Standards Plus® – Mathematics – Grade 5		
<u>Domain</u>: Number and Operations in Base Ten	<u>Focus</u>: Divide Whole Numbers	<u>Lesson</u>: #5
<u>Standard</u>: 5.NBT.6: Find whole-number quotients of whole numbers with up to four-digit dividends and two-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.		

Lesson Objective: The students will divide three-digit numbers by two-digit numbers.

Introduction: "Today we are going to review how to divide a three-digit dividend by a two-digit divisor."

Instruction: "Let's review our division terms. A dividend is the number being divided, the divisor is the number we divide by, and the quotient is the answer. Sometimes we have a remainder because the answer is not a whole number. We usually use the box format when dividing. Start by writing the division problem in the box format."

Guided Practice: "We will use the step-by-step model as we work Example A." (Teacher: use this as you go through the steps on the board.)

```
                    → 039
No sets of   →   12)468
12 in 4          − 36 ↓ — Bring down the 8
                   108
                 − 108
                   000 ← Remainder
```

"We want to know how many sets of 12 (divisor) are in 468 (dividend). We begin by seeing how many sets of 12 will go into the first number of the dividend (4). There are no sets of 12 in the 4. Then we move to the next digit to make 46. Yes, there are 3 sets of twelve in 46 (3 × 12 + 36). We place our answer above the second digit: 6 (tens place). Next subtract and bring down the digit in the next place (8). How many sets of 12 are in the new dividend of 108? There are 9 sets of 12 (9 × 12 = 108). We continue until there are no more sets of the divisor. In this example there are no remainders." Repeat the step-by-step process for Example B and explain the remainder. (Example B: 12 R32)

Independent Practice: "Complete problems 1-3."

Review: Review problems 1-3 with the class. Discuss how to find the quotient. Review how to check for accuracy by multiplying the quotient by the divisor (adding any remainder) to get the dividend.

Closure: Today we reviewed how to divide three-digit dividend by two-digit divisors. Turn to your partner and explain what to do when there is a remainder.

Answers:
1. 32 R10
2. 20 R39
3. 21 R1

Standards Plus® – Mathematics – Grade 5

Domain: Number and Operations in Base Ten   Focus: Divide Whole Numbers   Lesson: #5

Standard: 5.NBT.6: Find whole-number quotients of whole numbers with up to four-digit dividends and two-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.

Begin by putting the problem into the division box format.

Example A: $468 \div 12 = 12\overline{)468}$
We want to know how many sets of 12 are in 468.

Follow these steps:
Step 1: How many sets of the divisor are in the first (largest) place?
Step 2: How many sets of the divisor are in the first two places?
        Place the answer above the second digit.
Step 3: Subtract the sets away from the first two digits.
Step 4: Bring down the digit in the next place.
Step 5: How many set(s) of the divisor (12) are in the new dividend?
Step 6: Continue until there are no more sets of the divisor.

$$\begin{array}{r} 039 \\ 12\overline{)468} \\ -\ 36 \\ \hline 108 \\ -108 \\ \hline 000 \end{array}$$

Example B: $536 \div 42 = 42\overline{)536}$
Step 1: How many sets of the divisor are in the first place?
Step 2: How many sets of the divisor are in the first two places?
Step 3: Subtract the set(s) away from the first two digits.
Step 4: Bring down the digit in the next place.
Step 5: How many sets of the divisor are in the new dividend?
Step 6: Continue until there are no more sets in the dividend.

$$42\overline{)536}$$

Directions: Find each quotient.

1. $906 \div 28 =$ 2. $879 \div 42 =$ 3. $526 \div 25 =$

Standards Plus® – Mathematics – Grade 5
Domain: Number and Operations in Base Ten   Focus: Divide Whole Numbers   Lesson: #6
Standard: 5.NBT.6: Find whole-number quotients of whole numbers with up to four-digit dividends and two-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.

Lesson Objective: Students will divide three-digit numbers by two-digit numbers.

Introduction: "Today we are going to review how to divide a three-digit dividend by a two-digit divisor."

Instruction: "We often need to round and estimate to find answers in multi-digit division. Look at Example A. Begin by putting the problem into the division box format.
Example A: $989 \div 28 = 28\overline{)989}$
We want to know how many sets of 28 are in 989.
Follow these steps:
Step 1: How many sets of the divisor are in the first (largest) place? *(no sets of 28 in 9)*
Step 2: How many sets of the divisor are in the first two places? *(three sets of 28 in 98, round three set of 30. Three sets in 98)* Place the answer above the tens place *(8)*
Step 3: Subtract the sets away from the first two digits. *(3 x 28 = 84)*
Step 4: Bring down the digit in the next place. *(9)*
Step 5: How many set(s) of the divisor are in the new dividend? (5 x 28 = 140)
Step 6: Subtract and continue until there are no more sets of the divisor. In this case, there is a remainder of 9."

$$\begin{array}{r} 035\ \text{R9} \\ 28\overline{)989} \\ -\ 84 \\ \hline 149 \\ -\ 140 \\ \hline 9 \end{array}$$

Guided Practice: "Look at Example B. We want to know how many sets of 23 are in 623. How many sets of 23 are in 6? (no sets of 23 in 6) How many sets of 23 are in 62? (2) Write 2 above the tens place. Now multiply 2 × 23 = 46. Subtract 46 from 62 and bring down the 3. How many sets of 23 in 163? We can estimate to get close. There are 8 sets of 20 in 160, and there are 6 sets of 25 in 160, so let's try 7. What is 7 × 23? (161) That works. Write 7 above the ones place. Multiply 7 × 23 and subtract. We have two left over as the remainder."

Independent Practice: "Complete problems 1-2."

Review: Review problems 1-2 with the class. Discuss how to find the quotient. Review how to check for accuracy by multiplying the quotient by the divisor (adding any remainder) to get the dividend.

Closure: "Today we reviewed how to divide a three-digit dividend by two-digit divisors. Turn to your partner and explain why we sometimes estimate when we divide."

Answers:	1. 27 R8
	2. 51 R2

Standards Plus® – Mathematics – Grade 5

Domain: Numbers and Operations in Base Ten	Focus: Divide Whole Numbers	Lesson: #6

Standard: 5.NBT.6 Find whole-number quotients of whole numbers with up to four-digit dividends and two-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.

Begin by putting the problem into the division box format.

Example A: 989 ÷ 28 = $28\overline{)989}$
We want to know how many sets of 28 are in 989.

Follow these steps:
Step 1: How many sets of the divisor are in the first (largest) place?
Step 2: How many sets of the divisor are in the first two places?
        Place the answer above the tens place
Step 3: Subtract the sets away from the first two digits.
Step 4: Bring down the digit in the next place.
Step 5: How many set(s) of the divisor are in the new dividend?
Step 6: Subtract and continue until there are no more sets of the divisor.

$$\begin{array}{r} 035 \text{ R}9 \\ 28\overline{)989} \\ -\ 84 \\ \hline 149 \\ -140 \\ \hline 9 \end{array}$$

Example B: 623 ÷ 23 = $23\overline{)623}$

$$23\overline{)623}$$

Directions: Find each quotient.

　　1. 980 ÷ 36 =

　　2. 869 ÷ 17 =

SAMPLE

Standards Plus® – Mathematics – Grade 5		
<u>Domain</u>: Number and Operations in Base Ten	<u>Focus</u>: Divide Whole Numbers	<u>Lesson</u>: #7
<u>Standard</u>: 5.NBT.6: Find whole-number quotients of whole numbers with up to four-digit dividends and two-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.		

Lesson Objective: Students will divide four-digit numbers by two-digit numbers.

Introduction: "Today we are going to review how to divide a four-digit dividend by a two-digit divisor."

Instruction: "We often need to round and estimate to find answers in multi-digit division. Begin by putting the problem into the division box format. Example A: $5,892 \div 37 = 37\overline{)5892}$. We want to know how many sets of 37 are in 5892. Follow these steps:

Step 1: How many sets of the divisor are in the first place? *(no sets of 37 in 5)*

Step 2: How many sets of the divisor are in the first two places? *(one set of 37 in 58)* Place the answer above the second digit *(hundreds place 8)*

Step 3: Subtract the sets away from the first two digits. *(58 - 37 = 21)*

Step 4: Bring down the digit in the next place. *(9)*

Step 5: How many set(s) of the divisor *(37)* are in the new dividend? *(5) (5 x 37 = 185)*

Step 6: Continue subtracting sets and bringing down places until there are no more sets of the divisor. *(219 – 185 = 34, bring down the 2. There are 9 sets of 37 in 342. 342 – 333 = 9)* In this problem, there is a remainder of 9."

$$
\begin{array}{r}
159 \text{ R9} \\
37\overline{)5892} \\
-37 \\
\hline
219 \\
-185 \\
\hline
342 \\
-333 \\
\hline
9
\end{array}
$$

Guided Practice: "Look at Example B. We want to know how many sets of 15 are in 3,426. How many sets of 15 in 3? (No sets of 15 in 3.) Write a zero over the thousands place. How many sets of 15 in 34? (2) Write 2 over the hundreds place. Multiply 2 × 15, subtract, and bring down the 2. How many sets of 15 in 42? (2) Write 2 over the tens place. Multiply 2 × 15, subtract, and bring down the 6. How many sets of 15 are in 126? 2 × 15 is 30. How many sets of 30 in 126? (4) 30 is 2 × 15, so 2 × 4 = 8 sets. Let's try 8. What is 8 × 15? (120) Write 8 over the ones place. Multiply 8 × 15 and subtract. There are 6 left over. 228 R6."

Independent Practice: "Complete problems 1-2."

Review: Review problems 1-2 with the class. Discuss how to find the quotient. Review how to check for accuracy by the divisor (adding any remainder) to get the dividend.

Closure: "Today we reviewed how to divide a four-digit dividend by a two-digit divisor. Turn to your partner and explain why there is no digit above the thousandths place in the dividend."

Answers:	1. 80 R32
	2. 116 R3

Standards Plus® – Mathematics – Grade 5	
Domain: Number and Operations in Base Ten Focus: Divide Whole Numbers	Lesson: #7

Standard: 5.NBT.6: Find whole-number quotients of whole numbers with up to four-digit dividends and two-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.

Begin by putting the problem into the division box format.

Example A: $5,892 ÷ 37 = 37\overline{)5892}$
We want to know how many sets of 37 are in 5892.

Follow these steps:

```
        159 R9
37)5892
   - 37
     219
   - 185
     342
   - 333
       9
```

Step 1: How many sets of the divisor are in the first (largest) place?
Step 2: How many sets of the divisor are in the first two places?
        Place the answer above the second digit
Step 3: Subtract the set from the first two digits.
Step 4: Bring down the digit in the next place.
Step 5: How many set(s) of the divisor *(37)* are in the new dividend?
Step 6: Continue subtracting sets and bringing down places until there are
         no more sets of the divisor. In this problem, there is a remainder of 9.

Example B: $3426 ÷ 15 = 15\overline{)3426}$

Directions: Find the quotients.

1. $3,072 ÷ 38 =$

2. $9,863 ÷ 85 =$

Standards Plus® – Mathematics – Grade 5
<u>Domain</u>: Number and Operations in Base Ten   <u>Focus</u>: Divide Whole Numbers   <u>Lesson</u>: #8
<u>Standard</u>: 5.NBT.6: Find whole-number quotients of whole numbers with up to four-digit dividends and two-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.

Lesson Objective: Students will divide four-digit numbers by two-digit numbers.

Introduction: "Today we are going to review how to divide a four-digit dividend by a two-digit divisor."

Instruction: Direct students' attention to Example A. "Begin by putting the problem into the division box format.

Example A: $9,872 \div 45 = 45\overline{)9872}$

We want to know how many sets of 45 are in 9872.

Follow these steps:

Step 1: How many sets of the divisor are in the first (largest) place? *(no sets of 45 in 9)*

Step 2: How many sets of the divisor are in the first two places? *(two sets of 45 in 98)* Place the answer above the second digit *(hundreds place 8)*

Step 3: Multiply that number of sets of the divisor. *(2 x 45 = 90)*

Step 4: Subtract the sets. *(98 – 90 = 8)*

Step 5: Bring down the digit in the next place.

Step 6: How many sets of the divisor (45) are in the new dividend?

Step 7: Repeat from step 3 until there are no more sets of the divisor."

$$
\begin{array}{r}
0219\ R17 \\
45\overline{)9872} \\
-\ 90 \\
\hline
087 \\
-\ 45 \\
\hline
422 \\
-\ 405 \\
\hline
17
\end{array}
$$

Guided Practice: "Look at Example B. We want to know how many sets of 22 are in 7,589. How many sets of 22 are in 7? (No sets of 22 in 7.) Place a zero over the thousands place. How many sets of 22 in 75? (3) Write 3 above the hundreds place. Multiply 3 × 22, subtract, and bring down the 8. How many sets of 22 in 98? 5 × 20 is 100, so let's try 4. What is 4 × 22? (88) Write 4 above the tens place. Multiply 4 × 22, subtract, and bring down the 9. How many sets of 22 in 109? 4 sets is 88, what about 5 sets? What is 22 × 5? (110) That's too big, so write 4 above the ones place. Multiply 4 × 22 and subtract. We have 21 left over. 7,589 ÷ 22 = 344 R21."

Independent Practice: "Complete problems 1-2."

Review: Review problems 1-2 with the class. Discuss how to find the quotient. Review how to check for accuracy by the multiplying the quotient by the divisor (adding any remainder) to get the dividend.

Closure: "Today we reviewed how to divide a four-digit dividend by a two-digit divisor. Turn to your partner and explain how you used estimation in problem 1."

Answers:	1. 64 R18
	2. 125 R14

Standards Plus® – Mathematics – Grade 5

Domain: Number and Operations in Base Ten   Focus: Divide Whole Numbers   Lesson: #8

Standard: 5.NBT.6: Find whole-number quotients of whole numbers with up to four-digit dividends and two-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.

Begin by putting the problem into the division box format.

Example A: 9,872 ÷ 45 = $45\overline{)9872}$
We want to know how many sets of 45 are in 9872.

Follow these steps:
Step 1: How many sets of the divisor are in the first (largest) place?
Step 2: How many sets of the divisor are in the first two places?
          Place the answer above the second digit
Step 3: Multiply that number of sets of the divisor.
Step 4: Subtract the sets.
Step 5: Bring down the digit in the next place.
Step 6: How many sets of the divisor (45) are in the new dividend?
Step 7: Repeat from step 3 until there are no more sets of the divisor.
In this problem, there is a remainder of 17.

```
   0219 R17
45)9872
 - 90
   087
  - 45
   422
  - 405
    17
```

Example B: 7589 ÷ 22 = $22\overline{)7589}$

Directions: Find the quotients.

1. 1,554 ÷ 24 =

2. 7,889 ÷ 63 =

Standards Plus® – Mathematics – Grade 5	
<u>Domain</u>: Number and Operations in Base Ten	<u>Focus</u>: Divide Whole Numbers
<u>Assessment</u>: #2	

This assessment may be used in the following ways:
- As a formative assessment of the students' progress.
- As an additional opportunity to reinforce the vocabulary, concepts, and knowledge presented in the previous 4 lessons.

Standard: 5.NBT.6 Find whole-number quotients of whole numbers with up to four-digit dividends and two-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.

Procedure: Read the directions aloud and ensure that students understand how to respond to each item.

- If you are using this as a formative assessment, have the students complete the evaluation independently.
- If you are using this to reinforce instruction, determine the items that will be completed as guided practice, and those that will be completed as independent practice.

Additional Tips:
- All Standards Plus assessments are available in an **interactive digital format** in the Standards Plus Digital Platform.
- When the assessments are administered and scored digitally, the platform automatically creates intervention groups and recommends **additional printable intervention lessons.**
- You can also access the printable intervention lessons from the home screen in the digital platform.

Review: Review the correct answers with students as soon as they are finished.

Answers:
1. (5.NBT.6)	42 R8
2. (5.NBT.6)	40 R2
3. (5.NBT.6)	152 R48
4. (5.NBT.6)	D

Standards Plus® – Mathematics – Grade 5	
Domain: Number and Operations in Base Ten	Focus: Divide Whole Numbers
Assessment: #2	

Directions: Find the quotients.

1. 974 ÷ 23 =

2. 482 ÷ 12 =

3. 8,256 ÷ 54 =

4. 5,781 ÷ 62 =
   A. 75 R11
   B. 84 R73
   C. 95
   D. 93 R15

Standards Plus® High Impact Standards – Mathematics – Grade 5
Performance Lesson – Domain: Number and Operations in Base Ten

Standard Reference: 5.NBT.5: Fluently multiply multi-digit whole numbers using the standard algorithm.
5.NBT.6: Find whole-number quotients of whole numbers with up to four-digit dividends and two-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.

Required Student Materials:

- **Student Pages: St. Pgs. 15-16** (Vocabulary & Student Worksheet)

Lesson Objective: The students will rewrite a multiplication problem and a division problem, solve each, and write the steps needed to solve each. They will explain the meaning of multiplication and division.

Overview: The students will use their knowledge of multi-digit by multi-digit multiplication and division to solve problems and explain the processes as addressed in Standards Plus Number and

Operations in Base Ten Lessons 17-24, E5-E6.

Students will:

- Solve a four-digit by two-digit multiplication problem and explain the steps needed to solve this type of problem.
- Divide a four-digit number by a two-digit number and explain the steps needed to solve this type of problem.
- Explain what it means to multiply and divide.

Guided Practice: *(Required Student Materials: St. Pg. 15)*

- Review vocabulary.

Independent Practice: *(Required Student Materials: St. Pgs. 15-16)*

Have the students:

- Solve a four-digit by two-digit multiplication problem and explain the steps needed to solve this type of problem.
- Divide a four-digit number by a two-digit number and explain the steps needed to solve this type of problem.
- Explain what it means to multiply and divide.

Review & Evaluation:

- Check problems, having students correct their own work and review the steps needed to solve.
- Collect and review student worksheets.

Standards Plus® High Impact Standards – Mathematics – Grade 5
Performance Lesson − Domain: Number and Operations in Base Ten

Vocabulary:

Factor: A number that is multiplied.

Product: The solution to a multiplication problem.

Regroup: To group a ten in a specific place value in the place value that is one higher or one lower that the original number, e.g., 12 tens can be regrouped as 1 hundred and 2 tens.

Dividend: The number being divided.

Divisor: The number by which the dividend is being divided.

Quotient: The solution to a division problem.

Directions: Rewrite each problem below. Solve the problem, and write the steps you use to solve.

1. $3{,}456 \times 91 =$ _____

What steps did you use to solve the problem? Write the step on the lines below:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Standards Plus® High Impact Standards – Mathematics – Grade 5
Performance Lesson – Domain: Number and Operations in Base Ten

2.   8,023 ÷ 21 = _____

What steps did you use to solve the problem?   Write the step on the lines below:

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

3. What does it mean to multiply?

_____
_____
_____
_____

4. What does it mean to divide?

_____
_____
_____
_____