Grade Level	Content Area	Course Title *(For 9-12 Samples Only)*	Unit Title
5th grade	Mathematics		Algebra the early years!

Length of Unit	Time of Year Taught	Expected Prior Knowledge
2 weeks	Fall	- Adding and subtracting whole numbers - Multiplying one digit whole numbers - Order of operations - Squaring a number

Unit Description

The unit will focus on the idea of interpreting numerical expressions. The instructor will guide the students through order of operations as they discuss and analyze the key concepts of number sense. The unit is based drastically on the prior knowledge which means small group and remediation will be needed for some students whom have gaps in their mathematical concepts. The instructor will closely monitor these gaps and provide support needed for the students to be successful

Standards: See instructions on page 15.	**Operations and Algebraic Thinking (OA)** Write and interpret numerical expressions. 5.OA.1. Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.
Summative Assessment *In addition to the description, include a copy of the summative assessment in the application package.*	Assessment will be based on student's ability to solve problems in a written exam. Students will be given 6 problems in which they will use their knowledge of operations and algebraic thinking. A copy of the summative assessment/answer key (scoring rubric) is attached.
Scoring for Summative Assessment *In addition to the description, include a copy of the answer key and scoring rubric (if applicable) for the summative assessment in the application package.*	Mastery = 8/10 or higher. A copy of the answer key/scoring rubric is attached. Remediation students given more time.
Materials/Resources Needed *Include all items for the entire unit.*	- construction paper - white paper with numbers on them - dice - interactive math journal

	Lesson 1	Lesson 2	Lesson 3	Lesson 4	Lesson 5
Instruction and Timeline	Teacher will introduce the topic of order of operation by reading the book ____. Then teacher will show an example of how to use the order of operations with all operations involved. Teacher will have on each desk markers, different colors of construction paper, scissors and glue. Teacher will show an example of the foldable the students will create. Teacher will demonstrate by folding the paper horizontally and then folding the paper vertically to make four boxes when unfolded. Teacher will ask students to create a title to place on the cover of their folded paper. The title should contain words like order and operation but can be witty. Teacher will then ask students to unfold their paper so that the four squares are showing. The teacher will then ask students to write an addition and subtraction sign in the lower right hand box. Then start to explain that	Teacher will start lesson by having students pull out foldable. Then teacher will give students five order of operation problems to perform in their students interactive notebooks. Teacher will go over each operation step by step to make sure students are all together. Then teacher will start to explain the activity. Students will be in groups of four. Each person in the group of four will have a given number. The student will either be 3, 6, 2, 9. Teacher will make sure each student has a place in the room to stand and each student has their notebooks to write in. Teacher will show an example of a bracket problem on the board. The example of (___+___) * ___ = 72. Then teacher will place the numbers in the correct order to make the statement true. Teacher will then put on the board a different grouping of blanks and brackets. Each group of	Teacher will start lesson by giving students three problems with blanks in them that have brackets and operations. Teacher will have a number bank and tell students to solve problems while teacher helps struggling students. Teacher will go over each problem step by step to make sure each student understand the order. Teacher can ask for student assistance as they go over the different situations. Then teacher will break students into groups of six. Teacher will explain to students the situation of having two or more brackets in an expression and how to solve those types situations. Teacher will go over two situations that involve using brackets inside of brackets. Then teacher will explain the activity to the students each student will have a different number in each group, using the numbers 1, 4, 6, 3, 7, 2. Same as the day before but this time there is two brackets in each expression. Students will solve 4 expressions by getting into the right order	Teacher will start lesson by giving three questions on the board about brackets inside of brackets using order of operations. Teacher will monitor and help struggling students as other work on solving the expressions. Teacher will have paper, dice and markers on each desk. Teacher will start to explain their activity by showing blanks on the board with brackets, for example, (___ + ___) * ___ = ___. Teacher will explain to students that they will roll the dice and put the number they rolled in the numerator position and then put the number six in the denominator position. Students will do this each number inside of a bracket. For the number outside of the bracket student will roll one dice and place that whole number on the outside. Teacher will place 8 different bracket blank order of	Teacher will start the lesson by giving 5 order of operation problems that include brackets and brackets within brackets. Teacher will monitor students progress and assist when necessary. Teacher will begin by giving a paper to a student to read. On the paper is a sentence that can be written into an expression. 144 divided by 12 and then subtracted by 9. As the student reads it the teacher writes the expression on the board. The teacher expressed the key words of division and subtraction. The teacher also points out where the brackets should go in the expression because of the key word of “and then”. Teacher then gives a guided practice problem to the students, for example, 8 multiplied by 9 and then added to 49. Teacher monitors and assists. Then the teacher shows 8 different expressions on the board. The teacher asks the students to not find the

	we do addition and subtraction last in the order of operations and that if there are two addition or subtraction signs we go left to right in our order completing our order of operations. Then the teacher will ask students to write and solve the problem 5 – 2 + 8 on their foldable. Next the teacher will tell students to write a multiplication and division sign in the bottom left box. The teacher will explain that this is the second to last step of our order. Explain to students that if we have one of these signs in our expression that we need to do this first before adding or subtracting. Teacher gives a guided practice problem 5 * 6 + 9 and says to solve on their box. Teacher also explains that if there are two multiplication or division symbols that we go left to right. Next teacher will tell students to write the word exponent in the upper right hand box. Explain to students this is where we do exponents like	students must stand in the correct order to make the statement correct. Teacher will monitor and use guiding questions to help groups that our struggling. Teacher will again keep giving different scenarios of brackets and answers, students should be writing each scenario in their interactive student notebook. Teacher will then ask students to create 2 bracket using order of operation problems on their own. Teacher will then ask students to journal about what they think about when thy can create 10 different numbers by only using 4 numbers.	and working as a team. Then the teacher will ask students to create an expression on their own and to explain how they solve their expression as a group to the class.	operation problems on the board for the groups to solve. Teacher will walk around to monitor and ask essential questions to guide the learning. When all groups have finished teacher will now change the rules, the group will now roll both dice the first dice will be the numerator and the second dice will be the denominator of the fraction created. Students will again make two fractions for inside of the brackets and use a whole number outside. Students will choose any 4 bracket problems from the 8 on the board. Teacher will again walk around room to monitor progress and help struggling and prevailing students. Lastly teacher will ask students to journal about what they have learned about brackets and order of operations.	answer of these expressions but to write them in sentence structure. As students work teacher will monitor and ask essential questions. Students will then share out their sentences at their table trying to see who used different words and if they work. Teacher will ask students what words did you use that were different and if they worked to express the expression. For example, addition, add, plus, additive, increase. Teacher will then give a journal entry about how many different ways can you express the expression of (4 ÷2) – 2 + 10.

	squaring numbers. Teacher will give a problem such as 3^2 *2 – 8. Students will perform problem on the foldable. Lastly, teacher will tell them to put brackets in the upper left hand corner of the foldable. Teacher will explain if this is in your expression you have to do whatever is inside of brackets before anything else. Then give the problem, (3*4) – (2 +4) – 3, and asks students to perform the problem. Teacher will then ask students to solve this problem and show every step by putting each step on a different piece of paper and cutting out and placing it in the correct box of their foldable. Teacher will then ask students to write a journal about the story they read together.				

	Lesson 1	**Lesson 2**	**Lesson 3**	**Lesson 4**	**Lesson 5**
Student Activities and Timeline	Student will listen to a story about the order of operations called ____. Then the student will listen	Students will pull out foldable made the day before. Then teacher will give students five order of operation problems to perform in their students	Students will perform three problems with blanks in them that have brackets and operations. Student will use a number bank to solve problems is student	Students will answer three questions on the board about brackets inside of brackets using order of operations. Students	Students will perform 5 order of operation problems that include brackets and brackets within brackets in their interactive student

	to an example of how to use the order of operations with all operations involved and writing this example in their student interactive notebook. Student will take a piece of construction paper and create the order of operation foldable that will be explained by the teacher while they perform. Student will create a title to place on the cover of their folded paper. The student will write an addition and subtraction sign in the lower right hand box. Student will write the notes for the box and place the example. Student will follow the same format for each of the boxes giving definitions and key words that will help them remember how to perform the order	interactive notebooks. Students will listen to how to solve the operation step by step.. Students will be in groups of four. Each person in the group of four will have a given number. The student will either be 3, 6, 2, 9. Student has a place in the room to stand and each student has their notebooks to write in. Students will follow an example on the board. The example of (___+___) * ___ = 72. Students will place the numbers in the correct order to make the statement true. Student will have 8 different statements to solve as a group on the board. Each group of students must stand in the correct order to make the statement correct. Students will ask question to teacher if necessary. Students will write each statement in their interactive student notebooks. Students will then create 2 bracket using order of operation problems on their own. Students will then journal about what they think about when thy can	struggles will be able to ask teacher for individual help. Students will listen as each problem is explained. Students will break up into groups of six. Students will be given the situation of having two or more brackets in an expression and asked to solve those types' situations. Students will listen to two examples that involve brackets inside of brackets. Each student in each group will have a different number, using the numbers 1, 4, 6, 3, 7, 2. Same as the day before but this time there is two brackets in each expression. Students will solve 4 expressions by getting into the right order and working as a team. Students will work together and write down all answer in their interactive student notebook. Student will then create an expression on their own and to explain how they solve their expression as a group to the class.	will ask questions as they work. Students will listen to the activity. Students will roll the dice and put the number they rolled in the numerator position and then put the number six in the denominator position. Students will do this each number inside of a bracket. For the number outside of the bracket student will roll one dice and place that whole number on the outside. Student will solve the 8 different bracket blank orders of operation problems on the board for the groups to solve in their interactive student notebook with the numbers they create. When all groups have finished they will now play the dice game with different rules. The group will now roll both dice the first dice will be the numerator and the second dice will be the denominator of the fraction created. Students will again make two fractions for	notebook. Students will listen as another student expresses and expression in words so that the teacher can write it on the board as an example. Student perform guided practice problems, for example, 8 multiplied by 9 and then added to 49. Students will write the 8 problems in words. Students will then share out their sentences at their table trying to see who used different words and if they work. Students will take note on what words happened differently and if they worked to express the expression. For example, addition, add, plus, additive, increase. Students will journal about how many different ways can you express the expression of (4 ÷2) – 2 + 10.

	of operations. Student will then solve a problem on the board by placing each step of the problem on a different piece of paper that has been cut out creatively and drawn neatly so to show inspiration. Student will place each step to its coordinate that it belongs following the order of operations system. Student will then write a journal about the story they read together.	create 10 different numbers by only using 4 numbers.		inside of the brackets and use a whole number outside. Students will choose any 4 bracket problems from the 8 on the board. Lastly students will journal about what they have learned about brackets and order of operations	

5th Grade Assessment: Interpreting Numerical Expressions

Mastery = 8/10

Name_____ Date_____

1. (36 + 28) ÷ 4 = _____ (1 point)

2. {[4 x (4+5)] – 9} + [5 x (33-28)] = _____ (1 point)

3. 37 - (2 x 5) + (16 ÷ 4) = _____ (1 point)

4. { 80 ÷ [2 x (5 ½ - 1 ½)] }+ 5= _____ (3 points)

5. (3 + 3) x (6.5 – 5.5) = _____ (1 point)

6. Write an expression for “divide 288 by 12, and then subtract 4/5 and solve. (3 points)

Scoring Sheet

1. (36 + 28) ÷ 4 (1 point) 16
2. {[4 x (4+5)] – 9} + [5 x (33-28)] (1 point) 52
3. 37 - (2 x 5) + (16 ÷ 4) (1 point) 23
4. { 80 ÷ [2 x (5 ½ - 1 ½)] }+ 50 (3 points) 60
5. (3 + 3) x (6.5 – 5.5) (1 point) 6

6 Write an expression for "divide 288 by 12, and then subtract 4/5 and solve. (3 points) (288 ÷ 12) – 4/5; 21 15

Summative Assessment

Assessment will be based on student's ability to solve problems in a written exam. Students will be given 6 problems in which they will use their knowledge of operations and algebraic thinking. A copy of the summative assessment/answer key (scoring rubric) is attached.