A.5. CURRICULUM SAMPLE – Third Grade Math

Grade Level	Content Area	Course Title	Unit Title
Third Grade	**Mathematics**	**N/A**	**Add it, Add it, Add it, NO! Multiply!**

Length of Unit	Time of Year Taught	Expected Prior Knowledge
5 Days	**Second Quarter**	Each student should understand how to skip count by 2s, 3s, 5s, and 10s. Students should understand the basic concept of multiplication of addition as introduced in the 2nd grade curriculum.

Unit Description

In this unit of five lessons, students will learn that multiplication is a useful tool to help count groups of things or add more quickly.

Common Core Standards	**3.OA.1.** Interpret products of whole numbers, e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each. *For example, describe a context in which a total number of objects can be expressed as 5 × 7.*
Summative Assessment	The student will demonstrate application of whole number products by graphically representing multiplication facts and writing multiplication facts for a given graphic. The assessment includes a total of 8 questions.
Assessment Scoring	Students earn 1 point each for questions 1 and 2. Questions 3 and 4 are worth 2 points each, based on the repeated addition and multiplication number sentence being correct. Questions 5-8 are worth 1 point each. The assessment is worth a total of 10 points. Students must earn 8 out of 10 points to achieve 80% and be considered to have mastered this concept.
Materials/Resources Needed	Personal whiteboards and white board markers, Teacher whiteboard, Magnetic manipulative pictures, An egg carton for each student, Small counters (e.g., beans), a pair of dice for every 2 students, pre-made game charts

	Lesson 1	Lesson 2	Lesson 3	Lesson 4	Lesson 5
Lesson Instruction	**Day 1:** **Objective:** Students will create arrays and write number sentences. Tell students that now that they have become experts at addition, it is time to learn about multiplication. Write the word multiplication on the board. Tell them that this big word actually	**Day 2:** **Objective:** Students will create a numbers chart and use the chart to solve problems. Ask students if they can count by 2s. Have them count by twos aloud to the number 20. Tell them that when they are counting by 2s, they are really multiplying. Write the numbers said when	**Day 3:** **Objective:** Students will use manipulatives (cartons and counters) to create mathematical situations, and write number sentences to represent them. Review with students the two ways we have used multiplication so far. We have used multiplication with arrays, and with	**Day 4:** **Objective:** Students will use correct multiplication vocabulary as they solve multiplication problems in a game. Review with students the previous lessons on multiplication. Play a mix and mingle game with students. Turn the music on. When the music stops, call out a	**Day 5:** **Objective:** Students will use number sense to investigate characteristics of numbers in a variety of forms and models of operation**,** model the operations of repeated addition and multiplication**,** and see multiplication as a way to count

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<td>helps us to add faster.

Draw 2 rows of stars on the white board. Put 3 stars in each row. Tell students that we know there are 2 rows, and ask them how many are in each row. Tell them that 2 rows or 3 makes 6 so 2 times 3 equals 6.

Use overhead counters continue to show students pictorially how these multiplication concepts work. Put counters into different numbers of rows with different numbers of counters in each row.

Explain to students that when we put things into rows, we call this an array. Show students different ways to represent arrays using pictures, x’s, stars, or a rectangle divided into sections. As you show each array write on the board: ___ rows of ___ is ____. Then, show the multiplication number sentence.

Guided Practice

Provide some arrays for</td>
<td>counting by 2s on the board. Show them that when they count by 2s they are showing one 2, two 2s, three 2s, etc. Put this information in a chart for them to see. Tell students that this tells us that if we have two 2s, we have 4, so when we multiply 2 times 2, we get 4.

Guided Practice

Make a chart with students that shows counting by 3s. Have students help you in filling out the chart. Then, have students tell how many threes each number represents. For example:

<table><tr><th>Number of 3s</th><th>Total Amount</th></tr><tr><td>1</td><td>3</td></tr><tr><td>2</td><td>6</td></tr><tr><td>3</td><td>9</td></tr><tr><td>4</td><td>12</td></tr><tr><td>5</td><td>15</td></tr><tr><td>6</td><td>18</td></tr><tr><td>7</td><td>21</td></tr></table></td>
<td>repeated addition.

Explain to students that multiplication is especially helpful when you have to count groups of things. Have some student stand up and put them into groups. For example, put students into groups of 3, and make 3 groups. Tell students that instead of counting all the students, we can just count the groups. 3 groups of 3 students, 3 x 3 =9.

Repeat this process with different numbers of groups and students in each group. Ask students to solve the problems with multiplication instead of addition, or counting each student.

Use magnetic picture manipulatives to show this to students in a different way. Put the manipulatives into groups. For example, put pictures of frogs into groups. Make 3 groups of 10 frogs. Ask students how many frogs there</td>
<td>multiplication fact. Students must get into groups that are the answer to this fact. For example, if the teacher calls out 3 x 2, students must get into groups of 6.

Guided Practice

Tell students that today they will learn the vocabulary of multiplication.

Write this multiplication problem on the board:

2 x 4 = 8

Tell students we can say this in a few ways. We can say:

2 times 4 equals 8.

2 multiplied by 4 equals 8.

The product of 2 and 4 is 8.

Direct students to the word product. Explain to students that the answer to a multiplication problem is called a product.

Have students write the definition of product in their math journals.</td>
<td>groups quickly.

Assessment

Students will complete a summative assessment.</td>
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	students. Ask students to write the multiplication sentences for the different arrays on their individual whiteboards. Check student white boards to assess understanding.	Tell students that multiplying is really a faster way of counting or adding. For instance, 3 +3 +3 +3 + 3= 15 In this problem I have five 3s, so five 3s is 15, and that means that 3 x 5 = 15. Ask students what you would have if you had 3 x 3. They should be able to answer 9 using the chart. Have students create a similar chart with 5s in their math journal. Ask students the answers to multiplication problems using 5s. **Independent Practice** Instruct students to use their charts to help them solve the problems. Explain to students that the way we used multiplication today was to help with repeated addition. Tell students that multiplication is just a way to add the same number faster. Have students write in their math journals:	are altogether. Show students how to write this as multiplication. 3 x 10 = 30. Repeat this procedure with different pictures in different numbers and groups. **Guided Practice** Tell students that now they are going to put things in groups and count them using multiplication. Provide each student with an egg carton and a set of counters. Instruct students to place the counters into their carton in different ways. For example, use 3 spaces. Put 5 counters in each space. How many counters do you have in your carton? Have students write the proper number sentence on a whiteboard as they do each problem. (3 x 5 = 15). Example: Place 6 counters in 2 spaces. How many counters are in your carton? (6 x 2 = 12)	Write another multiplication problem on the board. 5 x 7 = 35 Tell students that the numbers multiplied to find the product are called factors. So, 5 and 7 are factors of 35. **Independent Practice** Now, tell students they are going to play a game. Throughout the game, they are going to fill in a chart tracking their factors and products. Monitor student progress as they are playing the game to ensure understanding.	

		Multiplication is repeated addition. For example, 5+5+5+5+5=25, so 5 x 5 = 25	**Independent Practice** As students begin to grasp the concept, allow students to give the directions to their classmates. At the end of the lesson, have students write in their math journals: Multiplication is useful for counting things in groups. Have students draw a picture to demonstrate this in their journals.		

	Lesson 1	**Lesson 2**	**Lesson 3**	**Lesson 4**	**Lesson 5**
Student Activities	**Day 1** Students will write multiplication sentences for arrays on their personal white boards. Pair students with a partner and provide each partnership with a set of counters. Tell students to make arrays with their counters like you did on the overhead. Have students write a multiplication sentence for their partner's arrays. Students should take turns creating arrays and	**Day 2** Students will count by 2s to 20. Students will help in the creation of a class chart that shows counting by 3s. Then, students will create their own chart that shows counting by 5s. Students will answer multiplication problems by 5s. Students will take notes on repeated addition in their math journals.	**Day 3** Students will participate in an oral review of the previous days' lessons. Students will move into groups to be counted and multiplied. Students will put counters into egg cartons as instructed. For example, use 3 spaces. Put 5 counters in each space. How many counters do you have in your carton? Have students write the proper	**Day 4** Students will participate in an oral review of the previous days' lessons. Students will play a mix and mingle game where they get into groups in answer to multiplication facts. Students will take notes on products and factors. Students will play a dice game to reinforce the idea of products and factors. Each student will roll his	**Day 5** Students will complete a summative assessment.

	writing number sentences.		number sentence on a whiteboard as they do each problem. (3 x 5 = 15). Example: Place 6 counters in 2 spaces. How many counters are in your carton? (6 x 2 = 12) Students will give directions about counters to their classmates. Students will take notes on multiplication and grouping in their math journals.	or her two dice. They will record their 2 numbers in the chart as their factors. Then, students will multiply their factors to arrive at their product. After each student has had 3 turns, they will add up their three products and the person with the highest total at that point wins the round.	

Roll a Factor Dice Game

Factor 1 **(number on 1st dice)**	**Factor 2** **(number on 2nd dice)**	**Number Sentence** **(factor x factor= product)**	**Product**
3	6	3 x 6 = 18	18
		Total:	
		Total:	

Add it, Add it, Add it, NO! Multiply! (with answer key)
Assessment

Outcome: The student will demonstrate application of whole number products by graphically representing multiplication facts and writing multiplication facts for a given graphic.

Draw an array to show the multiplication.

1. 3 X 2

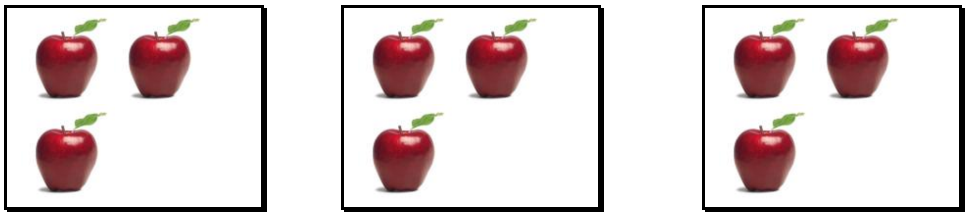
2. 5 X 4

Fill in the blanks for each problem.

3. _____ groups; _____ flowers in each group

   _____ + _____ + _____ = _____

   _____ x _____ = _____



4. _____ groups; _____ apples in each group

   _____ + _____ + _____ = _____

   _____ x _____ = _____

Follow the directions to draw a picture as asked. Then, write the multiplication sentence.

5.

Draw 4 groups of 4 balls.

6.

Draw 5 groups of 6 flowers.

7.

Write the multiplication number sentence for the array.

_____ x _____ = _____

8. Write the multiplication number sentence for the array.

_____ x _____ = _____

Answer key:

1 and 2: Students should draw an appropriate array.
3. 3, 4; 4 + 4+ 4 = 12; 4 x 3 = 12
4. 3, 3; 3 + 3 + 3 = 9; 3 x 3 = 9
5 and 6: Check to see that student pictures are accurate
7. 5 x 5 = 25
8. 6 x 3= 18