

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

Strand: Computation and Estimation

Standard of Learning (SOL) 4.4a

The student will demonstrate fluency with multiplication facts through 12 x 12, and the corresponding division facts.

Grade Level Skills:

- Demonstrate fluency with multiplication through 12×12 , and the corresponding division facts.

Just in Time Quick Check

Just in Time Quick Check Teacher Notes

Supporting Resources:

- VDOE Mathematics Instructional Plans (MIPS)
 - [Multiplication: Fact Fluency](#) (Word) / [PDF](#)
 - [Multiplication: Fluency with Facts](#) (Word) / [PDF](#)
- VDOE Co-Teaching Mathematics Instruction Plans (MIPS)
 - [Fact Game](#) (Word) / [PDF](#)
- VDOE Word Wall Cards: [Grade 4](#) (Word) / [PDF](#)
 - Multiply: Product
 - Divide: Quotient
 - Multiplication: Number Line Model
 - Division: Number Line Model
- VDOE Instructional Videos for Teachers
 - [Strategies for Learning Basic Facts](#)
 - [Array Model for Multiplication](#)
- Desmos Activities
 - [Multiplication Fact Strategies](#)
 - [Visual Number String- Candy](#)

Supporting and Prerequisite SOL: [3.4a](#), [3.4c](#), [2.2a](#), [2.5b](#)

SOL 4.4a - Just in Time Quick Check

1) Solve the problem shown.

$$8 \times 7$$

2) What is the product of 11 and 12?

3) A teacher asked three students to identify number sentences that have a product of 36.

- Student A said 15 and 21 had a product of 36
 - Student B said 12 and 3 had a product of 36
 - Student C said 4 and 9 had a product of 36
- a. Which student(s) correctly identified a number sentence that had a product of 36?
Explain your answer.
- b. Is there another number sentence that has a product of 36?

4) Identify two related division facts for the problem shown.

$$7 \times 6 = \underline{\quad}$$

$7 \div 6 = \underline{\quad}$	$6 \div 7 = \underline{\quad}$
$42 \div 7 = \underline{\quad}$	$42 \div 6 = \underline{\quad}$

5) A teacher wrote this problem on the board for students.

$$9 \times 6$$

- a) Student 1 said they would first solve the problem 10×6 and then subtract 9 to figure out the product of 9 and 6.
- b) Student 2 said they would first solve the problem 10×6 and then subtract 6 to figure out the product of 9 and 6.

Identify which student solved this problem correctly. Use pictures or words to explain your answer.

Is there another strategy you could use to solve this fact?

SOL 4.4a - Just in Time Quick Check Teacher Notes

Common Errors/Misconceptions and their Possible Indications

1) Solve the problem shown.

$$8 \times 7$$

When solving multiplication facts it is important for students to understand a variety of strategies in order to demonstrate and apply fluency. Some of these strategies may include recall, partial products, using friendly numbers, repeated addition, or decomposition strategies. If students are unable to apply some of these strategies, then these students may need additional time using concrete materials and pictorial representations to identify the relationship and pattern that exists in the facts. Understanding this relationship will help students to learn and retain multiplication facts.

In order to identify student misconceptions, it is important to identify which strategy students used to find the product. Did the students create an equal group model or use repeated addition to find the product? Did the students apply other relationships between factors such as identifying that 4 groups of 7 is 28, therefore 8 groups of 7 is 56. Did the students automatically recall the multiplication fact? Students should continue to explore strategies and make connections in order to develop a deeper understanding of multiplication that will allow them to demonstrate fluency.

2) What is the product of 11 and 12?

Some students may not understand the term product. These students will add the two numbers together for a sum of 23 instead of finding the product of the two factors. If students do not understand the term product, they would benefit from exploring the concept of multiplication with concrete manipulatives and word wall cards to make a connection.

Another common misconception for some students is applying an incorrect strategy to identify the product. Some students may have a deep understanding of multiplication and be able to demonstrate fluency with the number sentence 11×12 . However, there are a variety of strategies that students could apply when solving this problem. Some students may use related facts and compensation to solve the problem such as identifying that 10 groups of 12 is 120 therefore 11 groups of 12 is 132. Other students may draw a pictorial representation or use repeated addition to solve the problem. There may be students who will not be able to apply a strategy and instead will attempt to guess the product. It is important for students to explore several different strategies with teacher guidance in order to develop a greater understanding of multiplication. When comparing multiplication strategies with students, it is important to connect the strategies with one another and identify which strategies are more efficient and why.

3) The teacher asked three students to identify number sentences that have a product of 36.

- Student A said 15 and 21 had a product of 36
- Student B said 12 and 3 had a product of 36
- Student C said 4 and 9 had a product of 36

- a. Which student(s) correctly identified a number sentence that had a product of 36?
Explain your answer.
- b. Is there another number sentence that has a product of 36?

Some students may say that Student A is correct. These students do not understand the meaning of the word “product,” and are confusing it with addition. These students would benefit from the use of word wall cards and exploring the terms associated with computation.

Another common error for some students is not being able to identify multiple number sentences with equivalent products. When students are able to identify and apply the relationship among facts, then students begin to learn and demonstrate fluency. In the answers provided by Student B and Student C, 12×3 and 4×9 , a relationship and pattern exist between the factors. Since one factor is tripled and the other factor is a third, the product remains equal. Teachers may use manipulatives and connect this concept to other multiplication problems in order for students to develop a deeper understanding.

4) Identify the two related division facts for the problem shown below. You must select two answers.

$$7 \times 6 = \underline{\quad}$$

$7 \div 6 = \underline{\quad}$	$6 \div 7 = \underline{\quad}$
$42 \div 7 = \underline{\quad}$	$42 \div 6 = \underline{\quad}$

When solving multiplication facts it is important for students to be able to identify the corresponding division facts. When exploring the concept of multiplication, students should understand and be able to identify the inverse relationship between multiplication and division.

A common misconception for some students is to select a division problem that has the same numbers as the given multiplication problem. If a student selected $7 \div 6$ and/or $6 \div 7$, then this student will need additional time to explore the relationship between multiplication and division. Using manipulatives such as counters to create equal groups or modeling on a number line are two ways to explore this relationship. When students are able to apply the inverse relationship then they will be able to apply multiplication as a strategy when solving division problems.

5) Two students were given the problem shown below. Each student solved the problem differently.

$$9 \times 6$$

- a) Student 1 said they would first solve the problem 10×6 and then subtract 9 to figure out the product of 9 and 6.
- b) Student 2 said they would first solve the problem 10×6 and then subtract 6 to figure out the product of 9 and 6.

Identify which student solved this problem correctly. Use pictures or words to explain your answer.

Is there another strategy you could use to solve this fact?

When students think flexibly and are able to apply more than one strategy, then solving problems will become more fluent. It is important for students to understand the concept of multiplication in terms of groups. In this particular problem, 9×6 may be thought of as 9 groups of 6. Even though some students may be able to automatically recall the product, it is important that students have a deeper understanding of multiplication and be able to apply a variety of strategies.

It is a common misconception for students to use a friendly number when multiplying, but not understand how to compensate for that problem to figure out the actual product. Students should understand that 10 groups of 6, is just one more group of 6, so a group of 6 would need to be removed. There are a variety of models that you can use to demonstrate this concept. An array model showing 9 rows of 6 compared to 10 rows of 6 or a number line modeling 9 jumps of 6 compared to 10 jumps of 6 can also be used to show the relationship between these two facts.