3rd Grade

Created By:
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APPLICATION OF MULTIPLICATION AND DIVISION

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Application of Multiplication and Division

Name	1	2	3	4	5	6	7	8	9	10	11	12	13	14

Name _____

Application of Multiplication and Division

LT	Statement	1	2	3	4	Evidence
1	I can use strategies to multiply a two-digit number by a one-digit number-.mental math					
2	I can use strategies to multiply a two-digit number by a one-digit number-.partial products					
3	I can use strategies to multiply a two-digit number by a one-digit number-.properties					
4	I can use the standard algorithm, to multiply a two-digit number by a one-digit number					
5	I can determine the quotient using the relationship between multiplication and division					
6	I can determine if a number is even or odd using divisibility rules.					
7	I can solve one-step and two-step problems involving multiplication and division within 100 using strategies based on objects					
8	I can solve one-step and two-step problems involving multiplication and division within 100 using strategies based on pictorial models, including arrays, area models, and equal groups					

1	2	3	4
I have no idea how to do this.	I can do this with some help.	I can do this by myself	I can teach someone to do this.

Name _____

Application of Multiplication and Division

LT	Statement	1	2	3	4	Evidence
9	I can solve one-step and two-step problems involving multiplication and division within 100 using strategies based on properties of operations.					
10	I can solve one-step and two-step problems involving multiplication and division within 100 using strategies based on recall of facts.					
11	I can represent and solve one- and two-step multiplication and division problems within 100 using arrays					
12	I can represent and solve one- and two-step multiplication and division problems within 100 using strip diagrams					
13	I can represent and solve one- and two-step multiplication and division problems within 100 using equations.					
14	I can determine the area of rectangles with whole number side lengths in problems using multiplication related to the number of rows times the number of unit squares in each row.					

1	2	3	4
I have no idea how to do this.	I can do this with some help.	I can do this by myself	I can teach someone to do this.

Learning Target	What do we want students to learn?	How will we know if they learned it?	What will we do if they don't?	What will we do if they already know it?
1 3.4G	Use strategies to multiply a two-digit number by a one-digit number-.mental math	Basic facts ❑ Multiplication facts up to 10 × 10 Mental math ❑ Accurate computation without the aid of paper, pencil, or other tools	❑ Recognize multiplication presented in a real-world problem situation ❑ Understand how to multiply a two-digit number by a one-digit number involving regrouping ❑ Solve a one-step problem involving multiplication	❑ Use strategies and algorithms, including the standard algorithm, to multiply up to a four-digit number by a one-digit number and to multiply a two-digit number by a two-digit number. Strategies may include mental math, partial products, and the commutative, associative, and distributive properties.
2 3.4G	Use strategies to multiply a two-digit number by a one-digit number-.partial products	Partial products ❑ Decomposing the factor(s) into smaller parts, multiplying the parts, and combining the intermittent products		
3 3.4G	Use strategies to multiply a two-digit number by a one-digit number-.properties	Properties of operations ❑ Commutative property of multiplication a x b = c; therefore, b x a = c ❑ Associative property of multiplication ❑ a x b x c = (a x b) × c = a x (b x c) ❑ Distributive property of multiplication a x (b + c) = (a x b) + (a x c)		

Learning Target	What do we want students to learn?	How will we know if they learned it?	What will we do if they don't?	What will we do if they already know it?
4 3.4G	Use the standard algorithm, to multiply a two-digit number by a one-digit number	Standard algorithm ❑ Standardized steps or routines used in computation ❑ With and without regrouping	See LT 1-3	See LT 1-3
5 3.4J	Determine the quotient using the relationship between multiplication and division	Relationship between division and an unknown factor problem ❑ Inverse relationship between multiplication and division ❑ $a \div b$ can be determined by $b \times \_\_ = a$ or $\_\_ \times b = a$ Fact families – related number sentences using the same set of numbers $a \times b = c$ $c \div a = b$ $b \times a = c$ $c \div b = a$ Division problem types Partitive division ❑ Total amount known ❑ Number of groups known ❑ Size of measure of each group unknown Quotative division ❑ Total amount known ❑ Size or measure of each group known ❑ Number of groups unknown Division involving 0 ❑ Zero divided by any number equals 0. ❑ Relationship between multiplication and division applies. ❑ $0 \div a = 0$ because $0 \times a = 0$ ❑ Any number divided by 0 is undefined. ❑ Relationship between multiplication and division does not apply when dividing by 0. ❑ $a \div 0 = ?$ (no possible quotient) because $? \times 0 \neq a$	❑ Recognize division presented in a real-world problem situation ❑ Understand the relationship between a division fact and its related multiplication fact ❑ Represent and solve a division problem using the related multiplication fact	

Learning Target	What do we want students to learn?	How will we know if they learned it?	What will we do if they don't?	What will we do if they already know it?
6 3.4I	Determine if a number is even or odd using divisibility rules.	❑ Whole numbers (0 – 100,000) Even number ❑ If the digit in the ones place a whole number is divisible by 2, then the whole number is divisible by 2 and therefore even. Odd number ❑ If the digit in the ones place a whole number is not divisible by 2, then the whole number is not divisible by 2 and therefore odd. ❑ Mathematical and real-world problems	❑ Understand that a number is divisible by 2 if the number when divided by 2 has no remainder ❑ Understand that a number is not divisible by 2 if the number when divided by 2 has a remainder of 1 ❑ Understand that a number is even if the number is divisible by 2 and odd if it is not divisible by 2 ❑ Understand that if the digit in the ones place of a whole number is divisible by 2, then the number is even ❑ Determine if a number is even or odd using the divisibility rule of 2	❑ Introduce divisibility rules for 5 and 10.
7 3.4K	Solve one-step and two-step problems involving multiplication and division within 100 using strategies based on objects	Multiplication problem types ❑ Multiplication product unknown ❑ Multiplication factor unknown Division problem types Partitive division ❑ Total amount known ❑ Number of groups known ❑ Size or measure of each group unknown Quotative division ❑ Total amount known ❑ Size or measure of each group known ❑ Number of groups unknown Concrete objects ❑ Base-10 blocks, counters, color tiles, etc.	❑ Recognize multiplication or division presented in a real-world problem situation ❑ Understand how to multiply a two-digit number by a one-digit number involving regrouping ❑ Understand how to divide a two-digit number by a one-digit ❑ Solve a one-step or two-step problem involving the four operations.	❑ Represent the quotient of up to a four-digit whole number divided by a one-digit whole number using arrays, area models, or equations. ❑ Introduce the standard algorithm for division. ❑ Introduce interpreting remainders.

Learning Target	What do we want students to learn?	How will we know if they learned it?	What will we do if they don't?	What will we do if they already know it?
8 3.4K	Solve one-step and two-step problems involving multiplication and division within 100 using strategies based on pictorial models, including arrays, area models, and equal groups	Multiplication problem types ❑ Multiplication product unknown ❑ Multiplication factor unknown Division problem types ❑ Partitive division ❑ Quotative division Pictorial models ❑ Array ❑ Area model ❑ Equal groups	❑ Recognize multiplication or division presented in a real-world problem situation ❑ Understand how to multiply a two-digit number by a one-digit number involving regrouping ❑ Understand how to divide a two-digit number by a one-digit ❑ Solve a one-step or two-step problem involving the four operations.	❑ Represent the quotient of up to a four-digit whole number divided by a one-digit whole number using arrays, area models, or equations. ❑ Introduce the standard algorithm for division. ❑ Introduce interpreting remainders.
9 3.4K	Solve one-step and two-step problems involving multiplication and division within 100 using strategies based on properties of operations.	Multiplication problem types ❑ Multiplication product unknown ❑ Multiplication factor unknown Division problem types ❑ Partitive division ❑ Quotative division Properties of Operations ❑ Commutative property of multiplication ❑ Associative property of multiplication ❑ Distributive property of multiplication		
10 3.4K	Solve one-step and two-step problems involving multiplication and division within 100 using strategies based on recall of facts.	❑ Recall of facts ❑ Multiplication facts up to 10 × 10 ❑ Division facts up to 100 ÷ 10 ❑ Mathematical and real-world problem situations with multiple operations ❑ One-step and two-step problems ❑ Equation(s) to reflect solution process		

Learning Target	What do we want students to learn?	How will we know if they learned it?	What will we do if they don't?	What will we do if they already know it?
I1 3.5B	Represent and solve one- and two-step multiplication and division problems within 100 using arrays	❑ One-step problems ❑ Representations using arrays ❑ Relationship between quantities represented and problem situation ❑ Arrangement of a set of objects in rows and columns	❑ Recognize multiplication or division presented in a real-world problem situation ❑ Understand how to interpret a strip diagram to identify the dividend, the divisor, and the quotient in a ❑ division situation ❑ Represent a problem involving multiplication or division using a strip diagram ❑ Understand the relationship between the description of a problem situation and the symbols ❑ represented in an equation/number sentence ❑ Represent a two-step problem involving multiplication and division using an equation ❑ Understand how an array can be used to represent a multiplication situation ❑ Represent a problem involving multiplication using an array	❑ Represent multi-step problems involving the four operations with whole numbers using strip diagrams and equations with a letter standing for the unknown quantity.
I2 3.5B	Represent and solve one- and two-step multiplication and division problems within 100 using strip diagrams	❑ Representations using strip diagrams ❑ Relationship between quantities represented and problem situation ❑ Linear arrangement used to illustrate number relationships		
I3 3.5B	Represent and solve one- and two-step multiplication and division problems within 100 using equations.	Equation & Expression ❑ Relationship between quantities represented and problem situation ❑ Equal sign at beginning or end ❑ Unknown in any position Proper equality representation ❑ Multi-step solutions represented with one number sentence, or equation, per step ❑ All expressions separated by equal signs must be equivalent.		

Learning Target	What do we want students to learn?	How will we know if they learned it?	What will we do if they don't?	What will we do if they already know it?
14 3.6C	Determine the area of rectangles with whole number side lengths in problems using multiplication related to the number of rows times the number of unit squares in each row.	Concrete models ❑ Color tiles to measure square inches ❑ Centimeter cubes to measure square centimeters Pictorial models ❑ Inch grid paper to measure square inches ❑ Centimeter grid paper to measure square centimeters ❑ Pictorial representations with grid lines to represent customary or metric square units ❑ Pictorial representations with partial grid lines to represent customary or metric square units Area determined when given a rectangle with grid lines or partial grid lines ❑ Whole unit side lengths Area determined when given the side lengths of a rectangle related to number of rows and number of unit squares in each row ❑ Whole unit side lengths	❑ Recognize the dimensions of a rectangle presented in a diagram ❑ Understand how to determine area of a rectangle by multiplying the number of rows times the number of square units in each row ❑ Understand the meaning of the phrase, "The rest of the model will also be divided into squares of the same size." ❑ Determine the area of a rectangle ❑ Understand the meaning of the phrase "equal-size squares" ❑ Determine the areas of a set of rectangles ❑ Understand the meaning of the phrase "each square tile has a side length of 1 cm"	❑ Use models to determine the formulas for the perimeter of a rectangle ($l + w + l + w$ or $2l + 2w$), including the special form for perimeter of a square ($4s$) and the area of a rectangle ($l \times w$).

Day 1	Day 2	Day 3	Day 4	Day 5
Mini Lesson LT 14 Area	Math Huddle Mini Lesson LT 1, 3 Properties of Multiplication	Mini Lesson LT 1,2 Partial Products Area Model	Mini Lesson LT 4 Standard Algorithm	Game LT 5 Relationship between Division and Multiplication
Reteach	LT 14	LT 1, 3	LT 2, 3	LT 4
Day 6	Day 7	Day 8	Day 9	Day 10
Mini Lesson LT 5, 6 Property of 0 Divisibility Rule for 2	Mini Lesson LT 7, 8, 10 Problem Solving 2 Step	Mini Lesson LT 9, 10 Problem Solving 2 Step	Mini Lesson LT 11, 12 Problem Solving Strip Diagrams	Mini Lesson LT 13 Problem Solving Equations
LT 5	LT 7-10	LT 7-10	LT 11-13	LT 11-13

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