LESSON PLAN 8

CLASS : 7 TEACHER'S NAME :

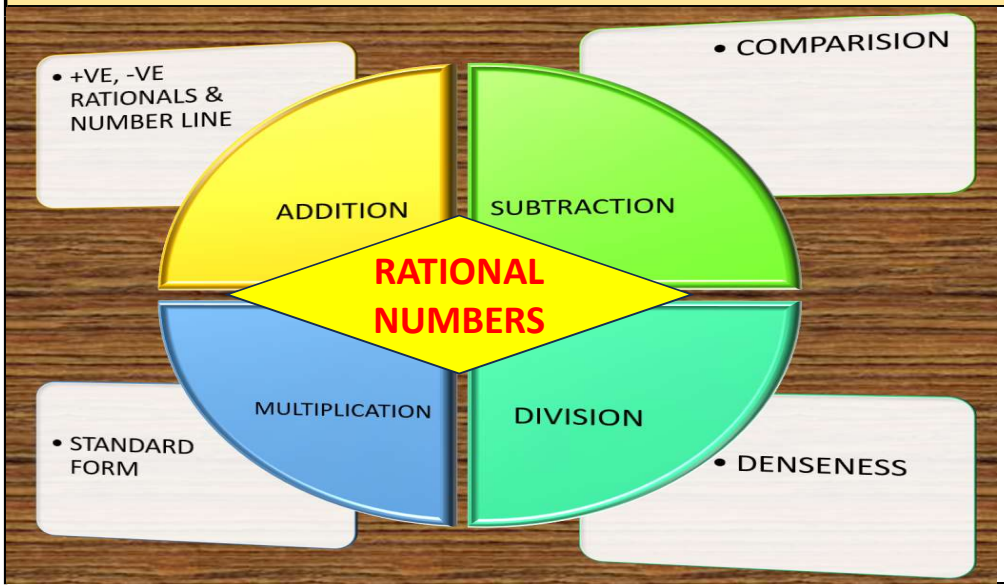
NAME OF THE UNIT	SUB-TOPICS	NO OF PERIODS REQUIRED			Time line for teaching	
		Teaching	Practice	TOTAL	From	To
RATIONAL NUMBERS	8.1 INTRODUCTION 8.2 NEED FOR RATIONAL NUMBERS 8.3 WHAT ARE RATIONAL NUMBERS 8.4 POSITIVE AND NEGATIVE RATIONAL NUMBERS 8.5 RATIONAL NUMBERS ON A NUMBER LINE	3	3	6		
	8.6 RATIONAL NUMBERS IN STANDARD FORM 8.7 COMPARISION OF RATIONAL NUMBERS 8.8 RATIONAL NUMBERS BETWEEN TWO RATIONAL NUMBERS	3	5	8		
	8.9 OPERATIONS ON RATIONAL NUMBERS 8.9.1 ADDITION 8.9.2 SUBTRACTION 8.9.3 MULTIPLICATION 8.9.4 DIVISION	4	6	10		
	TOTAL	10	14	24		
PRE-REQUISITES	KEY CONEPTS	KEY VOCABULARY				
	Every Pupil is expected to have basic knowledge in # fractions and decimals # addition, subtraction,multiplication and division of fractions # comparision and ordering of fractions both like and unlike(using LCM concept) # prediction of denseness of fractions between any two fractions	# Fraction # Rational number # Numerator,Denominator # Number system # expression # Equivalent rationals # Positive,Negative Rational number # Standard form			# Comparision # Ascending order # Descending Order # LCM,HCF # denseness property # successive integers # unlimited rationals # Reciprocal	

LEARNING OUTCOMES

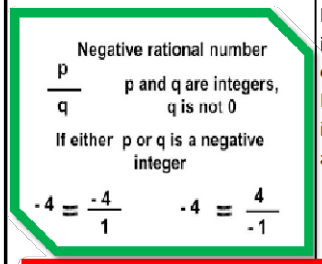
After Completion of this lesson every student will be able to

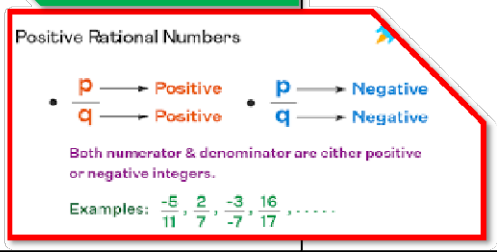
 # recall the knowledge on fractions in previous chapters in exploring the rational number system.
 # identify the significance of rational numbers in day to day usage.
 # conclude that there exist infinite number of rationals between any two rationals and hence rationals are infinite and is a more superior set when compared with Integers.
 # place any number of rationals between any two given rationals
 # order rationals according to their magnitude.
 # perform calculations based on rational numbers using four basic operations in real life situations.
 # recognize the significance and appreciate the importance of Rational numbers in real life situations.

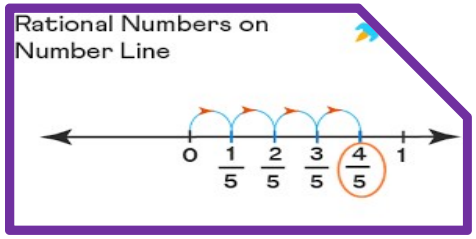
Teaching Learning Process

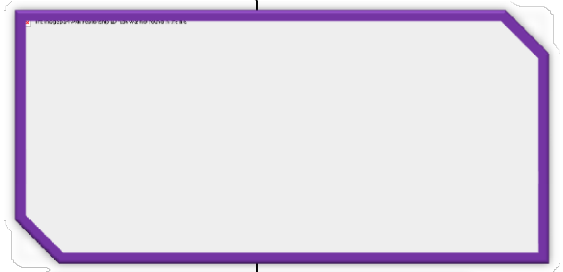
MIND MAPPING	Experience & Reflection
	# Pupils will recollect their knowledge on fractions and their implications and utilize that knowledge in learning the new system of numbers of Rational Numbers # Students will experience the applications of Rational numbers in real life situations.

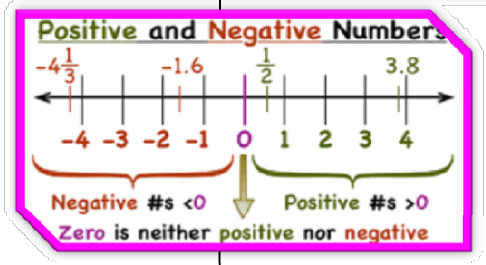
TEACHING PERIOD : 1,2,3	INTRODUCTION, NEED FOR RATIONAL NUMBERS, WHAT ARE RATIONAL NUMBERS, POSITIVE AND NEGATIVE RATIONAL NUMBERS, RATIONAL NUMBERS ON A NUMBER LINE		
CONCEPTS/STEPS	**TEACHER ACTIVITY (I DO)**	**GROUP ACTIVITY (WE DO)**	**INDIVIDUAL ACTIVITY (YOU DO)**
KEY WORDS & PRE REQUISITES	Brain storming session invoving children with pre-requisites vocabulary and concepts related to previous knowledge. Introduction of new vocabulary and key words associated with the concept # fraction # Rational Number # Numerators # Denominator # fraction bar # Vinculum # Number system	* Students read the pre-requisites and answer the questions to the teacher (whole class activity)	Every Pupil will read and write the key words in their note books
MIND MAPPING	Teacher writes the key word "RATIONAL NUMBERS" on the black board and will elict its other related words through questioning and will draw pupils' attention towards key concepts in the lesson	Hetrogeneous groups are created. One group will read the words and other will explain the meaning	Pupils individually read the keywords associated with the chapter
CONCEPTUAL UNDERSTANDING LEARNING ACTIVITY	Teacher recalls the knowledge of children on the lesson "fractions" of class 6^{th} and " Fractions and Decimals" of class 7^{th} and makes children utilize that knowledge in exploring the new number set of "Rational Numbers". Teacher first elicits the need of rational numbers by questioning and later defines what a rational number is?. Here teacher recalls the number line concept which pupils were familiar with in case of integers and elaborates that concept to rational numbers by some exemplary illustrations. Later teacher makes children involve in an activity where pupils are divided into groups and are given different rationals having both +ve and -ve sign and are asked to seggregate them on a number line	Hetrogeneous groups are formed to participate in the activities	Each student in the group participates in the activities and learns the concept of Rational numbers
SUMMARY	Teacher writes the summary of the concept in a step wise procedure and asks children to note and read	pupils will note down and read the summary in groups	every individual reads the summary and notes it down
ASSESSMENT	Teacher asks children to solve the sums of try these section, Think Discuss & Write along with example sums and exercise sums of 8.1	every group will do the sums by discussion among each other	every individual solves the sums on their own

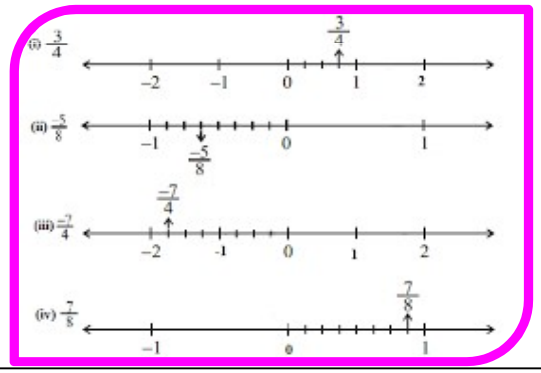
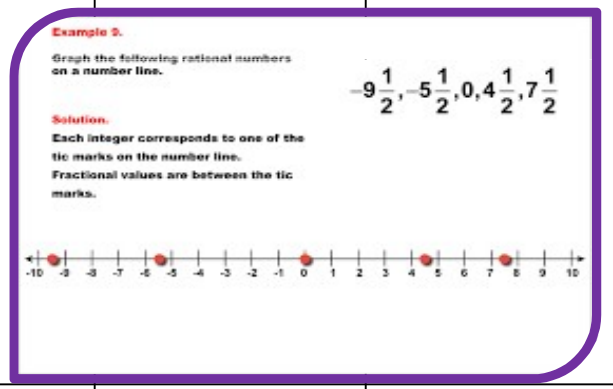


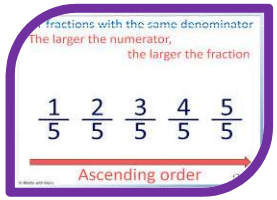
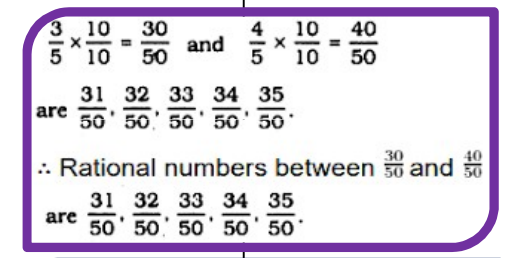
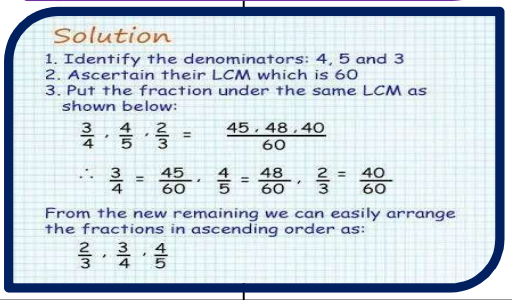


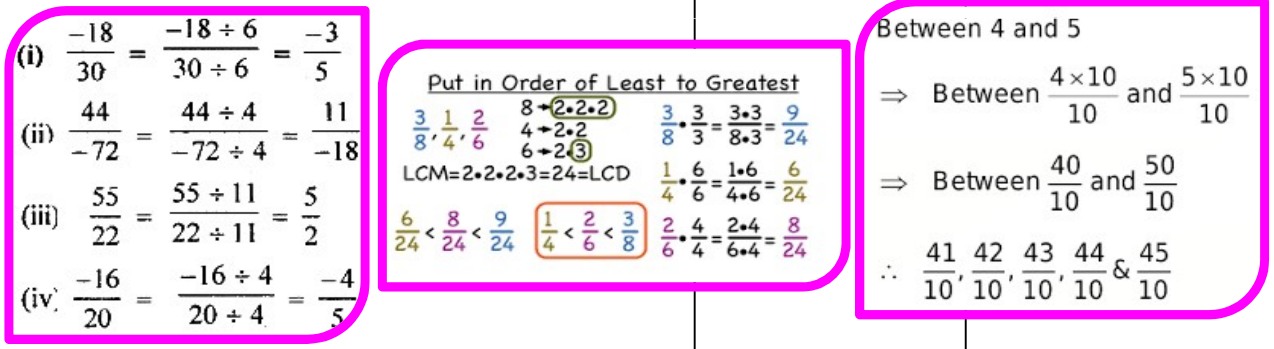


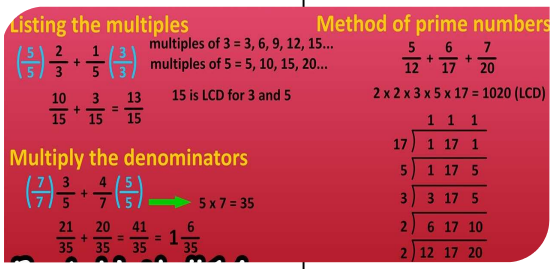
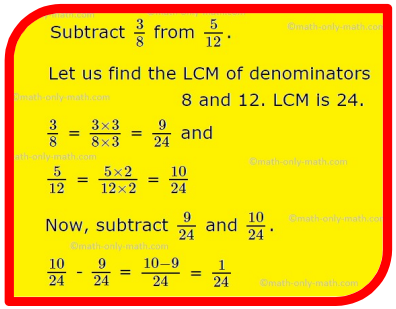
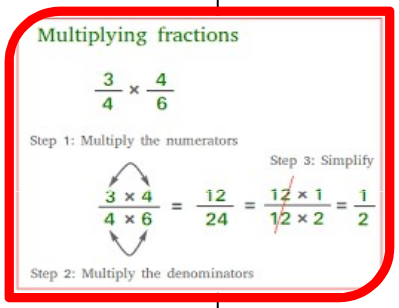
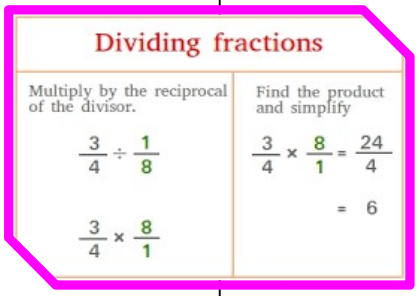




PRACTICE PERIOD: 1,2,3	INTRODUCTION, NEED FOR RATIONAL NUMBERS, WHAT ARE RATIONAL NUMBERS, POSITIVE AND NEGATIVE RATIONAL NUMBERS, RATIONAL NUMBERS ON A NUMBER LINE		
CONCEPTS/STEPS	**TEACHER ACTIVITY (I DO)**	**GROUP ACTIVITY (WE DO)**	**INDIVIDUAL ACTIVITY (YOU DO)**
KEY WORDS READING	Teacher writes the key words from previous class's teaching period and asks children to read and write them in note books # fraction # Rational Number # Numerators # Denominator # fraction bar # Vinculum # Number system	Whole class activity : one child comes to the board and reads the key words loudly and the remaining class follows.	Every child comes to the board and reads the key words and notes them down in their note books
SIMILAR LINES READING	Teacher puts some rational numbers on number line and asks children to put some more by watching similar lines   	Each group will read the similar lines and will frame some more by discussion	Every Individual prepares their own similar lines using the lines prepared by the teacher
SUMMARY/ SYNOPSIS	Teacher once again writes important key words and summary of the concept and asks children to read,note down and practice.	pupils will note down and read the summary in groups	every individual spells and reads the summary and notes it down
WRITING/ EDITING	Teacher guides children in doing sums of exercise 8.1 on their own and checks their writings	One group will check the writings of the other and vice versa	Slow learners are focused and teacher will ascertain that every individual learns the concept in the forth coming practice sessions

TEACHING PERIOD : 4,5,6	RATIONAL NUMBERS IN STANDARD FORM, COMPARISION OF RATIONAL NUMBERS, RATIONAL NUMBERS BETWEEN TWO RATIONAL NUMBERS		
CONCEPTS/STEPS	**TEACHER ACTIVITY (I DO)**	**GROUP ACTIVITY (WE DO)**	**INDIVIDUAL ACTIVITY (YOU DO)**
KEY WORDS	Brain storming session invoving children with key words # standard form # Comparision # Ascending order # Descending order # LCM # HCF # Denseness property # unlimited rationals	* Students read the keywords answer the questions to the teacher	Every Pupil will read and write the key words in their note books
CONCEPTUAL UNDERSTANDING LEARNING ACTIVITY   	Teacher once agains recalls pupils knowledge in reducing a fraction to its simplest form and makes pupils reflect their apprehensions here in writing a rational in its standard form. Here teacher defines the standard form of a rational as "***A rational number is said to be in standard form if its denominator is a positive integer and the numerator and denominator have no common factor other than 1***". Later teacher conducts an activity by dividing hetrogeneous groups in children and gives them different rationals and asks them to arrange them in ascending as well as descending order according to their magnitude. Here pupils are well acquainted with the procedure to be adopted in ordering fractions, they can easily arrange these rationals in order. Later teacher asks children an enthusiastic question "What is the immediate next number of 2 in the set of Rational Numbers?". Here Pupils are expected out with an answer 3 by default. Later teacher explains the concept of denseness property of Rationals and confirms that "***There exist infinite number of rationals between any two given rationals***".	pupils are divided into hetrogeneous groups and engaged in the activity   	Each student in the group participates in the activity and learns the concept
SUMMARY	Teacher once again writes important key words and summary of the concept and asks children to note down and adopt.	Pupils will note down and read the summary in groups	Every individual reads the summary and notes it down and adopts the procedure
ASSESSMENT	Teacher gives some questions from Try These sections as well as sums from exercise 8.1 and examples as well and asks children to do those sums	Every group will do the sums by discussion among each other	Every individual solves the sums on their own

PRACTICE PERIODS: 4 to 8	RATIONAL NUMBERS IN STANDARD FORM, COMPARISION OF RATIONAL NUMBERS, RATIONAL NUMBERS BETWEEN TWO RATIONAL NUMBERS		
CONCEPTS/STEPS	**TEACHER ACTIVITY (I DO)**	**GROUP ACTIVITY (WE DO)**	**INDIVIDUAL ACTIVITY (YOU DO)**
KEY WORDS READING	Teacher writes the key words from previous class's teaching period and asks children to read and write them in note books # standard form # Comparision # Ascending order # Descending order # LCM # HCF # Denseness property # unlimited rationals	Whole class activity : one child comes to the board and reads the key words loudly and the remaining class	Every child comes to the board and reads the key words and notes them down in their note books
SIMILAR LINES READING	Teacher reduces some rationals in standard form as well as places some rationals in ascending order and places some rational between given rationals and asks children to do some more by watching similar lines 	Each group will read the similar lines and will frame some more by watching them	Every individual will watch the similar lines and will frame some more
SUMMARY/ SYNOPSIS	Teacher once again writes important key words and summary of the concepts covered and asks children to note down and adopt.	Pupil groups will read and adopt the procedure	Teacher focuses on every individual so that each one learns the concept in successive upcoming practice sessions
WRITING/ EDITING	Teacher gives some questions from Try These sections and guides them in doing some sums of examples and exercise 8.1 and teacher checks the writings of children	One group will check the writings of the other and vice versa	

TEACHING PERIOD : 7 to 10	OPERATIONS ON RATIONAL NUMBERS, ADDITION, SUBTRACTION, MULTIPLICATION, DIVISION		
CONCEPTS/STEPS	**TEACHER ACTIVITY (I DO)**	**GROUP ACTIVITY (WE DO)**	**INDIVIDUAL ACTIVITY (YOU DO)**
KEY WORDS	Brain storming session invoving children with key words # successive rationals # Addition, Subtraction,Multiplication and Division of Rationals # Reciprocal	* Students read the key words and answer the questions to the teacher	Every Pupil will read and write the key words in their note books
CONCEPTUAL UNDERSTANDING	Teacher draws the attention of children towards basic operations on rationals such as addition, subtraction, multiplication and division and conducts an activity by dividing pupils into hetrogeneous groups and asks children to pick one operation card from the box of operation cards and two rational number cards from the box of Rational Number Cards. Now after cards being picked up by each group, teacher asks each group to perform the operation in the card between the rationals in the cards picked up by them. The group which performs highest number of calculations will be the winner. As these operations are familiar to children in the chapter of fractions, it will be easy sailing for them to perform those calculations. The only thing is to develop speed and accuracy in performing calculations.	Hetrogeneous groups are created and are engaged in activities	Every child participates in the activity and understands the concept
LEARNING ACTIVITY	 	 	
SUMMARY	Teacher writes the summary of the concept discussed and asks children to read, note down and adopt	pupils will note down and read the summary in groups	every individual reads the summary and notes it down and adopts the procedure
ASSESSMENT	Teacher gives some questions from Try These section and exercise sums of 8.2 and asks children to solve those sums	every group will do the sums by discussion among each other	every individual solves the sums on their own

PRACTICE PERIODS: 9 to 14	OPERATIONS ON RATIONAL NUMBERS, ADDITION, SUBTRACTION, MULTIPLICATION, DIVISION		
CONCEPTS/STEPS	**TEACHER ACTIVITY (I DO)**	**GROUP ACTIVITY (WE DO)**	**INDIVIDUAL ACTIVITY (YOU DO)**
KEY WORDS READING	Teacher writes the key words from previous class's teaching period and asks children to read and write them in note books # successive rationals # Addition, Subtraction,Multiplication and Division of Rationals # Reciprocal	Whole class activity : one child comes to the board and reads the key words loudly and the remaining class	Every child comes to the board and reads the key words and notes them down in their note books
SIMILAR LINES READING	Teacher will solve some exemplary sums performing basic operations on rationals and asks children to do some more by watching similar lines	Each group will read the similar lines and will solve more by discussion	Every Individual prepares their own similar lines using the lines prepared by the teacher
SUMMARY/ SYNOPSIS	Teacher once again writes important key words and summary and asks children to read ,note down and adopt.	Pupil groups will read the summary and utilize	Teacher focuses on every individual so that each one knows and adopts the concept learnt in successive upcoming practice sessions
WRITING/ EDITING	Teacher asks children to solve the sums of exercise 8.2 on their own and teacher checks the writings of children	One group will check the writings of the other and vice versa