Class VIII Mathematics CURRICULAM (2018-19)

Content	Objectives	Skills	Learning Styles	Activity	Subject Integration	Outcome	Assessment
1. Rational Number Properties of +, -, X, ÷ of rational no. Representation of rational no. on no. line finding rational no. between any five rational no.	Student will enable * To Find which properties are true for different operation of rational no.	Representation skill: To Represent rational number on a no. line	Verbal Linguistic	Explain of properties of rational no. * Find rational number between given two rational no.	S.St-. Rationalism in constitution of India	Student will extend the knolwedge to rational numbers. They will appricate the fact that the mean of any two rational numbers liesbetween those rational number.	Pen paper test **By Activitity FA (Represention of rational number pictorically**
	* To understand the additive identity, additive inverse, multiplication identity and multilication inverse of rational no.	Reasoning Skill :-	Bodily kinesthetic	Representation of rational number pictorically	Engliish		Individual Activity
	To Represent rational number on a no. line.	Every fraction is a rational no. but a rational no. need not be a fraction.	Interpersonal	Discussion on terms rationalism and on properties on it.	* Poem written on rationalism * Word Problem		Representation of number system on pattern and different types of number
	To learn the method of finding rational number between two given rational numbers.	* Whole no's, natural no, integer, fractions area all rational no.	Logical Mathematical	Communication properties of add and x is closed underrational no. but not on '-' and ÷	Science : in solving numerical of acceluation relocity in	They will also learn the method of repesenting unlike rational number on one number line.	Individual Activities Construction of Flow chart based on number system * Contnent (2) * Creative (3) * Carretive (4) Timely submisison (1)
		Calculative skills : - will solve the operation by using properties by rational no.	Visual spatial	Representation of rational number line.			
		Problem solving : will be able to solve real life problem related to rational number Ordering skill : will arrange position and -ve numbers. Content organisation : Organise the data given in word problem step wise to form mathematical impression.	Intrapersonal	* will classifiy rational no. into terminating decimals		Understand parts of seed also draw diagram	
2 LinearEquation in one variable	To Enable the Students	Verbal/Linguistic -	Expression				

	* Learn and practice the method of solving linear eq. Of diffent types	By explaining the daily life problem into an equation.	By Converting word problem Into mathematical expression	* To Trace the relationship in one variable by your's age and your families age.	* Science - In deriving formula's like V= U+at U + at = v, a = v-u/t	Student will be able to convent word problem into linear egs. And then solve. They will understand the sol. Of linear e.g. can be an integer or a rational no. or a dicimals no.	**Pen Paper**
	* To verify the solution of an eq.	Body Smart - By doing act of Role play of yours and falling's age	Calculative Skill - By Solving eq. of work problem	* Finding the missing no. is magic sq. by linear eq.	Eng- Work Problems		**By Activities**
	* Express the problem as an eq.	People Smart - Discussion on day to day life situation and some situation given in a book	Ordering Details - By Step by Step Calculation of eg.				
		Logic Smart - By Calculating the eg. Of daily life problems Self Smart - By Solving numerical expression					
3. Understanding Quadrilateral	* Types of Polygon	Drawing Skill					Pen-paper test (SA Part)
	* Indentify the polygons and their properties	Able to draw different polygons with given information through roughsketch	Verbal	Explanation of different polygous and their properties through discussion	G.Sc. Helping in draw many diagrams and use of properties in numerial.	Student will be able to undertstand the different properties of different polygons.	Maths Lab activities
	Angle sum property of polygons	Understanding skill try to understand the given geometrical problem and corelate given terms and angle.	Bodily	Activity (from Math labs) * Sum of all angles of # is 360	S.Sc. Shapes of different land space etc.	Student will be able to find sum of interior and explain angles of different polygons	Group : Topic Yoga, Analyse, the different angles Formed in yog posture (Surya Namaskar)
	Exterion angle property of polygon	Conceptual skill - Apply conceplual knowledge to find different anglesed their relation		Sum of exterior angles of any polygon is 360	P. Education : Shapes of ground (Circular, rectangular as square etc.	Students will co-relate no. of sides and diagrams of given polygon with exterior and interior angles of polygon.	
	Properties of various types of like parallogram, rectangle square rhombus etc.	* Ordering details - Try to put given angles in order to find missing angles.	Interpersonal	Discussion on properties of different polygons	Drawing : Drawing many shapes with information life		Conceptual (4) Knowledge accuracy (4) Team Work (2)

				Cut different polygons from paper with both of others to understand the properties	peatagon, triangles etc.		Proof of angle sum property of quadrilateral and
			Visual	To Show cut outs of different polygons	Computer : Flow Charts		Content
			Interpersonal	Solving problems themselves with drawing of figures			Team Work
			Naturalistic	By using the application of CT and its properties in divisional any thing in real life.			Correctness
4 Practical Geometry (Construction of Quadrilatral	* To Construct a unique quadrilateral with the fine given parts	Drawing skills	Verbal Linguistic	Explaination of concept of construction of is and its type	Draw : Drawing figures with accuracy	* Student will practice the use of geometrical insturements like scales, compass, protector etc.	
	To Identify if the construction of a quadrilateral of given measurement is possible or not	To Construction draw a quad. If 4 sides and one diagonal in given * by 3. sides and 2 diagional * by 3 sides and 2 included angles and some special cases	Kinestic/ Bodily	By Constructing a fig. of aeroplane by quad. Using rules, compass protector on a sheet			Pen and paper test
		Observation skills	Interpersonal	By discussing the properties of quad. And its types of for applying in construction.	S.St. - distrubution of land as land is distributies in the form of quad.		Student made Compass, scale, protector, on
		By observing the criteria, student will able to construct the quad of given problem.	Logical	Justification will be given for construction of quad. By using diff. properties of quadrilateral.		They will value and appricate the accuracy and neatness required in construction.	
		Analytical skill	Visual	By constructing and observing rough sketch of quad.			
		By recollecting the knolwedge of properties of qad. & congency. Student will able to co-relate the given problem and construct the quadrilateral	Intrapersonal	By constructing the quad. Of given problem by themselves			
5. Data handling	To enable the students to:	Drawing Skills	Verbal	By explaing the concept and regd. Of ungrouped data	S.St. : - Increase in population by histogram, bar graph, Pie Chart	The students will be able	

* Bar graph and double bar graph	To group data into grouped freq. table	By Drawing diff. type of histogram, bar graph pie graph	Bodily	By measuring height and weight of students or by the data colelcted from all student who spend more then 4 hrs. in watching TV and present it as histogram by papercuting and pasting	Economic growth of a country	Students will learn to draw and read the information givedn in the form of a bar graph, histogram and pie graph which will help them to understand statical information available in newspaper etc.	**Pen Paper**
* Histogram	* To represent grouped data pictorically with the help of a histogram	Observation skill	Interpersonal	By discussing graph of different situation.	Science : Repr. Of life cycle of human life by histogram		**Practical exam.**
* Pic graph	* To draw pie graph for given data	By observing bar graph, histogram, able to ans. the reqd. question	Logical	By giving formula for finding central angle probability of an event.	Phy. Edu. : Bar Graph of height, weight scores of particular sport		
* Probability	* To calculate the probability of an event.	Analytic skill :Able to analyse the ups and down sharp in the bar graph and histogram.	Visual	By drawing and observing the histogram, pie chart able to given ans of related Q.			
		Conceptual skill :Used in the understanding of happenign and non happenign of an event.	Intrapersonal	By alloting an activity to perform in the class to make histogram or pie chart or bar graph and practing of problems			
		Calculation skill : able to calculate the central angle for in pie chart Measuring skill Measure the length of bars and unit of proper scales for represenation of bar on graphs.					
6. Squares and Suare Roots	To enable the students to:	Calculative skills					
*** Sq. of a number**	To Find the sq. of number	To solve the square of the numbers and sq. root of the number by different methods.	Verbal Linguistic	Explaination of properties of perfect sq. number and square roots and phthagorean triplets.	Science - In solving numericals	The students will be able to differentiate between the meaning of the term square used in geometry and number system. They will learn the methods of finding the square	
* Properties of perfect sq.	* To identify whether a number is perfect square or not.	Application skill					**Pen Paper Test**

* Phthagoreantroplets * Sq. root of postive integens and decimal numbers	* To learn various methods of finding square root of a given number	They will apply the properties of sq. number in judging that given no. is a perfect sq. no. or not. Reasoning skill The sq. root of an even no. is even and sq. root of odd no. is odd. Expression : can express the sq. no. in power of 2 Problem solving : in solving the word problems by using perfect sq. and sq. root.	Logical Kinethetic Bodily Interpersonal Visual Intrapersonal	If a perfet sq. contains n digits then its square root will contain n/2 digits, where n is even and n+1/2 digit, when n is odd. Finding the sq root by using diagional and column method. Discussion about methods of finding sq root and sq. root of decimal no. Finding the squares of number by just observing the unit's place. Will solve the the sq roots of the number by long division method and apply it in daily life.	English in Word problems	and square root of numbers.	Oral Test
7. Cubes and Cubes Roots *** Cubes of a number** * Properties of perfect cube * Cube root of perfect cubes	To enable the students to: To Find the cubes of a given number * To identify whether a number is perfect Cube or not. To Learn properties of perfect cube * To learn the prime factorisation method for finding the cube root of a perfect cube.	Calculate skills To solve the Cubes and cube root of the number by using properties of cube no. and cube root. Application skill By applying the properties of Cube number they can solve daily life problems. Reasoning skill Cube of a no. is even and odd no. is odd. Observation skill	Verbal Linguistic Logical Kinethetic Bodily Visual	Explaination of properties of perfect cube number and cube roots. Discussion on properties of perfect cube no. and method of of finding cube root. Student will choose in daily life situation where to use cubes end cube root. Identify the unit place and according to it, they will find the cube of a no.	Science - In finding numericals	Student will appricate the concept of cubes and cube roots. They will identify the unit digit of the cube of a number	Pen Paper Test Oral Test

		By observing the unit place of a no. student will find the cube of a number	Intrapersonal	will solve the word problem and values of expression by using method of cube root.			
8. Comparing Quantities	To enable the students To Find Ratio and % Increse or decrease in % To convert Ratio into % and vice versa profit and loss concept C.P S.P , M.P , Discount Simple interest and compound interest difference b/wSimple interest and compound interest	Content organisation organisc the data given in same to find ratio and % etc. Problem solving will be able to solve real life problem related to profit & Loss M.P. & discount Calculative skills To solve the sums/problems to calculate simple interest & compund interest	Verbal Interpersonal Visual Naturalistic Bodily/Kinestic	Explanation of different terms c.P. SP Profit & Loss M.P. discount through different examples of daily life Discussion on different problems with other find solution By solving the problems by themselves By Creating a situation, (market seen) to explain the different terms related to daily life day to day problem discussion on sale etc. Adivity to show the difference b/w compound interest and simple interest through graph activity	G.Sc. Numerical problem Hindi/ English students stories based on word problems	Student will learn concept of ratio & % C.P. S.P. M.T. Dicial, Simple interest, compound interest will be able to apply the concept in their day to day life. Students will understand the diff. b/w compound interest.	Pen Paper Test
9. Algebraic expression	To enable the students * Types of expression	Observation skill By observing the expression they will able to final how many terms are in given expression	Verbal / Lingistics	Explanation of algebric expression by different methods is with the life of contents and variable	G.Sc. In Solving Numerical problem	Student will learn concept of multiplication, addition and subtraction of given polynomical will apply identifies in	Pen Paper Test

	* Addition, subtraction, multiplication and division of algebraic expression	* Which identities are used in given algebraic expression	Kinestic/ Bodily	Discussion on different algebraic identities to solve given sums	S.Sc. : Concept of addition, Multiplication and subtract corelated with unity and division	multiplication and simplication of algebraic expression.	
	* Algebraic identifies and their application	Calculative skills		By solving the problems based on addition, subtraction and multiplication of different polynomial/ expression.	Computer : to undstanding symbol +, -, X etc		
	Use of algebraic identities in daily life problem.	Finding the value of variable content		To verify the algebraic relentity (a+b)2 = a2+b2+2ab or (a-b)2 = a2+b2 - 2ab by paper folding and cutting			
	To understand the difference between on equation and identity	Content organisation By rearranging the terms, find addition, subtraction and multiplication	Interpersonal				
10. Visualsing solid Shapes		Drawing skills					
* Representation of 3D objects as 2D objects	To identify polyhadran using the knowledge of polygon	By Drawing the 3D shapes made by only polygrans ex-cube, Prism sq. pyramid	Verbal / Lingistics	Explaination of polyledran and non-polyledgrans shapes by giving example like polyledgran cube, triangle, prison, sq. pyromical and its types in non polyledran cycle, cone sphere.	In drawing : In making different 3D shapes in making models	Students will undestand the visualisation of 3D objects. Student will be able to draw polyledgran and by visualise their fron side and top view.	Pen Paper Test
Front view, side view and top view of 3D shapes	To Categorise a polyhedran as regular or irregular and convex or concav polyledran.	Observation skill	Bodily/Kinestic	Forming a 3D figure of regular polyledgrans by judo straws of math lab. And bycardboard	Science : In making models		By Practical method.
		Observe the figures and identity the difference between polyhedran and non polyhedran figures	Interpersonal	Discussion on different nested solids in the surroundings			
		Observe faces of types of polyledrans.	Logic Smart	Top front sides new of 3D shapes end their faces.			

		Creative skills	Visual smart	They will observe that given view in a top. Front or side view of the figure and by counting the faces, edges and rectices - they can name a polyledgran.			
		Create a net of these shapes.	Interpersonal	They will draw 3D figures i.e. its top, front and side view on isometric sheets.			
		Thinking skill : Atomic structure of carbon is tetrahedran i.e. 3D shapes of ployledran	Naturaliity	They will find out faces vertices, eule's formiula. 3D figures in our native like egypt pyramids, etc.			
11Mensuration Area of Plain figures - Rectangle square, trapezium Quadritateral Rhombus.	To Enable the student to * Calculate the area of various 2 D Figures * To Derive the formula and apply it for finding area of rectilinear figures * How to use the concept of surface area in day to day life.	Drawing skill by drawing the 2 D Shape Calculation skills By solving problem by using formulas Naming and ordering to angles and sides	Word smart :- Bodily Kinestic Intrapersonl logic Smart Visual Spatial *Interpersonal*	* Area of I1gram by paer cutting By explaining the word problems Area of Kite by dividing into three triangle by participating in activities Group disscussion in finding the area of kite Mathematics solve the problem by using formula By drawing figures - by doing calcuation	S.St. Area of land of diff. States Games - Area concerned for playing games like Badminition court, geames etc.	Stutdent will be able to use the formula and cocnept of area in various real-life situation	Pen Paper and by activities
12. Surface area and volume of 3D Figures	To Enable the student to * To dientify curved suface and total Surface of solids * To Calculate surface area and volume of solids like cuboid, cub cyclinder etc.	Drawing skills By Making solid figures * Calculation skill by solving problem by using formula	Word smart :- Through expl. Body Smart : By participating in act.		Eng. Word Pr. S.St. Measuring of rain, water, depth Science : Quantity of metal used	Students will learn the different between surface area and volume of a soilid To Calculate the volume and surface area of solid by given dimension	

	* Understand the different 2 D and 3 D fig.	Ordering Details	Interpersonal - by group discussion of different of curved surface area and				
11. Volume of 3D Figures	* To derive the formula for 3D fig. of surface area and volume,	Expression - By Convertity moral problem into mathematical eg.	Total surface area of a solid Logical - solve the problems by using formula Visual - By drawing diagram/ figures Interpersonal : By doing calculation Nature smart - By Coreloing the topic with obje present in nature.	* Forming a cyclinder by rectangular paper to show them * Surface area of cy, Area of rec. Paper * Find a volume of cuboid with l, b, h, by making net	Science - Area covered by ball, Cyclinder in flame surace, volume of store water	* To Calculates the V and surace area of solid by given dimession	Pen Paper list Oral assessment of formula
12. Exponents and power	To Students will enable * To Convent negative exponent into postive exponent.	Calculative skills To Solve expression using laws of exponents	Verbal - Lingostics	Explanation of powers in rational number and laws of exponents on rational numbers	Science - In reasoning long distance like distance convered in revolving in orbit of earth.	Students will be able to write very large number using postive exponents and very small numbers using negative exponents easily. They will be able to apply the laws of exponents for solving exponential expression.	Pen paper test

	* To simplify exponential expression using laws of exponents	Application skills	Kinethetic/ Bodily	Exponents of any number can be shown by folding origami sheets.	* Cells number is always written in form of exponents		Oral Test
	* To write expanded form of very large and very small number using postive and negative exponents * To Write any number in standard form.	using laws of exponents in solving numercials of physics and chemistry. Reasoning skills	Interpersonal	Discussion about large number and ways to express them.	* molecubes of element are expressed in exponents.		
		(am) + am 22 + 23+2n-. We donote have law of addition of exponents	Logicial	Choose which laws to be used for solving expression.			
		Expression can express postive epression of exponent into nagative exponent.	Visual	Identity the bases are same or not for applying laws of exponents			
			Intrapersonal	will solve the expression using laws of exponents and can write number in scientific form.			
13Direct and indirect (inverse) variation	* to understand the meaning and concept of direct and inverse variation	Analytical skills	Visual/Linguistic	* By explaining of direct and indirect variation by taking examples from daily life as time inc. distence also inc. Speed inc. but time decreases.	Science	students will be able to categorise reals life situation into direct variation or inverse varition and solve them accordingly	
Application of direct and indirect variation	* To identify wehther a given situation is of direct variation or invrse variation	They will analyse the given problems end conclude that it is direct or indirect variation	Kinestic / Bodily	By doing maths activity by studing relation between time and distance on graph paper	Temp is inversely varies with height		
		Calculative Skills	Logical	By giving formula for finding direct and indirect variation			By Pen and paper
		They will calculate the given problem by using formula	Interpersonal	Discussion on how living beings are directly or indirectly dependent on each other.	S.St		activity
		Observation skills: They will observe the given problem in statement both quanties are increase and decrease or one quantity is increasing and decrease is decreasing	Naturalistic	Atm. Pressure varies inversely as the height of the place above seas level.	As petrol rate inc. things become costlier value of money becomes less.		Situation of war base on direct & inverse variation parameter

		Conceptual skill: used in understanding of direct of indirect variation in given problems	Visual	By drawing the table of direct and indirect variation		Calculation	
14. Factorisation	* Students will understand the different between Answere r questions An identify Fraction the algebric expression by using different methods	Observation skills By observing the expression, they will able to find which identify in to the be used Calculative skill : Finding the value of variable by faction section Content organisation By rearranging the learns in expression taking out the HCF. Reasoning skills Reason for using a particular identify for factorising a given alg. Expression Problem solving : Factorising on algebric exp. In the given problem	Visual/Linguistic Logical Interpersonal Interapersonal	Explaination of factorising by different methody of algebric exp. By Applying the suitable identity for factorising the given expr. Discussion on why to use identities in factorisation By solving the problems on factorisation	Science - in solving numerical	They will apply concept of multiplication and division of polynomial, identities in factorisation of algebric expression	Pen- Paper test
15. Introduction of graphs	To Students will enable To Plot the points on a cordinate plane * To represent the compartive data historically with the help of a line graphs * Cartesian Plane * Line Graphs	Drawing skills By Drawing different types of graph * Observing Skills By Observing graph, able to ans related to graph Conceptual skills	Verbal Bodily Inter personal Visual	By Explaining the concept with different examples related to daily life By meaning heights & weight of students know the graph on line system By discussion graph of different situation By drawing and observing the	S.SC. Increase/ decrease of population shown through bar graph Economic growth of a country Science speeds time graph Phy Ed : Graph of somes of any particulars	Studens will use the knowledge of plotting points in line graph They will learn to compare data with the help of line graph	New Paper Test Practical based on graph activity

		To clear the concept of linear equation in two variablein linear equation		graph give ans the given questions	sport		
16. Playing with Numbers	To Enable the students to * Write any number in general form * Letters for digits * Divisibility tests using general form of numbers * Logics behind test of durability * Magic Squares * Number riddles * Learn technique of making various magic squares * Apply basic operation for given number problem	* Logical skill apply logics to test the durabilty of given numbers * Observing skill to observe give magic squence and patterns to find th solutions * Calculative space apply knowlede of basic operations of maths to given to find missing numbers in given problems Reasoning skills Reason behind Solution of different maths riddles etc.	Verbal Bodily Interpersonal Visual Interpersonal	Explaination on basic operation maths How to observe matic square and patterns of solutions Draw many squares and pattern to understand with scales & Sen Discussion and solution of any riddles through figure. Try to make magic squares and riddles and to find solution of sudoke with the lefted each these Different patterns observes to find their solution Try to make riddles at there own level relatied to daily life	G.Sc. Playing in numercial problems Helps to learns many series Hindi / English To Solve any riddles sedator to story etc	Students will able to * Students will appricate and understand the logic behind durisity test * They will apply logic to solve number games like Sudokes, Magic, squares and riddles from newspapers magazines etc * They will able to convert complex problem to simple parts They will try to make may riddles pattern at their level	FA Activity