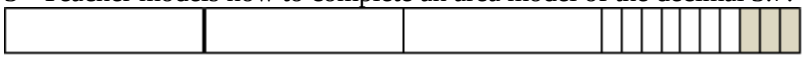
Grade Level	**5**	**Content Area**	**Mathematics**
Course Title (grades 9-12 only)			
Length of Unit	6 days - 8 days (2 extra days for re-teaching)	**Time of Year**	3rd Quarter / January
Expected Prior Knowledge *The knowledge/skills mastered earlier in the year foundational to the mastery of the required Standard in the current sample.*	All Common Core Standards prior to 5.NBT.7 5. Students will understand place value in large numbers, have decimal sense, utilize rules of re-grouping and understand decimal alignment/placement.		
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.*	Diagnostic Pretest, Ability Grouping, whole group and pair groups, Direct and Mastery-Based Instruction At Risk & Physically Impaired use models and tools to aide in comprehension.		
Standard Number and Description *List the Number* and full description for the required Standard.*	Grade: 5 Domain: 5.NBT.7 - Numbers and Operations in Base Ten (NBT) Cluster: Perform operations with multi-digit whole numbers and with decimals to hundredths Standard: #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 complete a 10 questions test showing mastery of all operations when numbers include decimals. The test requires them to estimate, create models and use strategies based on place value. It also requires that they demonstrate proficiency in writing equations and explaining their reasoning.		
Scoring Scale and Mastery Level	School grading scale as follows: 94%-100% = A 87% - 93% = B 80% - 86% = C 70%- 79% = D 0%-69% = Needs Remediation	53 problems @ 2 points each = 106 points = 100% At least **84 points (80%) = Mastery of Standard 5.NBT.7**	
Materials/Resources Needed	whiteboards, math book or worksheet pages, grid paper, Math Journals, bingo boards, classroom calculator		

Lesson (add as needed)	Instruction	Student Activities
1	***Lesson 1 Objective: I can use estimation to improve my accuracy in performing math operations.***	
	1 - Teacher welcomes students to class and reads the lesson objective.	Students repeat the objective.
	2 - Teacher alerts students that estimating answers is a strategy that will be especially helpful when working with decimals.	
I Do	3 - Teacher models through "think aloud" how to estimate adding 8.1 plus 3.8. (Answer will be a number above 10.)	
We Do	4 - Teacher asks students' assistance in estimating the subtraction of 9.166 - .875. (Answer will be a number less than 9.)	Students assist teacher in estimating answers and verbalizing their thinking in steps 4 & 5.
We Do	5 - Teacher provides a few more guided practices until students are solid with the estimation strategy in addition and subtraction.	
	6 - Teacher asks students if they think the same strategy will work with multiplication and division. Students Think, Pair, Share before open discussion occurs in class.	Students participate in a Think/Pair/Share.
We Do	7 – Teacher provides a few guided practices until students are solid with the estimation strategy in multiplication and division as well.	Students assist teacher in estimating answers and verbalizing their thinking.
You Do	8 – Teacher displays the < > symbols and asks students to use their whiteboards to show estimated answers for 7.000x2.005 (more/less than 20), 4.83 – 1.7 (more/less than 2), 6.51 + 1.56 (more/less than 80, 9 ÷ 3.75 (more/less than 3). – Formative Assessment	Students use individual white boards to respond to problems given by teacher.
	9 – Teacher provides an estimation worksheet for students to begin in class and finish as homework if necessary. Teacher circulates to assist where assistance/re-teaching is needed.	Students work on an estimation worksheet.
	10 - Teacher asks students to read the objective and class is dismissed.	Students read the objective.
2	***Lesson 2 Objective: I can draw models showing the importance of place value alignment when working with decimals.***	
	1 - Teacher welcomes students to class and reads the lesson objective with them.	Students read the objective with the teacher.
You Do	2 - Teacher reviews estimation by providing bingo boards (3x3 squares) prefilled with < > symbols and numbers to each student. Teacher presents predetermined problems and students write the equation in a box under an appropriate symbol to achieve 3 in a row. (This game can be repeated by having students cross out original answers and write new equations beneath.)	Students practice estimation using a decimal bingo game.
I Do	3 - Teacher models how to complete an area model of the decimal 3.7. 	
	4 - Teacher draws a similar area model immediately beneath showing 2.1 and alerts class that when solving problems including decimals it is imperative to keep numbers aligned. Teacher models writing this problem is numerical	

<table>
<tr>
<td>I Do

We Do
We Do

You Do</td>
<td>format stressing the importance of the decimal points in the addition and subtraction problems.
5 - Teacher guides practice with another example drawn as shown above.
6 - Teacher provides another problem and asks students to neatly draw an area model and write an equation in the journals.
7 - Teacher passes out white boards for students to construct their own area models and equations.
8 -Teacher leads class on a “Gallery Walk” to see peer models. – Forma-tive Assessment
9 - Teacher asks students to read the objective and class is dismissed.</td>
<td>

Students participate in guided practice in steps 5 & 6.

Students create area models and equations.

Students participate in a Gallery Walk.

Students read the objective.</td>
</tr>
<tr>
<td>3

I Do

We Do

We Do

You Do</td>
<td>Lesson 3 Objective: I can draw models showing the importance of place value alignment when working with adding and subtracting decimals.
1 - Teacher welcomes students to class and reads the lesson objective with them.
2 - Teacher has drawn a grid (as shown below) on the class white board and explains to the class another way rather than drawing area models to understand the relationship between decimals and place value in addition and subtraction problems stressing alignment.
1.1 + 4.15 + 2.80 + 6.02 = 14.07
<table>
<tr><td></td><td>1</td><td>.</td><td>1</td><td>0</td></tr>
<tr><td></td><td>4</td><td>.</td><td>1</td><td>5</td></tr>
<tr><td></td><td>2</td><td>.</td><td>8</td><td>0</td></tr>
<tr><td>+</td><td>6</td><td>.</td><td>0</td><td>2</td></tr>
<tr><td>1</td><td>4</td><td>.</td><td>0</td><td>7</td></tr>
</table>
3 - Teacher erases numbers in demonstration grid and solicits numbers with decimals from the class. Class works together to fill the grid and solve an addition problem.
4 - Teacher erases numbers in demonstration grid and solicits numbers with decimals from the class. Class works together to fill the grid and solve a subtraction problem.
5 - Teacher provides a worksheet of vertically oriented addition and subtraction with decimals problems and instructs students to rewrite and solve the problems horizontally (being careful to align decimals).
6 - Teacher circulates to observe progress and provide assistance as needed. – Formative Assessment
7 - Teacher asks students to read the objective and class is dismissed.</td>
<td>

Students read the objective with the teacher.

Students go in front of the class and add numbers with decimals to fill the grid. Students at their seats copy the grid and complete it in their Math Journals for steps 3 & 4.

Students transfer orientation of and solve problems.

Students read the objective and give a “Fist to Five” self-rating of their understanding.</td>
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<tr>
<td>4</td>
<td>Lesson 4 Objective: I can draw a model to show understanding of the importance of floating decimals when multiplying.</td>
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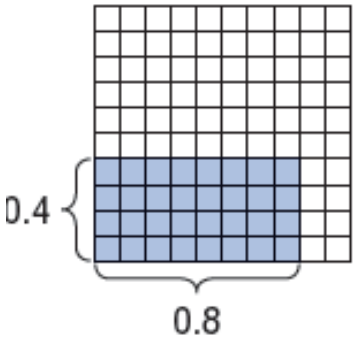
I Do	1 - Teacher welcomes students to class and reads the lesson objective with them. 2 - Teacher has drawn a grid (as done yesterday) on the class white board and asks the class to think about whether this model can be used to multiply decimals by indicating "thumbs up/down". (Thumbs down is answer.) 3 – Teacher models the following problem as proof of a flaw. 4.15x1.3	Students read the objective in unison. Students consider question and give a "thumbs up/down" on teacher signal.

	4	.	1	5
x	1	.	3	0
	0	.	0	0
1	2	.	4	5
+	4	.	1	5
1	6	.	6	0

We Do	4 - Teacher has students use estimation to determine this answer cannot be correct. By focusing their attention on the whole numbers they began with (4x1) they should determine that the whole number (16) in the answer seems way too high. Teacher has a student use a calculator to find the correct answer. 5 - Teacher explains the reason this model doesn't work is that in the addition model they were adding like numbers in each column but here the decimals are representing fractional parts of numbers, not whole numbers. That means they are working with "unlike" elements. 6 - Teacher presents a new model that works solving multiplication with decimals called the "floating decimal" concept.	Students participate as a group in using estimation to determine if the answer is plausible.
I Do		

			4	.	1	5	2 places
		x		1	.	3	1 place
			1	2	4	5	
		+	4	1	5		
		5	.	3	9	5	3 places left

I Do	7- Teacher tells students that now they know that the difference between each model is that multiplication involves fractional, not whole numbers, they will learn an easier way to multiply with decimals. Teacher uses the same problem written vertically. Step 1: 4.15 (then removes the decimals 415 x 1.3 to work in whole numbers) x13 1245 +415 5395 Step 2: Starting on the right side of the answer, count decimal places in both parts of the original problem and insert the decimal point in the whole number answer.	Students copy teacher model in their Math Journals as steps are completed.
We Do	8 - Teacher provides a multiplication worksheet for students (working in pairs) to solve problems by counting decimal places (floating decimals). Teacher circulates to determine mastery and provide assistance when needed. – Formative Assessment 9 - Teacher asks students to read the objective and class is dismissed.	Students work with partners to complete multiplication with decimal worksheets. Students read the objective.
5 You Do I Do	***Lesson 5 Objective: I can draw an area model to show understanding of division with decimals and the importance of floating decimal placement.*** 1 - Teacher welcomes students to class and reads the lesson objective with them. 2 - Teacher gives students a multiplication with decimals quiz to determine mastery of the floating decimal concept. – Formative Assessment 3 - Teacher leads students in grading each others quizzes to quickly determine if any re-teaching is necessary. 4 - Teacher models using an area model to show division by decimals 0.8/0.4= .32. 	Students read the objective in unison with the teacher. Students complete a quiz. Students grade peer quizzes.

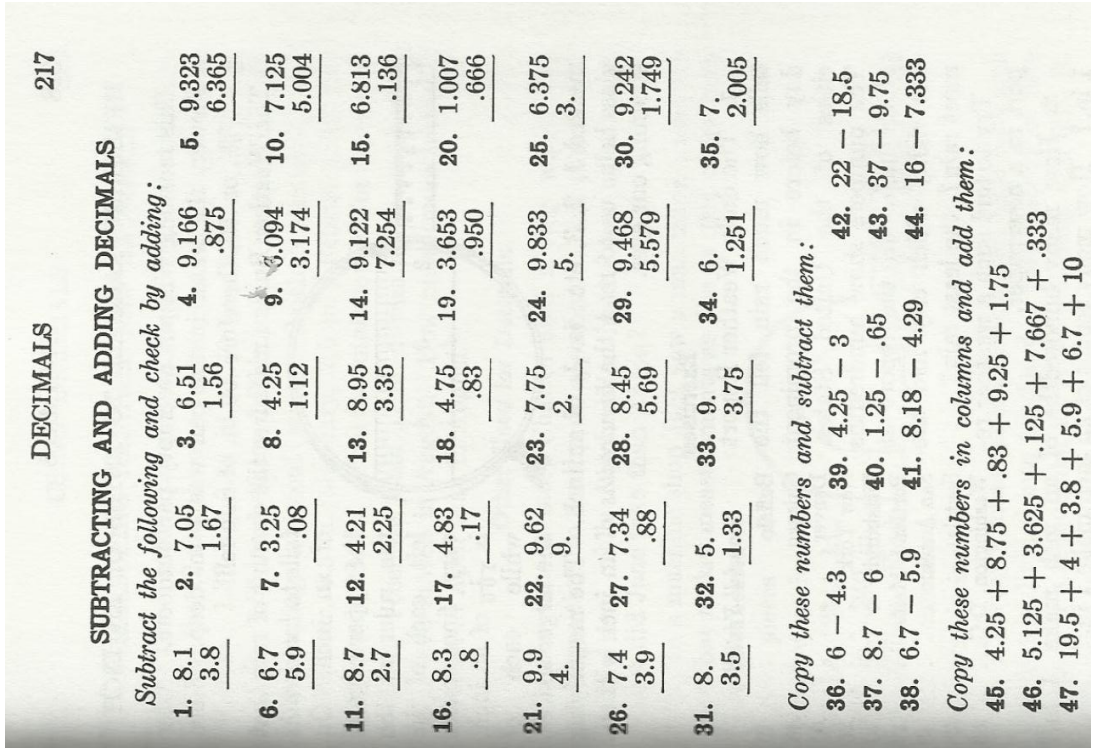
We Do I Do	5 - Teacher instructs reminds students that each box is 1/100th of the chart so the answer will be in hundredths. (0.00) 6 - Teacher provides blank hundredths grids and walks students through solving problem 0.9/0.6. Together they solve the problem. 7 - Teacher explains that there is an easier process for dividing with decimals. Write the division problem including the decimals using a division frame as you would for whole numbers. 23.60 / 3.6 = 3 . 6	2 3 . 6 0 8 - Teacher models moving the decimals in the division problem to the right making sure that the students understand that when they move one decimal they MUST move the other decimal the same number of places.	Students complete an area model of division with decimals under teacher guidance. Students copy steps of this model in Math Journals as teacher presents them.
5 continued We Do You Do	3 . 6	2 3 . 6 0 3 . 6	2 3 . 6 0 1 place 1 place 9 - Teacher shows new division problem with decimals moved to the right 36 is now a whole number and 23.60 is now 236.0 Teacher solves the division calling attention to the decimal moving straight up in the answer. 10 - Teacher provides another problem asking students to assist in decimal movement and solving the problem. 11- Teacher provides a multiplication worksheet for students to solve problems by counting decimal places (floating decimals). Teacher circulates to determine mastery and provide assistance when needed. – Formative Assessment 12 - Teacher asks students to read the objective and class is dismissed.	Students participate in guided instruction to solve the problem. Students work independently. Students re-read the objective.
6	***Lesson 6 Objective: I can show understanding of math with decimals in all operation by drawing area models and/or using other strategies.*** 1 - Teacher welcomes students to class and reads the lesson objective with them. 2 - Teacher has determined by students' independent work from yesterday if they understand division with decimals or if re-teaching is needed. 3 - Teacher administers Summative Assessment if re-teaching is not needed. 4 - Teacher asks students to read the objective and class is dismissed.	Students read the objective in unison with the teacher. Students complete Summative Assessment. Students re-read objective.

Multiplying a whole number by a decimal

Please show your work as you solve these multiplication problems:

1.		3	4	7			2.		6	0	9			3.			5	6	
	x		.2	1				x		.0	3					x	0.	6	
4.			5	8			5.		1	2	3			6.		8	4	2	
		x	4.	3				x		.0	9				x		.5	5	

Given amount of money ($3.64) added to the individual amount each student receives.



DECIMALS 217

SUBTRACTING AND ADDING DECIMALS

Subtract the following and check by adding:

1. 8.1 − 3.8	**2.** 7.05 − 1.67	**3.** 6.51 − 1.56	**4.** 9.166 − .875	**5.** 9.323 − 6.365
6. 6.7 − 5.9	**7.** 3.25 − .08	**8.** 4.25 − 1.12	**9.** 6.094 − 3.174	**10.** 7.125 − 5.004
11. 8.7 − 2.7	**12.** 4.21 − 2.25	**13.** 8.95 − 3.35	**14.** 9.122 − 7.254	**15.** 6.813 − .136
16. 8.3 − .8	**17.** 4.83 − .17	**18.** 4.75 − .83	**19.** 3.653 − .950	**20.** 1.007 − .666
21. 9.9 − 4.	**22.** 9.62 − 9.	**23.** 7.75 − 2.	**24.** 9.833 − 5.	**25.** 6.375 − 3.
26. 7.4 − 3.9	**27.** 7.34 − .88	**28.** 8.45 − 5.69	**29.** 9.468 − 5.579	**30.** 9.242 − 1.749
31. 8. − 3.5	**32.** 5. − 1.33	**33.** 9. − 3.75	**34.** 6. − 1.251	**35.** 7. − 2.005

Copy these numbers and subtract them:

36. 6 − 4.3 **39.** 4.25 − 3 **42.** 22 − 18.5
37. 8.7 − 6 **40.** 1.25 − .65 **43.** 37 − 9.75
38. 6.7 − 5.9 **41.** 8.18 − 4.29 **44.** 16 − 7.333

Copy these numbers in columns and add them:

45. 4.25 + 8.75 + .83 + 9.25 + 1.75
46. 5.125 + 3.625 + .125 + 7.667 + .333
47. 19.5 + 4 + 3.8 + 5.9 + 6.7 + 10

Proper understanding/steps should be shown as follows:

1 1
$3.64 (amount on front white board)
+1.77 (example of individual student amount)
$5.41

JHA - Answer Key - 5.NBT.7 Summative Assessment
Instructions: Solve problem numbers 3, 7, 27, 39, 45 on page 1 and solve problems 1-6 on page 2.

Key Answers:	Page 2
Page 1	1 - 72.87
3 - 8.07	2 - 18.18
7 - 3.33	3 - 3.36
27 - 8.22	4 - 24.94
39 - 1.25	5 - 11.07
45 - 24.83	6 - 46.31