ACADEMIC WORK PLAN for Home Learning 2021 – 2022

MIDDLE SCHOOLS

MATHEMATICS



DIRECTORATE OF STATE COUNCIL OF EDUCATIONAL RESEARCH & TRAINING MIZORAM:AIZAWL

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ACADEMIC WORK PLAN FOR HOME LEARNING 2021 – 2022 FOR MIDDLE SCHOOLS

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THUHMA

Kum 2021 – 2022 academic session chu COVID-19 pandemic avangin zirna inte hawn theih lohin a la awm mek zel a. School kai theih ni lo mahse, zirlai naupang te tan lehkha zir chawlh ngawt theih a ni lo a, a tha ber bawk hek lo ang. Chuvangin, an zirlaite an bahlah lutuk loh nan theih ang anga an zir chhunzawm dan tur kawng zirtirtute leh nu leh pate pawhin kan ngaihtuah a tul ta a ni.

Zirlaibua chapter tinah hian **zir chhuah tur bituk** (Learning Outcomes) a awm vek a. Chu zir chhuah tur bituk chu zirlaiten an zir chhuah ngei a pawimawh ber a, chu chu school an kal emaw an kal thei lo a nih pawhin an thiam chhuah ngei theihna tura hmalak chu zirnain a tum a ni.

Hemi atana zirtirtu, nu leh pa leh naupangte kawng kawhhmuhtu tur **Academic Work Plan for Home Learning-2021 – 2022** chu buatsaih a ni a. He Work Plan hian subject tin leh chapter tinte hawl kim vekin, naupangten anmahni ngei che chhuaka an tih tur activities te, project work te pawh tarlan vek a ni. Heng tih tur ruahmante hi a then chu mahni inchhunga tih theih mai, a then chu pawn chhuak a tih ngai, a then chu thiante nena a huhova tih ngai chite an ni hlawm a. Kan hun tawn ang zel leh kan awmna hmun azira mahni remhriatna hmanga heng tih turte hi zirtirtuten siamrem te pawh a ngai thei ang. A pawimawh ber chu zirlaiten zir chhuah tur bituk hi an zir chhuah kha a nih avangin he Work Plan ang chiah chiaha tih kher kha tum ber tur a ni lo tih hre tlang ila, a kawng inkawhhmuhna a nih ang takin hmang thiam ila kan sawtpui ngei pawh a rinawm.

He Academic Work Plan for Home Learning-2021 – 2022 hi tangkai taka hman a nih theih nan a hmangtu zawng zawngte duhsakna ka hlan a, a lo that leh zualna atana rawtnate pawh a awm a nih chuan lawm takin kan pawm ang.

(LALDAWNGLIANI CHAWNGTHU) Director, SCERT Mizoram, Aizawl

Aizawl 16th June, 2021



KAIHHRUAINA

- 1. Academic Work Plan for Home Learning 2021 2022 hi zirtirtuten an zirtirnaa puitu tura siam a ni.
- 2. Textbook atanga duan a ni a. Zirlaibua chapter tinte atanga zir chhuah tur bituk (Learning Outcomes), zirtir dan tur, naupangten an tih turte leh chapter tinte zir hun tur bithliah a ni.
- 3. Zirtirtute puitu tura duan a nih angin, zirtirtu chuan naupangte zirtirna atan an hmang tangkaiin an zawm tur a ni.
- 4. Tih turte (exercise) te hi naupangten chapter an zir zawh apiangin an ti zel ang a, Project Work leh Activities-te hi tihtir ngei tur a ni a, chu chuan mark a keng tel ngei bawk tur a ni.
- 5. CCE Guidelines mila buatsaih a nih angin naupangte thlen chin hre turin zirtirtuten an vil reng tur a ni a, Unit/Chapter pahnih (2) zel an zir zawhah naupangte chu test pek tur a ni. Test-na tur hi zirtirtuin a buatsaih lawk ang. Heng Test atang hian naupangte zirlai hrut nawnpui a ngaih leh ngaih loh zirtirtuin a hre thei dawn a ni.
- 6. Naupang nu leh pate (an chenpuite) chu an fate lehkha zirna leh hmasawnna kawnga mawhphurtu pawimawh tak an nih thu leh hemi Work Plan-te hmang hian an fate lo enpui thin tura beisei an ni tih hriattir tur a ni.
- 7. Academic Work Plan for Home Learning 2021 2022 bu chhunga thu awm te:
 - Unit, Chapter leh Chapter thupui
 - Learning Outcomes (Zir chhuah tur bitukte)
 - Zirtirna kalpui dan tur (Pedagogical process)
 - Test kalpui dan tur (Oral Test & Written Test)
 - Assignment/Project tih dan turte
 - Activities tih dan turte

- Written Test ziaka chhan tur zawhnate
- Ni pek zat chapter zir hun chhung tur bituk.
- 8. Zirtirtu chuan Academic Work Plan for Home Learning 2021 2022 nih phung leh a hman dan tur hi naupang chhungte hnenah an hrilhfiah tur a ni.



CONTENTS

MATHEMATICS1
CLASS-V {MATH MAGIC V (English Medium)}1
• CLASS-V {MATH MAGIC V (Mizo Medium)}
• CLASS-VI
• CLASS-VII
• CLASS-VIII
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MATHEMATICS

CLASS-V {MATH MAGIC V (English Medium)}

Number of teaching days (180 days)

Chapter			Pedagogical process	Resource		No. of
		Learning Outcomes Activity/Project/Assignment	Material	Written Test	days allotted	
1	 The Fish Tale Shapes in our life Size and capacity Sale /Purchase (concept weight and cost) 	• Estimates sums, differences, products and quotients and verifies using approximation.	 Making different types of coloured fishes using paper and cardboard. Activity to recognize sea animals Visit to a nearby fish market / lake where students can talk to fish-seller and ask related questions like sale- purchase, varieties of fishes etc. Sale purchase activity with the help of fake currency/actual coins. Speed and time calculation with battery operated/ spring operated toys like car, bus etc and various related worksheets Practice Table 1 to 12. 	 Paper, cardboard, sketch pen/ crayons, scissors (Handle with care) Charts, pictures (sea animals), pencil, pen Fake currency, coins, items for sale purchase like erasers, pencils, 	 Basic operation involving money, measurements By using textbook based problems 	13

Chapter			Pedagogical process	Resource		No. of
		Learning Outcomes	Activity/Project/Assignment	Material	Written Test	days allotted
				books, TiffinsToy, clock, watch		
2	 Shapes and Angles Angles and their types Geometrical Shapes 	 Gets the feel of an angle through observation and paper folding. Identifies right angles in the environment. Classifies angles into right, acute and obtuse angles. Represents right angle, acute angle and obtuse angle by drawing and tracing 	 Making various shapes arranging sticks. (Refer page no 16-19 of textbook) Concept of angle by playing carrom board. Making angle tester and using it to measures angles of different objects like book, arms, fingers. (Refer page No 20 of textbook) Making different shapes like square, triangle using stick and rubber tubes used in bicycle. (Refer page no 26-27 of textbook) 	 Paper, pencil, classroom objects like book. sticks, geometry box Carrom Board, Dice, carom powder Paper, pencil, Book, Drawing pin etc. Sticks, rubber tubes used in bicycle valves, scissors (Handle with care) 	 Identification of triangles. Different degrees or angles made by the hands of a clock. Measurment of angles using protractor. 	10

			Pedagogical process	Resource		No. of
Chapter		Learning Outcomes	Activity/Project/Assignment	Material	Written Test	days allotted
	 Shapes and Angles Angles and their types Geometrical Shapes 		 Making clocks from cardboards and measuring between hands of clock using D (Protractor). Showing angles through either by pictures of different exercises or by performing. (Refer page no 33 of textbook) Showing angles with arms, fingers. Performing activity to make different types of paper toys and measure the different angles (paper folds). Demonstrating shapes/angles with the use of cardboard cutouts. 	 Cardboard, paper, clolour, pencil, sticks, Protractor Pictures of exercises Paper, colours, pencils Coloured paper Cardboard cutouts 		
3	 How Many Squares? Counting squares and rectangles Largest 	 Explores intuitively rotations and reflections of familiar 2-D shapes. Explores intuitively 	 Counting the tiles on the floor and find the number of squares. Taking footprints of various regular and irregular shaped objects (like leaves, coins, palm, 	 Room (tiles on the floor) Leaves, Coins, Eraser etc. 	 To find area using square grid. Comparision of area 	11
	square/rectangles	symmetry in	fingers) on graph paper and	• Stamps of	(regular	

		Pedagogical process	Resource		No. of
Chapter	Learning Outcomes	Activity/Project/Assignment	Material	Written Test	days allotted
• Area of irregular shapes	 familiar 3-D shapes. Makes the shapes of cubes, cylinders and cones using nets especially designed for this purpose. 	 counting squares for concept of area. (Refer page No 38 - 40 of textbook) Finding area of stamps by placing them on graph paper and counting covered area in terms of squares. Making different types of puzzles by card board cutouts / Chart Paper. (Refer page No 44-46 of textbook) 	some countries, graph paper, pencil • Pencils, eraser, Chart Paper sketch pens, colour, cardboard, scissors (Handle with care)	 shape) Comparision of area (irregular shape) 	
 How Many Squares? Geometrical Symmetry in Shapes / Patterns Measurement of perimeters 		 Making different types of patterns / shapes by card board cutouts and arranging them in various sequences. (Refer page No 46, 48-49 of textbook) Measuring perimeter of irregular shapes objects like leaves, star using thread. Measuring perimeter of regular shapes objects by using thread / 	 Card Board, paper, sketch pen / crayons Actual leaves / plastic leaves, star Coin, bangle, pencil, plate, ring, thread, graph paper, 	• Measurement of perimeters	

Page | 4

			Pedagogical process	Resource		No. of
Chapter Learning		Learning Outcomes	Activity/Project/Assignment	Material	Written Test	days allotted
4	Chapter Parts and Wholes • Fractions • Comparison of fraction • Equivalent fraction	 Learning Outcomes Finds the fractional part of a collection. Compares fractions. Identifies equivalent fractions. Estimates the degree of closeness of a fraction to known fractions 1/2, 1/4, 3/4 Uses of decimal fractions in the context of units of length and money. Expresses a given fraction in decimal notation and vice 	 Activity/Project/Assignment graph paper / scale. Observing India's Flag (Tri- colour) and finding parts of three colours Distribution of chapattis in one fourth, three fourth, half parts and so on among students during mid day meals session. Breaking chocolate bar in one fourth, three fourth, half parts and so on. Collecting flags of some countries and practice to find parts (Fractions) of colours in flag. Showing parts of strips for finding fractions (Refer page No 46, 48-49 of textbook) 	Material scale etc. India's flag Chapattis Chocolate Bar Paper Flags Paper strips Paper, Pencil Scissors (Handle with care) Notebook, pencil, pen	 Written Test Using textbook exercises. Comparison of fraction. To find equivalent fractions. Conversion of fraction and decimal. 	days allotted
		versa.	• Folding and cutting paper circle can be done to compare fractions and find equivalent/smaller fraction.			

		Pedagogical process	Resource		No. of
Chapter	Learning Outcomes	Activity/Project/Assignment	Material	Written Test	days allotted
Parts and Wholes • Larger fraction/ Smaller fraction • Currency (Notes/coins) • Price list and Bills.		 Fraction Writing Practice like 1/4, 3/4, 2/3, 1/3. Filling up grid in fractions and making some patterns to show equivalent fraction. Equivalent Fraction Writing Practice like 1/4=2/8, 2/3=6/9, 1/3=2/6. Refer page no 10 Unit 1 textbook on EVS class V (Looking Around) Folding and cutting circle can be done to compare fractions and find smaller/larger Showing different real currency notes/ coins and distribute Fake currency among students for understanding fractions (Refer page No 65 of textbook) Showing real bills and pricelist. Preparing shopping list / price list and making bill for payment. 	 Note, pencil, pen, Scissors Fake currency, real currency Real bills and price list 	• Basic operation on money	

	Chapter	Learning Outcomes	Pedagogical process Activity/Project/Assignment	Resource Material	Written Test	No. of days
5	Does it Look the Same? • Patterns	 Makes border strip and tiling patterns Appreciating summetry/ 	 (Refer page No 69 of textbook) Refer page no 105 Unit 12 textbook on EVS class V (Looking Around) for price. Creating some patterns with the drop of colour and folding paper (Refer page No 71 of textbook) Prepare some symmetric patterns 	 Ink / water colour, Paper, thread Symmetric 	• Problems related to symmetry/ asymmetry/	allotted
	 Symmetry/ Asymmetry in shapes Mirror Halves Rotational Axis /Lines of symmetry 	symmetry/ assymetry/ lines of symmetry from different shapes	 Prepare some symmetric patterns / shapes. Students take idea and make some new symmetric patterns / shapes. Paper folding to find symmetry in some shapes like equilateral triangle, circle, alphabets like A, B, C, E, H Making asymmetric (non-Symmetric) patterns / shapes. Paper folding to find Asymmetry in some shapes like scalene triangle, and alphabets like F, G, J, L 	 Symmetric patterns chart Paper, Pencil, Sketch pen, scissors (Handle with care) Prepared card board cutouts of asymmetric shapes Mirror, Some paper cuttings like semicircle, 	 asymmetry/ rotational axis. Using textbook exercises. 	

		Pedagogical process	Resource		No. of
Chapter	Learning Outcomes	Activity/Project/Assignment	Material	Written Test	days allotted
		 Mirror activity to show symmetry in context of Mirror halves. (Refer page No 74-75 of textbook) Showing turn / rotation in various symmetric shapes/objects and observe the symmetry in some shapes/objects like circle, equilateral triangle, square, pentagon, star (1/3 turn, 1/6 turn, 1/4 turn, full turn) 	right angled triangle		
	G	 Drawing line of symmetry / axis of symmetry in various shapes like circle, equilateral triangle, square, pentagon, star. 			

			Pedagogical process	Resource		No. of
Chapter Learning Out		Learning Outcomes	Activity/Project/Assignment	Material	Written Test	days allotted
6	 Be My Multiple, I'll be Your Factor Multiples Common multiples Factors Common factors 	 Finds place value in numbers beyond 1000. Appreciates the role of place value in addition, subtraction and multiplication algorithms. Uses informal and standard division algorithms. Explains the meaning of factors and multiples. 	 Jumping steps to find multiples of various number Prepare a colourful multiplication chart / table Organizing a game for the students by making two intersecting circles on floor and putting numbered marbles pieces to find common multiples of two numbers. (Refer page No 91-92 of textbook) Do the same to find common multiples of three numbers. 	 Paper, Pencil, colour, scale Coloured Chalks, numbered marbles pieces 	 Multiples and factors. Common multiples and factors Application of common multiples 	13
REVISION CHAPTER 1 – 6 10						10

			Pedagogical process	Resource		No. of
	Chapter	Learning Outcomes	Activity/Project/Assignment	Material	Written Test	days
			Activity/110jee/1155ignment	TVIACCI IAI		allotted
7	 Can You See the Pattern? Patterns and turns in figure Patterns/ 	 Identifies patterns in square numbers, triangular numbers. Relates sequences of odd numbers 	 Observe some patterns on hanky, towels, books, and find patterns. Drawing some patterns and turning them. Drawing different patterns of the 	 Hanky, towel, book, tiles Pencil, eraser, colour, scale Coloured 	• Using figure and number pattern	12
	sequences in numbers	between consecutive square numbers.	floor tiles on the black board/ copies with the help of coloured chalks.	chalk		
	 Can You See the Pattern? Patterns/ sequences in numbers 	G	 Magic squares, Magic hexagons. Various calendar tricks to find addition in different ways. (Refer Pages 107 of textbook) Showing chart of patterns/ sequences in numbers 	 Magic squares, magic hexagone prepared on charts/ cardboards Calendar Pattern Charts 	• Using figure and number pattern	
8	 Boxes and Sketches Visualization of 3- D shapes Representation of 3- D shapes 	 Gets the feel of perspective while drawing a 3-D object in 2-D. Makes the shapes of cubes, cylinders and 	 Making different models such as cone, cylinder, huts with the help of card board and thick paper sheet. Making bridges, building plan with empty match boxes, ice 	 Card board, thick paper pencil, colours, Glue stick, fevicol, scissors 	 Representation of 3-D in plane. Matching pair 	12

Page | 10

			Pedagogical process	Resource		No. of
	Chapter	Learning Outcomes	Activity/Project/Assignment	Material	Written Test	days allotted
		cones using nets especially designed for this purpose	 cream sticks. Activity to make 3-D model of cube, cuboid with colourful paper. 	 (handle with care) Empty match boxes, ice cream sticks, fevicol, colour Colourful paper, scissors (handle with care) 		
9	 Tenths and Hundredths Length units mm, cm, metre Parts and whole (fraction/ decimal) Conversion of units (Rupees, paise) Conversion of (mm, cm, metre) 	 Develops the sense of unit of measurement (mm, cm, metre etc.) Develops basic concept in fraction Applies the four operations in solving problems involving money. 	 Students measures height (in meter /centimeter) of their classmate and make entries in chart. Game of long jump held in playground and records results in meter/centimeter. Pages No 126-127 of textbook Conversion of Rupees to Paise / Paise to Rupees using fake / actual currency (Refer pages No 126-127 of textbook) 	 Scale, measuring tape, marker 1 × 10 grid, 1 × 100 grid, colours Fake/actual currency Metre scale Chart of currencies like Dollar, Rupee. 	 Application of four operation on length, fraction, money, temperature. Unit conversion Cm. mm, m. Rupees paise 	12

Chapter			Pedagogical process	Dosouroo		No. of
		Learning Outcomes	Activity/Project/Assignment	Material	Written Test	days allotted
	 Currencies of many countries Temperature 		 Showing the metre scale and explaining relation between metre and centimetre and also their conversion. (Refer pages No 128 of textbook) Chart of currencies like Dollar, rupee. Dinar, Euro, pound can be used to correlate Indian currency Rs (Refer pages No 129 of textbook) Collection of seven days temperature from Newspaper / TV news channels, make table and find maximum / minimum temperature. Refer page no 116 Unit 13 Textbook on EVS class V (Looking Around Class) for temperature. 	Dinar, Euro, pound • Newspaper		

			Pedagogical process	Dosourco		No. of
	Chapter	Learning Outcomes	Activity/Project/Assignment	Material	Written Test	days allotted
10	 Area and its Boundary Concept of Area Units of area (cm², m², km²) Area and its Boundary Concept of perimeter 	 Determines area and perimeter of simple geometrical figures. Converts fractional larger unit into complete smaller units. 	 Concept of area can be given by showing surfaces of objects like brown bread, white bread, biscuits, copy book etc. Finding out the area of leaves having different size and shape using 10×10 grid/Graph paper Measuring perimeter of items like book, geometry box, with the help of thread and scale. Using geo-board for measuring perimeter of various shapes like triangle, rectangle, square using thread. 	 Bread, biscuits, copy book Different leaves 10X10 grid / Graph paper Class room objects like Book, geometry box, scale etc Geo Board, thread etc. 	 Using textbook problems. Using textbook problems 	13
11	• Smart Charts	 Collection of data. Represents data in the form of a table. Draws a bar graph or a pictograph to present a data. 	 Counting class room objects like pencils, erasers, pens, geometry box etc and completing table by tally marks. (Refer pages No 145-149 of textbook) Practice tally marks to record data of a variety of things with larger 	 Class room objects like pencils, erasers, pens, geometry box etc. Pencil, scale, paper etc. 	 Using tally marks. Bar graph and pictograph 	12

			Pedagogical process	Resource		No. of
	Chapter	Learning Outcomes	Activity/Project/Assignment	Material	Written Test	days allotted
			 numbers Recording the temperature of any three cities from T.V. or News Papers. Collecting bar charts pictures from news paper/ magazines and giving concept of making bar graph. Making family tree of their respective families. (Refer pages No 153 of textbook) Refer page no 107 Unit 12 Textbook on EVS class V (Looking Around) for bar charts. Refer page no 151 Unit 9 Textbook on English class V (Marigold). 	 News paper, TV etc. News paper, magazines, chart, sketch pen/crayons, pencil, scale etc. Chart, sketch pen/crayons, pencil, scale etc 		
12	Ways to Multiply	• Estimates sums,	• Visiting a nearby shop in the	• Actual Bill	• Problems on	14
	and Divide	differences,	market with their parents and		multiplication	
	Multiplication	products and	collecting the bill given to them		and division.	
	and addition	quotients and	by the shopkeeper with various		• Word problem	
	Multiplication	verifies using	entries after shopping and			

Page | 14

		Pedagogical process	Dosourco		No. of
Chapter	Learning Outcomes	Activity/Project/Assignment	Material	Written Test	days allottee
	approximation	 calculating the bill amount in class. Collecting data of daily wages of workers/ employees in market/shops and calculating their monthly salary with the help of teacher in class. Counting heart beats per minute, per hour and so on. Refer page no 131 Unit 15 Textbook on EVS class V (Looking Around Class). Encouraging students to frame various question related to multiplication and division from their daily life situations. 	80		
 Ways to Multiply and Divide Division and Subtraction Division 		 Dividing items like toffees, pencils, books, in equal numbers for the concept of division and zero remainder. Dividing items like toffees, pencils, books, in equal numbers 	 Toffees, pencils, books etc. Toffees, pencils, books etc. 	Word problem	

		Pedagogical process	Resource		No. of days allotted
Chapter	Learning Outcomes	Activity/Project/Assignment	Material	Written Test	
		 for the concept of division and remainder is not zero. Packing equal number of items (like pencils /books / eraser etc) in boxes. Distributing food / biscuits 	 Pencils /books / eraser etc Chapattis, biscuits etc. 		
 13 How Big? How Heavy? Concept of volume Units of volume (ml, litre) 	 Relates commonly used larger and smaller units of length, weight and volume and converts one to the other. Appreciates volume of a solid body: intuitively and also by informal measurement. 	 Putting some items like marble pieces/ coins, erasers in a glass/ measuring cylinder partly filled with water and check the rise in water. Measuring volume (in m1) using injection. (Refer page no. 175 of textbook) Calculating volume of regular solids like cube, geometry box, eraser etc by measuring length, breadth and height. Arrange 3 notebooks in one line and then measure the total length, breadth, height and find volume. 	 Marble pieces, coins, erasers, glass, measuring cylinder, water Syringe, water etc. Cube, geometry box, eraser, scale etc. Books, scale, pencil, etc. 	 Word problem. Textbook problem 	13

		Pedagogical process	Resource		No. of
Chapter	Learning Outcomes	Activity/Project/Assignment	Material	Written Test	days allotted
How Big? How Heavy? • Concept of weight • Units of weight		 Measuring weight of some items like geometry box, vegetables, books etc using weighing balance or spring balance. Making a chart of weight of all the students by measuring their weights on weighing machine in the class and compare the same. Experiencing weights of various items like book, geometry box, by holding in hand and finding heavier / lighter objects. Making a chart of weights of various items like book, geometry box, the avier state book, geometry box etc and find the relation between weight and the size/heavier-lighter. 	 Weighing balance or spring balance, geometry box, vegetables, books etc. Weighing machine, chart paper, sketch pen, scale etc. Various items like book, geometry box etc. 	 Word problem. Text book exercises 	
	RI	EVISION CHAPTER 7 – 13			10

CLASS-V {MATH MAGIC V (Mizo Medium)}

Number of teaching days (Ni 180)

			Pedagogical process	Dosourco		No of
	Chapter	Learning Outcomes	Activity/Project/Assignment	Material	Writtern Test	days allotted
1	 Sangha thawnthu Belh, paih, puntir leh sem chungchang kan chhehvela thil pianze chi hrang hrang hmangin Len zawng leh dawn hlawk zawng hmangin Thil hralh leh lei chungchang (thil rih zawng leh a man bithliah chungchang) 	• Belh, paih puntir leh sem hman tangkai thiam – a zat tur awm vel ngaihruat thiam a, chumi zat chu a ni tih finfiah emaw chhut chhuah thiam. Thil tam leh nambar lian suangtuah leh chhut chhuah dan thiam te nitin nuna hmehbel thiam.	 Tuia cheng nungcha chi hrang hrang lem lak khawmtir a, cardboard-a bel. Tuia cheng nungcha lemte hmanga activity chi hrang hrang tihpui ni se. Sangha zawrhna hmuna sangha chi hrang hrang man leh an hralh chhuah zat te zawh ni se. Eng sangha te nge an zawrh, etc. tih te zawt bawk se. Dawr lem te siamin, pawisa lem chi hrang hrang hmanga thil lei leh hralh chungchang te tihpui ni se. Kal chak zawng, hun awh rei zawng, rih zawng etc. atan Worksheet siam sak ni se. Heng zawn chhuahna khawl remchang a awm chuan hman ni se, a chhut chhuah dan te pawh 	 Lehkha, cardboard, sketch pen/crayons, sakawrbakcheh (Fimkhur taka hman ni se) Chart, nungcha lem (Tuipuia cheng), pencil, pen Pawisa lem, pawisa thir, nawhrehna, pencil, lehkhabu, tiffin box Toy, sana pui, sana bun chi 	 Pawisa leh tehna chungchang a basic operation hmanna aṭangin. Textbook-a tih tur awmte aṭangin 	13

			Pedagogical process	Resource		No of
	Chapter	Learning Outcomes	Activity/Project/Assignment	Material	Writtern Test	days allotted
2	Pianhmang leh	• Lehkha thleh leh a	 tihpui ni se Zirlaibu chhunga tih tur ho hi tihpui ni bawk se. Hawlhte/nawhalh fung hmanga 	• Paper, pencil,	Triangle chi	10
	 angle-te Pianhmang nei chi hrang hranga angle awmte Geometrical Shapes 	 lem hmuh theih atangin angle chungchang a hmu thiam. Nitin nuna kan thil hmuh atangin right angle awmte a hmu thiam. Right, acute & obtuse angle te a hmu thiamin a hrethiam. Right angle, acute angle & obtuse angle lem te a zul chhuak thei a, a ziak dan pawh a thiam 	 pianze hrang hrang nei zirlaibu a zawm ang te hi siamtir ni se. (Textbook page no 16-19) Carrom board khelh a, a lung (Dice) kal dan atangin angle te hi hmuhtir ni se. Zirlaibu phek 20-naa angle tehna ang hi siampui la. Chumi hmang chuan thil chi hrang hrang a angle awmte tehtir ni se. Thirsakawr valve leh hmawlhte hmangin – square, triangle, etc. siamtir ni se. Zirlaibu phek 26- 27 a tih tur awm te hi tihpui ni se. Sana lem siam ni se, dar zat hrang hrang a sana ban ten angle an siam te D (Protractor) hmangin teh ni se. 	 classroom a thil awm – lehkhabu, hmawlh, geometry box Carrom Board, dice, carom powder Lehkhabu, pencil, drawing pin etc. Hmawlhte, thirsakawr valve, sakawrbakcheh (Fimkhur taka hman ni se) Cardboard, lehkhapuan, 	 hrang hrang thliar. Sana banin angle a siam hmangin. Protractor hmanga angle/degree teh. 	

			Pedagogical process	Resource		No of
	Chapter	Learning Outcomes	Activity/Project/Assignment	Material	Writtern Test	days allotted
			 Taksa peng hrang hrangin insawizawi laia angle a siam te hmuh thiam a, a lem atanga a angle siam zat teh chhuah ni se. (Textbook phek no. 33) Kut zungtang leh ban hmanga angle chi hrang hrang siam. Lehkha thleh hmanga thil lem siam chi hrang hrangte atangin angle chi hrang hrang awmte zawn chhuah. Cardboard hmangin angle chi hrang siam ni se. 	 rawng, pencil, hmawlhte, protractor Exercise la lai thlalak Colour paper 		
3	 Square eng zat nge? Square leh rectangle awm zat chhiar Square/rectangle lian ber Pianze mumal nei leh nei lo te len zawng zawn 	 2-D pianhmang lan dan leh nih phung chiang zawk a hmuh thiam. 3-D pianhmang lan dan leh nih phung chiang zawk a hmuh thiam a, symmetry an neih te hriatthiam. 	 Chhuat phah a square tile hman zat chhiartir ni se. Pindan danga an hman zat nen a dang lamna te hriatthiamtir ni se. Square area awmzia an hriat thiam nan – hnah, kut zungpui, ke hniak, etc. te len zawng graph paper hmanga teh. (Textbook page no 38 - 40) 	 Square/floor tile hmanna chhuat Hnah, pawisa thir, nawhrehna etc. Postal stamp, graph paper, pencil 	 Square grid hmanga area zawn. Area khaikhin (regular shape) Area khaikhin (irregular 	11

Page | 20

			Pedagogical process	Resource		No of
Chapter		Learning Outcomes	Activity/Project/Assignment	Material	Writtern Test	days allotted
	chhuah	 Lehkhapuan/net hmanga 3-D pianhmang nei – cube, cylinder, etc siam thiam. 	 Graph paper hmanga stamp chi hrang hrangte area zawn chhuah. Cardboard/Chart Paper hmanga puzzle chi hrang hrang siam. (Textbook page no 44-46) 	• Pencil, eraser, chart paper sketch pen, colour, cardboard, sakawrbakcheh	shape)	
	 Square eng zat nge? Pianze hrang hrang leh ziarang chi hrang hrang atanga Geometrical Symmetry awmte hmangin Perimeter zawn 	O O	 Cardboard pianze hrang hrang neia cheh nawi te awmze nei leh kalphung fel tak nei tura rem fel. (Refer page No 46, 48-49) Khawlla hmanga pianhmang mumal bik nei lo chi hrang hrang nei te perimeter zawn chhuah. Graph paper, scale, khawlla/hrui hmanga pianhmang mumal bik nei chi hrang hrang te perimeter zawn chhuah. 	 Cardboard, lehkhapuan, sketch pen / crayon Hnah a tak leh a lem, arsi lem, etc. Pawisa thir, ngun, pencil, thleng, zungbun, hrui, graph paper, scale etc. 	• Perimeter zawn	
4	 A then leh a pum Fraction Fraction khaikhin Equivalent 	 Nambar pum atanga lak then zat hriat thiam. Fraction khaikhin 	 India flag-a rawng chi hrang pathum awmten hmun an luah zat theuh hmuh thiam 	 India flag Paratha Chocolate Bar Lehkha atanga 	 Textbook-a tih tur awmte atangin. Fraction 	13

			Pedagogical process	Resource		No of
Ch	napter	Learning Outcomes	Activity/Project/Assignment	Material	Writtern Test	days allotted
frac	ction	 Equivalent fraction zawn chhuah leh siam thiam. Fraction tlukpui awm zat vel rin thiam 1/2, 1/4, 3/4 Pawisa leh tehna chungchangah decimal fraction pawimawhna leh tangkaina hriat Nambar fraction leh decimal nambarte inchantir tawn dan thiam. 	 Mid-day-meal emaw an thil ei - paratha/chhang kan atangin, hmun li a thena thum, hmun li a thena hmun khat, etc. te hmuh thiam. Chocolate bar atangin – a chanve, hmun li a thena hmun thum, hmun li a thena hmun khat, etc. hmuh thiamtir ni se. Ram chi hrang hrang flag atanga fraction awm te hlut zawng zawn chhuah. Fraction strip hmanga a zat zawn chhuah (Textbook page no 46, 48-49) Lehkha cheh nawi hmanga fraction zawn leh an tlukpui zawn chhuah. Nambar fraction ziak dan thiam -1/4, 3/4, 2/3, 1/3. Grid awmsa atanga fractions siam leh a zat ziah. Kalphung leh ziarang mumal awm atanga 	ram chi hrang hrang flag siam • Paper strips • Lehkhapuan, Pencil sakawrbakcheh • Notebook, pencil, pen	 khaikhin. Equivalent fraction siam. Fraction leh Decimal inchan tawntir. 	

			Pedagogical process	Resource		No of
	Chapter	Learning Outcomes	Activity/Project/Assignment	Material	Writtern Test	No of days allotted
	 A then leh a pum Fraction lian/ fraction te atangin Pawisa chungchang (Notes/coins) Price list leh bill hmangin. 		 equivalent fraction awm hmuh thiamtir. Equivalent Fraction ziah thiam nan tih tur pek, entir nan 1/4=2/8, 2/3=6/9, 1/3=2/6. Refer page no 10, Unit 1, EVS class V (Hawi vel ila) Lehkhapuan hmanga circle siam atangin fraction khaikhin ni se, circle chu cheh tet emaw, thleh emaw ni se. Pawisa note leh a thir hmangin a intluk dan te entir ni se. (Textbook page no 65) Bill leh price list hmangin zirtir ni se. Thil lei tur list siam, menu, price list atangtein thil leina tur atana pawisa ngai zat chhuttir. (Refer page no 105 Unit 12 textbook on EVS class V (Looking Around) for price. 	 Note, pencil, pen, sakawrbakcheh Pawisa lem, pawisa tak Bill leh thil man in ziahna (price list) 	• Pawisa chungchanga basic operation hmanna te.	

Chapter		Learning Outcomes	Pedagogical process	Resource Material	Writtern Test	No of
			Activity/Project/Assignment			days allotted
5	 A lan dan a inang em? Ziarang Pianze hrang hranga Symmetry/ Asymmetry Mirror Halve Rotational Axis /Lines of symmetry 	 Border strip leh tiling a ziarang pawimawh awm te hriat thiam. Pianze hrang hrang a symmetry/ assymetry/ lines of symmetry te hmuh thiam leh a tangkaina hriat. 	 Pen tui leh lehkha thleh hmanga ziarang siam (Textbook page no 71) Symmetric ziarang/pianze nei siam ni se. Naupangin an irawm chhuaka an tih theihna tur ruahman ni bawk se. Lehkhapuan hmangin heng lemte hi siam la, symmetry a ni em zawng rawh – Equilateral triangle te, circle te, alphabet te, entir nan, A, B, C, E, H . Asymmetric pianze nei hmangin ziarang chi hrang hrang siamtir ni se. Lehkha thleh hmangin asymmetry a ni tih finfiah rawh, entir nan, scalene triangle leh heng hawrawp – F, G, J, L hmang te hian Darthlalang hmangin mirror halve activity awm thei te tihpui ni se. 	 Pen tui (Ink)/ water colour, lehkhapuan, khawlla Symmetric patterns chart Lehkhapuan, pencil, sketch pen, sakawrbakcheh Asymmetric shape nei chi hrang hrang cardboard-a ziah Darthlalang, lehkhapuan hmanga geometrical figure chi hrang hrang siam – square, triangle, etc. 	 Symmetry/ asymmetry/ rotational axis etc. hmanga zawhna awm thei aṭangin. Texbook-a tih tur awmte aṭangin 	12

Chapter		Learning Outcomes	Pedagogical process	- Resource Material	Writtern Test	No of
			Activity/Project/Assignment			days allotted
			 (Textbook page no 74-75) Symmetry pianze nei chi hrang hrang, entir nan – circle, equilateral triangle, square, pentagon, arsi etc. te herkual a, an lan dan entir ni se (1/3 a her, 1/6 a her, 1/4 a her, her kual chhuah). Pianze hrang hrang, entir nan, circle, equilateral triangle, square, pentagon, arsiah te line of symmetry /axis of symmetry zawn/ziah. 	60		
6	 Ka multiple ni la, kei i factor? Multiple Common multiple Factor Common factor 	 Nambar 1000 aia tamah pawh place value kalphung a hrethiam. Belh, paih, puntir leh semah place value pawimawhna leh tangkaina a hria ang. Basic operation 	 Multiple zawn nan leihlawn nambar nei siam ni se, nambar bituk zat zel zuan khumtirin zirtir ni se. Classroom-a tar tur, chart paper emaw cardboard-ah puntirna hmun mawi taka ziahtir ni se Zirlaibu phek no 91-92 a tih tur pek ang khan, circle leh marble hmangin nambar pahnih te 	 Lehkhapuan, pencil, rawng, scale, Chalk rawng nei, cardboard, marble 	 Multiple leh factor zawn. Common multiple leh factor. Common multiple a taka hman tangkaina 	13

Chapter		Learning Outcomes	Pedagogical process	- Resource Material	Writtern Test	No of
			Activity/Project/Assignment			days allotted
		chawh chhuah dan	common multiple zawntir ni se.			
		kawng dang a hria.	• Nambar pathum tan an common			
		• Factor leh multiple	multiple zawn chhuahtir ni			
		awmzia sawi fiah	bawk se.			
		thiam.		<u> </u>		
REVISION CHAPTER 1 – 6 10						10
O SCERTOP ROPUBLISH						
			Pedagogical process	Resource	Written	No of
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	Chapter	Learning Outcomes	Activity/Project/Assignment	Material	Test	days allotted
7	 Ziarang i hmu thei em? Ziarang leh her Hawrawp a ziarang awmte 	 Square number, triangular number a ziarang leh kalphung hriat thiam. Odd nambar leh square nambar indawt a ziarang awm te hmuh thiam 	 Kan hmuh mai theih thil, rawmawl, towel, etc. atangin ziarang chi hrang hrang zawn. Thil lem ziah atanga ziarang mumal tak nei tur duan chhuah (her kual emaw tuai vir zelin). Floor tile chi hrang hrang lem ziahtir. 	 Rawmawl, towel, lehkhapuan, tile Pencil, nawhrehna, colour, scale Chalk rawng nei chi 	 Milem leh hawrawp a ziarang awm atangin 	12
	 em? Nambara ziarang awmte 		 Magic square, Magic hexagon. Calendar atanga belh dan hlimawm chi hrang hrang awm hmang hian zirpui ni se. (Refer Pages 107 of Textbook) Classroom-a tar turin chart paper-ah nambar ziarang chi hrang hrang ziahtir ni se. 	 Chart/ cardboard hmang a magic square, magic hexagon siam Calendar Pattern chart 	 Milem len nambar a ziarang awm atangin 	
8	 Bawm leh ruangam 3- D ruangam leh pianzia hmuh leh mitthla thiam 3- D ruangam leh pianzia ziah leh entir 	 3-D pianze nei lem 2-D a ziah dawnin a mitthla thiam. Pianze hrang hrang – cube, cylinder leh cone te lehkhapuan leh net hmangin a 	 Cardboard leh lehkhakhawng hmangin cone, cylinder, etc. siamin, in lem siampui ni se. Nawhalh bawm ruak, hmawlhte etc. hmangin lei, in lemte siampui ni se, hmun hrang hrang atanga an lan dan te 	• Cardboard, lehkhakhawng, pencil, colour, glue hmawlhte, fevicol, sakawrbakcheh	 3-D pianhmang nei lem ziah. Milem inkawp tur thai zawm. 	12

			Pedagogical process	Resource	Written	No of
	Chapter	Learning Outcomes	Activity/Project/Assignment	Material	Test	days allotted
		duang chhuak thiam	 lehkhapuanah ziahtir ni se. 3-D model chi hrang hrang – cube, cuboid etc. lehkhamawi hmanga siamtir ni se. 	 Nawhalh bawm ruak, ice cream tiang, fevicol, colour Lehkhamawi, sakawrbakcheh 		
9	 Sawm bi leh za bi Sei zawng tehna mm, cm, metre A then leh a pum (fraction/ decimal) In chantir (Rupees, paise) In chantir (mm, cm, metre) Ram hrang hrang pawisa Temperature 	 Tehna atana hman thin (mm, cm, metre etc.) te hriat thiam Fraction chungchang bul thut pawimawh hriat thiam Pawisa leh a kaihhnawih chinfel nan leh chhut chhuah nan basic operation a hmang thiam. 	 Naupang te chu an san zawng tehtir ni se (meter/centimeter) an san zawng chu chhinchhiah se, chart-ah ziahtir tur. Sikul tual emaw, field-ah emaw long jump intihsiak se, an zuan thui zawng chu meter/centimeter-in chhinchhiahtir ni se. Textbook page No 126-127 hi tihtir ni se Pawisa thleng nawi leh inchantir tawn (Refer pages No 126-127 of Textbook) Metre khat tehna hmanrua leh centimetre tehna entir la, chumi hmang chuan an inlaichinna 	 Scale, measuring tape, marker 1 × 10 grid, 1 × 100 grid, colour Pawisa lem leh tak Metre scale Ram hrang hrang pawisa leh an hlut dan lanna Chanchinbu 	 Sei zawng, fraction, pawisa, temperature chungchang a belh, paih, puntir leh sem hmanna. Unit chi hrang inchan tawntir cm, mm, m. Rupees leh paise 	12

Chapter			Pedagogical process	Resource	Written Test	No of
		Learning Outcomes	Activity/Project/Assignment	Material		days allotted
			 hmuhtir ni se. (Textbook page No 128) Ram hrang hrang pawisa hlut zawng inziahna chart hmangin thil man chhut ni se, India pawisa hlutna chhut chhuah ni se (Textbook page No 129) Chanchinbu emaw, Tv atangin emaw ni sarih chhunga khawchin (temperature) lak khawmtir la, chart fel tak siamtirin maximum / minimum temperature etc. zawn chhuahtir ni se. EVS class V (Looking Around Class) page no 116 Unit 13-a sik leh sa chungchang kha hman tangkai ni se. 			
10	 Area leh Boundary Area nihphung leh awmzia Area tehna a hman (am², m²) 	 Basic geometrical figure-te area leh perimeter zawn chhuah thiam. Tahna bi atana 	 Area sawi fiah nan, chhang lehkhabu, etc. ten dawhkan a hmun a luah zat/chin kha hman ni se. 10 x 10 grid / Graph papar 	 Chhangthawp, biscuit, lehkhabu Hnah 	• Textbook-a tih tur awmte atangin.	13
	hman (cm^2 , m^2 ,	• Tehna bi atana	• 10×10 grid / Graph paper	• 10×10 grid /		

			Pedagogical process	Resource	Written	No of
	Chapter	Learning Outcomes	Activity/Project/Assignment	Material	Test	days allotted
	km ²)	hman chi hrang hrangte inchantir tawn thiam.	hmangin hna leh geometrical figure hrang hrangte area zawn ni se	Graph paper		
	 Area leh Boundary nihphung leh awmzia 		 Lehkhabu, geometry box, etc. perimeter zawn chhuah nan hrui/khawlla leh scale hman ni se. Pian ze hrang hrang nei – triangle, rectangle, square, etc., perimeter zawn chhuah nan geo- board leh hrui hman ni se. 	 Classroom-a hmuh mai theih – lehkhabu, geometry box, scale etc. Geo-board, hrui/khawlla etc. 	• Textbook-a tih tur awmte aṭangin.	
11	• Chart changkang	 Data pawimawh lak khawm thiam. Table hmanga data lak khawmte awmze neia dah thiam. Data lak khawmte bar graph leh pictograph hmangin a entir thiam. 	 Classroom-a awm – pencil, nawhrehna, pen, geometry box etc. te chhinchhiatirin chhiartir ni se, tally mark hmangin table hi dah khahtir tur. (Textbook pages No 145-149) Tally mark hmanga thil chhinchhiahtir ni se. T.V. emaw chanchinbu atangin state pathumte khawchin (temperature) lak khawmtirin, felfai taka chhinchhiahtir ni se. 	 Classroom-a awm – pencil, nawhrehna, pen, geometry box etc. Pencil, scale, lehkhapuan etc. Chanchinbu, TV, etc. Chanchinbu, magazine, chart, sketch pen/ 	 Tally mark hmangin Bar graph leh pictograph hmangin. 	12

Page | 30

			Pedagogical process	Deseuvee	Writton	No of
	Chapter	Learning Outcomes	Activity/Project/Assignment	Material	Test	days allotted
			 Chanchinbu/ magazine-a bar graph awmte hmuhtirin hrilh fiah ni se, bar graph siam dan zirpui ni se. Mahni chhungkaw family tree theuh siamtir ni se. (Textbook pages no 153) Bar chart atan EVS class V (Looking Around) page no 107 Unit 12. English class V (Marigold) page no 151 Unit 9. 	 crayon, pencil, scale etc. Chart, sketch pen/crayons, pencil, scale etc. 		
12	 Puntir leh sem dan kalhmang Belh leh puntir Sem leh paih 	• Puntir leh sem dan kalhmang thiam. A dikna chhuak tur awm zat vel rin thiam. Nitin khawsaknaa hman tangkai thiam	 Bill leh cash memo an neih te keng khawmin, chumi hmang chuan an pawisa hman zat chhut chhuahtir ni se. Mimal leh sumdawng hnena nitin inhlawhfa thin te ni khat hlawh zawh kual ni se, an thla khat hlawh chhut chhuah sak ni se. Lungphu (heart beat) ran zawng chhut chhuahtir ni se – minute, 	• Bill/ cash memo	 Puntir leh sem hmanga zawhna awm thei atangin. A thu awm chi zawhna hmangin 	14

Page | 31

		Pedagogical process Outcomes Activity/Project/Assignment	Resource	Written Test	No of
Chapter	Learning Outcomes		Material		days allotted
Puntir leh sem dan nihphung • Sem leh paih • Sem		 darkar chhungin etc. (Class V, EVS textbook page no 131 Unit 15) Naupangte chu nitin khawsakna a sem leh puntir kan hmanna chungchangah zawhna siamtir ni se. Sweet, pencil, etc te sem nihphung zir nan a zat inang vek, chuang awm lo a rem/thliartir ni se. Sem zir nan activity tihpui ni se, entir nan – sweet, pencil, lehkhabu, etc. hmangin zirtir ni se, a chuang bial (zero) ni lo te pawh tihpui ni se. Inzat theuha thil thliar leh dah khawm, entir nan - pencil/ lehkhabu/nawhrehna etc.). Chaw/chhang (biscuit) te a taka sem 	 Sweet, pencil, lehkhabu, etc. sweet, pencil, lehkhabu etc. Pencil / lehkhapuan/ nawhrehna etc. Paratha chhang, biscuit etc. 	• A thu awm chi zawhna hmangin	

			Pedagogical process	Resource	Writton	No of
	Chapter	Learning Outcomes	Activity/Project/Assignment	Material	Test	days allotted
13	 Engtia lian nge? Engtia rit nge? Dawnhlawk zawng Dawnhlawk zawng tehna (ml, litre) 	 Sei zawng, rih zawng leh dawn hlawk zawng zawn chhuah thiam leh tehnana hman (cm/m/ km/g/kg etc.) te inlaichin dan leh inchantir tawn dan thiam. Dawn hlawk zawk zawn chhuah dan kalphung leh a nih phung a hrethiam. 	 Rial noah a chanve thleng turin tui chhung la, chumi hmuah marble, nawhrehna, etc. te chu a mal tê têin noah chuan thlaktir rawh. Tui chim chin chu a danglam em? Tehna bur siam. (Textbook page no. 175) Cube, geometry box, nawhrehna etc. te dawnhlawk zawng (volume) zawn. A sei zawng (length), hlai zawng (breadth) leh san zawng (height) hmangin. Naupangte chu an note-bu pathum chherchhuantir la, a sei zawng, a hlai zawng leh san zawng te tehtirin, a dawnhlawk zawng zawntir ni se. 	 Marble, pawisa thir, nawhrehna, rial no, measuring cylinder, tui Syringe, tui etc. Cube, geometry box, nawhrehna, scale etc. Lehkhabu, scale, pencil, etc. 	 A thu awm chi hmanga zawhna. Textbook-a tih tur awm te atangin 	13
	Engtia lian nge?		Bukna leh spring balance	• Bukna or spring	• A thu awm	
	Engtia rit nge?		hmangin – geometry box, thlai	balance,	chi hmanga	
	• Rih zawng		rah, lehkhabu etc. rih zawng	geometry box,	zawhna.	
	Rih zawng tehna		zawn chhuah.	thlai rah,	• Texbtbook-a	
	(g/Kg)			lehkhabu etc.	tih tur awm te	

Charréer	Leening Octoor	Pedagogical process	Resource	Written	No of
Cnapter		Activity/Project/Assignment	Material	Test	allotted
		 Class khata naupangte rih zawng chart fel tak siam, chumi atan chuan bukna hmangin naupangte rih zawng chu chhinchhiah ni se. An rih zawng chu khaikhintirin, zawhna hrang hrang siam ni bawk se. Thil chi hrang hrang – zirlaibu, geometry box, etc. rih zawng khaikhintir ni se, buk kher lovin chawi se, a rit zawk finfiah nan bukna hman leh ni se. Thil chi hrang hrang – zirlaibu, geometry box, etc. rih zawng khaikhintir ni se, buk kher lovin chawi se, a rit zawk finfiah nan bukna hman leh ni se. Thil chi hrang hrang – zirlaibu, geometry box, etc. rih zawng, len zawng, dawnhlawk zawng te zawng chhuakin khaikhin ni se. 	 Weighing machine, chart paper, sketch pen, scale etc. Lehkhabu, geometry box etc. 	aṭangin	
	CRE	VISION CHAPTER 7 – 13			10

CLASS-VI

Number of teaching days (180 days)

			Pedagogical Process	Writton	No of
	Chapter	Learning Outcomes	Activity/Project/Assignment	Test	days allotted
1	Knowing our Numbers	 Consolidates the sense of number-ness up to 5 digits in terms of its size of estimation. Gets familiar with large numbers upto 8 digits. Solves word problems on large number operations. 	 Through various situations, make children compare numbers up to 5-digits like cost of two houses, number of spectators present in two football matches, etc. Number patterns could be used to extend numbers up to 8-digits and then daily life situations involving 8-digit numbers could be discussed e.g., cost of property. Involve children in solving daily life problems involving more than one operation and then to appreciate the hierarchy to be decided to carry on different operations. 	Appropriate questions from Exercise 1.1, 1.2 and 1.3.	10
2	Whole Numbers	 By observing patterns, identifies and formulates rules for whole numbers. Evolves the properties of whole numbers like commutative, 	 Different number operations could be performed by students which through discussions could help to know the different properties like closure, commutative, associative, etc. Situations could be created and discussed in which numbers are required to be represented for opposite situations, like points/objects in different directions from a reference point, give and take situations, 	Appropriate questions from Exercise 2.1, 2.2 and 2.3.	10

Chapter			Pedagogical Process	Writton	No of
		Learning Outcomes	Activity/Project/Assignment	Test	days allotted
3	Playing with	associative, distributive, additive identity, multiplicative identity, etc.	 profit and loss, etc. Divisibility rules can be introduced using patterns 	Appropriate	14
	Numbers	 divisibility rules of 2, 3, 4, 5, 10 and uses them as and when required. Appreciates the classification of numbers as even, odd, prime, co-prime, etc. Understands the significance of HCF and LCM and finds them. Applies prime factorisation to find HCF and LCM of 	 and then different division problems could be discussed to show their use. For example, let children form multiplication tables of different numbers like 2, 3, 4, etc. and then from the multiplication facts, ask them to identify the pattern like multiple of 3 has sum its digits divisible by 3, multiple of 5 has either 5 or zero in its one's place, etc. Involve children in classification of numbers on the basis of their properties like even, odd, multiples and factors. Encourage children to create number patterns through which HCF and LCM can be discussed. 	questions from Exercise 3.1, 3.2, 3.3, 3.4, 3.5, 3.6 and 3.7.	

			Pedagogical Process	Writton	No of
	Chapter	Learning Outcomes	Activity/Project/Assignment	Test	days allotted
		numbers.			
4	Basic Geometrical Ideas	 Differentiates between different geometrical figures on the basis of their observable properties. Classifies figures as open and closed Identifies interior and exterior of closed figures. Describes line, line segment, ray, curvilinear and linear boundaries. Classifies angle into different types on the basis of their measurement and describes elements of angle like vertices, 	 Activities may be performed in which students can be shown concrete models and pictures of different geometrical shapes. Students can be involved in activities related to identify, angles, triangles and quadrilaterals and nets. Different geometrical figures may be given to draw that Involves angles of various measures, line segments, etc. 	Appropriate questions from Exercise 4.1, 4.2, 4.3, 4.4, 4.5 and 4.6.	14

		Pedagogical Process	Writton	No of
Chapter	Learning Outcomes	Activity/Project/Assignment	Test	days allotted
5 Understanding Elementary Shapes	 arms, interior and exterior. Understands circle and its components like centre, radius, diameter, arc, sector, chord, segment, semi-circle, circumference, interior and exterior. Understands the difference between different types of triangles and the basis on which they are classified. Describes vertices, sides, angles, interior and exterior and exterior and exterior and exterior and exterior, altitude and median of a triangle. Identifies 3-D 	 A better way of connecting 2-D with 3-D shapes is relating nets of various solids with their shapes. Models and nets of 3-D shapes can be made by students to get an idea of their edges, faces, etc. Discussion can be held after showing objects to the children. 	Appropriate questions from Exercise 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 5.7, 5.8 and 5.9.	15

Chapter	Learning Outcomes	Pedagogical Process Activity/Project/Assignment	Written Test	No of days allotted
	shapes and their			
	elements.			
	• Classifies			
	quadrilaterals as			
	trapezium,			
	parallelogram,			
	rectangle, square,			
	rhombus.	PEVISION		10
		the feel		

			Pedagogical Process		No of
Chapter		Learning Outcomes	Activity/Project/Assignment	Written Test	days allotted
6	Integers	 Understands the Importance of brackets and other symbols like =, <, >. Appreciates the need for negative numbers. Through patterns, formulates rules for ordering of integers, their representation on number line, addition and subtraction of integers, etc. 	 Daily life situations where opposites are involved could be presented to introduce integers Represents such quantities by positive and negative numbers. Let children evolve their own strategies of ordering, adding and subtracting integers. 	Appropriate questions from Exercise 6.1, 6.2, and 6.3.	10
7	Fractions	 Represents fractions pictorially and on number line. Finds sum and difference of two fractions. 	 Daily life situations and pictures could be presented to introduce fractions and decimals like representing part of a whole as number, a dot mark placed to separate rupees and paise, metre and centimetre, kilometre and metre, litre and millilitre, etc. Encourage children to look at the pictures showing sum and difference of like fractions and to generalise. Let children evolve that to add or subtract two unlike 	Appropriate questions from Exercise 7.1, 7.2, 7.3, 7.4, 7.5, and 7.6.	10

Page | 40

			Pedagogical Process		No of
	Chapter	Learning Outcomes	Activity/Project/Assignment	Written Test	days allotted
			fractions it is required to convert them into equivalent fractions of same denominators (<i>like</i> <i>fractions</i>).		
8	Decimals	 Represents decimals pictorially and on number line. Finds sum and difference of decimals. 	 Students may be introduced with concept of lengths of their pencil and instrument box. This will involve lengths with decimal points. Representation of fractions using deimal points must be introduced. Decimal numbers on a number line must also be introduced. Addition and subtraction of lengths, distances, weights etc involving decimal points must also be introduced. 	Appropriate questions from Exercise 8.1, 8.2, 8.3, 8.4, 8.5, and 8.6.	10
9	Data Handling	 Understands the use of organising data. Uses tally marks to organise data. Represents data through pictograph, bar graph. 	 Daily life situations involving quantitative information can be discussed with the students. Discussion can be held about why data should be organised. Children can be motivated to use their own ways of organising data. Children may be asked to explore their own ways of representing the data in picture and in table of numbers. 	Appropriate questions from Exercise 9.1, 9.2, 9.3, and 9.4.	12

			Pedagogical Process		No of
Chapter		Learning Outcomes	Activity/Project/Assignment	Written Test	days
					allotted
10	Mensuration	 Understands the concept of perimetre and area of a shape. Deals with special case when a rectangle is a square. Derives general formulae to find perimetre and area of rectangles. 	 Different shapes can be shown to the students and through the notion of boundary, the concept of perimetre can be discussed. Discussion can be held about boundary and region, which can lead to the concept of area. 	Appropriate questions from Exercise 10.1, 10.2, and 10.3.	12
11	Algebra	 Understands variables through patterns Classifies quantities as variable and constant Understanding algebra as generalisation of arithmetic 	 Situations may be presented before the children that would prompt them to form patterns and feel the need for a symbol in place of number. Involve children in genralisation of patterns by using letters for numbers called variable or unknown. Children should be asked to write/describe various daily life situations in mathematical terms using letters and numbers. This will help them in generation of expressions and equations. 	Appropriate questions from Exercise 11.1, 11.2, 11.3, 11.4 and 11.5.	12

			Pedagogical Process		No of
Chapter		Learning Outcomes	Activity/Project/Assignment	Written Test	days
					allotted
12	Ratio and Proportion	 Understands how the comparison of two quantities through ratio is different from comparisons done earlier. Understands the meaning of proportion Knows how ratio and proportion are related to unitary method. Solves problems related to daily life using unitary method. 	 Discussions may be held to show different methods of comparison of quantities like by taking difference, division and then ratio. Children may be encouraged to create examples to show the difference between ways of comparison of quantities done through operation of subtraction and that through ratio Examples could be discussed to show the difference between ratio and proportion and to relate them Daily life problems related to unitary method could be discussed such as shopping finding the rate, etc. 	Appropriate questions from Exercise 12.1, 12.2 and 12.3.	10
13	Symmetry	 Identifies 2-D symmetrical objects. Understands reflection symmetry. 	 Activities can be performed using mirror and children may be made to observe the reflections. The observations can then be discussed. Folding a paper cut out of a shape along specific lines can also be used to show the reflection symmetry in case the two halves exactly cover each other. 	Appropriate questions from Exercise 13.1, 13.2 and 13.3.	10

Chapter		Learning Outcomes	Pedagogical Process		No of		
			A stivity/Project/Assignment	Written Test	days		
			Activity/110ject/Assignment		allotted		
14	Practical Geometry	 Draws perpendicular line segments Constructs angles of different measures using compasses. 	 After discussing the drawing of 60° angle using compasses, construction of other angles like 30°, 120°, etc. can be discussed with the children. Give them a feel of dividing a circle into equal segments that correspond to angle. For example, a circle can be divided into six equal parts by the chords of length equal to radius of the circle and this actually forms 1/6th of complete angle i.e., 60° at the centre. 	Appropriate questions from Exercise 14.1, 14.2, 14.3, 14.5 and 14.6.	11		
			REVISION	•	10		
		Brain Teasers and Projec	ts may be undertaken as and when considered necessary				
Brain Teasers and Projects may be undertaken as and when considered necessary							

CLASS-VII

Number of Teaching days (180 days)

			Pedagogical process	No of
	Chapter	Learning Outcomes	Activity/Project/Assignment Writte	n Test days allotted
1.	Integers	 Understands and performs multiplication and division of integers. Evolves properties of integers (including identities for addition and multiplication, commutative, associative, distributive). Word problems including integers. Solves problems using operations on integers. 	 Involve children in discussion to find their ways of multiplying integers like using patterns in multiplying a negative integer by another integer. Encourage children to explore and using concept of dividing a natural number by another by simply finding the number which when multiplies the divisor gives the dividend as product. So, to find – 4, – 2; we have to find the number which on multiplication with – 2 gives the result – 4. Involve children in classification of numbers on the basis of their properties like even, odd, multiples and factors. These numbers can be used to classify numbers into various categories. 	riate 11 ns from e 1.1, and
2	Fractions and Decimals	 Multiplies and divides fractions. Understands mixed fractions. 	 Utilize children's knowledge about describing Approprimultiplication of fractions as operator 'of' and explain by paper folding, shading parts of whole, etc. Let children do sums and observe the pattern that in all cases, the product of fractions can be obtained by 	riate 10 ns from e 2.1 to

			Pedagogical process		No of
	Chapter	Learning Outcomes	Activity/Project/Assignment	Written Test	days allotted
3	Data Handling	 Multiplies and divides decimal fractions. Collects and organizes data – choosing the data to collect for a hypothesis testing. Finds mean, median and mode of ungrouped data– understanding what they represent. Constructs bar graphs. Gets a feel of 	 multiplying their numerators and their denominators. Let children observe pattern and find their own ways of dividing a fraction by another fraction. Multiplication and divison of decimal numbers like currency, distance and weights. Utilise child's daily life experiences and contextual problems to test hypothesis by collection and organisation of data. Situations like finding a representative value to data help in understanding the idea of finding mean, median and mode of ungrouped data. Starting with small sets of numbers will be easier to visualise and represent by bar graphs. Involve children in drawing inferences for future events from the existing data. 	Appropriate questions from Exercise 3.1 to 3.4.	10
		probability using data.			1.0
4	Simple Equations	 Forms and solves simple linear equations in one variable (in contextual problems) with two 	• Involve children in groups of three or four to explore situations in which students can express simple equations and solve them. Textbooks have some such examples.	Appropriate questions from Exercise 4.1 to 4.4.	10

Page | 46

			Pedagogical process		No of
Chapter Learning		Learning Outcomes	Activity/Project/Assignment	Written Test	days allotted
		operations.			
5	Lines and Angles	 Describes pairs of angles (linear, supplementary, complementary, adjacent, vertically opposite). Evolves properties of parallel lines with transversal (alternate, corresponding, interior, exterior angles). 	• Diagrams and use of upper primary mathematics kit (developed by NCERT) help children in visualising the relationship between various pairs of angles when a transversal cuts two lines (parallel and non- parallel), angles of triangle and relationship among its sides.	Appropriate questions from Exercise 5.1 to 5.2.	11
6	The Triangle and its Properties	 Explores angle sum property and exterior angle property of a triangle. Concludes that sum of two sides of a triangle is greater than third side of a triangle. States and uses 	 Provide set of any three triangles on a sheet to each child. Ask him/her to measure the angles of the triangle and help them to reach the conclusion that sum of the angles of the triangles is 180° in each case. Encourage discussion in the class to generalise the above property of triangles. Similarly, activities to be conducted in the classroom to explore the exterior angle property of triangles. Involve children in experimentation with measurement 	Appropriate questions from Exercise 6.1 to 6.5.	11

		Pedagogical process		No of
Chapter	Learning Outcomes	Activity/Project/Assignment	Written Test	days allotted
	Pythagoras Theorem	of sides of right-angled triangles and recognition of		
	(Verification only).	pattern to hypothesise the Pythagorian relation.		
		REVISION		10
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			Pedagogical process		No of
	Chapter	Learning Outcomes	Activity/Project/Assignment	Written Test	days
			v v o		allotted
7	Congruence of Triangles	 Examines congruence through superposition. Extends congruence to simple geometrical shapes e.g., triangles, circles. Evolves criteria of congruence (SSS, SAS, ASA, RHS). 	• Children working in groups with traced copies of various shapes and superimposing one above the other help them in establishing congruence criterion.	Appropriate questions from Exercise 7.1 and 7.2.	10
8	Comparing Quantities	 Extends knowledge of Ratio and Proportion and Unitary method. Understands percentage as a fraction with denominator 100. Converts fractions and decimals into percentage and vice- versa. Understands profit and loss (single transaction 	 Children know about many ways of comparing quantities. Utilising their experiences to conclude that ratio is another way of comparing quantities is important. Percentages and their applications are also in child's daily life experiences which can be used to form various formulae and solving problems using them. 	Appropriate questions from Exercise 8.1 to 8.3.	10

			Pedagogical process		No of
	Chapter	Learning Outcomes	Activity/Project/Assignment	Written Test	days allotted
		 only). Understands simple interest (time period in complete years). 			
9	Rational Numbers	 Defines rational numbers. Performs operations on rational numbers. Solves problem using operations on rational numbers. 	 Represent rational number as decimal fraction and let the children attempt to form rules for operations on decimal fractions. Utilise children's knowledge about understanding and describing operations of rational number as in decimal fractions and also to those of integers. (See Chapter 1 Integers and Chapter 2 Fractions and Decimals) 	Appropriate questions from Exercise 9.1 and 9.2.	10
10	Practical Geometry	 Constructs a line parallel to a given line from a point outside it. Constructs simple triangles by using ruler and a pair of compasses. 	 Provide practice with ruler and compasses to draw various geometrical shapes. More emphasis be given providing justification and logic on the accuracy of the constructed shape. 	Appropriate questions from Exercise 10.1 to 10.5.	12
11	Perimeter and Area	• Revises perimetre and idea of circumference of circle.	• Involve children in activities targeted to measurement of region enclosed by closed figures on a plane surface and encouraging them to come to the	Appropriate questions from Exercise	12

			Pedagogical process		No of
Chapter		Learning Outcomes	Activity/Project/Assignment	Written Test	days allotted
12	Algebraic Expressions	 Has an idea of a pie chart. Develops concept of measurement using a basic unit area of a square, rectangle, triangle, parallelogram and circle. Generates algebraic expressions. Identifies constants 	 conclusion that a unit is required. Conduct activities related to measuring/counting the number of units squares within a figure drawn on a square grid and to compare various regions. Use child's context and encourage them to generate algebraic expressions by proper choice of variable/unknown and operations. 	11.1 to 11.4. Appropriate questions from Exercise	11
		 Identifies constants, coefficient, powers, like and unlike terms and degree of an expression. Adds and subtracts algebraic expressions. 	 Child's daily life experiences like adding/subtracting a group of 2 notebooks and 5 pencils to/from another group of 3 notebooks and 8 pencils, etc. Let children form their own rule that like terms can only be added or subtracted. 	12.1 to 12.4.	
13	Exponents and Powers	• Defines exponents and their laws.	 Involve children in exploring their ways of writing repeated multiplication in short form as repeated addition is represented by multiplication. With discussion let the children reach the conclusion of writing repeated multiplication in exponential form. 	Appropriate questions from Exercise 13.1 to 13.3.	10

		Pedagogical process		No of
Chapter	Learning Outcomes	Activity/Project/Assignment	Written Test	days
		Activity/110ject/Assignment		allotted
14 Symmetry	 Recalls reflection symmetry. Develops idea of rotational symmetry, observations of rotational symmetry of 2-D objects. 	• Conduct activities with children given in textbooks (paper folding and observing diagrams) and encourage children to visualize symmetry and criterion for rotational symmetry of various shapes.	Appropriate questions from Exercise 14.1 to 14.3.	10
15 Visualising Solid Shapes	d • Identifies and counts vertices, edges, faces and nets (for cubes cuboids, and cylinders, cones).	 Involve children in expressing/representing a 3-D shape into 2-D from their life like drawing a ball, boxes and ice cream etc. Formation of shadows during the day may also be observed. Artificial source of light using torch etc. can also be done. Let children make nets of various shapes like cuboids, cubes, pyramids, prisms, etc. Again, from nets let them make the shapes and to establish relationship among vertices, edges and surfaces 	Appropriate questions from Exercise 14.1 to 14.3.	12
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	Brain Teasers and Projec	ts may be undertaken as and when considered necessary		

Page | 52

CLASS-VIII

Number of Teaching days (180 days)

			Pedagogical Process		No of
	Chapter	Learning Outcomes	Activity/Project/Assignment	Written Test	days allotted
1.	Rational Numbers	 Describes properties of rational numbers. (Including identities). Using general form of expression to describe properties. Applies operations on rational number. Represents rational numbers on the number line. Understands that between any two rational numbers there lies another rational number. 	 Involve children in writing general form of rational numbers and to associate it with rules of algebra. The operations on algebraic expressions will help in describing properties of rational numbers. Let children use the rules for comparison of integers and fractions to develop their own rules for comparison of rational numbers. Encourage children to conclude that half of the sum of two rational numbers lies between them and thus a rational numbers. Provide hints to the children to reach the conclusion that the process of finding a rational number between any two numbers never stops and thus there lie many rational numbers between any two rational numbers. Making children see that if we take two rational numbers (unlike whole numbers), you can keep finding more and more numbers that lie between them. 	Appropriate questions from Exercise 1.1 and 1.2, including the examples.	9

			Pedagogical Process		No of
	Chapter	Learning Outcomes	Activity/Project/Assignment	Written Test	days
2	Linear Equations in One Variable	• Solves linear equations in one variable in contextual problems involving multiplication and division (word problems) (avoid complex coefficient in the equations).	 Continuing the idea of numerical coefficient and factors of a term to evolve methods of writing an expression in terms of product of two or more expressions. This will lead to the factorisation of algebraic expressions. Give special emphasis to common errors that children commit while learning algebra like 2 + x = 2x, 7x + y =7xy, etc. 	Appropriate questions from Exercise 2.1 to 2.6, including the examples.	9
3	Understanding Quadrilaterals	 Develops Understanding of Shapes including: Properties of quadrilaterals – Angle sum property. Properties of parallelogram (By verification) (i) Opposite sides of a parallelogram are equal, (ii) Opposite angles of a parallelogram are 	• Involve children in activities of measuring angles and sides of shapes like quadrilaterals and parallelograms and to identify patterns in the relationship among them. Let them make their hypothesis on the basis of the generalisation of the patterns and later on to verify their assertions. Use of Upper Primary Mathematics Kit will help learners in verifying their assertions/hypotheses.	Appropriate questions from Exercise 3.1 to 3.4, including the examples.	7

			Pedagogical Process		No of
Chapter		Learning Outcomes	Activity/Project/Assignment	Written Test	days allotted
		equal, (iii) Diagonals			
		of a parallelogram	·		
		bisect each other. (iv)			
		Diagonals of a			
		rectangle are equal and			
		bisect each other. (v)			
		Diagonals of a			
		rhombus bisect each			
		other at right angles.			
		(vi) Diagonals of a			
		square are equal and			
		bisect each other at			
		right angles.			
4	Practical Geometry	Constructs Quadrilaterals	Children enjoy constructing various figures by using	Appropriate	7
		given:	compasses and a straight edge. But it is also important	questions	
		• Four sides and one	to involve children to argue why a particular step is	from Exercise	
		diagonal.	required.	4.1 to 4.5,	
		• Three sides and two	• For example, on drawing an arc using compasses, we	including the	
		diagonals.	find all those points that are at the given distance from	examples.	
		• Three sides and two	the point where the metal end of the compasses were		
		included angles.	placed.		
		• Two adjacent sides and			

			Pedagogical Process		No of
	Chapter	Learning Outcomes	Activity/Project/Assignment	Written Test	days
					allotted
		three angles.			
5	Data Handling	 Arranges ungrouped data into groups. Representation of grouped data through bar- graphs, constructing and interpreting bar- graphs. Draws simple pie charts with reasonable data numbers. Consolidates and generalises the notion of chance in events like tossing coins, dice, etc. relating it to chance in life events. 	 Conduct activities related to throwing a large number of identical dice/coins together and aggregating the result of the throws to get large number of individual events. Involve children in making their assumption for the future events on the basis of the above data. Observing the aggregating numbers over a large number of repeated events also help in forecasting the chances of future events. Comparing with the data for a coin. Observing strings of throws will help children in developing notion of randomness. 	Appropriate questions from Exercise 5.1 to 5.3, including the examples.	8
6	Squares and Square Roots	 Finds square and square roots using factor method and division method for 	 Make children observe patterns in square numbers and to form their rules for perfect square numbers and square roots. Allow children to play with numbers to find square 	Appropriate questions from Exercise 6.1 to 6.4,	8

			Pedagogical Process		No of
	Chapter	Learning Outcomes	Activity/Project/Assignment	Written Test	days allotted
		 numbers containing (a) no more than total 4- digits and (b) no more than 2 decimal places. Estimates square root. 	 roots using prime factorisation. Let children practice the division method to find square roots of numbers. 	including the examples.	
7	Cubes and Cube Roots	 Finds cubes and cube roots (only factor method for numbers containing at most 3 digits). Estimates cube root. 	 Let children observe patterns in perfect cube numbers and form rule for cube root numbers. Allow children to play with numbers to find cube roots using prime factorisation. 	Appropriate questions from Exercise 7.1 and 7.2, including the examples.	7
8	Comparing Quantities	 Solves slightly advanced problems involving applications on percentages, profit and loss, overhead expenses, discount, and taxes. Differentiates between simple and compound interest (compounded 	• The study of ratio and proportion continues from the Class VI and VII. Simple problems related to percentages, profit and loss and simple interest will help learners in recapitulation of the basic ideas of these concepts and algorithms/formulas. Teachers will help children to arrive at the formula for compound interest through patterns and using it for simple problems.	Appropriate questions from Exercise 8.1 to 8.3, including the examples.	9

		Pedagogical Process		No of
Chapter	Learning Outcomes	Activity/Project/Assignment	Written Test	days allotted
	yearly up to 3 years or half yearly up to 3			
	steps only.			
		REVISION		10
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Page 58				

			Pedagogical process		No of
	Chapter	Learning Outcomes	Activity/Project/Assignment	Written Test	days
	-		retivity/110jeet/135ignment		allotted
9	Algebraic Expressions and Identities	 Multiplies and divides algebraic expressions (Coefficient should be integers). Explores and verifies identities (a ± b)² = a²± 2ab + b², a² - b² = (a - b) (a + b) 	 Children already have the idea that same number multiplied repeatedly can be expressed in powers and the same is true for variables. Let children develop their own results for algebraic identities by using the multiplication of algebraic expressions. This can be further strengthened by using the algebra tiles as mentioned in the textbooks. 	Appropriate questions from Exercise 9.1 to 9.5, including the examples.	12
10	Visualising Solid Shapes	 Identifies and matches pictures with objects [more complicated e.g., nested, joint 2-D and 3-D shapes (not more than 2). Draws 2-D representation of 3-D objects (Continued and extended). Counts vertices, edges and faces and verifies Euler's relation for 3-D figures with flat faces. 	 Involve children in expressing/representing a 3-D shape into 2-D from their life like drawing a box on plane surface, showing bottles on paper, etc. Let children make nets of various shapes like cuboids, cubes, pyramids, prisms, etc. Again, from nets let them make the shapes and to establish relationship among vertices, edges and surfaces. Through pattern let them reach to Euler's relation. 	Appropriate questions from Exercise10.1 to 10.3, including the examples.	12

			Pedagogical process		No of
	Chapter	Learning Outcomes	Activity/Project/Assignment	Written Test	days allotted
11	Mensuration	 Explores area of a trapezium and a polygon. Finds surface area of a cube, cuboid, cylinder. Understands concept of volume, measurement of volume using a basic unit, volume of a cube, cuboid and cylinder. Volume and capacity (measurement of capacity). 	 Let children discuss in groups to convert trapezium and parallelograms into rectangles of equal area. This will help them in formation of formulae to find these areas. In finding surface areas of cubes and cuboids involve children in opening such boxes and realise that all these surfaces are made up of rectangles and squares only. The rest of the job of finding total surface area will only be to add these areas. Children already have vocabulary related to measurement of volume and capacity through their daily life experiences. Involve them in activities to get a feel of filling a given space and to measure it by just counting the unit items that fill it completely. This will also help them in deciding why a cube is taken as a unit of measuring volume. 	Appropriate questions from Exercise 11.1 to 11.4, including the examples.	14
12	Exponents and Powers	• Describes laws of exponents with integral powers. (Negative exponents)	 Children already know writing repeated multiplication in exponent form. Repeated division may too be explored. Involve children in exploring exponential form and rules to solve problems involving negative exponents. 	Appropriate questions from Exercise 2.1 and 12.2, including the examples.	10

			Pedagogical process		No of
	Chapter	Learning Outcomes	Activity/Project/Assignment	Written Test	days
			Activity/110ject/Assignment		allotted
13	Direct and Inverse Proportions	 Understands direct and inverse proportions. Solves simple and direct word problems. Solves time and work problems – Simple and direct. 	 There are many situations and variations in values of two variables which lead to classify them as direct and indirect or inverse variations. Involve learners in deriving the rules to solve problems related to these variations using ratio and proportions. 	Appropriate questions from Exercise 13.1 and 13.2, including the examples.	10
14	14. Factorisation	 Factorises expressions (simple cases only) as example the following types- a (x + y), (x ± y)², a² -b², (x + a)(x + b) 	 Let children explore the use of identities in factorization. Algebra tiles may also be used for further strengthening of the context. Emphasis may be given regarding common errors committed in solving algebraic expressions. 	Appropriate questions from Exercise 14.1 to 14.4, including the examples.	14
15	15. Introduction to Graphs	 Draws and interprets graphical representation of data using bar graph, pie chart and histogram. Understands the significance of line graphs and the relation 	 Involve children in drawing inferences from the existing data. Observation from everyday life to distinguish between dependent and independent variables like phone, electricity, water bills etc. may be used. 	Appropriate questions from Exercise 15.1 to 15.3., including the examples.	12

			Pedagogical process		No of
Chapter		Learning Outcomes	Activity/Project/Assignment	Written Test	days allotted
		between dependent and independent variable.			
16	16. Playing with Numbers	 Writes and understands a two and three digit number in generalised form (100a + 10b + c, where a, b, c, can be only digit 0-9) Solves and creates problems and puzzles. Deduces the divisibility test rules of 2, 3, 5, 9, 10, for a two or three-digit number expressed in the general form. 	• Utilising child's understanding about algebra introduce the generalised form of 2 and 3 digit numbers and prove divisibility test of numbers.	Appropriate questions from Exercise 16.1 to 16.2, including the examples.	12
			REVISION		10
		Just for fun and Projects	may be undertaken as and when considered necessary		


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