

Just In Time Quick Check
Standard of Learning (SOL) 4.4c

Strand: Computation and Estimation

Standard of Learning (SOL) 4.4c

The student will estimate and determine quotients of whole numbers, with and without remainders.

Grade Level Skills:

- Estimate whole number sums, differences, products, and quotients, with and without context.
- Apply strategies, including place value and the properties of multiplication and/or addition, to determine the quotient of two whole numbers, given a one-digit divisor and a two- or three-digit dividend, with and without remainders.
- Refine estimates by adjusting the final amount, using terms such as *closer to*, *between*, and *a little more than*.

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Just in Time Quick Check Teacher Notes

Supporting Resources:

- VDOE Mathematics Instructional Plans (MIPS)
 - [Pears in a Basket: Dividing with Whole Numbers](#) (Word) / [PDF](#)
- VDOE Word Wall Cards: [Grade 4](#) (Word) / [PDF](#)
 - Multiply: Product
 - Divide: Quotient
 - Multiplication: Number Line Model
 - Division: Number Line Model

Supporting and Prerequisite SOL: [4.1a](#), [4.4a](#), [4.4b](#), [3.4a](#), [3.4b](#), [3.4c](#), [3.4d](#)

SOL 4.4c - Just in Time Quick Check

- 1) Solve the problem shown below.

$$96 \div 4$$

- 2) Three friends earned 200 tickets playing a game at the school carnival. They decided each of them would receive an equal share of the tickets. How many tickets did each friend receive?

- 3) Use estimation strategies to determine the best estimate for the problem shown below.

$$738 \div 9$$

- 4) What is the quotient if the dividend is 839 and the divisor is 8?

- 5) Use estimation to identify the division problem shown below that has a quotient that is a little more than 100. Explain your answer using pictures and/or words.

- a) $389 \div 5$
- b) $705 \div 6$
- c) $899 \div 3$
- d) $656 \div 8$

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Common Errors/Misconceptions and their Possible Indications

- 1) Solve the problem shown below.

$$96 \div 4$$

A common misconception when solving division problems is understanding and connecting the concept of place value and identifying related facts that correlate with the problem. When dividing 96 by 4, it is important for students to apply estimation strategies to determine that the quotient should be between 20 and 30. When estimating the quotient students could also connect the related multiplication facts such as 4×20 and 4×30 to determine a reasonable estimate. When finding the actual quotient, students should continue to apply estimation strategies and place value number sense. If students are unable to identify the quotient 24, then these students need additional time exploring division problems using concrete manipulatives and/or pictorial representations.

- 2) Three friends earned 200 tickets playing a game at the school carnival. They decided each of them would receive an equal share of the tickets. How many tickets did each friend receive?

When developing the concept of division, students should explore division problems with a variety of concrete models to build a conceptual understanding. Identifying the relationship between multiplication and division is the foundation on which students will learn and understand division facts. Using word problems is important in developing a greater understanding of the concept of division. It is important for students to use estimation strategies and determine that each friend should receive between \$60 and \$70, connecting the multiplication facts 3×60 and 3×70 .

- 3) Use estimation strategies to determine the best estimate for the problem shown below.

$$738 \div 9$$

Students should be able to apply a variety of estimation strategies to determine the approximation of the quotient. This estimation can be used to verify the reasonableness of the answer. Using place value skills and related multiplication facts can be a strategy to determine the best estimate of the quotient. Using compatible numbers such as identifying that 738 is close to 720, which is a multiple of 9, will be beneficial in determining the best estimate for the quotient. The best estimate of this quotient is 80. Students can explore this idea even further and identify that the quotient is a little more than 80. Students should also be able to apply number sense and identify that the dividend is less than 900; therefore, the quotient should be less than 100. If students are unable to identify the best estimate for this problem, then these students should explore the concept of estimation through concrete manipulatives such as base ten blocks.

- 4) What is the quotient if the dividend is 839 and the divisor is 8?

A common misconception when solving this problem is not understanding the terms quotient, dividend, and divisor. Students should explore these terms in connection to solving division problems in order to connect the meaning of each term. Using word wall cards and creating anchor charts will be necessary to help students develop a greater understanding of the terms and be able to apply them to the concept of division. Another common misconception is applying the concept of place value when solving the problem. When solving this problem using an algorithm, some students may get a quotient of 14 remainder 7 because they will not understand the relationship between the tens and ones when dividing. When students apply estimation strategies prior to solving the problems, students should be able to identify that a reasonable answer should be a little more than 100.

- 5) Use estimation to identify the division problem shown below that has a quotient that is a little more than 100. Explain your answer using pictures and/or words.

- a) $389 \div 5$
- b) $705 \div 6$
- c) $899 \div 3$
- d) $656 \div 8$

A common misconception for students is to find the exact quotient first instead of estimating. It is important for students to apply a variety of estimation skills such as using compatible numbers or rounding to estimate quotients. Students can also apply related multiplication facts and place value to determine the quotient. Students should be able to justify their answer by using place value to explain which division problem has a quotient that is a little more than 100. If students are unable to identify the division problem, then these students will need additional time using concrete manipulatives to model. It is also important for these students to make a connection between the dividend and divisor in order to determine which quotient is a little more than 100. Some students may use the related multiplication fact of multiplying each divisor by 100 to determine which dividend is closest.