Curriculum Sample for 3rd Grade Math

Grade Level	3rd	**Content Area**	Math
Course Title (grades 9-12 Only)	n/a		
Length of Unit	5 days	**Time of Year**	3rd Quarter
Expected Prior Knowledge *The knowledge/skills mastered earlier in the year foundational to the mastery of the required Standard in the current sample.*	Students will be expected to know how to multiply one-digit whole numbers within the range 1 to 9 using place value strategies and illustrating calculations using equations. Students will be able to explain in writing or orally why addition and subtraction strategies work using place value and properties of operations. Students have had extensive practice adding and subtracting by multiples of ten and discerning the patterns they find when doing so.		
Alignment to Program of Instruction *Briefly outline methods of instruction found in this sequence of lessons that align to the Program of Instruction described in A.3.*	Students will be taught using scaffolding methods as well as with direct instruction. Through lecture-discussions and demonstrations, students will develop their knowledge while practicing problem-based learning & inquiry activities.		
Standard Number and Description *List the Number* and full description for the required Standard.*	3.NBT.3 - Multiply one-digit whole numbers by multiples of 10 in the range 10–90 (e.g., 9 x 80, 5 x 60) using strategies based on place value and properties of operations.		
Summative Assessment *Describe a cumulative and comprehensive activity, clearly separate from instruction and guided or independent practice, which allows each student to individually demonstrate mastery of the required Standard. A copy of the summative assessment must be attached to the curriculum sample.*	Students will demonstrate competency by completing a quiz that assesses the skills of multiplying one-digit whole number by multiples of 10 within the range 10 to 90 using strategies based on place value and properties of operations.		
Scoring Scale and Mastery Level *Explain how the assessment is scored, to include points per question, how points are awarded, total points possible, criteria necessary to demonstrate mastery, and grading scale. A copy of the answer key and scoring rubric (whichever applicable) must be attached to the curriculum sample.*	This assessment will demonstrate Students' knowledge of multiplying one-digit whole numbers by multiples of 10 in the range 10–90 using various strategies. Students will display their subtraction skills by answering all five questions with numerous parts. Question 1 = 2 points; Question 2 = 2 points; Question 3 = 3 points; Question 4 = 4 points; Question 5 = 11 points; and Question 5 = 27 points. There is a total of 27 points. 22 points or higher = mastery which is set at 80% or above.		
Materials/Resources Needed	Teacher's Edition Saxon Math Grade 3, Volumes 1 and 2; Fact Master 45A; Guided Class Practice 45A; Homework 45B; Guided Practice 109A; Homework 109B; Worksheet A; Numeral cards; counters; Multiples of Ten game board; "Assessment A;"		

Lesson (add as needed)	**Instruction**	**Student Activities**
1	Teacher tells Students, “Today you will learn: How to multiply by 1 and 10. The names for the numbers in a multiplication problem.” Teacher writes, “1 + 1 + 1 + 1 + 1 + 1 + 1 =” on the board. Teacher questions, “What is happening in this problem? What is the answer? Write “7” next to the problem. Teacher explains, “Mathematicians have a faster way of writing this problem.” Teacher writes, “7 x 1 = 7” on the board. Teacher states, “We read this as, ‘seven groups of one equals seven. The ‘x’ between the seven and the one is called the ‘multiplication’ symbol. When we see this symbol, we say ‘groups of. Some people say ‘times’ but we will say ‘groups of.’ Teacher then writes, “1 + 1 + 1 + 1 + 1 =” on the board. Teacher again asks Students, “What is happening in this problem?” Who do you think we will write this as a multiplication problem?” Teacher writes, “5 x 1 = 5” on the board. Teacher then writes, “1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 = 9” on the board. Teacher asks a Student volunteer to write the accompanying multiplication problem on the board. Teacher then writes, “10 + 10 + 10 + 10 + 10 10 + 10 + 10 =” on the board. Teacher questions, “What is happening in this problem? What is the answer? A multiplication problem is a faster way to write an addition problem when the same numbers are added together. Let’s write this addition problem as a multiplication problem. How many groups of ten do we have?” Teacher writes, “6 x 10 = 60” on the board. Teacher questions, “How will we read this problem?” Teacher explains to Students that the two numbers that are multiplied are called “factors” and the answer is called the “product.” Teacher passes out Fact Master 45A. Teacher states, “Let’s write	Students respond to Teacher by stating, “seven ones are being added.” Students respond, “five ones are being added.” Students volunteer to write accompanying multiplication problem on the board. Students respond that nine ones are being added. Students respond that eight tens are being added. Students respond that the answer to “6 x 10 = 60.” Students respond, we have six groups of ten. Students state, “We have six groups of ten and six groups of ten equals 60.” Students complete the first column of Fact Master 45A. Students respond to Teacher, “35 x 1 = 35; 27 x 1 = 27; and 198 x 1 = 198.” Students respond by stating that they notice the ten’s digit is the same as the number multiplied by one and the ones’ digit is 0.” Students answer the questions, “27 x 10 = 270” and “50 x 10 = 500.” Students continue to practice multiplication problems. Students complete the second column of Fact Master 45A. Students complete “Guided Practice 45A (Odds)” and “Homework 45B (Odds) for homework.

	the answers for the problems in column A together. Teacher writes, “35 x 1 =” on the board. Teacher writes the answer, “35” on the board next to the equals sign. Teacher repeats with problems, “27 x 1 =” and “198 x 1 =” Teacher asks, “What do you think these answers will be? What do you notice about all the answers for the multiplying by ten facts?” Teacher writes, “35 x 10 =” on the board. Teacher questions Students, “What do you think the answer will be?” Teacher repeats with “27 x 10 =” and “50 x 10 =. “ Teacher continues giving example problems until Teacher feels Students are competent in their multiplication processes. Teacher assigns the second column of facts on Fact Master 45A. Teacher assigns “Guided Practice 45A (Odds)” and “Homework 45B (Odds) for homework.	
2	Teacher assigns Fact Practice 109A. Teacher reviews multiplication problems from yesterday. Teacher states that they will complete some more Student-created multiplication problems. Teacher asks Students to volunteer to say problems out loud while Teacher writes them on the board. Teacher then states, “Today you will learn how to multiply a multiple of ten by a one-digit whole number.” Teacher writes the following problems on the board, “2 x 40,” “3 x 50,” “5 x 70,” and “6 x 20” on the board. Teacher questions Students, “How are these problems like the ones we did earlier? How are they different? How will we read the first problem? What is the answer? How do you know?” Teacher repeats this process with each example problem. Teacher then states, “We can write ‘9 x 40’ another way. Nine groups of 40 is the same as nine 40’s added together.” Teacher	Students complete Fact Practice 109A. Students volunteer to create multiplication problems with ten as a factor and a single digit number as a factor. Students answer Teacher’s questions about the first example, “2 x 40” and states that there are two groups of forty, the answer is 80 and they know because two groups of four is eight, so groups of 40 is 80. Students continue to answer Teacher’s questions out loud and on the board. Students complete “Guided Practice 109A (Odds)” and “Homework 109B.”

	writes the following on the board: "40 + 40 + 40 + 40 + 40 + 40 + 40 + 40 + 40 =." Teacher explains, "Both of these mean 'nine groups of forty.' Which is easier to write? When we multiply a number with a zero in the ones' place, we can multiply the other numbers we see and add a zero on the end." Teacher continues to write examples on the board and calls on Students to come and answer the questions. Teacher assigns "Guided Practice 109A (Odds)" and "Homework 109B.	
3	Teacher assigns Students Fact Practice 122A. Teacher states, "Today you will be learning a new strategy to help you solve multiplication problems." Teacher writes "27 x 4 =" on the board. Teacher rounds "27" to "30" and demonstrates "30 x 4 = 120." Teacher then writes, "3 x 4 = 12" (below the "120.") Next, Teacher subtracts the two totals to arrive at the answer: "108." Teacher displays another example problem on the board: "17 x 70 =." Teacher explains that you round "17" to "20", then multiply "20 x 70," to arrive at "210." Teacher then subtracts "210" from "1400" and arrives at the number 1190. Teacher continues by pairing up Students and having them write example problems for the class to solve. Teacher calls on pairs to offer one of their problems for Students to solve on the board. Teacher gives Students a worksheet to complete individually with more example problems on it.	Students complete Facts Practice 122A. Students respond to Teacher's questions and watch Teacher complete problems on the board. Students get into pairs and create equations for the class to solve. Students individually complete "Worksheet A" with more example problems on it.
4	Teacher checks for understanding by reviewing skills that need to be mastered by having Students get out their iPads and go to the website, "IXL.com" and clicking on the "Multiplication: Missing factors, - facts to 12." Teacher records scores. Next, Teacher instructs Students to click on "Multiplication: Multiply numbers	Students complete IXL.com practice. Students pair up and play game, "Multiples of Ten."

	ending in zeros." Teacher records Students' scores. Teacher then has Students complete "Multiplication: Multiply a one-digit number by a larger number." Again, Teacher records Students' scores. Teacher pairs Students and instructs Students to work with a partner. Teacher passes out numeral cards and the "Multiples of Ten" game board (two circles with "Player 1" and "Player 2" on it.) Teacher instructs Students to take turns turning over two numeral cards and add a zero to your second to make a multiple of 10. Teacher then instructs Students, "Multiply your two factors and complete the math talk sentence. Teacher states, "For example, "If Tom turns over two cards: '8' and '5' he adds a zero to the 5, multiples the factors and says, 'The product of eight and 50 is 400.'" Teacher demonstrates if you have the largest product for the round, place a counter in your circle on the 'Multiples of Ten' game board." Teacher instructs Students to keep going until the first person has 10 counters in his or her circle.	
5	Teacher instructs Students to complete "Assessment A" that tests: 1. When multiplying by multiples of 10, are Students able to identify and communicate the pattern shown in the products? 2. Can Students relate the patterns they observe in multiplication with the pattern found in addition and subtraction? 3. Are Students able to fluently multiply one-digit by one-digit numbers mentally?	Students complete the "Assessment A" and demonstrate their understanding of the material.

Summative Assessment: **Assessment A**

Name _____Date_____

Directions: Please answer all questions as best you can to demonstrate your knowledge of multiplying one-digit whole numbers by multiples of 10 in the range 10–90 using strategies based on place value and properties of operations. 22 points or higher = mastery.

1. 2 + 2 + 2 + 2 + 2 = ____ Write as a multiplication problem_____

2. Circle the combinations that equal 78.

8 tens and 7 ones	6 tens and 18 ones
7 tens and 8 ones	7 tens and 18 ones

3. There were 4 rows of 5 seats. How many total seats are there?
Write an equation and solve. _____

4. Answer each equation: 7 x 50 = _____ 3 x 10 = _____ 9 x 10 = _____ 4 x 20 = _____

5. Answer the following questions by rounding first, multiplying by a multiple of ten and subtracting the difference.

Examples:

28 x 2 =
Round: 28 + 2 = 30, then multiply 30 x 2 = 60
Next, 2 x 2 = 4 Subtract the two products: - 4
56

19 x 3 =
Round: 19 + 1 = 20, then multiply: 20 x 3 = 60
Next, 1 x 3 = 3 Subtract the two products: - 3
57

38 x 6 =
Round: _____ + _____ = _____, then multiply _____ x _____ = _____
Next, _____ x _____ = _____ Subtract the two products: - _____
_____

6. Solve:

80	50	30	60	90
x 7	x 4	x 6	x 9	x 2
_____	_____	_____	_____	_____

Answer Key/Scoring Rubric:

Answer Key

1. 10; 2 x 5 = 10 (2 points)
2. Students should have circled: 7 tens and 8 ones and 6 tens and 18 ones (2 points)
3. 4 x 5 = 20 seats (3 points)
4. 350; 30; 90; 80 (4 points)
5. 38 x 6 =
   Round: 38 + 2 = 40, then multiply 40 x 6 = 240
   Next, 2 x 6 = 12 Subtract the two products: -12
   76 (11 points)
6. 560; 200; 180; 540; 180 (5 points)

There are a total of 27 points. 22 points or higher = mastery

Score = _____/27

Points	Percentage
19	70
20	74
21	78
22	81 *mastery
23	85 *mastery
24	89 *mastery
25	93 *mastery
26	96 *mastery
27	100 *mastery