

Core Content

Cluster Title: Represent and solve problems involving multiplication and division.

Standard 4: Determine the unknown whole number in a multiplication or division equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the following equations: $8 \times ? = 48$, $5 = \square \div 3$, $6 \times 6 = ?$

MASTERY Patterns of Reasoning:

Conceptual:
 Students will understand that there can be a result unknown (don't know the answer), change unknown (know the first number of the equation, but not the second), or a start unknown (first number in equation not known) within an equation.
 Students will understand the use of a symbol to represent an unknown number.

Procedural:
 Students can apply multiplication or division to solve for an unknown in an equation.

Representational:
 Students can use a model to solve for the unknown whole number in an equation.
 Students can represent an equation by putting the numbers in a real-world problem.
 Students can write a word problem that represents an equation with an unknown.

Supports for Teachers

Critical Background Knowledge

Conceptual:
 Students will understand that both sides of an equation equal the same amount.
 Students will understand that a symbol can be used for an unknown within an equation.

Procedural:
 Students will know how to write an equation.
 Students can use a symbol to represent an unknown number.
 Students can solve a multiplication or division equation.

Representational:
 Students can model multiplication and division using a variety of strategies.

Academic Vocabulary and Notation	
symbol, equal, =, x, ÷	
Instructional Strategies Used	Resources Used
<p>Use the multiplication table to help find a missing factor.</p> <p>Provide problems with an unknown to be found.</p> <p>Teach students to use a variety of symbols to represent the unknown.</p> <p>Use an input/output strategy where either the input or output is unknown.</p> <p>Use a number line to model the missing number.</p>	<p>Murphy, Stuart. <i>Safari Park</i>. HarperCollins, 2001.</p> <p>The Product Game http://www.illuminations.nctm.org/tools/product/index.html</p> <p>Complete the Division Sentence Facts to 10 http://www.ixl.com/</p> <p>Interactive Chart http://www.mathsisfun.com/tables.html</p>
Assessment Tasks Used	
<p>Skill-Based Task:</p> <p>24 = 3 x _____</p> <p>56 ÷ △ = 7</p>	<p>Problem Task:</p> <p>This is a skill-based standard. No problem is provided.</p>