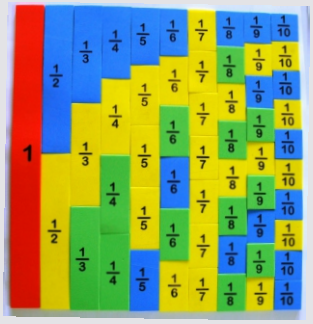
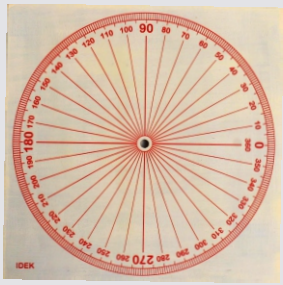
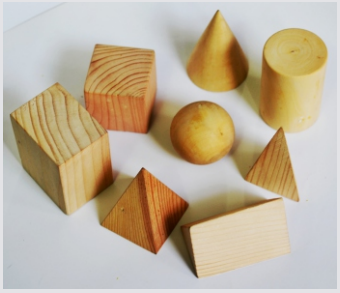
Modelling Math

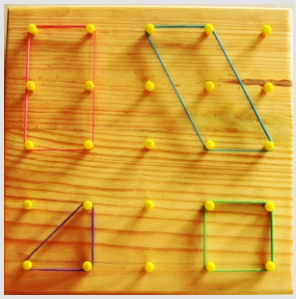
with

Manipulatives









IDEK
your partner in education

Innovative Design Educational Kits

I hear and I forget
I see and I remember
I do and I understand

Chinese proverb

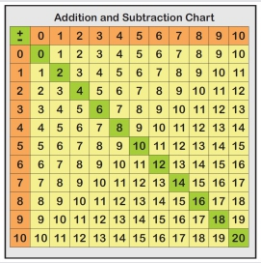
What are Math Manipulatives

A math manipulative is an object which is designed so that a learner can perceive a mathematical concept by using it.

Children are active learners who master concepts by progressing through three levels of knowledge-concrete, pictorial, and abstract. The use of manipulatives enables students to explore concepts at the first -concrete level of understanding and they then progress to the representation of the same on paper - pictorial level. Over time, they will devise strategies and apply algorithms to solve problems when given only the expression the - abstract level.

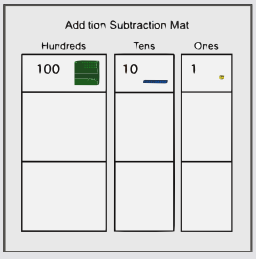
The Math kit

- Covers all topics of Primary school math – Spatial Sense, Numbers, Number operations, Place value, Fractions, Decimals, Measurements, Geometry and Data handling..
- Can be used to teach multiple concepts to help children in associative learning across grade levels.
- Can be used by children to explore concepts on their own with a little guidance.
- Strong enough to withstand repeated use by children.



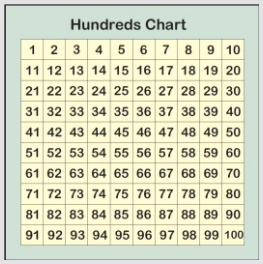
Addition and Subtraction Chart

+	0	1	2	3	4	5	6	7	8	9	10
0	0	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10	11
2	2	3	4	5	6	7	8	9	10	11	12
3	3	4	5	6	7	8	9	10	11	12	13
4	4	5	6	7	8	9	10	11	12	13	14
5	5	6	7	8	9	10	11	12	13	14	15
6	6	7	8	9	10	11	12	13	14	15	16
7	7	8	9	10	11	12	13	14	15	16	17
8	8	9	10	11	12	13	14	15	16	17	18
9	9	10	11	12	13	14	15	16	17	18	19
10	10	11	12	13	14	15	16	17	18	19	20



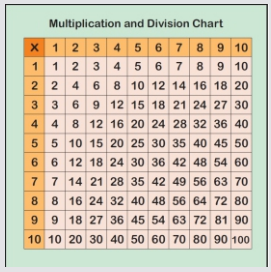
Add tion Subtraction Mat

Hundreds	Tens	Ones
100	10	1



Hundreds Chart

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100



Multiplication and Division Chart

×	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4	4	8	12	16	20	24	28	32	36	40
5	5	10	15	20	25	30	35	40	45	50
6	6	12	18	24	30	36	42	48	54	60
7	7	14	21	28	35	42	49	56	63	70
8	8	16	24	32	40	48	56	64	72	80
9	9	18	27	36	45	54	63	72	81	90
10	10	20	30	40	50	60	70	80	90	100

Colour Tiles

1" square tiles in four different colours for number concepts associated with like counting, sorting and for addition, subtraction, multiplication and division and for geometric concepts of area, perimeter

Attribute Blocks

Attribute Blocks set includes different shapes; triangle, square, rectangle, circle, hexagon in three colours. Attribute Blocks can be used to learn and identify attributes like shape, size, colour and thickness and to teach sorting patterns.

Solid Shapes

Solid Shapes in soft wood to study Points, Lines and Shapes, in relation to solids and surfaces and to teach area and volume concepts. The shapes are sphere, cube, cone, cuboid, cylinder, square, triangular pyramid and triangular prism.

GeoBoard

Double-sided Geoboard 200 mm square in wood. Geometric shapes can be fformed by stretching rubber bands from peg to peg on both sides and helps to learn about area, perimeter, congruency and symmetry,

Flash Cards

Names of all commonly used 2D and 3D shapes to help associate the shape with its name and used as a learning drill to aid memorization by way of spaced repetition.

Tangram

Set of Tangram shapes in four different colours.. The shapes with proportional sides can be used to explore symmetry, congruency, fraction relationships. Also used as puzzles in which all seven pieces must be put together to create shapes.

Pattern Blocks

Six different shapes in different colours; teach number, fractions, geometry and measurement concepts, transformations and symmetry and tessellations.

Numeral Cards

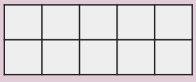
Numeral Flash cards from 0 to 9 and symbols used in number operations. to help children learn to associate the numerals with quantity.

Unifix cubes

Interlocking cubes 10 colors, red, dark blue, light blue, yellow, green, orange, maroon, brown, black, and white to learn spatial geometry, to build, compare, sort three dimensional shapes

Rekenrek

Two rows of 10 beads with each row of five beads of red and white colour to helps students to think in groups of 5 and 10, to visualise addition and subtraction number facts within 20.



Ten frame

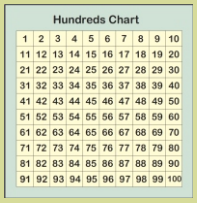
To group numbers in 5 and 10 for visual images for these numbers to help develop mental strategies for manipulating numbers within ten

Color Counters

Colour counters in 5 different colours, Red, Green, Blue, Yellow and Orange to teach basic math concepts of counting, sorting and number sense.

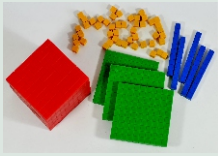
Number Beads

A string of one hundred beads that alternate between red and white colours in groups of ten to count, add, subtract by using jumps and not counting beads one at a time to mentally estimate and compute addition or subtraction upto hundred.



Hundreds Chart

Hundreds chart to learn counting, addition, subtraction, number patterns skip counting up to hundred and used as a learning drill to aid memorization by way of spaced repetition.

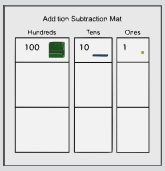


Base Ten Blocks

Unit blocks, rods that represent 10 units, flats that represent 100 units, and cubes that represent 1,000 units for place value, addition, subtraction, multiplication, division and for measurement concepts, like area and volume.

Flash cards

Number names to associate the numeral with its name to be used as a learning drill to aid memorization by way of spaced repetition.



Place Value mat

Describes the Place Value of ones, tens, hundreds and thousands. It helps children to understand the importance and concept of Place Value. They can be used to teach addition and subtraction with borrow and carry over.

Place Value cards

Colour coded cards to represent place value of numbers namely units, tens, hundreds and thousands for visual representation of place value of numbers

Dice

4 pairs of colour coded dice, when rolled out the total dots on the face of each colored pair will be 9 or less than 9 to generate Random numbers for understanding number operations through dice games.

Spike Abacus

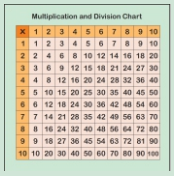
5 Spikes that holds up to 9 rings and an additional snap on rod for another 10 rings. The rings in five colours representing ones, tens, hundreds, thousands and ten thousands to teach place value, addition, subtraction, with borrow and carry

Fraction Rods

Rods in different colors and incremental lengths, from 1cm to 10cm to visualize, math problems in number operations including fractions and decimals, for measurement, patterns, algebra, and probability. They are also known as Cuisenaire Rods

Addition and Subtraction chart

A chart of addition and subtraction facts for numbers till hundred to visualise number patterns and for mental math

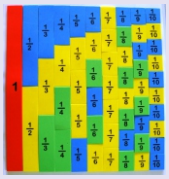


Multiplication and Division Chart

A chart to learn multiplication facts, understand number patterns, formation of square and factors of numbers up to hundred. The visualization helps to make memorizing multiplication tables easier.

Fraction Shapes

The set consists of circles and squares and their fractional parts. Fraction pieces visually explain what parts of a whole look like and is ideal for introducing basic fraction concepts and to explore fractions and fractional equivalents.

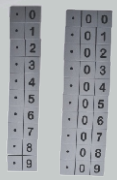


Fraction Strips

Consist of color-coded, proportionally sized fraction pieces that represent 1, 1/2, 1/3, 1/4, 1/5, 1/6, 1/7, 1/8, 1/9, and 1/10 with its fraction equivalent printed on it. Fraction strips as a visual aid helps to understand fractions and in discovering fraction relationships and equivalent fractions.

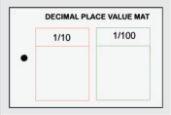
Decimal Set

Decimal numbers are whole numbers, numbers in the tenths, hundredths position. The yellow big square, one whole, rectangle yellow strips, one tenth of yellow square and smaller yellow squares, one tenth of the yellow strips. This can be used along with the place value decimal strips to show decimal number and quantity relationships.



Decimal Place Value Cards

Place value decimals chart / mat can be used to introduce the concept of decimal place values, adding and subtracting decimals, and identifying the decimal numeric and fraction values of the places.



Decimal Place Value Mat

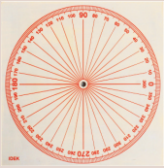
To introduce the decimal system in relation to whole numbers can be used along with the place value mat for decimal number representations up to two decimal places.

Algebra Tiles

A 72-piece, set of Algebra Tiles to help students build geometric models of polynomials and explore concepts related to them. They bridge the gap between the concept and symbols used to record it algebraically

Play Money and Coins

Rupees of different denominations printed and laminated to look like real money and coins made of plastic. Money as a manipulative gives the tactile reinforcement of counting, addition, subtraction, breaking up into change and smaller denominations. in real life situations to help understand daily money transactions.



Protractor

A full circle protractor with a 0-360 degree scale. Measurements are numbered every 10° with single-degree markings. The Protractor can be used to measure angles drawn with the angle measure and can also to be used to draw and measure circles and angles.

Angle Measure

Angle measure made of transparent plastic to construct and measure all types of angles. To be used with the protractor for all angle measure activities.

Weighing Balance

The weighing balance made of plastic with 2 one liter volume measures, marked in millilitres are removable and made of clear plastic to see what is being weighed. It can be used to weigh solids and liquids and makes an excellent tool to understand the volume weight relationship.

Geosolids

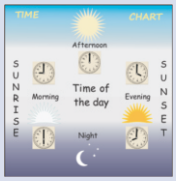
The geosolids are hollow geometric shapes made of transparent plastic and consist of square, circle, triangle and rectangle in the form of prisims and pyramids. These along with fold-out nets of paper inside the hollow shapes help in learning about perimeter, area and volumes.

Nets

Nets, which are 2D shapes of 3D object, made of paper and can be folded and placed inside the corresponding Geosolids to teach the concept of surface area of 3D objects

Clock

Analogue Clock in wood showing 24 hour time to explore telling time, to calculate elapsed time. Clock as a manipulative helps to visually and in a tactile way to learn the difference between hours and minutes. The equivalent 24 hour time scale is also added.



Time Chart

Time Chart to understand the concept of time and learn to tell time and for teaching elapsed time after a given time

Flash Cards

Days of the week -Flash cards showing all the 7 days of the week, along with commonly used day terms like Today, Tomorrow and Yesterday.

Months of the year The twelve months of the year are given as flash cards. Children learn the names of the months along with how they are spelt.

Colour cubes

Plastic cubes of 1 cm dimension 100 nos. Perfect for counting, measuring and patterning and building 3D shapes and for area and volume concepts

Pentaminoes

Twelve different shapes made of five squares in five colours, having the same area but different perimeter. Used to teach relationships between area and perimeter and also used as a puzzle to form squares or rectangles of various sizes.

Innovative Design Educational Kits
448, 5th Main, 6th Cross, RMV 2nd Stage, Bangalore-560094
Ph: 9845249208 / 9845847118 idekits@gmail.com www.idekits.com