Just In Time Quick Check
Standard of Learning 3.4a

Strand: Computation and Estimation
Standard of Learning (SOL) 3.4a *The student will represent multiplication and division through 10 x 10, using a variety of approaches and models.*
Grade Level Skills: • Represent multiplication using a variety of approaches and models (e.g., repeated addition, equal-sized groups, arrays, equal jumps on a number line, skip counting). • Represent division using a variety of approaches and models (e.g., repeated subtraction, equal sharing, equal groups). • Write three related equations (fact sentences) when given one equation (fact sentence) for multiplication or division (e.g., given 6 x 7 = 42, write 7 x 6 = 42, 42 ÷ 7 = 6, and 42 ÷ 6 = 7).
Just in Time Quick Check
Just in Time Quick Check Teacher Notes

Supporting Resources:
● VDOE Mathematics Instructional Plans (MIPS)
   ○ 3.4a - Multiplication Representations (Word) / PDF Version
● VDOE Co-teaching Mathematics Instructional Plans
   ○ 3.4 - Multiplication and Division (Word) / PDF Version
● VDOE Word Wall Cards: Grade 3 (Word)
	(PDF)
	   ○ Multiply: Product
	   ○ Multiplication: Set Model
	   ○ Multiplication: Array Model
	   ○ Multiplication: Area (array) Model
	   ○ Multiplication: Number Line Model
	   ○ Divide: Quotient
	   ○ Division: Number Line and Array Models
	   ○ Related Facts: Addition/Subtraction
	   ○ Related Facts: Multiplication/Division

Supporting and Prerequisite SOL: 3.4b; 2.2a; 2.6b; 1.1d

SOL 3.4a - Just in Time Quick Check

1. Represent 5 x 7 two different ways. Use pictures and words to show your thinking.

2. Represent 18 ÷ 3 two different ways. Use pictures and words to show your thinking.

3. Write the three related facts for 4 x 7 = 28.

1. Represent 5 x 7 two different ways. Use pictures and words to show your thinking.

   A variety of responses should be considered correct, including but not limited to:

   - *Models and/ or contexts that represent five sets/groups/rows/jumps of seven OR seven sets/groups/rows/jumps of five; and*
   - *Models and/or contexts that use a multiplicative comparison (e.g., Sue has 5 pencils and Joe has 7 times as many pencils as Sue; Joe has 7 pencils and Sue has 5 times as many pencils as Sue).*

   Students who add the two digits and represent an addition expression need instruction in the meaning of the operational symbol. Using context to help students represent and make meaning for operations may be helpful. Sets of counters, number lines to skip count and relate to multiplication, and arrays/area models will aid students in solving problems involving multiplication and foster understanding of multiple representations. Students should represent the model used as a drawing and/or equation to find the solution. Encourage students to solve these problems in different ways to show the same idea, to explain their thinking verbally, and to represent their thinking with an expression or equation.

   Students who are unable to represent the expression in more than one way may benefit from experiences that include not only solving and representing problems involving equal groups, where the whole is unknown or the size of the group is unknown, but also problems involving multiplicative comparison.

   Refer to the Grade 3 Curriculum Framework for examples of the different types of models and the variety of problem types with which students should have experience.

2. Represent 18 ÷ 3 two different ways. Use pictures and words to show your thinking.

   Students may be unable to represent the expression in more than one way, or their work may be more representative of multiplication than division. Students are often unable to interpret 18 ÷ 3 as the number of objects in each share when 18 objects are partitioned equally into 3 shares, or as a number of shares when 18 objects are partitioned into equal shares of 3 objects each. In each of these instances, students would benefit from using manipulatives to solve practical division problems and representing that work with a model or picture. Problem solving contexts that provide experiences partitioning quantities into equal shares, creating equal groups, and using number charts or number lines to model repeated subtraction are encouraged. Refer to the Grade 3 Curriculum Framework for examples of the different types of models and the variety of problem types with which students should have experience.

   As with multiplication, a variety of responses should be considered correct, including but not limited to:
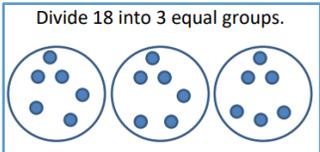
   - *Equal shares:*   *There are 6 in each group. Division sentence:* $18 \div 3 = 6$;
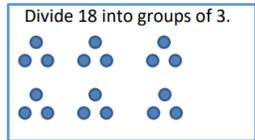
   - *Equal groups:*   *There are 6 groups of 3. Division sentence:* $18 \div 3 = 6$; *and*

- *Repeated subtraction: 18, 15, 12, 9, 6, 3, 0 (one must subtract 3 six times to reach zero).*

3. Write the three related facts for 4 x 7 = 28.

Students may include $4 \div 28 = 7$, $7 \div 28 = 4$, $7 \div 4 = 28$, and/or $4 \div 7 = 28$ as related facts. These errors may indicate an understanding that division is the inverse operation of multiplication but a lack of understanding of how those operations are related. Using physical models to generate and represent related facts and writing the corresponding equations for the physical models develops conceptual understanding for the inverse relationship that exists between multiplication and division. Students may also benefit from creating story problems that correspond to the related multiplication and division facts, as context helps students make meaning for operations.