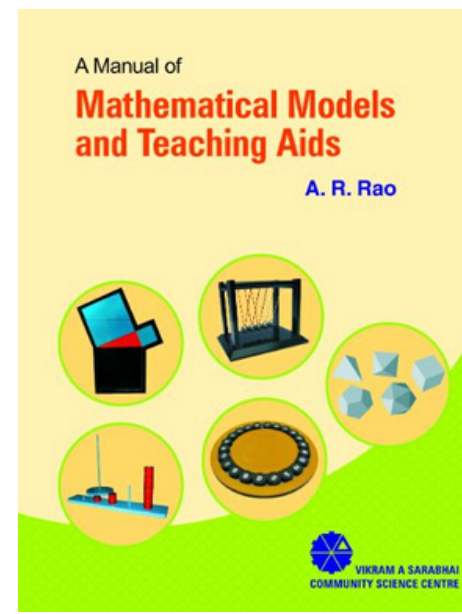


## HINDI BRAIN SHARPENERS

This is a very popular publication authored by renowned mathematician Prof. A. R. Rao. It has a treasure of 117 mathematical puzzles on varied topics. It also contains hints, for those who need a push, complete solutions as well as a comments section for anyone interested in generalized solution.

Rate: ₹ 120  
Language: Hindi

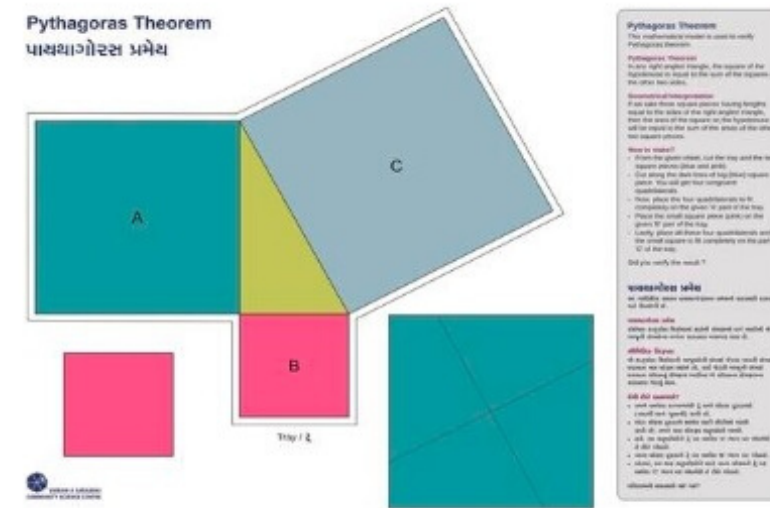
**STD. 7 +**



## GANITIK MODEL TATHA SHAIKSHANIK SADHANO

This book authored by Prof. A. R. Rao is a teacher manual for 66 Visual aids innovated at the VASCSC. It includes guidance on how to prepare low-cost versions of these. Useful for mathematics teachers, educators and practitioners & those interested in developing and using mathematical models.

Rate: ₹ 150  
Language: Hindi



## PYTHAGORAS THEOREM (50 SETS)

A Mathematical aid to verify the pythagoras theorem by do it yourself method. 50 set of templates are provided with net of pythagoras theorem. Ideal for group activity and learning by doing.

Rate: ₹ 450  
Language: E/G

## 3D SHAPES (ANY 1 NET, 50 SETS)

A pack of 50 template of a 3D shapes, ideal for group activity on learning about 3D shapes. 21 different 3D shapes templates are available to choose from.

Rate: ₹ 300  
Language: E/G

## TOPOLOGY PUZZLE



Topological puzzle is a type of mechanical puzzle that involves disentangling one thread from another thread knot without cutting the thread, simply by moving the rope in a certain way. Go on try it, it may seem complex and impossible!! But there is a solution of course!

Std. 5 +  
Rate: ₹ 1000  
Language: E/G/H

Shortest path, acceleration due to gravity, vertical plane and many more difficult to understand. Not anymore!!! Here is The Brachistochrone model. A simple model which makes shortest path concept easier to understand in the most efficient way.

Std. 8 +  
Rate: ₹ 4000  
Language: E/G/H

## BRACHISTOCHRONE



# PLEASE NOTE

1. All rates are ex-Vascsc, Ahmedabad. Cost of packaging & courier will be extra @ 10% of the total bill amount, excluding GST.
2. GST Shall be payable extra as applicable.
3. Payment Schedule - 100% advance.
4. Payment can be made by cash, bank transfer or DD/Cheque in favour of 'Vikram A Sarabhai Community Science Centre', payable at Ahmedabad.
5. Specify language requirement wherever necessary.
6. Material delivery subject to stock availability.
7. VASCSC reserves the right to change specification and rates without prior notice.

# TALK TO US!

## EMAIL

[science.shop@vascsc.org](mailto:science.shop@vascsc.org)

## PHONE

+91-9428405408 (During office hours only)

## SCIENCE SHOP ONLINE

[www.scienceshop.vascsc.org](http://www.scienceshop.vascsc.org)

## SCIENCE SHOP

Vikram A Sarabhai Community Science Centre  
Opp. Gujarat University, Navrangpura,  
Ahmedabad - 380 009

## TIMINGS

Tuesday to Saturday  
9:30 am - 5:30 pm

Sunday  
9:30 am - 1:00 pm

Mondays closed