LESSON PLAN 12

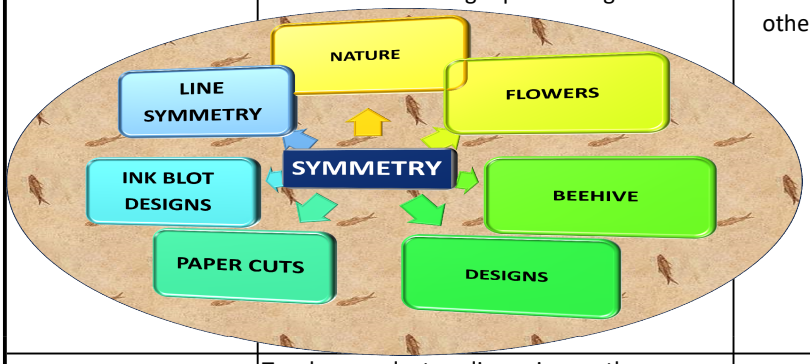
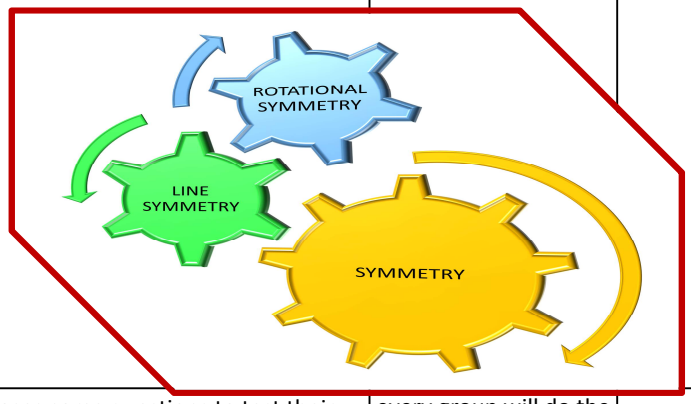
TEACHER'S NAME : **SUBJECT: MATHEMATICS**

CLASS: 7 **UNIT : SYMMETRY** **No.of Periods: 8+8=16**

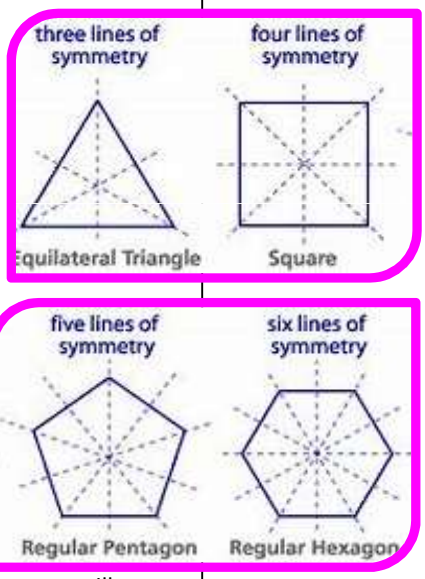
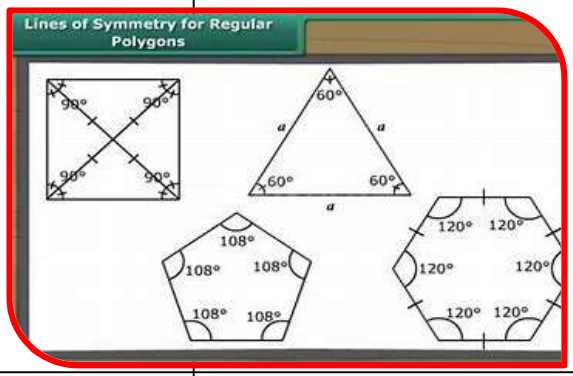
PERIOD ALLOTMENT

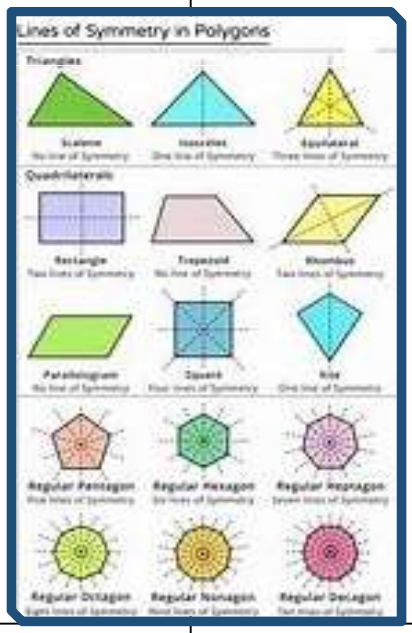
NAME OF THE UNIT	SUB-TOPICS	NO OF PERIODS REQUIRED			Time line for teaching	
		Teaching	Practice	TOTAL	From	To
SYMMETRY	12.1 INTRODUCTION	1	1	2		
	12.2 LINES OF SYMMETRY FOR REGULAR POLYGONS	3	3	6		
	12.3 ROTATIONAL SYMMETRY 12.4 LINE SYMMETRY AND ROTATIONAL SYMMETRY	4	4	8		
	TOTAL	8	8	16		

PRE-REQUISITES OF THE LESSION	LEARNING OUTCOMES
Every Pupil is expected to have basic skills in # observing surroundings and objects in nature # creating ink blot designs/devils which make symmetric forms # observing the similarities and contrasts between two pictures looking alike but with light disparities # knowledge on polygons and other geometrical figures # cutting craft designs for Independence day and Republic day celebrations in schools	After Completion of this lesson every student will be able to # identify different symmetric designs in nature # understand which type of figures have line symmetry and can draw the lines of symmetry for any given figure if exists. # express whether a given figure has line of symmetry or not. # understand which type of figures have rotation symmetry and can find the angle of symmetry for any given figure if exists. # express whether a given figure has rotational symmetry or not. # appreciate the utility of "Symmetry" in real life situations

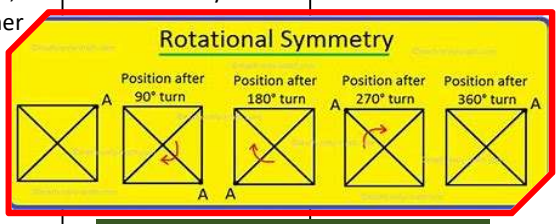
TEACHING PERIOD : 1 (PRE - REQUISITES & INTRODUCTION)			
CONCEPTS/STEPS	**TEACHER ACTIVITY (I DO)**	**GROUP ACTIVITY (WE DO)**	**INDIVIDUAL ACTIVITY (YOU DO)**
PRE REQUISITES	Brain storming session invoving children with pre-requisites vocabulary and concepts related to previous knowledge. Introduction of new vocabulary and key words associated with the concept through questioning # symmetry # line symmetry # Nature # beehive # flowers # art # Ink blot #paper cut #design	* 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 " SYMMETRY" on the black board and will elict its other related words through questioning 	Hetrogeneous groups are created. One group will read the words and other will explain the meaning	Pupils individually read the keywords associated with the lesson
RELEVANCE OF THE LESSON	Teacher conducts a discussion on the importance of the lesson through questioning ex. 1.For decorating your class room on August 15th how will you make a paper design? Did you notice any sort of symmetry in it? 2. If we spill some ink dots on a paper and fold it into a square fold twice and open what type of structure is formed? 3.Can you give some examples of symmetry in real life?	Students participate in the discussion and ask questions	Pupils individually write their responses to the questions asked
CONCEPT MAP	Teacher displays the concept map depicting various concepts that pupil are going to learn in this lesson 	Whole class read the concept map	
ASSESSMENT	Teacher poses some questions to test their knowledge on prerequisites and sums based on them.	every group will do the task by discussion among each other	every individual solves the task on their own

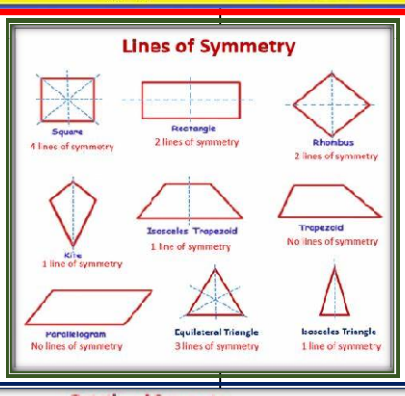
PRACTICE PERIOD: 1			
CONCEPTS/STEPS	**TEACHER ACTIVITY (I DO)**	**GROUP ACTIVITY (WE DO)**	**INDIVIDUAL ACTIVITY (YOU DO)**
KEY WORDS READING	Teacher writes the key words from previous class's teaching period and asks children to read and write them in note books # symmetry # line symmetry # Nature # beehive # flowers # art # Ink blot #paper cut #design	Students read these key words in groups and will try to give examples to each key word	Every child comes to the board and reads the key words and notes them down in their note books
SIMILAR LINES READING	Teacher cites some real life examples of symmetry and asks children to identify some more by watching the nature around them in the samilar manner.	Each group will observe the similar lines and will frame some more by discussion	Every Individual will frame some more using similar lines
SUMMARY/ SYNOPSIS	Teacher writes synopsis on the board and detailing about basic terminology 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 condcuts a dictation on key words ,pre-requisites and similar lines and asks children to exchange books for editing after writing is finished.	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

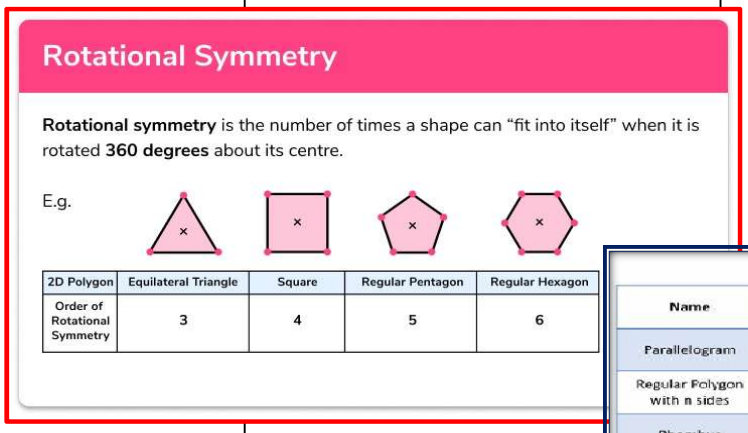
TEACHING PERIODS : 2 to 4	LINES OF SYMMETRY FOR REGULAR POLYGONS		
CONCEPTS/STEPS	**TEACHER ACTIVITY (I DO)**	**GROUP ACTIVITY (WE DO)**	**INDIVIDUAL ACTIVITY (YOU DO)**
KEY WORDS	Brain storming session invoving children with key words # Regular polygons # Line of Symmetry # Paper folding method # Axis of symmetry # Equilateral triangle # Square # Pentagon # Hexagon # Mirror image # Orientation # Reflection symmetry	* 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 first explains what a line of symmetry mean and later conducts a paper folding activity by involving children divided into heterogeneous groups with different regular polygon models. Here teacher ascertains that every group of children learns by checking the line of symmetry of each regular polygon by folding the polygon along the line of symmetry and knows the number of lines of symmetry exist for each different polygon.		
LEARNING ACTIVITY		Each group will understand the concepts by participation in the activity	Every child learns the concept through the learning acitivity
SUMMARY	Teacher once again writes important key words and procedures 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 Exercise 12.1 & Try These sections as well as some examples 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

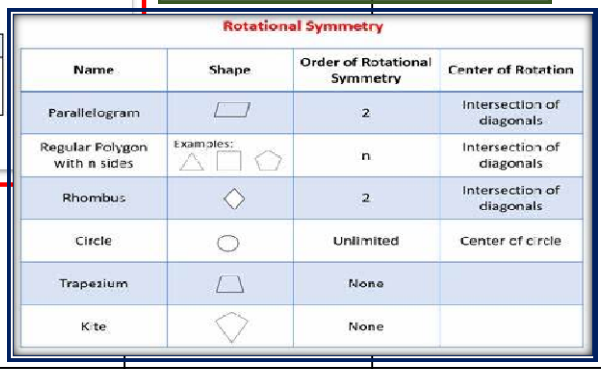
PRACTICE PERIODS : 2 to 4	LINES OF SYMMETRY FOR REGULAR POLYGONS		
CONCEPTS/STEPS	**TEACHER ACTIVITY (I DO)**	**GROUP ACTIVITY (WE DO)**	**INDIVIDUAL ACTIVITY (YOU DO)**
KEY WORDS READING	Teacher writes the key words from previous class's teaching period and asks children to read and write them in note books # Regular polygons # Line of Symmetry # Paper folding method # Axis of symmetry # Equilateral triangle # Square # Pentagon # Hexagon # Orientation # Mirror image # Reflection symmetry	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 draws the lines of symmetry and counts the number of axii of symmetry exist for each polygon/Picture taken, and asks children to draw and count for some more by watching similar lines.  	Each group will read the similar lines and will frame some more by discussion	Every Individual will do a few more by watcing similar lines
SUMMARY/ SYNOPSIS	Teacher once again writes important key words and definitions and asks children to note down and adopt.	Pupil groups will read and adopt the procedure	Teacher focuses on every individual so that every child is able to learn the concept in successive upcoming practice sessions
WRITING/ EDITING	Teacher gives some questions from Exercise 12.1 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 PERIODS : 5 TO 8	ROTATIONAL SYMMETRY LINE SYMMETRY AND ROTATIONAL SYMMETRY		
CONCEPTS/STEPS	**TEACHER ACTIVITY (I DO)**	**GROUP ACTIVITY (WE DO)**	**INDIVIDUAL ACTIVITY (YOU DO)**
KEY WORDS	Brain storming session invoving children with key words # Rotational Symmetry # Centre of rotation # Clock wise # Anti clock wise # Direction # Angle of rotation # order of symmetry	* 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 explains what rotational symmetry mean and later forms heterogeneous groups and conducts an activity with paper cuts of different figures to check whether rotational symmetry for those figures exist and if so, what is the order of rotation. Here teacher asks children to rotate each figure and find whether the figure comes to its original structure of appearance even after rotating it at a certain angle about its centre of rotation. Later teacher guides children in finding figures which have both line of symmetry and rotational symmetry	Each group will understand the concepts by participation in the activity	every child learns the concept through the learning acitivity and observation of TLM
LEARNING ACTIVITY			
SUMMARY	Teacher once again writes important key words and procedures 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
ASSESSMENT	Teacher gives some questions from Try These sections as well as some examples 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 : 5 to 8	ROTATIONAL SYMMETRY LINE SYMMETRY AND ROTATIONAL SYMMETRY		
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 # Rotational Symmetry # Centre of rotation # Clock wise # Anti clock wise # Direction # Angle of rotation # order of symmetry	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 cites some illustrative shapes having rotational symmetry and line symmetry and asks children to cite some more by watching similar lines and further teacher conducts a slip test on the work sheet given.	Each group will read the similar lines and will frame some more by discussion	Every Individual will do a few more by watcing similar lines
SUMMARY/ SYNOPSIS	Teacher once again writes important key words and definitions and asks children to note down and adopt.	Pupil groups will read and adopt the procedure	Teacher focuses on every individual so that every child is able to learn the concept in successive upcoming practice sessions
WRITING/ EDITING	Teacher gives some questions from Exercise 12.2 & 12.3 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