Grade Level	5th Grade	Content Area	Math
Course Title (grades 9-12 Only)			
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.*	Student should be able to 5.NBT.1. Recognize that in a multi-digit number, a digit in one-place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left. (5.NBT.1). Students should be able to explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10. (5.NBT.2).		
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.*	The following methods of instruction are aligned to the Program of Instruction: (1) Common Core State Standard: instruction aligned to K.NBT.1. (2) Direct Instruction: teacher-led and driven instruction. (3) Understanding by Design (UbD): UbD lesson plan template used; title/objective identified for every lesson. (4) RTI & Differentiated Instruction: RTI tier-2 and 3 students identified with DOMA screenings and/or formative assessments. Tier-2 and 3 students provided with differentiated instruction respectively in small group or one-on-one using the intrinsic RTI remedial properties of Singapore Math; that is: (a) Scaffolding: concrete-to-pictorial-to-abstract approach, math problems go from 1 step to 2 steps to multistep; (b) Visual representation: use of the bar modeling method; (c) Differentiation resources: modeling of proficient problem solving, reteaching opportunities, extra-practice, tips for helping struggling students, modeling with thinkalouds, corrective feedback and frequent cumulative review.		
Standard Number and Description *List the Number* and full description for the required Standard.*	**5.NBT.7** Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.		
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 add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction. Students will use the relationship between addition and subtraction to check for accuracy. Students will use the relationship between multiplication and addition to check for accuracy.		
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.*	There are 10 items on the assessment. Students will perform 20 calculations, as each item requires students to add or multiply to check for accuracy. The assessment is worth a total of 20 points, 1 point for each calculation. At an 80% mastery level, students need to score 16/20 points to be considered to have mastered the assessed performance objective.		

Materials/Resources Needed	Teacher white board, student white boards, white board markers, place value disks (to the hundredths), place value charts, 8 decks of cards, student math journals, pencils, dice. Singapore Math instructional materials.

Lesson (add as needed)	Instruction	Student Activities
1	**Objective**: **Students will add decimals to the hundredths, using number disks to model and apply place value understanding.** • The teacher will explain to students that in this unit they will learn to use models and drawings to show what they have learned about using decimals. • Explain that adding with decimals is similar to adding whole numbers. When we add numbers with decimals, we are adding parts of whole numbers. Just like adding whole numbers, we may rename when a sum reaches its' base-ten limit. (e.g. 0.1+ .9 = 1.0). **Guided Practice**: Invite students to show the parts 2.73 and 3.85 using number disks. • Model for students adding each place value, beginning with the hundredths. Write this addition problem vertically on the Teacher white board. Accentuate the importance of lining up the decimal places, and reinforce this concept through manipulation of place value disks. The teacher models her thinking throughout this explanation. • After adding each place value, give students an opportunity to recreate the calculation using number disks. Show work on Teacher white board throughout. • When adding, .7 and .8, demonstrate how this makes 15 (.1) s. Ask students how many tenths it takes to create a whole (1). • Model for students the renaming of 10 (.1) as a whole (1). This (1) is now added to the (1) s place. Show 5 remaining tenths. Complete the problem to show 2.73 + 3.85 = 6.58. • Ask students to practice the use of place value disks to represent additional problems. **Assessment**: Use DOMA screenings and/or formative assessments to identify at-risk students; pool them in RTI tier-2 and 3 groups. Provide them with whole class, small group or one-on-one differentiated instruction; and use scaffolding and differentiation tools (concrete-to-	Students will show 2.73 using 2 (1) s, 7 (.1) s, and 3 (.01) s. Students will show 3.85 by using 3 (1) s, 8 (.1) s, and 5 (.01) s. Students will add each place value, beginning with the hundredths. Students will use concrete modeling (number disks). Students will respond, 10. Students will complete the problem to show 2.73 + 3.85 = 6.58. Students will use place value disks to represent the addition of 2 numbers with decimals to the hundredths. Students will show their workings on student white boards. Students will "draw" to determine addition, and then find the sum of two numbers with decimals to the hundredths. Students will discuss problem-solving strategies, share observations, and compare work within base groups. Students will write and solve addition problems with decimals to the hundredths.

	pictorial-to-abstract approach, bar modeling method, modeling with thinkalouds, reteaching opportunities, extra-practice, tips for helping struggling students, corrective feedback and frequent cumulative). Monitor student progress by checking for accurate calculations on student white boards and appropriate manipulation of place value disks. **Independent Practice**: Tell students they will now practice their addition skills with decimals within base groups. Each base group will receive a deck of cards (face cards, 10s, and jokers removed). Once the cards are shuffled, each group member will be given a card to turn over. Beginning with the hundredths, each student will lay down his/her card to reveal the number of hundredths, tenths, ones, and tens. Each student in the group will lay down a second card in the same manner. Each student will write the problem and find the sum on student white boards. • The teacher directs students to discuss problem-solving strategies, share observations, and compare work within their student base groups. **Assessment**: Monitor student progress by checking for accurate calculations on student white boards. • Write several problems on the Teacher white board for students to copy and solve on personal white boards. • The teacher moves about the room to check for transfer of understanding (e.g., Add 3 hundredths to 2.72; Add 7 tenths to 92.9; etc.), asking students to use math language when explaining their work.	
2	**Objective**: **Students will subtract decimals to the hundredths. Students will check for accuracy using addition.** • Tell students they will use their knowledge of adding decimals to help them understand how to find the difference between two decimals as well as to check their answer for accuracy. Write the problem 6.82 – 4.13 = vertically on the Teacher white board. Bring students' attention to the lining up of decimal points. Invite students to represent 6.82 using place value disks. **Guided Practice**: Ask students to discuss in their base groups how we will subtract 4.13 from this value. Remind students to begin by subtracting the hundredths. • Give students an opportunity to report on their ideas to the class.	Students will represent 6.82 using 6 (1) s, 8 (.1) s, and 2 (.01) s. In base groups, students will discuss the need to rename from a larger place value (.1) in order to subtract the hundredths. Students will subtract hundredths, tenths, and ones using place value disks.

	• Model for students the renaming of a tenth to 10 hundredths, similar to the renaming of place values greater than zero in base ten. • Guide students through the remaining calculations to solve this problem, making use of the place value disks. • Write 6.82 – 4.13 = 2.69 on the Teacher white board. Ask students what strategy they might use to check their answer for accuracy. Model this addition vertically, beginning with the hundredths, 4.13 + 2.69 = 6.82, and bringing attention to the renaming of 10 hundredths as one tenth. **Assessment**: Provide students will additional examples of subtracting decimals to the hundredths, and checking for accuracy using addition. • Monitor work on student white boards for correct calculations and understanding, reteaching when necessary. **Independent Practice**: Provide students with practice problems to be completed independently. Students will add and subtract to find a missing part or whole in an equation with decimals to the hundredths. Students will write the problem and show all calculations in their math journals (e.g., 1 - ___ = 0.43; 3.17 + ____ = 8.22; ___ - 2.39 = 1.06). • Call on volunteers to explain their thinking as they completed the problems. • Provide at-risk students (RTI tier-2 and 3) with small group or one-on-one differentiated instruction respectively; and use differentiation and scaffolding tools (concrete-to-pictorial-to-abstract approach, bar modeling method, modeling with thinkalouds, reteaching opportunities, extra-practice, tips for helping struggling students, corrective feedback and frequent cumulative review). **Assessment**: Monitor for student progress and understanding. Check for accuracy by reviewing calculations in students' math journals. Look for patterns in errors among items, or among students.	Students will respond, add the parts to ensure the sum is the whole number. Students will practice subtracting decimals, then using addition to check for accuracy. Students will find the missing number in addition and subtraction problems with decimals to the hundredths place. Students will line up decimal places, and solve equations with accuracy. Students will show all calculations in their math journals.
	Objective: **Students will multiply decimals to the hundredths, using an understanding of place value to help find products.** • Tell students that like adding and subtracting decimals, the procedure needed to *multiply* decimals is similar to that of multiplying whole numbers. On the Teacher white board, write the problems: 2<u>000</u> x 3 =	Students will answer: 2<u>000</u> x 3 = 6<u>000</u>

3	200 x 3 = 20 x 3 = 2 x 3 = 0.2 x 3 = 0.02 x 3 = • Elicit student answers to teach problem. Give students an opportunity to discuss observations and patterns within base groups. Explain to students that the place value, which we multiply, determines the placement of the decimal. For instance, if we multiply a whole number by a hundredths place value, the product will likewise represent a number to the hundredths place. • Show students how a multiplication problem to the hundredths will look vertically. For instance, write: 7.14 x 4 • Explain that the same procedure in multiplying decimals as students would use to multiply whole numbers. Model the thinking aloud for solving this problem using the Teacher white board, beginning with the hundredths place. **Guided Practice**: Guide students through the following examples: 8.2 x 2; 10.1 x 7; 1.33 x 4; etc. **Assessment**: Monitor for student accuracy, especially in problems requiring the renaming of a 10. Scaffold questioning and gradually release responsibility to students. Be mindful of error patterns and re-teach as needed. **Independent Practice**: The teacher will write a number with decimal to the hundredths on the teacher white board. Each base group will roll their die and multiply the teacher's number by the whole number they rolled. • Provide at-risk students (RTI tier-2 and 3) with small group or one-on-one differentiated instruction respectively; and use differentiation and scaffolding tools (concrete-to-pictorial-to-abstract approach, bar modeling method, modeling with thinkalouds, reteaching opportunities, extra-practice, tips for helping struggling students, corrective feedback and frequent cumulative review).	200 x 3 = 600 20 x 3 = 60 2 x 3 = 6 0.2 x 3 = 0.6 0.02 x 3 = 0.06 Students will reflect on their observations and share their ideas. Students will write a multiplication problem with decimals to the hundredths on student white boards. Students will show all of their work. Students will roll a die at their base groups to determine the factor with which to multiply the teacher's decimal. When students complete their calculations in their math journals, they will compare their work with others in their base groups to check for accuracy. When work has been checked, they will roll another factor with which they will multiply the decimal. This affords students the opportunity to work at his/her own pace.

	Assessment: Monitor base groups for student progress. If needed, pull a small group of students for reteaching and additional guided practice.	
4	**Objective**: **Students will divide decimals to the hundredths. Students will check for accuracy using multiplication.** • Tell students that they will learn to divide dividends with decimals to the hundredths in the same way they divide whole numbers. However, instead of dividing ones, tens, and hundreds, they may divide tenths and hundredths. • Write 8.16 ÷ 3 on the Teacher white board in a vertical format. Show students how to write the decimal on top, first thing, directly above the decimal in the dividend. This will remind students of the correct place value assigned to each digit. Model the division of 8 ones by 3 ones, writing a 2 on the top and a 6 on the bottom. Subtract and bring down the 1. Divide 21 by 3 and write 7 on the top. Multiply, subtract, and bring down the 6. Divide 6 hundredths by 3 to show 6 hundredths can be grouped equally into 2s. The quotient will show 2.72. • Model checking this quotient for accuracy by multiplying the divisor and quotient. Tell students that just like checking division using whole numbers, this product should be equal to the dividend. • Repeat this procedure using dividends with decimals to the hundredths (e.g., 35.77 ÷ 7; 36.48 ÷ 4; 9.45 ÷ 5, etc.) **Guided Practice**: Provide students with practice problems such as the ones modeled above. Write the problem on the teacher white board and monitor carefully as students divide them on their student white boards. **Assessment**: Check student work for accuracy and understanding. **Independent Practice**: The teacher will write a number (dividend) with decimal to the hundredths on the white board. Students at each base group will role a die to determine the divisor. • Provide at-risk students (RTI tier-2 and 3) with small group or one-on-one differentiated instruction respectively; and use differentiation and scaffolding tools (concrete-to-pictorial-to-abstract approach, bar modeling method, modeling with thinkalouds, reteaching opportunities, extra-practice, tips for helping struggling students, corrective feedback and frequent cumulative review).	Students will copy the model problem(s) in their math journals as a reference during guided and independent practice. Students will practice dividing decimals to the hundredths on student white boards. Students will show all workings and check for accuracy using multiplication. Students will write and solve these division problems in student journals. After checking for accuracy using multiplication, and comparing workings to others at his/her base group, students will roll the die to determine another divisor with which to divide the decimal.

	Assessment: Monitor student work for accuracy and understanding. Be mindful of decimal placement within the quotient and transfer of decimal multiplication from lesson 4.	
5	**Objective**: **Students will add, subtract, multiply, and divide decimals to hundredths. Students will use the relationship between addition and subtraction to check for accuracy. Students will use the relationship between multiplication and addition to check for accuracy.**	Students will complete the summative assessment to determine skill mastery.

Summative Assessment

(Students will add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction. Students will use the relationship between addition and subtraction to check for accuracy. Students will use the relationship between multiplication and addition to check for accuracy.)

Directions for Students: Please show all of your working below as you solve the following problems.

Explain in words and show how you would check your answers using addition.

1. 4.95 – 2.16 = _____
2. 13.20 – .89 =
3. 2.77 + _____ = 5
4. ____ + 1.90 = 7.01
5. 6.20 = 10 – _____

Explain in words and show how you would check your answers using multiplication.

6. 33.68 ÷ 4 = ____
7. 12.68 ÷ 2 = ____
8. 10.2 ÷ 6 = _____
9. 19.4 ÷ 5 = _____
10. 2.55 ÷ 3 = _____

Answer Key

Answer Key: (**1**) 2.79; (**2**) 12.31; (**3**) 2.23; (**4**) 8.91; (**5**) 38; (**6**) 8.42; (**7**) 6.34; (**8**) 1.7; (**9**) 3.88; (**10**) 0.85.