



**VIDEO NOTES: 3rd Grade Math Lesson on Multiplication and its Relationship to Division**

**Video Links:** [3rd Grade Math Lesson on Multiplication and its Relationship to Division](#)

**Common Core State Standard:** Operations and Algebraic Thinking ([CCSS.3.OA.B.5](#))

**Compass Component and Rating:** Using Questioning and Discussion Techniques (3b), *Effective Proficient*  
Engaging students in learning (3c), *Effective Proficient*

**Lesson Objective:** Build understanding of multiplication and division.

**Common Core State Standard(s)**

**Operations and Algebraic Thinking (CCSS.3.OA.B.5):** Apply properties of operations as strategies to multiply and divide.

Examples: If  $6 \times 4 = 24$  is known, then  $4 \times 6 = 24$  is also known. (Commutative property of multiplication.)  $3 \times 5 \times 2$  can be found by  $3 \times 5 = 15$ , then  $15 \times 2 = 30$ , or by  $5 \times 2 = 10$ , then  $3 \times 10 = 30$ . (Associative property of multiplication.) Knowing that  $8 \times 5 = 40$  and  $8 \times 2 = 16$ , one can find  $8 \times 7$  as  $8 \times (5 + 2) = (8 \times 5) + (8 \times 2) = 40 + 16 = 56$ . (Distributive property.)

**Compass Component 3b: Using Questioning and Discussion Techniques (Rating: *Effective Proficient*)**

Indicators	Evidence	Common Core Connection
Teacher uses open-ended questions, inviting students to think and/or have multiple possible answers.	<ul style="list-style-type: none"> <li>Teacher asks open ended questions, such as “What happens in the 10s column?” (3:28) and “Can I see how you did that? What does it look like?” (4:55)</li> </ul>	
The teacher makes effective use of wait time.	<ul style="list-style-type: none"> <li>Teacher gives students several seconds to contemplate their answer before responding, which increases the number of students who are able to respond and the quality of their responses.</li> <li>Teacher also uses hand signals to help students communicate thoughts without speaking. This method allows the teacher to more effectively facilitate the discussion and monitor engagement.</li> </ul>	

The teacher builds on student responses to questions effectively.	<ul style="list-style-type: none"> <li>Both the teacher and students build on the ideas of individual students. Students say that they would like to revise their thinking after hearing someone’s response, or say <i>“I agree with her but I have something to add…”</i> (2:54)</li> </ul>	As students share their solutions with the class, they construct arguments to defend their answer and critique the reasoning of others ( <a href="#">Math.Practice.MP3</a> ).
Discussions enable students to talk to one another, without ongoing mediation by the teacher.	<ul style="list-style-type: none"> <li>Students are given the opportunity to talk with their partners about patterns that they find in the numbers and how they solved problems. The teacher plays a supportive role instead of mediating. Partners have the opportunity to discuss differences in their patterns, instead of the teacher providing this information. Students learn to self-assess and self-analyze through comparing answers with a classmate.</li> </ul>	Students count by 4s and the teacher asks them to identify patterns within the resulting numbers. Asking students to discern patterns in groups of numbers allows them to practice <a href="#">Math.Practice.MP7</a> .
Many students actively engage in the discussion.	<ul style="list-style-type: none"> <li>When students are not actively contributing to the conversation, they use hand signals to show they are listening to and thinking about the comments of others.</li> </ul>	

**Compass Component 3c: Engaging Students in Learning (Rating: *Effective Proficient*)**

Indicators	Evidence	Common Core Connection
Most students are intellectually engaged in the lesson.	<ul style="list-style-type: none"> <li>Most students are engaged in the lesson through the use of non-verbal “connection signs” and thumbs up/down to indicate their agreement with the statement or similar understanding. (2:15)</li> <li>Students hold conversations with partners and the whole class.</li> </ul>	During this lesson, students begin to develop their conceptual understanding of multiplication and its relationship to division. This aligns with the cluster heading of <a href="#">CCSS.3.OA.B</a> (“Understand the properties of multiplication and the relationship between multiplication and division”) and allows students to work toward <a href="#">CCSS.3.OA.B.5</a> in this lesson.
Lesson tasks have multiple correct responses or approaches and/or demand higher-order thinking.	<ul style="list-style-type: none"> <li>There are various strategies that students use to find the correct response for an equation. Students explain their strategies to support their answers. After hearing multiple students’ strategies, the teacher says, <i>“I’m just going to write down some different people’s strategies on how they solved it. Emma, could you tell me how you solved that?”</i> (4:50) This not only provides the student with an opportunity to explain (and reinforce) her thinking for the class, but also allows listening students to reinforce the math concept of using various methods to arrive at the same answer.</li> </ul>	As students explain the strategies they used to come to an answer, they address <a href="#">Math.Practice.MP3</a> .
Students have some choice in how	<ul style="list-style-type: none"> <li>Students choose the method in which they solve each problem.</li> </ul>	Students determine on their own how to solve

they complete learning tasks.	This results in more critical thinking on behalf of the student because they choose the method that makes sense to them. If a method doesn't work out, they persevere in finding another.	a problem by working through a strategy or altering their strategy after hearing responses from classmates ( <a href="#">Math.Practice.MP1</a> )
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**WHAT COULD THIS TEACHER DO TO IMPROVE?**

What did the teacher do in this lesson?	<i>Highly Effective Indicators</i>	What could the teacher do to move to <i>Highly Effective?</i> (example actions)	How could this lesson be improved for students to meet Common Core standards?
The teacher begins the class talking about patterns and asking the students to identify patterns. Later, the focus of the lesson turns to a discussion of division.	Students have an opportunity for reflection and closure on the lesson to consolidate their understanding. (Engaging – 3c)	Ask students to identify the connection between patterns, multiplication and division to help them understand the relationship between the processes and understand the purpose of the different parts of the lesson.	To fully address <a href="#">CCSS.3.OA.B.5</a> , focus student discussion on the properties of multiplication and division. The students contemplate and try to identify how multiplication and division are related, but don't have the opportunity to apply the properties of these operations to solve problems. The teacher could ask key questions about properties at the end of the lesson such as, "is $4 \times 6$ the same as $6 \times 4$ ? How do you know?"
The teacher poses most of the questions for students.	Students initiate higher-order questions. (Questioning – 3b)  AND  Students extend the discussion, enriching it. (Questioning – 3b)	Ask students to pose questions to their partners during small group discussion. If the questions can't be answered by the partner, pose them to the group. Asking students to relate the processes of multiplication and division to their real lives encourages them to extend and enrich the discussion.	