

Core Content

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

Standard 2: Interpret whole-number quotients of whole numbers (e.g., interpret $56 \div 8$ as the number of objects in each group when 56 objects are partitioned equally into 8 groups). For example, describe a context in which a number of groups can be expressed as $56 \div 8$.

MASTERY Patterns of Reasoning:

Conceptual:

Students will understand that division represents two different situations.

- Partitive (Equal groups): determining how many objects are in each group.
- Quotative (Measurement): determining how many groups can be made from a specific amount of equal objects.

Students will understand that division is repeated subtraction.

Procedural:

Students can find how many equal groups can be made out of a certain number of objects.

Students can find how many objects can be shared equally among a certain number of groups.

Students can use repeated subtraction to find the number of equal groups.

Students can solve division problems.

Representational:

Students can model a division equation using pictures, objects, or numbers.

Students can demonstrate equal groups of objects.

Students can draw equal groups of objects.

Students can write repeated subtraction expressions and division expressions that represent their pictures.

Supports for Teachers

Critical Background Knowledge

Conceptual:

Students will understand that division is sharing equally among groups.

Students will know, when given a certain number of groups, how many items will be in each group.

Students will understand that measurement (quotative) division is when students are given a certain number of objects, they need to find out how many groups will have an equal number of items.

Procedural:

Students will be able to use repeated subtraction.

Representational:

Students can model problems involving equal group.

Academic Vocabulary and Notation

quotient, dividend, divisor, divide, equal groups, whole numbers, partitive, quotative, \div , $\overline{)$

Instructional Strategies Used	Resources Used
<p>While reading <i>The Doorbell Rang</i>, give counter manipulatives in baggies so students can move the objects around.</p>	<p>Murphy, Stuart. <i>Divide and Ride</i>. HarperCollins, 1997.</p>
<p>Give students tiles and have them model both types of division problems.</p>	<p>Pinczes, Elinor J. <i>A Remainder of One</i>. Houghton Mifflin, 1995.</p>
<p>Partitive (sharing): There were 42 jellybeans. I put them into 6 cups. How many jellybeans would be in each cup?</p>	<p>Hutchins, Pat. <i>The Doorbell Rang</i>. Greenwillow Books, 1989.</p>
<p>Quotative (measurement): Brendon had 42 jellybeans. He put 7 into each cup. How many cups of jellybeans did he make?</p>	<p>Pinczes, Elinor J. <i>One Hundred Hungry Ants</i>. Houghton Mifflin, 1993.</p>
<p>Read division books and model problems based on the content.</p>	<p>3-5 Numbers and Operations: http://nlvm.usu.edu/</p>
<p>Relate repeated subtraction to division.</p>	<p>Number line arithmetic Rectangle division</p>

Assessment Tasks Used	
Skill-Based Task: $56 \div 7 =$ $48 - \square = 8$ $36 - \square\square = 9$	Problem Task: Quotative (measurement): Damion has 27 cups of cereal. He eats 3 cups every morning. How many days will he have cereal? (Use pictures, words, and numbers to show how you solved this problem.) Partitive (equal groups): Anna had 27 beads. She made 9 necklaces. How many beads were on each necklace? (Use pictures, words, and numbers to show how you solved this problem.)