Curriculum Sample Template

Max. 8 Pages

Grade Level	4th grade	**Content Area**	Mathematics
Course Title (grades 9-12 Only)	N/A		
Length of Unit	4 days + 1 day for the summative assessment	**Time of Year**	2nd 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 know and be able to demonstrate single digit multiplication facts with automaticity. Students will understand the concept of place value, up to the one thousandths. Students will understand the multiplication terms "factor" and "product." Students will be able to add and subtract numbers within 1000 with mastery. Students will be able to express ideas and thoughts in complete sentences.		
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.*	This unit aligns to the Core Knowledge Sequence for Math, to the sequence for Singapore Math, and to the 2010 AZ Math Standards. The domain of Numbers and Number Sense (CK) and Number and Operations in Base Ten (CCSS) will be taught at the Fourth Grade level. The skill of computing numbers is revisited at increasingly higher levels of rigor as set forth in the ADE 2010 Mathematics Standards (CCSS). The content knowledge of number computation and number sense is spiraled throughout the Core Knowledge Sequence from Kindergarten to 8^{6h} Grade, and then further applied through Pre-Algebra and Algebra in 7th and 8th Grade. As described in the Program of Instruction, cooperative learning will take place throughout this unit. Each lesson includes a combination of teacher-led instruction, small group interaction, independent practice, and ongoing assessment. Prior to beginning instruction, the teacher will administer an aligned pre-test to assess student understanding, and use data from this to target individual students' needs throughout the unit. Students will individually graph their results on both the pre- and post-tests, and record their results in an individual portfolio, which serves as a visual representation of their progress towards their "Big Goal" in Math.		
Standard Number and Description *List the Number* and full description for the required Standard.*	4. NBT. 6 - Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.		
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.*	At the end of this unit, students will complete a ten-item summative assessment. The assessment will consist of three parts. In Part I, students will be asked to recall academic vocabulary. In Part II, students will be asked to relate the operation of multiplication to division problems. In Part III, students will be asked to divide two, three, and four-digit numbers by a single-digit number. In this section, students must show their work. No partial credit will be given. Please see a copy of the assessment attached.		
Scoring Scale and Mastery Level *Explain how the assessment is scored, to include points per question, how points are awarded,*	Each item will be worth one point, for a total of 15 points. Items will be scored according to an answer key (see provided). Grading for the assessment will be based on the following scale: 0-8 points= Falls Far Below; 9-11		

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.	points= Approaches; 12- 13points= Meets; 14-15 points= Exceeds. According to our program of instruction, 80% will indicate mastery. Thus, a score of 12, 13, 14, or 15 points will indicate mastery of this standard.
Materials/Resources Needed	Primary Mathematics Teacher's Guide, student textbooks and workbooks, student Math Journals, number discs, place value chart, document camera, student white boards and markers.

Lesson (add as needed)	**Instruction** TW= Teacher will; SW = Student will; TPS= Think, Pair, Share; INM = Introduction to new material; CFU = Check for understanding; GP= Guided practice; IP = Independent practice	**Student Activities**
1	**Activation of Prior Knowledge:** TW lead students through a review of their pre-test for this unit. TW allow time for each student to graph his/her result on the pre-test. TW lead a discussion of what students already know, and what they will know by the time they take the post-test. **Objective:** Students will understand the concept of a remainder in division, and relate the terms "quotient" and "remainder" to division. Students will learn the terms "dividend" and "divisor." **INM:** Key Points: 1. In division, we are dividing a whole number into equal parts. 2. The answer to a division problem is a quotient, or how many times the number can be divided equally. 3. Sometimes, a number can't be divided into equal parts, and we have some parts "left over." 4. The number "left over" in a division problem is called the remainder. 5. The dividend is the whole number in a division problem. 6. The divisor is the number we're dividing by. **Modeling:** TW display eight 1-discs. TW tell students that Mark has 8 marbles. He wants to share them equally with a friend. TW ask, "How can this be shown using our number discs?" TW divide the discs into two equal groups. TW write: 8 ÷ 2 = 4 on the board. TW tell students that when they divide a number into equal parts, the answer is called the quotient. TW check for understanding by showing another equation with no remainder. Then, TW write "Quotient" on the board. TW teach students how to say the word, and spell it. Then TW display nine 1-discs. TW tell students that Charlie has 9 marbles that he wants to share equally with a friend.	SW review their pre-test results, and graph the number of items they got correct into their portfolio. SW discuss which content they already knew, and what they will learn over the course of this unit. SW repeat today's objective, and discuss how it will help them reach their Big Goal in Math. SW actively listen to today's key points, and write notes in their Math Journal. SW actively engage as the teacher demonstrates how Mark can share 8 marbles equally with a friend. SW say and spell the word quotient. SW actively engage as the teacher demonstrates what happens if Charlie tries to divide 9 marbles equally with a friend. SW see that there is one marble left over. SW practice saying and spelling the word "remainder."

	TW ask, "How can this be shown?" TW put one disc at a time into two piles until there is one disc left. TW tell students that Charlie has to stop now, as the remaining marble cannot be divided by 2. What is "left over" after the division is called the remainder. TW write the word on the board and teach students how to say it and spell it. TW write "9 ÷ 2 = 4 R 1" on the board. TW go through the explanation again with 10 ÷ 3 = 3 R1. **Guided Practice:** TW direct students to work in groups of two. TW show a division problem on the board: 12 ÷ 5 = ___. TW direct students to work in pairs, use their number discs to divide. TW ask students to share their answer. TW discuss that the answer is 2 R2. TW repeat this process for 5 more practice problems. For each one, TW ask students which number is the quotient, and the remainder. TW modify instruction as needed. **Independent Practice:** TW direct students to complete the tasks in their textbook pages for this lesson, requiring them to use discs to show division problems with and without remainders. **Assessment:** TW use the Independent Assessment to track student mastery of the objective in a data tracker. The teacher will remediate for any student who does not show mastery of this vocabulary. **Closure:** TW refer class back to today's objective. TW direct students to TPS about what they learned today. TW assign the homework for tonight, which will include extra practice in identifying the products and factors in multiplication problems.	SW continue to engage as the teacher shows another example, 10÷3=3 R1. SW answer questions to demonstrate understanding. SW work with a partner. SW use number discs to divide 12 into 5 equal groups. SW find the answer, and discuss that since it can't be divided equally, there is a remainder. SW continue to use number discs to divide 2-digit numbers by one digit numbers, with remainders. SW independently complete the textbook pages for this lesson, practicing the skill of dividing 2-digit numbers with remainders. SW use number discs if needed. Any student who does not show adequate mastery of this objective will meet with the teacher in a small group setting. SW TPS what they learned about division today. SW listen to the homework assignment for tonight.
2	**Activation of Prior Knowledge:** TW lead the class in a review of last night's homework. TW review the academic vocabulary learned yesterday. Then, TW direct students to review their notes in their Math Journal, and share what they wrote with a partner. **Objective:** Students will understand the relationship between multiplication and division, and use multiplication facts to help solve 2-digit division problems. **INM:** Key Points: 1. Like addition and subtraction are related to each other, so are multiplication and division. 2. We can use what we know	SW review their homework. SW review the terms "quotient, remainder." SW read through their Math Journal notes, and share what they wrote with a partner. SW repeat today's objective, and discuss how it will help them reach their Big Goal in Math.

	about multiplication facts to help us divide. 3. In order to do this, we must look at our dividend and divisor, and mentally picture which multiplication fact uses the divisor as a factor, and gets us closest to the dividend without going over.	SW actively listen to today's key points, and write notes in their Math Journal.
	Modeling: TW write "8 ÷ 2 = ?" on the board. TW model with the number discs how to work out the answer. TW model how she can use the multiplication fact 2 X 4 = 8 to help solve this problem. TW tell students that since 4 x 2 is 8, then 8 ÷ 2 is 4. TW write 8 ÷ 2 = 4 on the board, next to the multiplication fact. TW do the same for 6 ÷ 3 = 2. TW ask questions to check for understanding. Then, TW write "9 ÷ 2 = ?" on the board. TW ask students how they should work out the answer. TW explain that they should find a number closest to 9 after it is multiplied by two. TW tell students that no number multiplied by 2 can give a product of 9. To solve the problem, they have to think of a number that, when multiplied by 2, has a product that is closest to 9, without going over. TW explain that number is 4. TW write 4 x 2 = 8 on the board. TW tell students that 8 + 1 = 9. So, the answer is 9 ÷ 2 = 4 R1. TW check for understanding.	SW actively engage as the teacher shows that in order to solve 8 ÷ 2, she can mentally use the multiplication fact 2x4=8. SW see the teacher work through the same thought process for 6 ÷ 3 = 2. SW watch and listen as the teacher explains how to use a multiplication fact to help when solving 9 ÷ 2. SW take notes in their math journal as the teacher works through each of these problems.
	Guided Practice: TW work through the following problems together with students working in pairs to help solve and find the matching multiplication fact that will help them find the quotient: 13 ÷ 4; 16 ÷ 5; 12 ÷ 4; 14 ÷ 2; and 11 ÷ 2.	SW work with a partner. SW be given division problems. They will first identify which multiplication fact can aid them in finding the quotient and remainders. Then, SW solve the problems and share their answers with the class.
	Independent Practice: TW direct students to complete their textbook pages, requiring them to solve division problems with and without remainders, and indicate which multiplication fact can help them solve each.	SW independently complete the textbook pages for this lesson. On these pages, SW be asked to read a division problem, identify the multiplication fact that can mentally help them solve it, and then work through the problem to find the quotient and remainder.
	Assessment: TW use the Independent Assessment to track student mastery of the objective in a data tracker. The teacher will remediate for any student who does not show mastery.	Any student who does not show adequate progress towards this objective will meet with the teacher in a small group setting to review and practice the skill.
	Closure: TW refer class back to the lesson objective. TW direct students to TPS what they've learned so far this unit. Then, TW assign tonight's homework, which will be a review of this objective.	SW TPS what they've learned so far in this unit. Then, SW listen to the homework assignment for tonight.

3	**Activation of Prior Knowledge:** TW guide students through a review of last night's homework. TW remind students that in division, we divide a whole into equal parts, and we have a remainder if it can be divided equally anymore. **Objective:** Students will divide a 2 or 3-digit number by a single-digit number. Students will illustrate their work by writing equations and showing number models based on place value. **INM:** Key Points: 1. We can use what we know about place value to help us divide large numbers. 2. There are certain steps we follow to divide these numbers. This is called an algorithm. 3. The algorithm works no matter what the dividend is. **Modeling:** TW present the division problem "53 ÷2=?" verbally. TW display 5 tens and 3 ones in number discs. Then, TW write the equation on the board, vertically. TW explain that the dividend goes under the bar, and the divisor goes outside of it. TW emphasize place value: telling students that we first divide the tens. TW ask how many tens go into each of two groups? (TW move two tens into each group). TW say that leaves us with one ten. TW model turning one ten into ten ones, and continuing to divide until she has one remaining 1-disc. TW explain that the number discs show that 53÷2 = 26R1. TW ask questions to check for understanding. Next, TW model exactly the same way a 3-digit number divided by a 1-digit number (231÷4). TW use hundreds, tens, and ones discs to model the division of 231 into four groups. TW check for understanding along the way. **Guided Practice:** TW direct students to work in pairs. TW provide each pair with hundreds, tens, and ones discs, as well as a division mat with blank circles on it, to represent the equal groups. TW project: 45÷8=? on the board. TW walk each group of students through modeling this with discs, writing the equation, and finding the quotient. TW modify instruction as needed. TW gradually release responsibility to students for the following practice problems: 89÷7, 522÷5, 65÷4, and 450÷3. TW monitor to ensure students are correctly dividing the one, two, and three digit numbers with their partner.	SW review last night's homework. SW repeat today's objective, and discuss how it will help them reach their Big Goal in Math. SW actively listen to today's key points, and take notes in their math journals. SW actively engage as the teacher models how to solve 53 ÷2. SW take notes in their math journal as the teacher first divides the tens, writes the quotient on top of the bar, the remainder underneath, and continues to solve. SW see that the teacher uses place value and this algorithm to arrive at the answer of 26 R1. SW answer questions to demonstrate understanding. SW actively engage and take notes as the teacher models how to use the same algorithm to solve 231÷4. SW answer questions to demonstrate understanding. SW work with a partner. SW use place value discs to work through 45÷8 with the teacher's guidance. SW share their answers with the class. SW work with their partner to solve 89÷7, 522÷5, 65÷4, and 450÷3 in the same way. SW share their answers with the class, and explain how they arrived at the solutions.

	Independent Practice: TW assign students to complete the independent practice pages in their student workbook. On these pages, students will be asked to divide 2 and 3-digit numbers by a single digit number, and draw the number discs they modeled to solve each problem. Students will fully show their work. **Assessment:** TW use the Independent Assessment to track student mastery of the objective in a data tracker. The teacher will remediate for any student who does not show mastery. **Closure:** TW refer class back to today's objective. TW direct students to TPS what they learned to do today. Then, TW explain tonight's homework, which will be a review of today's objective.	SW independently complete the workbook pages for this lesson. Here, students will divide 2 and 3-digit numbers by a 1-digit number, and illustrate their work. Any student who does not show adequate mastery on the independent practice pages will meet with the teacher in a small group setting to practice the skill. SW TPS what they learned how to do today. SW listen to tonight's homework assignment.
4	**Activation of Prior Knowledge:** TW guide students through a review of last night's homework. Then, TW review the academic vocabulary from this unit, and have students complete three warm-up division problems, aligned with yesterday's objective. **Objective:** Students will divide a 4-digit number by a single digit number, using a vertical equation. Students will illustrate their work by writing equations and showing number models based on place value. **INM:** Key Points: 1. We can use what we know about place value to help us divide large numbers. 2. There are certain steps we follow to divide these numbers. This is called an algorithm. The algorithm works no matter what the dividend is. **Modeling:** TW show students how to use the division algorithm to solve 4608÷ 3, illustrating each step with place value number discs. TW write the equation on the board and display four 1000-discs, six 100-discs, and eight 1-discs. TW show students where to write the dividend and the divisor in a vertical equation. TW remind students that we always start with the highest place value and continue from there. So, we first divide the thousands by 3. TW work this problem out using discs, working through the vertical equation, and showing remainders. When finished, TW summarize each step she followed, and write this on a piece of chart paper: 1. Divide the thousands 2. Write the quotient above the line, the product underneath, and then the remainder. 3. Write the hundreds by the	SW review last night's homework. Then, SW review the academic vocabulary from this unit, and complete three warm-up division problems, in which they'll divide 2 and 3-digit numbers by a 1-digit number. SW repeat today's objective, and discuss how it will help them achieve their Big Goal in Math. SW actively listen to today's key points, and take notes in their math journals. SW actively engage as the teacher models how to solve 4608÷ 3 on the document camera. SW see the teacher use 1000, 100, and 1 discs to model the problem. SW see that the teacher always starts with the largest place value, and follows these steps from there: 1. Divide the thousands 2. Write the quotient above the line, the product underneath, and then the remainder. 3. Write the hundreds by the remainder. Then divide the hundreds. 4. Write the quotient above the line, the product underneath, and the remainder. 5. Write the tens by the remainder, then divide the tens. 6. Write the quotient above the line, the product underneath, and the remainder. 7. Write the ones by the remainder, then divide the ones. 8. Write the quotient above the line, the product underneath, and the

	remainder. Then divide the hundreds. 4. Write the quotient above the line, the product underneath, and the remainder. 5. Write the tens by the remainder, then divide the tens. 6. Write the quotient above the line, the product underneath, and the remainder. 7. Write the ones by the remainder, then divide the ones. 8. Write the quotient above the line, the product underneath, and the remainder.	remainder. SW write these steps in their math journals.
	Guided Practice: TW provide each student with number discs, and a worksheet with 4-digit division problems on it. TW direct students to follow along with her as they work on the first three altogether as a class. Then, TW direct students to work in pairs to solve the next five. As students work in pairs, TW walk around the room and monitor progress. TW modify instruction as needed.	SW each receive 1000, 100, 10, and 1 discs, and a worksheet with 4-digit division problems on it. SW use the discs to follow along with the teacher to solve the first three problems together as a class. SW refer to the list of 8 steps to guide them. Then, SW work with a partner to solve the next five problems. Again, SW use the steps and the place value discs to help them divide. SW answer the teacher's questions to demonstrate understanding and explain their answers.
	Independent Practice: TW assign students to complete the independent practice pages in their student workbook, requiring them to solve 4-digit division problems independently.	SW independently complete the workbook pages for this lesson. Here, SW solve 4-digit by 1-digit division problems. They will use the number discs and the algorithm to show their work.
	Assessment: TW use the Independent Assessment to track student mastery of the objective in a data tracker. The teacher will remediate for any student who does not show mastery.	Any student who does not show mastery of the skill will meet with the teacher in a small group setting to further practice dividing.
	Closure: TW refer class back to today's objective. TW ask students to read the 8 steps aloud to a neighbor. Then, TW assign tonight's homework. Finally, TW facilitate a discussion about what students can do to reach their goal on the assessment tomorrow.	SW read the eight steps to their neighbor. Then, SW listen to tonight's homework, which will be more practice in the skill of dividing 4-digit numbers by a 1-digit number. Finally, SW discuss what they can do to reach their goal on the assessment tomorrow.

Math Unit Summative Assessment

Name: _____

ADE 2010 MA Standard (CCSS): 4. NBT. 6: Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Part I: Fill in the blanks.

A) In the equation 15 ÷ 4 = 3 R 3, identify each of the following: Quotient = _____; Remainder = _____

Part II: For each of the following, write the multiplication fact that can help you divide. Then, divide.

Problem	Multiplication fact	Answer
20 ÷ 3	B)	C)

65 ÷ 8	D)	E)
34 ÷ 4	F)	G)

Part III: Solve each of the following. You may use place value discs. Show your work.

H) 30 ÷ 4 =_____

I) 246 ÷ 8 = _____

J) 1452 ÷ 3 = _____

K) 525 ÷ 9 = _____

L) 6587 ÷ 6 = _____

M) 70 ÷ 9 = _____

N) 207 ÷ 2= _____

O) 1205 ÷ 4 = _____

Answer Key
A. 3, 3
B. 3x6=18
C. 6 R2
D. 8x8=64
E. 8 R1
F. 4x8=32
G. 8 R2
H. 7 R2
I. 37 R4
J. 484
K. 58 R3
L. 1097 R5
M. 7 R7
N. 103 R1
O. 301 R1

Score: _____/15 Grading Scale: 0-8 points= Falls Far Below; 9-11 points= Approaches; 12- 13points= Meets; 14-15 points= Exceeds