

Mathematics Manipulatives

Manipulatives are concrete objects that can be viewed and physically handled by learners in order to demonstrate or model abstract concepts. John van de Walle and his colleagues (2013) define mathematical manipulatives as, "any object, picture, or drawing that represents a concept onto which the relationship for that concept can be imposed - they are physical objects that learners and teachers can use to illustrate and discover mathematical concepts.

The use of manipulatives in teaching mathematics has a long tradition and solid research history. Manipulatives not only allow learners to construct their own cognitive models for abstract mathematical ideas and processes, but they also provide a common language with which to communicate these models to the teacher and other learners.

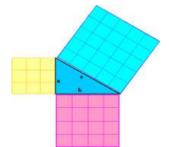
In order to develop every learner's mathematical proficiency, leaders and teachers must systematically integrate the use of concrete and virtual manipulatives into classroom instruction at all grade levels. By actively engaging learners in the doing of mathematics, manipulatives provide the following benefits:

- · A foundation which encourages discussion and learner ownership of their work.
- Manipulatives allow learners to use concrete objects to observe, model, and internalize abstract concepts.
- Provides a bridge between the concrete and abstract levels in many mathematical topics.
- They support learner engagement and differentiation.
- Provides different representations to the mathematics that they are learning.

Piaget (1952) suggests that children begin to understand symbols and abstract concepts only after experiencing the ideas on a concrete level. A well known saying explains the importance of manipulatives:

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

(Confucious 551 - 479 BC)







SP Alignment with the Curriculum (CAPS)

Manipulatives have been selected and classified according to the relevant content areas and topics. This is done in line with the Mathematics Curriculum and Assessment Policy Statement (CAPS) document.

Mathematics in the Senior Phase covers five main content areas (or domains):

- 1. Numbers, Operations and Relationships
- 2. Patterns, Functions and Algebra
- 3. Space and Shape (Geometry)
- 4. Measurement
- 5. Data Handling

Each content area contributes towards the acquisition of specific skills.

The following table shows the classification of the manipulative items according to focus content areas. Many of the manipulatives are multi-purpose and may be used to learn principles and concepts from more than one content area. For example, the Double-sided Geoboards are very adaptable and ideal for learners to explore numerous geometric concepts - shapes, polygons, perimeter and area, parallel and perpendicular lines, angles, triangles, circles, symmetry and transformations, regular and irregular shapes.

key: CA - Content area

- CA 1 Numbers, Operations and Relationships
- CA 2 Patterns, Functions and Algebra
- CA 3 Space and Shape
- CA 4 Measurement

CA 5 - Data Handling

	Manipulatives	CA 1	CA 2	CA 3	CA 4	CA 5
1	Integers Number Line	X	Х			
2	Fraction-Decimal Number Line	X			x	
3	Base ten	X			x	
4	Fraction Circles & Squares	X	X			
5	Fraction Rings	X	X	İ	x	
6	Foam Magnetic Demo Fraction Strips	x	X			İ
7	Fraction Tile	x	X	İ	1	ĺ
8	Decimal Tile	x	X			
9	Percentage Tile	Х	X			İ
10	Equivalence Tile Set	X	X	İ		
11	Double Sided Geoboard	X		х	Х	
12	XY Coordinate Pegboard		Х	х	Х	
13	Tangrams	X		x	X	
14	Geo-Stix Math Activity Set/ Angle Demonstrator sticks			X	X	
15	Skeletal Geo Set			х	X	
16	3D Geometric Solids			X	X	
17	2D3D Geometric Shapes/solids with Nets			х	X	
18	Geometric Volume Demo Set			X	X	
19	2D & 3D Geo Shape Flip Chart (Teacher Demo)			х	X	
20	2D & 3D Geo Shape Flip Chart (Learner set)			X	X	
21	Mirrors (Reflecting mirror, Maths mirror, Angleview mirror)			X	x	
22	Algebra Tiles	X	X			
23	Pythagoras Theorem model	X	X	X	X	
24	Stop Watch	X	X		X	X
25	Thermometer (Analogue/Digital)	X	X		X	
26	Spring balance	х	X		X	
27	Meter Stick	X			X	
28	Geometry Drawing Set			X	X	
29	Measuring Tapes	х			X	
30	Trundle Wheel	x		X	x	
31	Measurement Set (spoons, cups, jugs)	X	X		X	
32	Clinometer			X	X	
33	Probability Kit	X				X
34	Scientific Calculator	X	X	X	X	X
35	Trig-o-nometer	X	Х	Х	X	
36	Maths 24 Cards	X	Х			X

FET Alignment with the Curriculum (CAPS)

Mathematics in the FET Phase covers ten main content areas:

- 1. Functions
- 2. Number Patterns, Sequences, Series
- 3. Finance, growth and decay
- 4. Algebra
- 5. Differential Calculus
- 6. Probability
- 7. Euclidean Geometry and Measurement
- 8. Analytical Geometry
- 9. Trigonometry
- 10. Statistics

Each content area contributes towards the acquisition of the specific skills. The following items may be used to stimulate learners' interest and enjoyment of learning mathematics, as well as focus on developing deeper understanding of certain specific topics in most of the content areas of the curriculum:

Item	Focus Areas	Activities
Probability kit	Probability	Tossing coins, throwing a dice, experimenting with a spinner, picking marbles from a jug and recording outcomes.
Arithmetic Progression	Number Patterns	Formulating different patterns using square and rectangular tiles
Pascal Triangle	Sequences and Series	Sticks and counters to build Pascal's Triangle
Conic section and Standard Equation	Functions and Circle Geometry	Building Circles, Hyperbolas, Parabolas, Elipses of different measurements
Pythagoras Theorem	Trigonometry	Building triangles and different sizes
Ring of Theorems	Euclidean Geometry	Learners physically measure and analyse Circle theorems
Tangram	Geometry	Learn Geometric terms and develop Problem solving skills
Vertex wonder rods	Measurement	Building variety of 3D shapes to understand concept of edges and vertices
X-Y Geoboard	Geometry	Explore basic concepts in plane geometry such as perimeter, area
Trig-o-nometer	Trigonometry	Generate the basic relationships of the sine, cosine & tangent functions with two-digit accuracy.



Scientific Calculator ViMAT 201

Scientific Calculator, calculates regression line equation. Life span should be 3-5 years.



XY Coordinate Pegboard

ViMAT 077

A 24.5 x 24.5 cm durable plastic pegboard with two sliding axes lines, 50 coloured pegs and 20 rubber bands. Helps in teaching & learning of functions, symmetry, transformations, conic sections and line segments.



Coloured transculent plastic, designed for left or right students. Measures 15cm x 10cm. Ideal for teaching basic geometry symmetry, line reflections, transformations and congruence.



Thermometer - Teacher Demo (Analogue)

ViMAT 106

Large classroom Analogue display Thermometer with glass magnifying tube with the Fahrenheit and Celcius markings, measures 35-40cm tall.



Double-sided Geoboard 11x11pin ViMAT 076

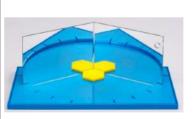
A 27cm² double-sided Geoboard with a 11 x 11 pin grid arrangement on one side and a 24-pin circular pattern on the other side with assorted elastic bands included. Ideal for learners to explore geometric concepts - shapes, polygons, perimeter and area, parallel and perpendicular lines, angles, triangles, circles, symmetry and transformations, regular and irregular shapes.



Counters - transparent/single -sided colour

ViMAT 096

1.6 - 2.5cm diameter, assorted colours 500pcs, packed in polybag. Ideal for teaching basic operations, patterns, classifying and great to use in the classroom to promote fine motor skills as well as develop fluency in numbers, counting and sorting.



Angleview Mirror

ViMAT 098

Angleview mirror set includes a vertical acrylic mirror, a semicircular horizontal acrylic mirror, plastic frame with degree graduations. Ideal for the learners to learn angles, reflections, rotations, translations, symmetry and the properties of polygons.



Thermometer - Learner (Analogue)

ViMAT 107

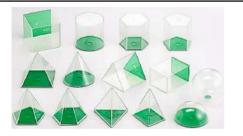
Learner Analogue display Thermometer with magnifying glass that allows the learners to read the freezing, room, body and boiling temperatures. Marked in Fahrenheit and Celcius scales. Recessed in moulded plastic to prevent breakage. Pack of 5 in a polybag.



3D Geometric Solids (IPSP)

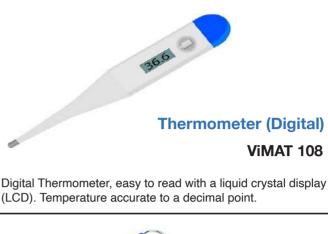
ViMAT 088

Set of 12 geosolids including cube, cylinder, cone, triangular prism, square pyramid, triangular pyramid, sphere, hemisphere, rectangular prism, pentagonal pyramid, pentagonal prism, hexagonal prism. Made of durable plastic with rounded corners and edges, 8cm base in 6 colours. Ideal for learning geometric relationships between area, volume, shape, form and size.



Geometric Volume Demo Set ViMAT 091

Set of 14 solids with lids including cube, cylinder, triangular prism, rectangular prism, pentagonal prism, hexagonal prism, square pyramid, cone, triangular pyramid, rectangular pyramid, pentagonal pyramid, hexagonal pyramid, sphere and hemisphere. Made of durable plastic. 8cm base. Ideal for demonstrating the relationships between volume, area, size and shape.





Spring balance ViMAT 109

Sturdy plastic spring balance calibrated in Newtons and kilograms. Can be used for both force and mass measurements. The scale incorporates a unique zero adjustment and allows the learners to see the action of the spring. The extended rod helps to measure the force of pushing or pulling an object.



2D3D Geometric Shapes/solids12 with Nets ViMAT 090

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Set of 12, 8cm base, folding 2D3D geosolids including cube, cylinder, cone, triangular prism, square pyramid, triangular pyramid, rectangular pyramid, pentagonal pyramid, hexagonal pyramid, rectangular prism, pentagonal prism and hexagonal prism with corresponding nets in different colours. Ideal for learning the properties of of 3D solids, relationships between 2D shapes and 3D solids, volume and capacity and surface area. Packed in a box, activity guide included.



2D & 3D Geo Shape Flip Chart (Teacher Demo)

ViMAT 094

Teacher Demo 2D3D Geometric Shape Flip Chart 46cm x 15cm. Helps to teach the relationships between 3D objects & 2D nets, vertices, faces and edges. Teachers can also teach geometry and measurement topics, including shape comparison & describing, symmetry, shapes, area, Euler's rule and more.



2D & 3D Geo Shape Flip Chart (Learner set)

ViMAT 095

The Student 2D3D Geometric Shape Flip Chart 31cm x 9cm pack of 5. Ideal for learners to learn about the relationships between 3D objects, 2D nets, vertices, faces and edges. Learners can also learn geometry and measurement topics, including shape comparison & describing, symmetry, shapes, area, Euler's rule and more.



Playing Cards ViMAT 071

Standard 52 card deck, packed in a box. Suitable for building the number concepts, number matching, sorting, grouping, comparing and ordering numbers, operations and probability.



Tangrams 105 ViMAT 082

Set of Plastic assorted colours and standard tangram size 105 pieces in a durable container. Ideal for learning congruency, similar shapes, symmetry, angles, area and fractions.



Six transparent fraction rings, useful to teach decimals, percentages, fractions, time, compass degree & decimal percentage. Fits well with 51pcs fraction circles. Made of transparent durable plastic, packed in a polybag.



Measuring Tapes

ViMAT 113

Made of fibreglass - Set of 5 in standard metric system cm & mm. Packed in a polybag.



Stop Watch ViMAT 105

Sport stop watch single digital. Stopwatch makes telling and measuring time easy to comprehend.



Algebra Tiles ViMAT 099

Algebra Tiles learners' set consists of 32 pieces including 4 squared variables, 8 variables and 20 constants. Ideal for the learners to explore integers, fractions, ratios, algebraic expressions, equations, factoring and expanding. Learners can work in pairs or small groups when using algebra tiles to better understand ways of algebraic thinking and concepts.



Probability Kit ViMAT 125

Individually packed kit with Probability Board, 3 Number & 3 Colour Spinners set, 4 Dot Colour Dice, 21 SA Currency Coins, Playing Cards 52 Deck. This comprehensive kit allows the learners to test and put the theory of probability into practice. It is also ideal for the learners to perform hands-on tests, record data, and determine actual probability from their results.

	ï			$\frac{1}{2}$		$\frac{1}{2}$		1 3	1 3	1 3
			15	15	-10	15	- (c)	+0 +6	*	10 16
10 10 10 10	13	1 8 1 8		10		10 10		112	$\frac{1}{12}$ $\frac{1}{1}$ $\frac{1}{12}$ $\frac{1}{12}$	z 1 12 1 2 1 2

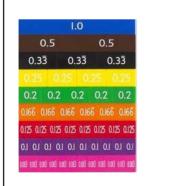
Printed Fraction Squares 51pcs ViMAT 054

Set of 51 plastic proportionally marked square pieces of fractions (whole(1), halves (1/2), thirds (1/3), quarters 1/4), fifths (1/5), sixths (1/6), eighths (1/8), tenths (1/10), and twelfths (1/12). A whole measures 10cm² in diameter, in 9 distinct colours, printed on each piece, packed in a durable plastic container. Ideal for recognition of different fractions, ordering of fractions, addition and subtraction of fractions as well as finding the fraction of a given quantity and equivalent fractions.



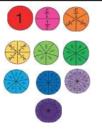
Fraction Tile ViMAT 057

A Set of 51proportionally-sized colour coded plastic fraction tiles showing fractions: (whole(1), halves (1/2), thirds (1/3), quarters 1/4), fifths (1/5), sixths (1/6), eighths (1/8), tenths (1/10), and twelfths (1/12) size 245 cm x 200cm with clear plastic tray. Perfect for developing skills in comparing and ordering fractions, finding equivalent fractions and parts of a whole, adding & subtracting fractions, as well as solving simple maths problems. Packed in a polybag.



Decimal Tile ViMAT 058

Set of 51 colour coded plastic decimal tile pieces, showing (whole(1,0), halves (0,5), thirds (0,33), quarters (0,25), fifths (0,2), sixths (0,166..),eighths (0.125), tenths (0,1), and twelfths (0,083...) - 245 cm x 200cm with clear plastic tray. Perfect for developing skills in comparing and ordering decimals, finding equivalent decimal fractions and parts of a whole, adding & subtracting fractions, as well as solving simple maths problems.



Fraction Circles 10 Large (Teacher Demo)

ViMAT 052

Teacher Demo fraction circles set of 10 with a diameter of 22cm printed on a 370gsm perfoma board, gloss laminated on both sides. Each fraction division has it's designated fraction symbol. Proportionally sized circle pieces represent a whole (1), halves (1/2), thirds (1/3), quarters 1/4), fifths (1/5), sixths (1/6), sevenths (1/7) and eighths (1/8); tenths (1/10); twelfths (1/12). Packed in a durable polybag.



Fraction Circles 51pcs (Learner Set)

ViMAT 049

Set of 51 plastic proportionally marked pieces of fractions (whole(1), halves (1/2), thirds (1/3), quarters 1/4), fifths (1/5), sixths (1/6), eighths (1/8), tenths (1/10), and twelfths (1/12). A whole measures 8.7cm in diameter, in 9 distinct colours, printed on each piece, packed in a durable plastic container. Ideal for recognition of different fractions, ordering of fractions, addition and subtraction of fractions as well as finding the fraction of a given quantity and equivalent fractions.

	100%	
50%		50%
33.3%	33.3%	33.3%
25% 2	25* 25	25%
20% 20	° 20°	20* 20*
16.6" 16.6"	16.6" 16.6"	16.6 16.6
125* 125* 125	* 12.5* 12.5*	125* 125* 125*
10° 10° 10° 1	0* 10* 10* 1	D* 10* 10* 10*
83* 83* 83* 83*	83° 83° 83° 83	· 63 · 63 · 63 · 63 ·

Percentage Tile ViMAT 059

Set of 51 pcs colour coded plastic fraction tile set (whole(1,0), halves (0,5), thirds (0,33), quarters (0,25), fifths (0,2), sixths (0,166..), sevenths (0,1428...), eighths (0.125), tenths (0,1), and twelfths (0,083...) - 245 cm x 200cm with clear plastic tray. Perfect for developing skills in comparing and ordering percentages, finding equivalent percentages and parts of a whole, adding & subtracting percentages/fractions, as well as solving simple maths problems.



Equivalence Tile Set

ViMAT 060

Set consists of printed mini fraction tiles, decimal tiles and percentage tiles in a solid plastic container, measures 15cm x 2.5cm. The Equivalence Tile set allows the learners to order fractions with different denominators and to find equivalents. It also helps them to practically compare, add and subtract fractions, as well as to discover the relationship between fractions, decimals and percentages. This set creates a hands-on experience for the learners in order to reinforce understanding of the equivalence and conversion concepts in fractions.



MK 2 Clinometer, diameter of 14cm with sighting angle, reading eye piece and a view window on the side. Angles showing downward and upward slopes. A traditional angle-measuring instrument to calculate heights. Packed in a sturdy box.



Geo-Stix Math Activity Set ViMAT 085

Set of 100 pcs with 16 activity cards, in 6 sizes, 1/4 and 1/2 circles and 2 protractors packaged in a plastic container. Helps the learners to explore geometric concepts involving Triangles, Angles and Quadrilaterals.



Maths 24 Cards **ViMAT 135**

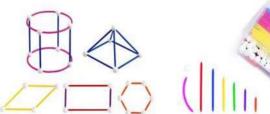
A set of Maths 24 Cards, an educational game used to enhance learners' understanding of the relationship between numbers and the four basic operations (addition, subtraction, division and multiplication). he game range varies from basic operations right up to algebra, exponents, integers, factors and multiples; in addition there are different levels of difficulty per operation. A kit of 1, 2, 3 Dot with the following: Single-digit (96 combinations), Double-digit (96 combinations) Multiply/divide (192 combinations), Fraction/decimal (192 combinations), Factor/Multiples Card Game (192 combinations)



Play SA Money Coins

ViMAT 032

Durable plastic SA play money coins set (Set includes 1 of each coin (R5, R2, R1, 50c, 20c, 10c). Ideal for learning basic operations, counting, ordering, patterns and probability.





Skeletal Geo Set

ViMAT 086

A 330pcs Set consisting of 60 white balls, sticks 50 each of 3.3cm, 5.3cm, 6.98cm; 30 each of 8.2cm, 10.5cm, 12.5cm and 30 x 1/4 circles with 20 two-sided activity cards, for making 2D figures & skeletal 3D models. Helps learners to learn about vertices, faces and edges while involved in constructing new models.



Geometry Drawing Set (Teacher)

ViMAT 111

1 Teacher Demo set with 45° & 60° set squares 40 cm, semi circular protractor 40 cm, metre stick with removable handles and compass with rubber suction cup . High quality with easy to read graduations. Can be used on chalkboards or whiteboards. Colours may vary



Geometry Drawing Set (Learner) ViMAT 112

A 10 piece Learner geometry set consists of a 180° semi circular protractor, 45°set square, 30°/60° set square, 15cm ruler in cm & mm, short needle safety point for learner safety, centering compass & pair of divisor, wooden pencil, eraser, sharpener, a lettering stencil (upper & lower case letters). Neatly packed in embossed metal container.



Base Ten 1C ViMAT 034

Plastic Base Ten solid blocks with individual rods and small blocks in a durable container. 121pcs include 1x1x1cm cubes, 100pcs, 10x1x1cm rods, 10 pcs, 10x10x1cm flats, 10x10x-10cm block, 1pc, packed in a plastic container. Convenient to teach percentages and measurement.





Measurement Set (spoons, cups, jugs) ViMAT 120

Measurement Set units in millilitre (ml), litre (l) - made of durable plastic and includes (3 jugs (250ml, 500ml, 1000ml or 1L), 5 freestanding cups (29.5ml or 1/8 cup, 59ml or 1/4 cup, 79ml or 1/3cup, 118ml or 1/2cup 236mi or 1cup, & 6 freestanding spoons (0.62ml or 1/8tsp, 1.25ml or 1/4tsp, 2.5ml or 1/2tsp, 5ml or 1tsp, 7.5ml or 1/2 tbsp and 15ml or 1tbsp. Packed in a polybag.



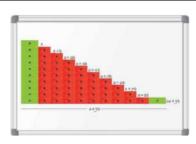
Conic section and Standard Equation Kit ViMAT 203

Four x - y coordinate geoboards,one wooden conic section model, four set of cut-out of conic section in plastic 100 pegs.



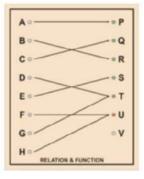
Ring of theorems ViMAT204

30 rings of theorems provided with rubber bands



Arithmetic Progression Kit ViMAT201

Set Contains 56 Pieces of Magnetic Rectangular Foam Tiles and 56 Pieces of Magnetic Square Foam Tiles. Dimensions: (36×32) cm. This manipulative is used for understanding the concept of first term, common difference, nth terms, and arithmetic progression series and also calculates the sum of arithmetic progression series.



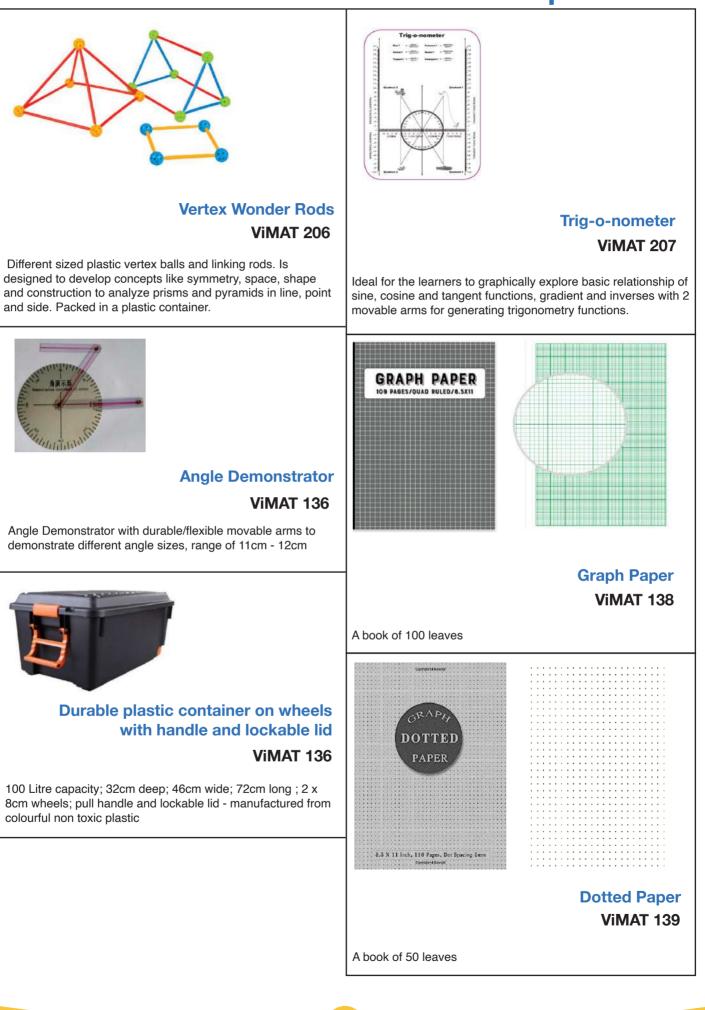
Functions and Relations Set ViMAT 202

Set contains 1 digital board with high quality low bolt switches. Ideal to help the students to understand the concept of range, domain, co domain, relation and different types of functions, like one-one mapping, many one mapping and one to many mapping.



Wings of Rings (set of 6) ViMAT 205

Six transparent fraction rings that work with fraction circles set to teach decimals, percents, fractions, time, compass degree and decimal percentage. Each of the five rings in the set is divided into equal intervals, contains a well-marked scale including a "0" to indicate a start.



Vivlia Mathematics Manipulatives Kits

The Mathematics Manipulatives Kits have been designed to aid and support the teachers in their daily teaching efforts in order to ensure effective teaching, learning and assessment of mathematics in the classroom.

- · Kits allow learners to construct their own cognitive models for abstract mathematical ideas and processes.
- · Kits are packed in durable, lockable and two-wheeled mobile containers
- Kits consist of prudently selected resources which can be used to address either specific or a number of mathematics content areas as outlined in the CAPS document.

Each kit includes:

- a detailed kit guide/manual
- a series of content charts
- teacher training

Vivlia Manipulatives are:

- user friendly
- of good quality
- safe
- level appropriate (colour, material, complexity)
- easily movable
- simply packged

They also:

- · talk to mathematical content and concepts
- · stimulate creativity



Senior Phase Kit Grade 7-9 (MATKIT7-9)

The Senior Phase Kit consists of varied and appropriate set of resources which cover a number of basic activities:

- Calculator
- Geoboard
- Reflecting Mirror
- Maths Mirror
- Thermometer (Analogue & Digital)
- Spring balance
- Geometric Solids
- Measuring Tape
- Stop Watch
- Play Cards
- Algebra Tiles
- Tangrams
- Probability Kit
- Equivalence Tile Set
- Equivalence Flip Chart Teacher Demo
- Fraction Circles
- Fraction Number Lines
- Fraction Tiles
- Decimal Tiles

- Percentage Tiles
- 2D/3D Geometric solids 8cm with nets 12pcs
- Clinometer
- Play Money
- Angle Demonstrator sticks/Geo Sticks Maths Activity Set
- Skeletal Geo Set
- Geometry drawing set TEACHER
- Trundle wheel with counter
- 2D and 3D GEO-SHAPE FLIP Chart (Teacher Demo)
- Pythagoras Theorem model
- Base ten
- Measurement set (Jugs, Cups & Spoons)
- Geometric Volume Set Demo 14pcs
- 2D/3D Geometric Shapes/solids with Nets
- XY Coordinate Geoboard



CHARTS (10 PER KIT)

- Factors and Multiples
- Equivalent Fractions
- Number and Shape Patterns
- Ordering Decimals
- Polygons
- Angles
- Symmetry
- Area
- Geometric Shapes
- Triangles
- Conversions
- Multiplication and Division of Fractions
- Addition and Subtraction of Fractions
- Squares & Cubes
- Multiplication and Division of Fractions

Maths Focused Kits

Maths manipulatives do not only allow learners to construct their own cognitive models for abstract mathematical ideas and processes, but they also provide a common language with which to communicate these models to both the teacher and the learners. Maths manipulatives allow students to use concrete objects to observe, model, and internalize abstract concepts. Our Maths Focused Kits are easy-to-use, and are designed to unravel the anonymities of different maths concepts across the phases and are also very essential for home schooling set-up.

Fraction Kit

Our fraction kit is an excellent way for the teacher to teach fractions and guide the learners to acquire a deep, conceptual understanding of fractions, as well as explore equivalent fractions. For example, the learners will be able to see that 2/4 is also equal to $\frac{1}{2}$ and $\frac{4}{8}$...

The kit consists of:

- 1. Equivalence Flip Chart Teacher Demo + Learner set (5)
- 2. Fraction, Decimal & Percentage Tiles (Teacher Demo)
- 3. Equivalence Tile Set (Learner set)
- 4. Fraction Towers/Equivalence Cubes with Activity Cards
- 5. Fraction Circles
- 6. Fraction Rings
- 7. Fraction Strips



Place Value Kit

A convenient resource to address all curriculum objectives relating to place value and number concepts. A hands-on way to teach place value and base ten concepts, allowing the learners to create and manipulate actual numbers:

- helps learners to recognise the place value of from three-digit numbers, decomposing them into multiples of 100, multiples of 10 and ones/units and to identify and state the value of each digit.
- Helps learners to learn numbers up to the thousands place in numerical form, word form and expanded form.

The kit consists of:

1. Place Value Cards (Teacher Demo & 5 Learner sets)
2. Place Value Decimal Cards
3. Place Value Flip Charts – Thousands & Millions (Teacher Demo and Learner set)
4. Place Value Beads
6. Place Value Mat
7. Base Ten

Probability Kit

For teaching and learning probability using fun and varied materials in this kit. This comprehensive kit allows the learners to test and actually put the theory of probability into practice. It is also ideal for the learners to perform hands-on tests, record data and determine actual probability from their results.

The kit consists of:

- 1. Probability Board
- 2. Number spinners (4)
- 3. Colour Spinners (4)
- 4. Playing Cards
- 5. Play Money Coins
- 6. Dice (Numbers 1-6, 7-12 & Dot)



Space & Shape kit

This kit will help the teacher to develop the learners' understanding of the geometry concepts and the properties of geometrical shapes and the use of space while handling and playing with the colourful items.

- 1. Basic 2D Shapes
- 2. Tangrams
- 3. Geosolids 3D
- 4. Geosolids 3D with Folding Nets
- 5. Geometry figure-making cards
- 6. Angle demonstrator Sticks
- 7. Geo-Skeletal set
- Geoboards Teacher Demo 11x11 Pin Grid,
 24 Pin Circle & Learner Set 6pcs 5x5 Pin Grid, 12 Pin Circle
- 9. Shape Stencils Set 10 pcs
- 10. Maths Set (Learner)
- 11. Attribute Blocks
- 12. Geo Mirror



Measurement Kit

Measurement Kit is ideal for engaging learners in hands-on explorations of length, capacity, mass, time and temperature, using both customary and metric scales.

The kit consists of:

- 1. Teacher Demo Clock
- 2. Small Learner Clocks (5)
- 3. Balance Scale
- 4. Kitchen Scale (Analogue)
- 5. Kitchen Scale (Digital)
- 6. Teacher Demo Classroom Thermometer
- 7. Small Learner Thermometers (5)
- 8. Measuring Tapes (set of 5 in standard metric system cm & mm.Elapsedme 8.
- 9.. Elapsed Time Number Line Teacher Demonstration
- 10. Measurement Set (Jugs, Cups, Spoons)
- 11. Geometry Drawing Set (Teacher)



FET Maths Manipulatives Grade 10 - 12

The FET Phase Maths Kit consists of varied and appropriate set of resources which cover a number of basic activities. The kit provides a visual representation on topics such as Probability and Geometry which are abstract in nature. The kit has the following items:

- Calculator
- Arithmetic Progression
- Pascal triangle Kit
- Conic Section and Standard Equation
- Algebra Tiles
- Pythagoras Theorem
- Trundle Wheel
- Ring of Theorems
- Clinometer MK2
- Wings of Rings
- Tangram
- Vertex Wonder Rods

Charts (28 per kit)

- Pascal triangle
- · Sine formula
- 2 set cosine formula
- 3 set trigonometric graphs
- 3 set parabola
- 2 setTrigonometrical calculations
- Circles
- CAST Rule
- · Exponential graphs
- 11 set basic statistics (11 titles in this series)
- Quadrilaterals 1 & 2

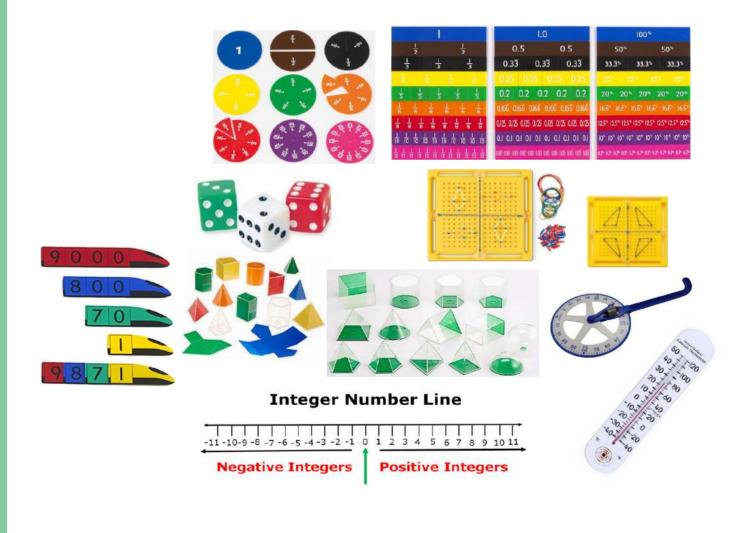


Mathematical Literacy

The Mathematical Literacy Kit consists of varied and appropriate set of resources which cover a number of basic activities. The kit provides a visual representation on concepts such as Volume, Place value, Conversions from Fractions to Percentages and Decimals. Learners can make use of the Kit to explore a variety of concepts using a hands on approach thereby eliminating some of the common errors and misconceptions. The kit is ideal to build and improve the learners' conceptual knowldedge that they need to aqcuire contextual understanding and solve problems.

The kit has the following items:

- Fraction Circles
- · Equivalency Tile set
- Thermometer
- Dot Dice
- Place Value Trains Teacher Demo (thousands)
- Trundle Wheel
- XY Coordinate Geo board
- 2D/3D Geometric solids 8cm with Nets 12pcs
- Integer Number Line
- Geometric Volume set demo 14pcs



Sciences and Technology School Resources

Our School Sciences equipment covers all the themes within the CAPS curriculum. We sell all the equipment needed to fully furnish and equip Sciences and Technology Laboratories. That is, from laboratory furniture, laboratory protective clothing, charts, 3D models to the smaller sciences apparatus needed to conduct experiments and practical activities. Subjects that we cover are:

- Natural Sciences
- Technology
- Physical Sciences
- Life Sciences
- · Coding and Robotics









Natural Sciences Kit

Senior Phase - Grade 8 - 9

Natural Sciences at Senior Phase level lays the basis of further studies in more specific Science disciplines such as Life Sciences, Physical Sciences, Earth Sciences or Agricultural Sciences.

The Vivlia Natural Sciences kit can be used to explore the four knowledge strands within the CAPS curriculum:

- Life and Living
- Matter and Materials
- Energy and Change
- Planet Earth and Beyond

The kit contains all the equipment and apparatus needed to conduct experiments and practical activities. The apparatus are packed in utility tubs in a lockable Metal Cabinet. The Kit includes:

- Learner kits (10)
- Electricity Components
- Teacher Apparatus & Dissection
- · Chemicals Tray
- Experiment Guide For Learners
- Experiment Guide For Teacher
- Periodic Table
- World Globe With Metal Stand
- Light /Optics Kit Ray box, Lenses and Prisms
- Microscope 4x ,40x, 400x Magnification with course and fine focus, 0.65 Condenser



* Some more equipment and apparatus included in this basic kit, can also be purchased separately.

Basic Technology Kit Grades 8 - 9

Our Technology Kit is CAPS compliant and is designed to cover all knowledge areas of the Curriculum. The Kit contains a range of materials that have been chosen to assist the Teacher and learners when doing activities in the Technology classroom.

We sell packs of technology equipment and tools needed for design and construction to address the four core content areas as set out in the CAPS document:

- Structures
- Processing
- Mechanical Systems & Control
- Electrical Systems & Control

The Vivlia Senior Phase Technology kit contains all the tools and resource material needed to conduct practical activities.

- · Apparatus are packed in a lockable plastic container with wheels.
- Items in the kit have been grouped and packed separately into utility tubs/trays
- There are 3 to 10 of most of the items in the Kit. This is to help the Teacher to divide the class into groups when doing activities and projects using the Kit. This means there will be sufficient materials for each group to work on any project. In some cases, there is one extra item for the teacher to do a demonstration for the learners while proceeding with a project.
- Although some items in the Kit have been grouped into separate headings (i.e. Materials for Structures; Processing and Systems and Control), they often overlap into other content areas.

Tools and Materials	Quantity
Wire Stripper/Crimping tool	1
Junior Hacksaw	5
Coping Saw	2
Scissors, universal	5
Pliers	3
Craft knives/ Trimming knives (with blades)	5
Manual/Hand Drill	1
Bradawl	5
Hammer	3
Punch hole pliers	1
Hand File Tool	1
Polystyrene sheets - size 300 x 300 (10 per pkt)	1 pkt
Link strip park - strips with gusset	1 pack
Rigid plastic rod - 450 x 4mm - (25 per pkt)	1 pack
Copper Sulphate 249.69g/mole	1
Recycled Plastic pellets 200g	1
Wooden dowel - 450mm x 4mm (25 per pkt)	1 pack
Glue Gun (small - thick cord) to use with 7.0-7.5mm glue stick	1
Glue Gun Sticks Small pack of 3	1 pack
Bench Hooks	3
Rubber Cutting Mats	3
Bench Vice Grip/clamp	1
Corrugated Cardboard Sheets	5

HEALTH & SAFETY	QUANTITY
Multipurpose Latex Gloves (pack of 10)	1 pack
Safety Goggles	2
Dust mask (pack of 5)	1 pack
GRAPHIC COMMUNICATION	
Project Board A4 sheets pack of 10	1
Drawing Grids (square, isometric, dotted)	10 of each
	3
Safety ruler 30cm	3
RESOURCES Tray 1 (Mechanical systems)	
Wheels rubberized (52mm diam. Pack of 20)	1 pack
Cams Pack (pkt 20)	1 Pack
Gear Set, 4 sizes of spur gears (Pack of 50)	1 pack
Specialised gear pack	1pack)
Perforated Base Plate (Pack of 5)	1 pack)
Angle Bracket Pack, 300mm (pack of 10)	1 pack
Pulley pack (30 per pkt)	1 pack
Plastic chassis for model cars	5
Masking tape - 5m long	1
Sello-tape (40m roll)	2
Resources Tray 2 - (Structures, Processing Pneumatic & Hydraulic systems)	
Paper fasteners, round, brass plated (100 per box, No 5)	1 box
Paper clips silver metal type 3mm (100 per box)	1 box
Wood strips square (pack of 25)	1 pack
Nut and bolt Pack - size 16mm and M4 (300 pkt)	1
Nut and bolt Pack - size 25mm and M4 (300 pkt)	1
Glue (wood and paper glue)	1
Plaster of Paris - 500g	1
10 Nail 100mm pkt	1
Clear Liquid Glue	1
Rubber bands pkt	1
String, thin cotton, 50g per ball	1
Straws pkt 100	1
Skewers pkt 100	1pkt
Syringe - size 10ml	5
Syringe - size 2ml	5
Syringe adaptors - fitting the size 10ml (10pkt)	1
Syringe adaptors - fitting the size 2ml (10pkt)	1
Syringe adaptors - fitting the size 2ml (10pkt) MT Plastic Tubing - 3mm ID	1
MT Plastic Tubing - 3mm ID	1
MT Plastic Tubing - 3mm ID Connectors T-Pieces	1 10
MT Plastic Tubing - 3mm ID Connectors T-Pieces One Way Valve	1 10 1

Resources Tray 3 (Electricity & Electronics)	1
Motor - used with DC current (3V with leads fitted) pkt6	6
Motor mounting brackets (6 per pkt)	6
Reducer bush (to fit on the motor) pkt 12	1
Battery holder for size 2AA cells	6
Torch cells - Penlight (size AA) pkt 10	10
Lamp holders - MES80	6
Bulbs or Lamps MES (2.5V; 3.8V; 4.8V; 6V)	10
Wire single core - (red roll)	1
Wire single core - (black roll)	1
Buzzers - Piezo with leads (for low current)	6
Connector block, strips of 12way	2
Connector board - simple design with springs	5
Ammeter Panel Type 0-1A	1
Voltmeter Panel Type 0 - 5V	1
Ferrite Magnet 18mm Diam x5mm	1
Diode(s)	10
Transistors 2N 222A	10
Capacitor, 100uF	6
Thermistor(s)	10
Preset Pot Horizontal B10k ohm	10
LDR (Light Dependent Resistor 3mm)	10
Resistor, 0.25W, 470 ohm	10
Resistor, 0.25W, 10K ohm	10
Resistor 2.2 K ohm	10
Resistor Ceramic	10
LED (Red)	10
LED (Green)	10
Reed Switch	1
Switch SPST	1
Switch SPDT	1
Switch DPDT	1
Solar Panel	1
Screwdriver/Allen Key for variable Resistor (2small, 2 medium)	4
Iron Fillings100g	1 tub
Bar Magnet 75mm	2pc
Horseshoe Magnet 75mm	1pc
Copper strips pack	1
Zinc Strips pack	1
Steel wool 25g	1



RESOURCE TRAYS



* More tools and materials included in this basic Kit, can also be purchased separately without buying the whole Kit.

(26)

* Kit includes a Kit Guide/Manual that is CAPS aligned and integrates both theory and application of technological skills.

A complete, basic First Aid Kit may also be purchased separately



PHYSICAL SCIENCES KIT GRADE 10-12

Physical Sciences investigates physical and chemical phenomena. This is done through scientific inquiry, application of scientific models, theories and laws in order to explain and predict events in the physical environment.

The Vivlia Physical Sciences Kit is CAPS aligned and it contains apparatus to explore the six main knowledge areas:

- Matter and Materials
- Chemical Systems
- Chemical Change
- Mechanics
- · Waves, Sound and Light
- · Electricity and Magnetism

The kit contains all the equipment and apparatus needed to conduct experiments and practical activities which address CAPS curriculum needs. Apparatus are grouped and packed efficiently in drawers in a lockable mobile Metal Cabinet. The kit includes:

- Boyle's Law Apparatus 250 KPA
- Balance Double Beam
- 12v Power Adapter
- Periodic Table
- Molecular Model
- · Light Kit/Optics
- Chemistry Apparatus & Glassware Apparatus
- Electricity, Electrostatics & Electromagnetism Apparatus
- Forces and Dynamics Apparatus
- Ripple Tank Kit
- Solid Chemicals packed in Metal Cabinet
- GRADE 10 12 Physical Sciences kit Liquid Chemicals
- Safety Data Sheet
- Gr 10 12 Experiment Guide





- Equipment and apparatus included in this basic kit, can also be purchased separately (per item).
- The full list of all items included in the Physical Sciences kit is available on request.

Life Sciences Manipulatives Grade 10-12

Life Sciences' is the scientific study of living things from molecular level to their interactions with one another and their environment.

The Vivlia Life Sciences apparatus are CAPS aligned and suitable to explore the content framework organised according to the four main 'knowledge strands':

- · Knowledge Strand 1: Life at the Molecular, Cellular and Tissue Level;
- Knowledge Strand 2:Life Processes in Plants and Animals
- Knowledge Strand 3: Environmental Studies;
- · Knowledge Strand 4: Diversity, Change and Continuity

Our models are all dissectible and life -like replicas of parts of the human anatomy and can be removed and reinserted easily. This allows for graphic and informative demonstrations of where the essential parts of our body are located. All models are of the highest quality and are made from washable and unbreakable PVC.

The Vivlia Life Sciences range includes:

- Life-size Skeleton 180cm tall
- 85cm Skeleton
- Deluxe Life-size Skull Style D
- 45cm Mini Skeleton
- Skull Model with 8 Parts Brain
- Life-size Vertebral Column with Pelvis and Femur Heads
- 85cm Sexless Torso 20 parts
- 42cm Sexless Torso 18 Parts
- Middle Ear Model
- Life-size Heart Model
- The human Eye Model
- · Expansion Model of Human Teeth



Coding and Robotics

Coding and Robotics subject is central to function in digital and information -driven world; apply digital ICT skills and transfer these skills to solve everyday problems in the development of learners. It is also concerned with various inter-related areas of Information Technology and Engineering.

The Vivlia Coding & Robotics Kits are easy-to-use, and are designed to unravel the anonymities of different applicable concepts across the phases - a great way to get started in the world of Robotics and Coding!

Our Coding and Robotics kits consist of materials and elements that are beneficial in assembling and programming a robot and typically include a controller, motors, sensors, other hardware and software, as well as the instructions for programming the robot.

1. Qobo - Roboblog

Explorer Starter Kit

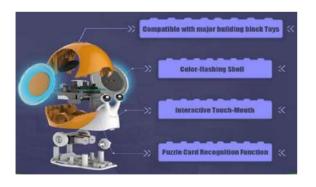
VIVCRQOB100

Qobo is an interactive talented robot, designed to trigger the interests of learning. It can sing, dance, read, move, glow with different lights and execute various coding instructions. Ideal for Foundation Phase to demonstrate the basic elements of coding and Robotics.

Qobo highlights the interaction and hands-on ability during play, allowing the learners to be proactive in solving problems and thinking independently - all learners love this adorable robotic snail!

The kit consists of:

- 1 Qobo Robot (assembled).
- 30 coding/ programming puzzle cards to help Qobo to find the gem through creating different paths.
- 1 Coding Mat a map to guide Qobo while using Free Mode.
- 1 booklet with 15 training lessons and challenges.
- 1 USB charging cable.



Qobo is fun, intuitive and educational

- No need for Internet or screen, learn programming directly with puzzle cards.
- With the music cards, the Qobo robot can play up to 15 songs.
- The snail can also be programmed via a computer to provide a new learning experience fo more advanced students.
- The Qobo robot is compatible with most construction sets.
- Qobo is made with user-friendly, recycled materials that respect the environment.







2. The GoGoBot

Educational Robot with Arduino Uno

VIVCRGOG200

The robot itself comes with more than 16 features that perfectly demonstrate all major robotics principles in an easy yet powerful way. The real fun and education continue when starting to combine all these features to create real robotics applications.

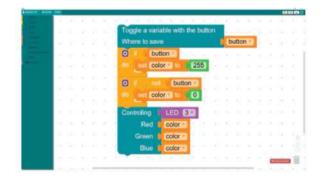
The GoGoBot educational robot kit includes:

- Complete robot and parts.
- Online GoGoBot training course.
- Downloadable cellphone app and building instructions.
- Programming USB cable.

Some of the features you will get with your GoGoBot educational robot:

- Motors come with encoders for accurate movement.
- Bluetooth with app.
- Drag and drop app.
- Obstacle avoidance sensor.
- Line tracking.
- Oled screen.
- Programmable button.
- Programmable potentiometer.
- 6 Addressable full-colour LED's on the top and one on the bottom.
- IR receiver and remote controller.
- Rechargeable battery that charges while coding.









3. The Jumpstart Micro:bit Wonder Building Kit

VIVCRJM300

The Micro: bit Wonder Building Kit focuses on the bricks expansions with 32 projects available. The kit is packed with different electronic sensors such as the Line-following sensor, the Sonar: bit and the Water level sensor, enriching projects with more challenge and fun.

*Note: Please note the micro:bit is not included.

Kit Specification:

- · Sensors Water level sensor, Line-following sensor, Sonar: bit
- Bricks Over 400pcs
- Control micro: bit & Wukong expansion board
- Communication USB port
- Motor drive 2 ways(M1,M2)
- · Servo drive 8 ways(S0~S7)
- · Projects 32 projects are provided





Cross screwdriver X1



Rubber bands X6

Dupont wire without buckle X1

Screws X10



with buckle X3

31

Nuts X10

Possible projects from the Kit





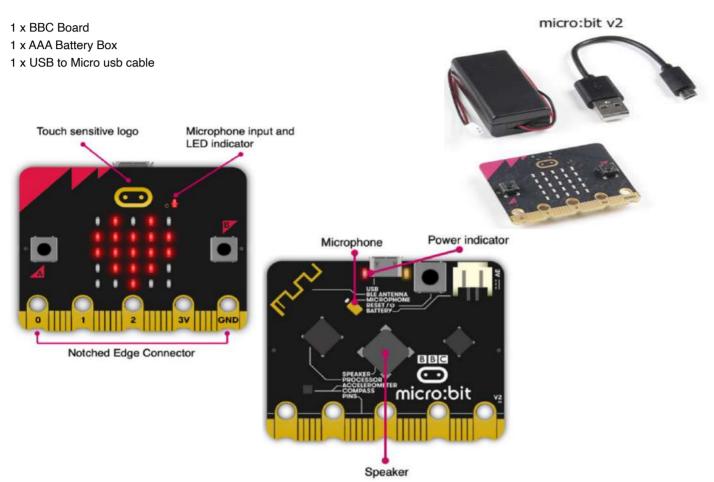


4. Micro: bit V2 Essentials Kit

VIVCRMB400

Micro: bit V2 is a pocket-sized microcontroller designed forlearners and beginners learning how to program, letting them easily bring ideas into DIY digital games, interactive projects and robotics.micro: bit comes with a variety of on-board modules, including a 5x5 LED matrix (also supports light detection), 2 programmable buttons, motion detector, compass and bluetooth Smart module. Additionally, you may attach more modules such as a servo motor, RGB LED lights through five I/O rings or 20 edge connectors.

Package Includes:





5. Arduino UNO R3 Beginner Toolkit

VIVCRMB500

The Arduino UNO R3 Beginner Toolkit is the ideal starting point for anyone who is eager to learn about the basics of Arduino and block coding by using mblock, and experiment with or simply enjoy electronics and Arduino.

The Kit includes:

- 1 x Arduino compatible UNO R3 development board (CH340G)
- 1 x USB cable
- 1 x Mini 300TP breadboard
- 5 x Red LED
- 5 x Green LED
- 5 x Yellow LED
- 6 x Push button switch
- 1 x Passive buzzer (piezo buzzer)
- 30 x Resistors (100R 10K Variable Resistances)
- 1 x 9v Battery Power Plug
- 10 x Male to male jumper wire
- 2 x LRD 5516 Photo resistors
- 1 x Pin Header
- 1 x Plastic Case
- Beginners guide

6. Nezha 48 IN 1 Inventor's Kit

VIVCRN600

Nezha Inventors Kit is designed for the BBC micro:bit. It contains multiple sensors and modules including LED, trumpot, soil moisture sensor, ultrasonic sensor, crash sensor, line-tracking sensor, etc., and also over 400 pieces of bricks. The Nezha kit has 48 projects that can be built and the Interactive coding accessories pack aims to cultivate and inspire kids' creativity and imagination. Make each kid be an inventor from Nezha Inventors Kit!

Note: micro:bit sold separately

Specifications:

- · Shell ABS fireproof shell
- · Circuit board FR4 epoxy resin board, fire rating 94VO
- Power Source 900mA lithium battery
- Communication protocol IIC, UART, and ISP
- Program Type Makecode, Javascript, Python and C++
- Control board micro:bit
- Input voltage 5V
- · Charging current 1A

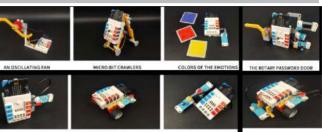
The kit package includes:

- Nezha expansion board
- LED's (Red, Green & Yellow)
- · Sensors (Crash sensor, Line tracking sensor, Soil Moisture sensor)
- Sonar:bit
- Potentiometer
- Motor
- · 360° servo
- Wheels
- RJ11 4P4C Wires
- USB Line
- Block packages
- Line Tracking Map





Some of 48+ possible Projects that can be built from kit



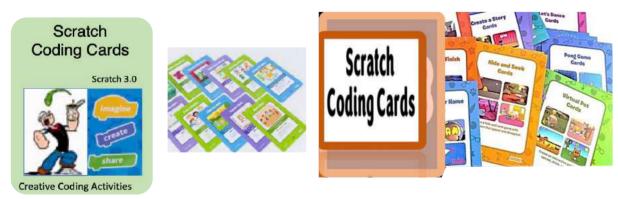
VOLUME INDICATOR THE DAZZLING CAR ADJUSTABLE LIGHTS COL

Accessories

1. Scratch Coding Cards

VIVCRSC100

The Vivlia custom made Scratch Coding Cards allow the learners to code as they create interactive games, stories, music, and animations. The short-and-simple activities provide an inviting entry point into Scratch, the graphical programming language used by millions of kids around the world. Learners can use these colorful deck cards to create a variety of interactive programming projects. For example, they can make their own version of a game, create an interactive story, design a virtual pet, and more! Each card features step-by-step instructions for beginners to start coding with Scratch.



2. Themed Coding Mats

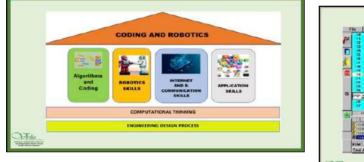
VIVCRCM200

A wide range of Custom-made, themed coding mats - a simple, accessible way to teach algorithms and to learn block-basedcoding, basic maths principles, and collaborative problem-solving. Mats are made out of a durable and wipeable material, and work well on any flat surface, indoors and outdoors.



3. Coding and Robotics Charts

A variety of charts aligned to the elements of the curriculum, help in the explanation of concepts and processes.







4. Sensors

37 In 1 Sensor Module Kits For Arduino

VIVCRS100

A complete set of Arduino's most common and useful electronic components, with 37 sensors modules for the beginners, packaged in a strong transparent plastic packaging box to avoid module damage.





Kit includes

- 1 x Active buzzer module
- 1 x Passive buzzer module
- 1 x Common cathode RED&GREEN LED module (q)
- 1 x Two color common cathode LED module
- 1 x Knock sensor module
- 1 x Shock switch sensor module
- 1 x Photo resistor sensor module
- 1 x Push button module
- 1 x Tilt switch module
- 1 x RGB LED module
- 1 x Infrared transmit module
- 1 x RGB colorful LED module
- 1 x Hydrargyrum switch sensor module
- 1 x Colorful auto flash module
- 1 x Magnet-ring sensor module
- 1 x Hall sensor module
- 1 x Infrared receive sensor module
- 1 x Analogy hall sensor module
- 1 x Magic ring module
- 1 x Rotate encode module
- 1 x Light break sensor module
- 1 x Finger pulse sensor module
- 1 x Magnetic spring module
- 1 x Obstacle avoidance sensor module
- 1 x Tracking sensor module
- 1 x Microphone sensor module
- 1 x Laser transmit module
- 1 x Relay module
- 1 x Analog temperature sensor module
- 1 x 18b20 temperature sensor module
- 1 x Digital temperature sensor module
- 1 x Linear hall Sensor module
- 1 x Temperature sensor module
- 1 x Linear magnetic Hall sensors
- 1 x Flame sensor module
- 1 x Sensitive microphone sensor module
- 1 x Temperature and humidity sensor module
- 1x Tutorial learning link

- 1 x High sensitive voice sensor module
- 1 x Humidity sensor module
- 1 x Joystick PS2 module
- 1 x Touch sensor module
- 1 x Small passive buzzer module
- 1 x 2-color LED module
- 1 x Hit sensor module
- 1 x Vibration switch module
- 1 x Photo resistor module
- 1 x Key switch module
- 1 x Tilt switch module
- 1 x 3-color full-color LED SMD modules
- 1 x Infrared emission sensor module
- 1 x 3-color LED module
- 1 x Mercury open optical module
- 1 x Yin Yi 2-color LED module 3MM
- 1 x Active buzzer module
- 1 x Automatic flashing colorful LED module
- 1 x Mini magnetic reed modules
- 1 x Hall magnetic sensor module
- 1 x Infrared sensor receiver module
- 1 x Class Bihor magnetic sensor
- 1 x Magic light cup module
- 1 x Rotary encoder module
- 1 x Optical broken module
- 1 x Detect the heartbeat module
- 1 x Reed module
- 1 x Obstacle avoidance sensor module
- 1 x Hunt sensor module
- 1 x Microphone sound sensor module
- 1 x Laser sensor module
- 1 x 5V relay module
- 1 x XY-axis joystick module
- 1 x Metal touch sensor module
- 1 x High Quality Box

Other accessories that can be bought separately:





5mm LED Kits VIVCRA105



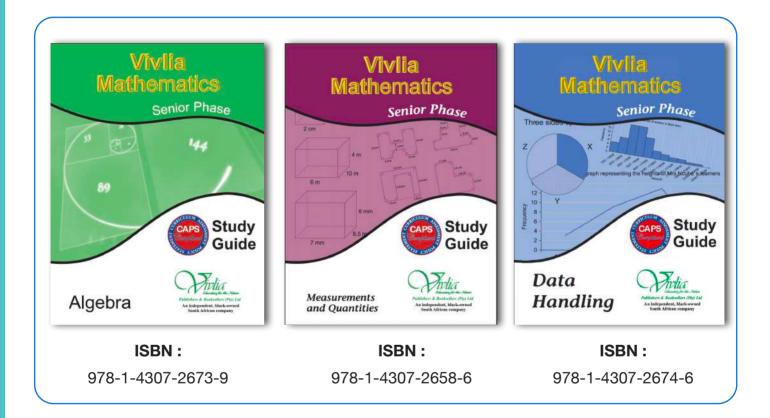
Vivlia Maths Study Guides to substantiate the manipulatives

Senior Phase

- address the content focus areas (as set out in curriculum policy document).
- comprise of relevant information and activities, researched & compiled to help the learner to acquire a deep conceptual understanding that will ehance logical & critical thinking, accuracy and problem solving skills.

The 3 study guides available are:

- Algebra
- Measurement & Quantities
- Data Handling



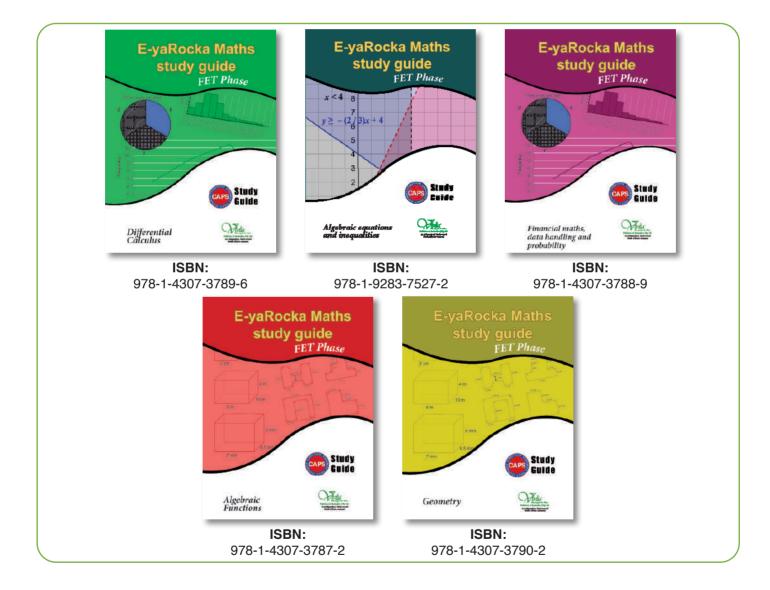


FET Maths

- They are targeted on core concepts/topics which are introduced through context, which makes it easier for the learners to comprehend.
- Comprises of exam guide lines, activities for practise and past exam questions (with memo) for learner support and to enhance logical & critical thinking, accuracy and problem solving skills.

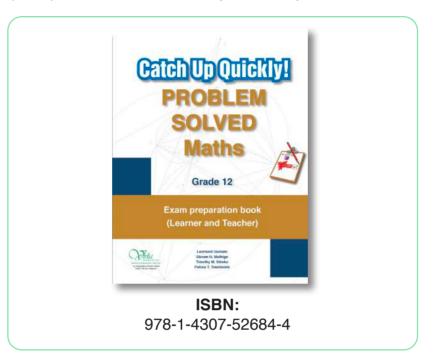
The 5 study guides available cover the following main topics:

- Differential Calculus
- Algebraic Functions
- Geometry
- Algebraic Equations and Inequalities
- · Financial Maths, Data Handling and Probability



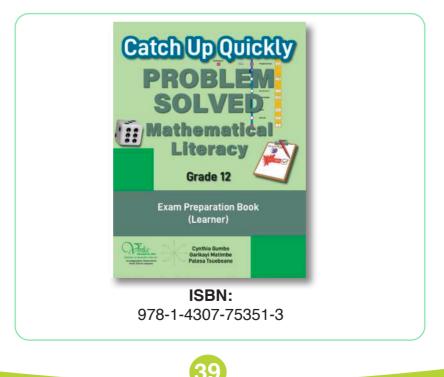
Catch Up Problem Solved Mathematics

This exam preparation resource was developed and compiled as a resource book for both teachers and grade 12 learners. It is a tool that is focused on result improvement at all levels. It is written in a manner that follows final examination papers (CAPS) with full content for both Paper 1 and Paper 2.



Catch Up Problem Solved Mathematical Literacy

This exam preparation resource book was developed and compiled as a resource for Grade 12 learners. It is a tool that is focused on result improvement at all levels. The resource book is based on the new structure of the Mathematical Literacy exams. That is, change in the splitting of topics and redistribution in the weighting of the Blooms Taxonomy levels. It is written in a manner that follows final examination papers (CAPS) with full content for both Paper 1 and Paper 2.



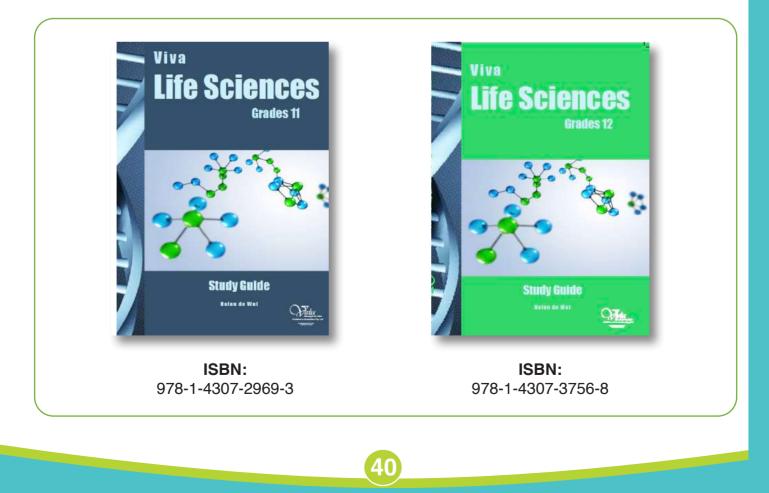
FET Physical Sciences Study Guides

They are targeted on core concepts/topics which are introduced through context, which makes it easier for the

learners to comprehend.

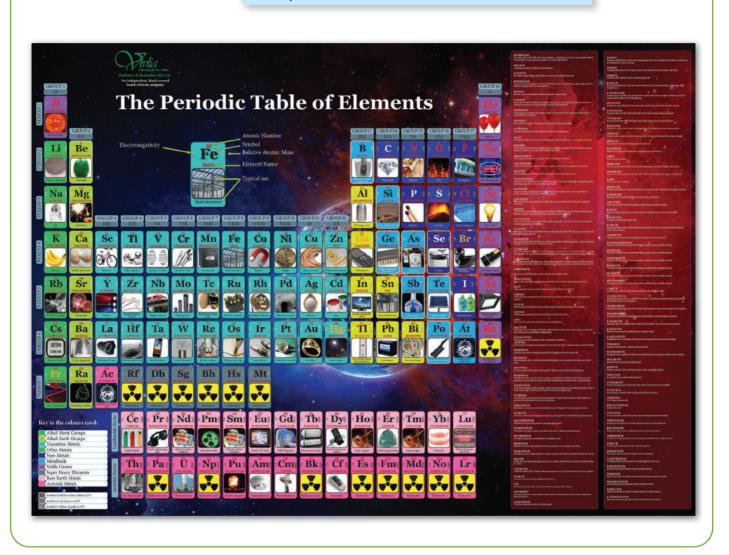


Life Sciences Study Guides



Periodic Table Poster

978-1-4307-3023-1 **E-yaRocka Periodic Table Poster** Science/ NST senior phase and FET





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