LESSON PLAN 4

CLASS : 7   TEACHER'S NAME :

| NAME OF THE UNIT	SUB-TOPICS	NO OF PERIODS REQUIRED			Time line for teaching	
		Teaching	Practice	TOTAL	From	To
SIMPLE EQUATIONS	4.1 A MIND READING GAME 4.2 SETTING UP OF AN EQUATION 4.2 REVIEW OF WHAT WE KNOW 4.3 WHAT AN EQUATION IS?	2	3	5		
	4.4.1 SOLVING AN EQUATION	2	4	6		
	4.5 MORE EQUATIONS 4.6 APPLICATIONS OF SOME EQUATIONS TO PRACTICAL SITUATIONS	2	5	7		
	TOTAL	6	12	18		
PRE-REQUISITES	**KEY CONEPTS**	**KEY VOCABULARY**				
	Every Pupil is expected to have basic knowledge in # expressions, term, Variable,Constant,Equation # converting words into expressions and vice versa # four basic operations like +,-,x and ÷	# Expression # Variable # Constant # Equation # Transposition # Solution # Range		# Left hand Side expression # Right Hand Side Expression # interchange		

Learning Outcomes

After Completion of this lesson every student will be able to

explain what a constant is? what a variable is? what an expression is? and finally what an equation is?

Solve equations by balancing both sides

solve equations by transposition method.

Convert Real life problems into equations and solve.

recognize the significance and appreciate the importance of Equations in real life situations.

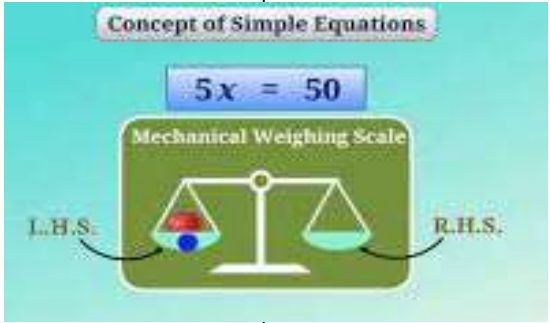## Teaching Learning Process
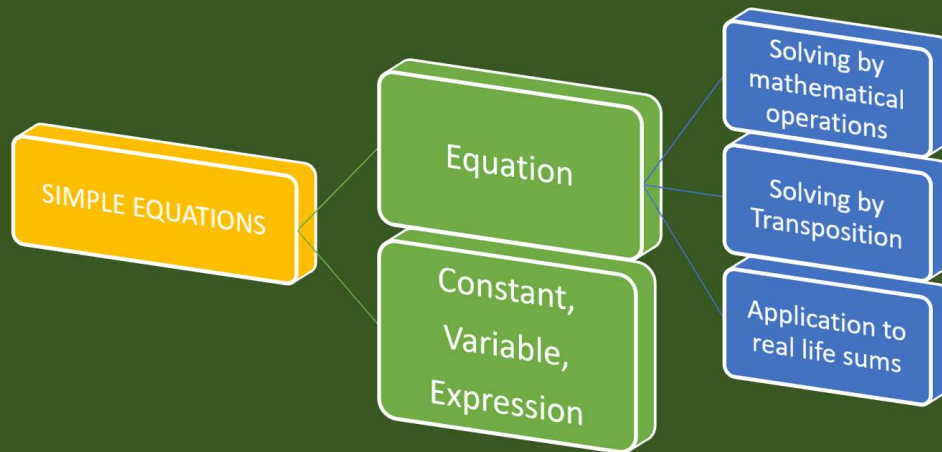
MIND MAPPING	Experience & Reflection
	# Pupils will recollect their knowledge on basic algebraic concepts like Constant, Variable, Expression, Equation and utilize that in learning the present concept of Simple Equations. # Students will experience the Simple Equations in real life situations.

Mind map contents: SIMPLE EQUATIONS → Equation; Constant, Variable, Expression → Solving by mathematical operations; Solving by Transposition; Application to real life sums

TEACHING PERIOD : 1,2	A MIND READING GAME, SETTING UP OF AN EQUATION, REVIEW OF WHAT WE KNOW, WHAT AN EQUATION IS?		
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 # Expression # Constant # Variable # Equation	* 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 " SIMPLE EQUATIONS" 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	Teacher asks children different questions basing on real life situations or mind reading based questions and guides children to form equations with the help of those parameters given. As pupils are well acquainted with forming expressions in their previous class they will utilize that knowledge in framing equations to the given word sums
	Teacher will illustrate forming simple equations through some examples in 2 successive Teaching sessions.
	
	Vidhijna has 3 chocolates more than twice that of what Bhaavajna had? If Vidhijna has 9 chocolates in all what could be the equation satisfying the parameters.
	Sol: Let Bhaavajna has 'x' chocolates say
	     Now Vidhijna has 3 more than twice of 'x' which makes 2x+3
	     But as per the sum, Vidhijna has 9 chocolates in all.
	     Therefore the required equation is 2x+3=9
	
	Teacher demonstrates the concept of simple equations with sums like these.
		Hetrogeneous groups are formed to participate in answering the questions posed by the teacher by discussion	Each student in the group participates in answering the questions posed by the teacher and learns the concept of framing simple equations.

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 along with example sums and exercise sums of 4.1	every group will do the sums by discussion among each other	every individual solves the sums on their own

PRACTICE PERIOD: 1,2,3	A MIND READING GAME, SETTING UP OF AN EQUATION, REVIEW OF WHAT WE KNOW, WHAT AN EQUATION IS?		
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 # Expression # Constant # Variable # Equation	Whole class activity : one child comes to the board and reads the key words	Every child comes to the board and reads the key words and notes them down in their note
SIMILAR LINES READING	Teacher frames some simple equations by taking some exemplary sums and asks children to frame some more by watching similar lines. *Srikanth's age is 2 years less than 4 times of Vidhijna's age. If Srikanth's age is 42 years then form a simple equation using these details.* *Sol: Let Vidhijna's age = 'x' years say* *Srikanth's Age = 2 years less than 4 times of 'x'* * = 4x-2* *Srikanth's actual age = 42 years* *Therefore the equation is 4x-2 = 42*	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	Teacheronce again writes important key words and step wise procedure adopted in framing simple equations using given data 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 4.1 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

CONCEPTS/STEPS	TEACHER ACTIVITY (I DO)	GROUP ACTIVITY (WE DO)	INDIVIDUAL ACTIVITY (YOU DO)
KEY WORDS	Brain storming session invoving children with key words # Solution # Left Hand Side expression (LHS) # Right Hand Side Expression (RHS)	* Students read the keywords answer the questions to the teacher (whole class activity)	Every Pupil will read and write the key words in their note books
CONCEPTUAL UNDERSTANDING	Teacher demonstrates the concept of solving a simple equation by using various mathematical operations with some illustrations. He draws the attention of children towards a simple balance in real life which resembles the simple equation in algebra. Teacher here describes what is LHS? and what is RHS? and how to balance both sides by using mathematical operations by some exemplary illustrations in 2 successive teaching sessions and explains that the value of variable which makes the equation true will be the solution of the equation.. *Vidhijna has 3 chocolates more than twice that of what Bhaavajna had? If Vidhijna has 9 chocolates in all what is the no of chocalates with Bhaavajna?* *Sol: Let Bhaavajna has 'x' chocolates say* *Now Vidhijna has 3 more than twice of 'x'* *which makes 2x+3* *But as per the sum, Vidhijna has 9 chocolates in all.* *Therefore the required equation is* *2x+3=9* *if we add -3 both sides (giving same amount to either sides)* *the equation becomes* *2x+3-3 = 9-3* *2x = 6* *if we divide with 2 both sides we get* *2x ÷2 = 6÷2* *which makes x= 3* **in this way teacher demonstrates the procedure to children in successive teaching sessions**	pupils are divided into hetrogenous groups and given different equations and are instructed to solve them by discussion Concept of Simple Equations $5x = 50$ Mechanical Weighing Scale L.H.S. R.H.S.	Each student in the group participates in the activity and learns the process of finding solution to a simple equation.
SUMMARY	Teacher once again writes important key words and step wise procedure adopted in finding solution 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 and from exercise 4.2	Every group will do the sums by discussion among each other	Every individual solves the sums on their own

PRACTICE PERIODS:4 to 7	SOLVING AN EQUATION		
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 # Solution # Left Hand Side expression (LHS) # Right Hand Side Expression (RHS)	Whole class activity : one child comes to the board and reads the key words loudly and the remaining	Every child comes to the board and reads the key words and notes them down in their note books
SIMILAR LINES READING	Teacher solves some simple equations by taking a few examples and asks to children to solve some more by watching similar lines Solving an Equation Balancing Method $\frac{x}{3} - 8 = 6$ $\frac{x}{3} - 8 + 8 = 6 + 8$ $\frac{x}{3} = 14$ $\frac{3x}{3} = 3 \times 14$ $x = 3 \times 14$ $x = 42$ Equations: Application Of Simple Equations Solve $\quad x - 5 = 10$. $x - 5 = 10$ $x - 5 + 5 = 10 + 5 \qquad$ Add 5 to both sides $\therefore x = 15$	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 step wise procedure adopted in finding solution for a simple equation 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 how to solve simple equation in successive upcoming practice sessions
WRITING/ EDITING	Teacher gives some questions from Try These sections and guides them in doing the some sums of exercise 4.2 and asks children to solve those sums and teacher checks the writings of children	One group will check the writings of the other and vice versa	

TEACHING PERIOD : 5,6	MORE EQUATIONS, APPLICATIONS OF SOME EQUATIONS TO PRACTICAL SITUATIONS		
CONCEPTS/STEPS	**TEACHER ACTIVITY (I DO)**	**GROUP ACTIVITY (WE DO)**	**INDIVIDUAL ACTIVITY (YOU DO)**
KEY WORDS	Brain storming session invoving children with key words # Transposition # Interchange	* Students read the key words and answer the questions to the teacher (whole class activity)	Every Pupil will read and write the key words in their note books
CONCEPTUAL UNDERSTANDING	Teacher guides children in finding solutions for some more equations along with equations related with real life situations Teacher demonstrates the concept of finding solutions to some equations which are associated with practical situations. Here teacher introduces the concept of "Transposition" by some illustrative examples. LE 9 Find a number, such that one-fourth of the number is 3 more than 7. SOLUTION • Let us take the unknown number to be y; one-fourth of y is $\frac{y}{4}$. This number $\left(\frac{y}{4}\right)$ is more than 7 by 3. Hence we get the equation for y as $\frac{y}{4} - 7 = 3$ • To solve this equation, first transpose 7 to RHS We get, $\frac{y}{4} = 3 + 7 = 10$. We then multiply both sides of the equation by 4, to get $\frac{y}{4} \times 4 = 10 \times 4$ or $y = 40$ (the required number) **Adding or subtracting on both sides** | **Transposing** (i) $6p - 2 = 7$ | (i) $6p - 2 = 7$ Add 2 to both sides, | Transpose (-2) from $6p - 2 + 2 = 7 + 2$ | L.H.S. to R.H.S. or $6p = 9$ | (on transposing, -2 becomes +2) | $6p = 7+2$ | or $6p = 9$	Hetrogeneous groups are created and different applicative sums are given to solve by discussion	Every child participates in the activity of finding solutions for the simple equations of real life applications
SUMMARY	Teacher writes the summary of the concept and step wise procedure in finding solutions to some applicative sums 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 4.3,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

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 # Transposition # Interchange	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 solves some example sums of finding solutions to some applicative situations involving simple equations by transposing contents and asks children to solve some more by watching similar lines **EXAMPLE 8** The sum of three times a number and 11 is 32. Find the number. **SOLUTION** - If the unknown number is taken to be x, then three times the number is $3x$ and the sum of $3x$ and 11 is 32. That is, $3x + 11 = 32$ - To solve this equation, we transpose 11 to RHS, so that $3x = 32 \quad 11 \quad$ or $\quad 3x = 21$ Now, divide both sides by 3 So $\qquad x = \dfrac{21}{3} = 7$ *This equation was obtained earlier in Section 4.2, Example 1.* The required number is 7. (We may check it by taking 3 times 7 and adding 11 to it. It gives 32 as required.)	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 procedure adopted in finding solutions to applicative sums 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 4.3 on their own and teacher checks the writings of children	One group will check the writings of the other and vice versa	