

Lesson Plan/ Learning Plan	
Topic- BASIC OPERATIONS	Grade: IV
Concept (If Applicable)	Multiplication and Division
<u>Mapping of skills/competencies/attitudes :</u> <i>(Skills/competencies/attitudes that a teacher plans to develop through the learning engagements)</i>	Skills: Thinking skills, Communication skills, Social Skills, Research skills Attitudes: Confidence, Independence, Curiosity Competencies: Critical Thinking (reasons effectively) Communication (communicates clearly, accesses and evaluates information) Collaboration (collaborates with others) Creativity (Generates ideas)
Lesson Plan Duration: <i>(flexible based on the requirements of the topic)</i>	14 days
Learning Engagements for Active Learning:	Find the rule, Lattice method, Times table bingo (multiplication)
Questioning Technique/s to be Used :	DEAL (Describe, Explain, Analyze, Link), Probing questions
Learning objectives: By the end of the topic, the learners would be able to: - List the facts related to basic operations (multiplication and division) - Describe various facts with the help of examples. - Apply facts and formulae to solve the given questions. - Compare the facts of multiplication with that of addition and division with subtraction. - Design word stories related to multiplication and division. (based on single and double operations). - Revise the facts of basic operations and apply their knowledge in solving problems.	
Annexure 1 (Kolb's Model)	
Connecting to Prior knowledge <i>(How do you check what learners already know?)</i>	Day 1. Facilitator will make the students sit in groups of unequal students, give alphabetical names to each group and will

	ask following questions: Q) How many total students are there in group A and B? Q) How many more students are there in group C as compared to group A? Q) How many sets of 3 students will make a group of 9? Q) In how many groups can you divide 40 students of your class equally? Based upon the answers given by students, facilitator will discuss and explain the facts related to the four basic operations: Addition, Subtraction, Multiplication and Division.		
Resources Required:	Blackboard, pencils, erasers, scales, crayons, different objects to add and subtract visually, abacus, few A4 sheets etc.		
Implementation of lesson plan - Stage 1			
	Day 1: (Learning engagement 1) Facilitator will explain the facts of multiplication and students will write them in their notebooks. After understanding the facts, students will write one example related to each fact on their own. 1. $\text{Number} \times 1 = \text{number itself}$ 2. $\text{Number} \times 0 = 0$ 3. $\text{Number 1} \times \text{Number 2} = \text{Number 2} \times \text{Number 1}$ 4. Multiplication is repeated addition 5. $\text{Multiplicand} \times \text{Multiplier} = \text{Product}$ Facilitator will ask the students to write the answers of following questions based on facts of multiplication, (DEAL) and will write the facts in their notebook with examples. <table border="1"> <tr> <td>D</td><td>Describe the terms Multiplicand, Multiplier and Product</td></tr> </table>	D	Describe the terms Multiplicand, Multiplier and Product
D	Describe the terms Multiplicand, Multiplier and Product		

	E	Explain the relationship between Multiplicand, Multiplier and Product $\text{Multiplicand} \times \text{Multiplier} = \text{Product}$
	A	Analyze the facts and give examples.
	L	Link the facts with the questions given by the facilitator.
(Brainstorming) Facilitator will start giving oral questions based on facts of multiplication followed by finding the product. 1. $100 \times 257 = \underline{\hspace{2cm}}$. 2. $5443 \times 10 = \underline{\hspace{2cm}}$. 3. $233 \times 1000 = \underline{\hspace{2cm}}$. Students will reach to a conclusion, when multiplier is the multiple of 10, the number of zeros in the multiplier get attached to the multiplicand orally to give the product.		
Proceeding further <i>(What strategies will be used in the class to achieve the lesson objectives?)</i>	Day2(Learning engagement 1) LE: Times table Bingo in Concentric circles Facilitator will divide the class into two groups. Both the group will stand in two concentric circles facing towards each other. Students will start asking questions based on Dodging tables (2-20) so that students can revise the tables that can make the multiplication easier. 1. 12×5 2. 250×10 3. 134×0 4. 28×1 5. $2 \times 2 \times 2 \times 2 \times 2 = 2 \times \underline{\hspace{2cm}}$ All the students enjoy playing game and guess the	

	answer of the questions based on various facts of multiplication. (Ahaa Moment) Based on the activity done in 2 days facilitator help the students to understand the terms related to facts of multiplication like multiplicand, multiplier and product. Facilitator will repeat the facts in different ways so that students can understand the rules: • In a class of 40 students, each child grabbed 2 certificates in different classroom activities. How many certificates, the facilitator will distribute? • I have 5 sets of pencils with 10 pencils in each set. How many pencils I have in total. Critical thinking (reasons effectively) Rubrics: • Have a positive Outlook and enthusiastic. • Look forward to participate and learn. Day 3: Learning engagement (Mystery Boxes) Facilitator will place chits of 2,3,4 and 5 digits numbers in the mystery box1 and only 1, 2- or 3-digits numbers in mystery box 2. Both the boxes will be placed on the center table. 1. Students will come in pair. 2. One child will pick a chit from box 1 (multiplicand) and another from box 2 (multiplier). 3. They will together multiply the two numbers to get the product. Facilitator will repeat the process until all the students will get a chance to pick the chits to solve a multiplication question on class board.
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	Day 4 & 5: (Learning engagement2) Based on the activity done on day 3 and learning engagement 1 on day 4 (in learning log), facilitator will help students to revise the facts of multiplication and solve the related questions in math notebook as: Q. Find the product: a) $7,712 \times 16$ b) $9,999 \times 12$ c) 456×321 Day 6: (Learning engagement 1) (induction - Deduction Facilitator will explain the way to understand word stories of multiplication using induction-deduction method. Students will follow the given steps to understand the given word story, identify the basic operation and find the product: Read the word stories and understand it's meaning in given three steps: 1. What is given (multiplicand and multiplier) 2. What is to be calculated (product) 3. Which basic operation is to be used. Vocabulary check for multiplication word stories: Number of Sets, how many times, etc. Day 8: (Learning engagement) Facilitator will explain the facts of division and students will write them in their notebooks. After understanding the facts of division, students will write one example
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related to each fact on their own.

1. $\text{Number} \div 1 = \text{number itself}$
2. $\text{Number} \div 0 = \text{not defined}$
3. Dividend = number to be divided

Divisor = number from which division is to be done

4. Checking:

$\text{Dividend} = \text{Divisor} \times \text{quotient} + \text{remainder}$

5. You can not interchange the values of dividend and divisor.

Facilitator will ask the students to write the answers of following questions based on facts of division (**DEAL**) and will write the facts in their notebook with examples.

D	Describe the terms Dividend, Divisor, quotient and remainder.
E	Explain the relationship between Dividend, Divisor, quotient and remainder.
A	Analyze the facts and give examples.
L	Link the facts with the questions given by the facilitator.

(Brainstorming)

Day9: (Learning engagement 1)

LE: Concentric circles

Facilitator will divide the class into two groups. Both the group will stand in two concentric circles facing towards each other. Students will start asking questions based on oral division so as to find the quotient and remainder orally.

1. $2000 \div 100 = \text{Q:20 R:00}$

	2. $9,999 \div \underline{\hspace{1cm}} = Q:999 \text{ R}:9$ 3. $1,278 \div 1000$ 4. $\underline{\hspace{1cm}} \div 100 = Q:25 \text{ R}: 05$ All the students enjoy playing game and guess the answer of the questions based on various facts of division. (Ahaa Moment) Based on the activities done on day 7&8, facilitator will help the students to understand the terms related to facts of division. Facilitator will repeat the facts in different ways so that students can understand the rules: 1. 25 chocolates are to be distributed equally amongst 5 children. How many chocolates will each child get? 2. In a class of 40 students, 5 students are sitting in one group. In how many groups facilitator will divide the class? Critical thinking (reasons effectively) Rubrics: • Have a positive Outlook and enthusiastic. • Look forward to participate and learn. Day 10 & 11: Learning engagement (Mystery Box) Facilitator will place chits of 3,4 and 5 digits numbers in the mystery box1 (dividend) and only 1 or 2 digits numbers in mystery box 2 (divisor). Both the boxes will be placed on the center table. 1. Students will come in pair. 2. One child will pick a chit from box 1 (dividend) and another from box 2 (divisor). 3. They will together perform division on the
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	class board to find the quotient and remainder. Facilitator will repeat the process until all the students will get a chance to pick the chits to solve a division sum on class board. Collaboration (collaborates with others) While dividing, students will revise the facts of division. All these division sums will be done in math notebook as: Q. Find the quotient and remainder of following division sums. Also show the checking so as to check your own division. 1. $5555 \div 5 = Q: \underline{\quad} R: \underline{\quad}$ 2. $91,035 \div 18 = Q: \underline{\quad} R: \underline{\quad}$ Checking: Dividend = Divisor $\times$ Quotient + Remainder C: Critical Thinking (reasons effectively) Day 12: (induction – Deduction) Facilitator will explain the way to understand word stories of division using induction-deduction method. Students will follow the given steps to understand the given word story, identify the basic operation and find the quotient and remainder: Read the word stories and understand it's meaning in given three steps: 1. What is given (dividend and divisor) 2. What is to be calculated (quotient and remainder) 3. Which basic operation is to be used. Vocabulary check for division word stories:
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	Repeated subtraction, can be distributed (divided) equally amongst a group or not, etc.
Learning Logs <i>(How learners keep a track of what they are learning, includes reflections)</i>	Day 4: (Learning engagement1) Multiplication War using Deck of Cards Facilitator will shuffle the cards (only from number 1 to 9 – remove rest from the deck), Randomly 6 students will come forward to pick 6 cards. They will write the numbers of those cards as: First three as multiplicand and rest three as multiplier OR first 4 as multiplicand and rest 2 as multiplier. $\begin{array}{r} _4_ _7_ _2_ \\ \times _2_ _9_ \\ \hline \end{array}$ Facilitator will invite a student to come to the board to solve the given problem and rest all will do the same in their learning log. $\begin{array}{r} _4_ _7_ _2_ \\ \times _2_ _9_ \\ \hline \end{array}$ $\begin{array}{r} 4 \quad 2 \quad 4 \quad 8 \\ 9 \quad 4 \quad 4 \quad . \\ \hline 1 \quad 3, \quad 6 \quad 8 \quad 8 \end{array}$ Day 10: Learning engagement: <u>Use Spinners (Group of 4)</u> This fun activity is simple to put together, using just a paper clip and this handout. Partners take turn spinning the spinner then dividing that number with whatever number they get when they roll the dice. Students will

attempt this worksheet and will paste it in their learning log along with the spinner.



C: Collaboration (collaborates with others)

Lesson Plan : Stage 2

Formatives/Unit test
(How will the facilitator check for comprehension?)
***Integration of Arts/ICT**

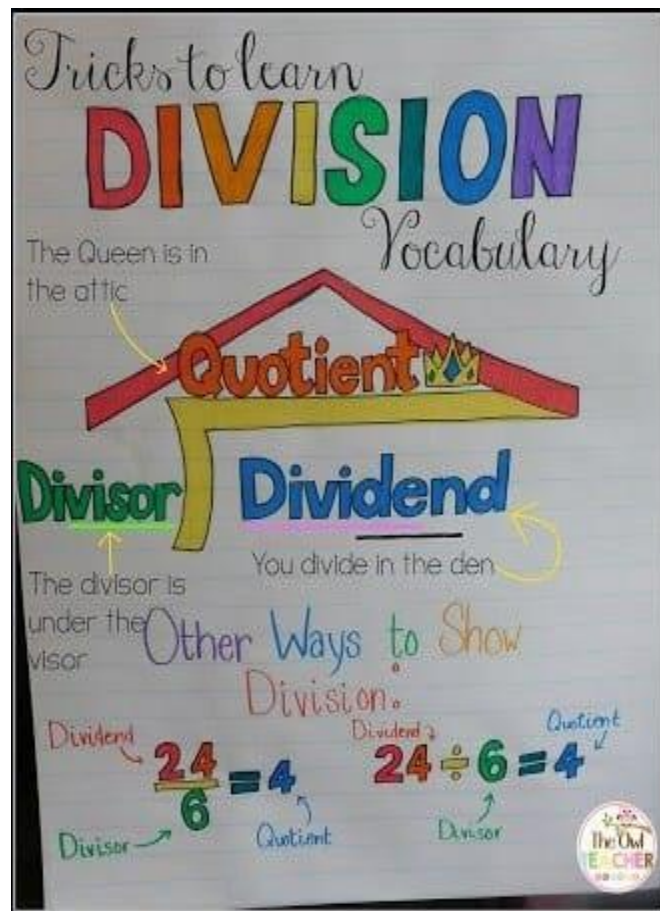
Day 7: Students will attempt a closure worksheet based on multiplication facts and find the product.

Day13: Students will attempt a closure worksheet based on division facts, finding quotient, remainder and checking the answer.

Teacher Interventions
(Addressing the concerns and issues faced during the transactions)

Day 10-12 (Learning Engagement)

Division vocabulary - anchor chart .
 This anchor chart provides students with a helpful visual to remember division vocabulary terms. Linking the words to a visual image and memorable descriptor helps students remember the steps of the process.



Extending the Lesson Further
(Creating through Active experimentation)

Day7: (Learning Engagement)

‘Lattice Method’

The lattice method is an alternative to long division and multiplication for numbers:

Multiplication:

$$948 \times 827$$

	9	4	8	
8				
2				
7				

		9		4		8	
7	7	2	3	2	6	4	8
8	1	8	0	8	1	6	2
3	6	3	2	8	5	6	7
		9		9		6	

		9		4		8	
7	7	2	3	2	6	4	8
8	1	8	0	8	1	6	2
3	6	3	2	8	5	6	7
		9		9		6	

Rubrics:

- Thoughtful reflection by students
- Effective and clear communication

Day13: (Learning Engagement)

‘Lattice Method’ The lattice method is an alternative to long division and multiplication for numbers:

Division:

Example 1: Solve $423 \div 3$

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Summative Assessment (<i>How will the facilitator check that learning objectives have been achieved?</i>)
Day14: Pen paper test
Assessment sheet based on facts of multiplication, division, repeated addition, repeated subtraction, lattice method.