



Multiplicative Comparisons Instruction Using Bar Models

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Lesson Objectives

CCSS 4.O.A.1: Interpret a multiplication equation as a comparison, e.g., interpret $35 = 5 \times 7$ as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplicative equations.

Behavioral objective: Students are courteous and considerate when working with others.

Lesson Procedures

Activating Prior Knowledge: students think-pair-share what they remember about additive comparisons.

Example of additive comparison:
“If I have \$20, and Ms. Murphy has \$16, how many more dollars do I have than Ms. Murphy?” The students should be able to answer with \$4.

Introducing Multiplicative Comparisons:

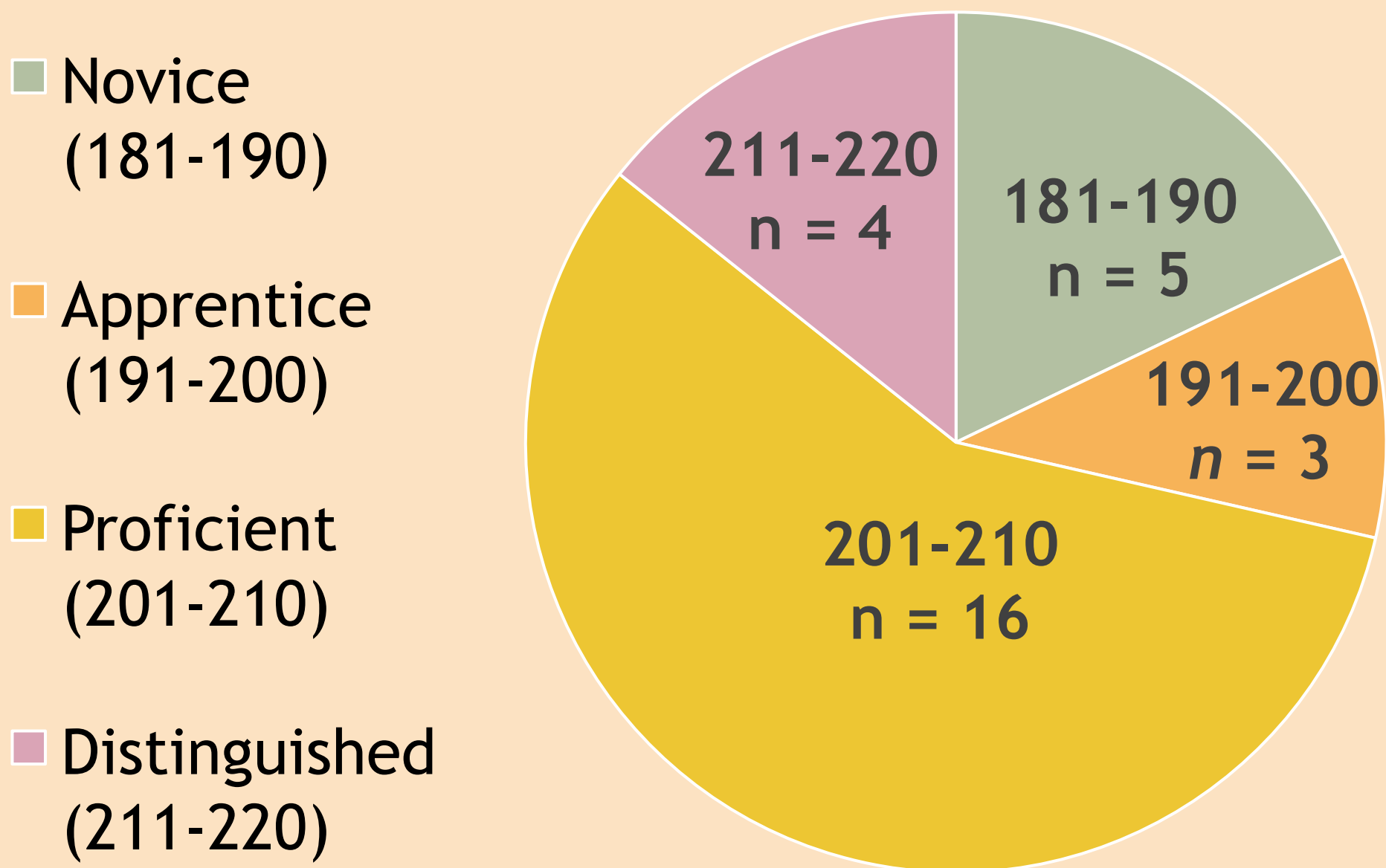
We are comparing two amounts by finding how many times larger one is than the other.

Eliciting real life examples: “When would we need to know how many times larger something is compared to something else?”

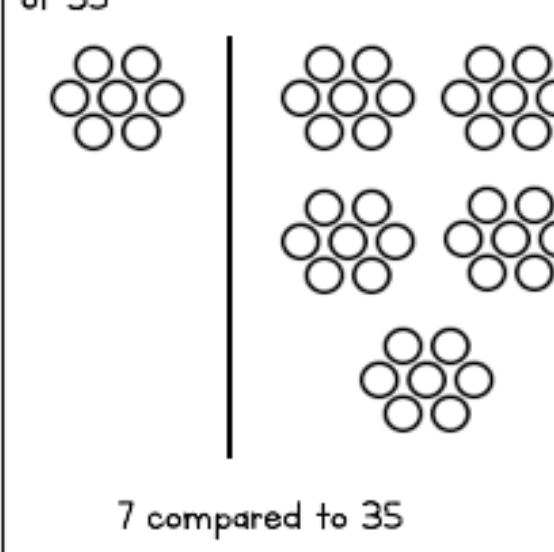
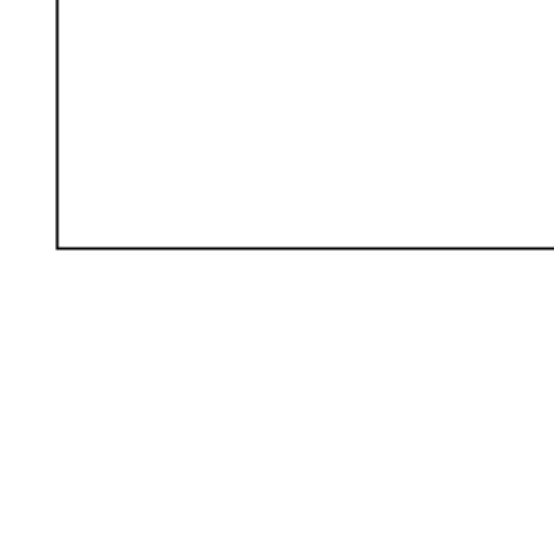
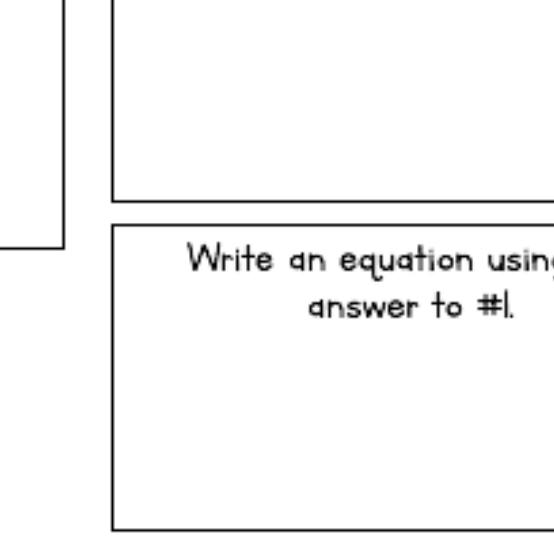
Examples include: size, height, weight, distance, etc. “For example, we could say that I ran five miles, and Trenton ran two times as far as I did.”

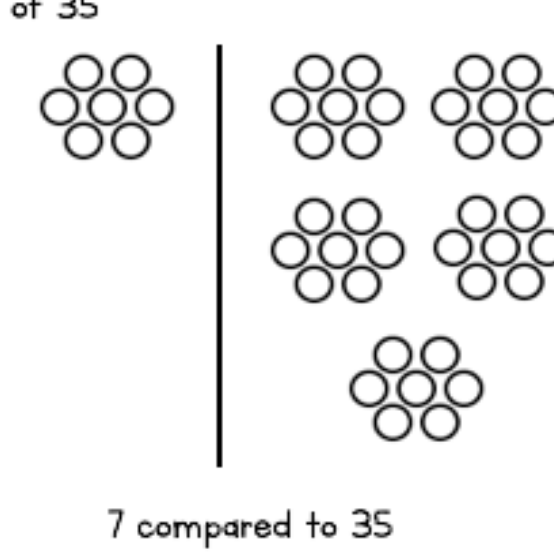
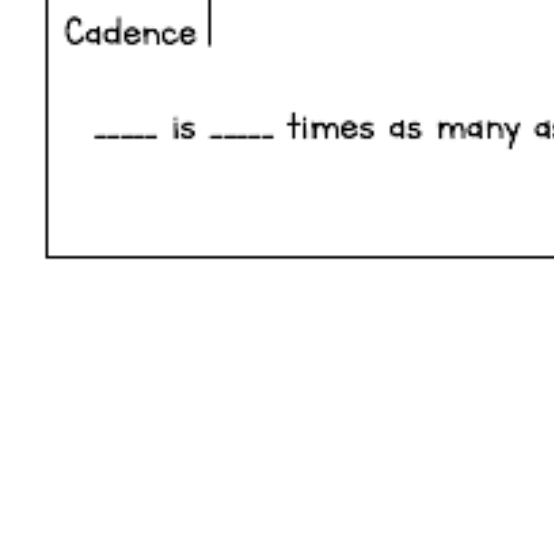
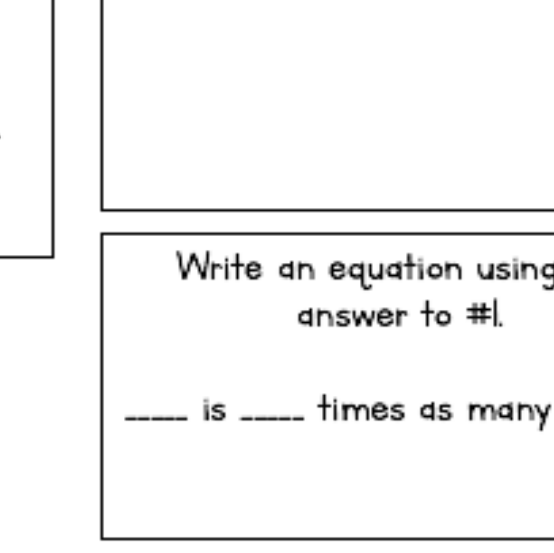
Gradual Release of Responsibility: Teacher modeled and provided guided practice with whole class, then they worked in pairs, and finally each student completed individual work. During student work time, teacher used a rating scale to track students’ progress on the behavioral objective.

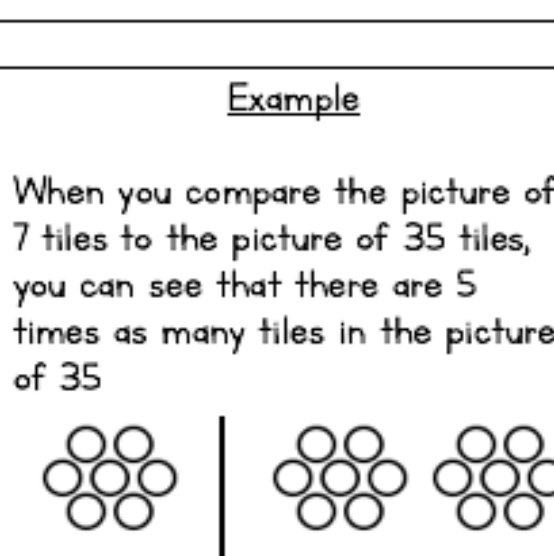
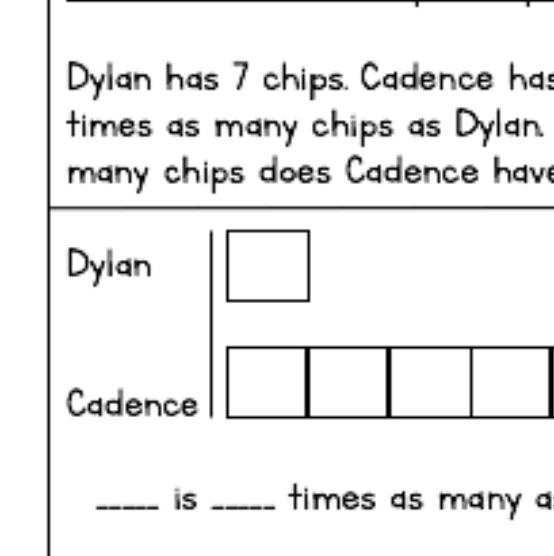
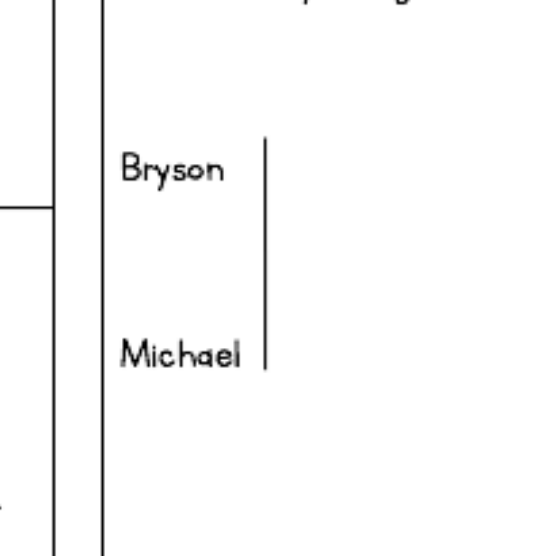
Students by Measure of Academic Progress (MAP) Scores



Trifold Guided Notes with Differentiated Support

FRONT		Low Support	BACK		
1 Comparing _____ by finding how many times _____ one is than the other. Example When you compare the picture of 7 tiles to the picture of 35 tiles, you can see that there are 5 times as many tiles in the picture of 35  7 compared to 35	2 _____ Used to represent two amounts so we can _____ to find how many _____ one is than the other Continued from Example on page 1 Dylan has 7 chips. Cadence has 5 times as many chips as Dylan. How many chips does Cadence have? 	3 Whole Group Practice #1 Bryson rides his bike 3 blocks to school. Michael rides his bike 2 times as far as Bryson. How far does Michael ride his bike to school? Solve by using a bar model.  Write an equation using the answer to #1. _____ is _____ times as many as _____ _____ = _____ x _____	4 Partner Practice #2 Payden has 6 pencils. Victoria has 4 times as many pencils as Payden. How many pencils does Victoria have? Solve by using a bar model and write an equation. _____ is _____ times as many as _____ _____ = _____ x _____ #3 Camden has 5 blue paws. Kevin has 3 times as many as Camden. How many blue paws does Kevin have? Solve by using a bar model and write an equation. _____ is _____ times as many as _____ _____ = _____ x _____	5 Individual Practice #4 McKenzie ate 4 Gushers. Demarcus ate 3 times as many as McKenzie. How many Gushers did Demarcus eat? Solve by using a bar model and write an equation. _____ is _____ times as many as _____ _____ = _____ x _____ #5 Julius has 7 basketball cards. Cody has 3 times as many as Julius. How many basketball cards does Cody have? Solve by using a bar model and write an equation. _____ is _____ times as many as _____ _____ = _____ x _____	Multiplicative Comparisons 4.OA1 Name: _____ Date: _____ Learning Goals I can use a _____ to represent a multiplicative comparison. I can write an _____ for a situation involving a multiplicative comparison.

FRONT		Moderate Support	BACK		
1 Comparing _____ amounts by finding how many times _____ one is than the other. Example When you compare the picture of 7 tiles to the picture of 35 tiles, you can see that there are 5 times as many tiles in the picture of 35  7 compared to 35	2 _____ Used to represent two amounts so we can _____ to find how many times _____ one is than the other Continued from Example on page 1 Dylan has 7 chips. Cadence has 5 times as many chips as Dylan. How many chips does Cadence have? 	3 Whole Group Practice #1 Bryson rides his bike 3 blocks to school. Michael rides his bike 2 times as far as Bryson. How far does Michael ride his bike to school? Solve by using a bar model.  Write an equation using the answer to #1. _____ is _____ times as many as _____ _____ = _____ x _____	4 Partner Practice #2 Payden has 6 pencils. Victoria has 4 times as many pencils as Payden. How many pencils does Victoria have? Solve by using a bar model and write an equation. _____ is _____ times as many as _____ _____ = _____ x _____ #3 Camden has 5 blue paws. Kevin has 3 times as many as Camden. How many blue paws does Kevin have? Solve by using a bar model and write an equation. _____ is _____ times as many as _____ _____ = _____ x _____	5 Individual Practice #4 McKenzie ate 4 Gushers. Demarcus ate 3 times as many as McKenzie. How many Gushers did Demarcus eat? Solve by using a bar model and write an equation. _____ is _____ times as many as _____ _____ = _____ x _____ #5 Julius has 7 basketball cards. Cody has 3 times as many as Julius. How many basketball cards does Cody have? Solve by using a bar model and write an equation. _____ is _____ times as many as _____ _____ = _____ x _____	Multiplicative Comparisons 4.OA1 Name: _____ Date: _____ Learning Goals I can use a _____ to represent a multiplicative comparison. I can write an _____ for a situation involving a multiplicative comparison.

FRONT		High Support	BACK		
1 Multiplicative Comparison Comparing _____ amounts by finding how many times _____ one is than the other. Example When you compare the picture of 7 tiles to the picture of 35 tiles, you can see that there are 5 times as many tiles in the picture of 35  7 compared to 35	2 Bar Model Used to represent two amounts so we can _____ to find how many times _____ one is than the other Continued from Example on page 1 Dylan has 7 chips. Cadence has 5 times as many chips as Dylan. How many chips does Cadence have? 	3 Whole Group Practice #1 Bryson rides his bike 3 blocks to school. Michael rides his bike 2 times as far as Bryson. How far does Michael ride his bike to school? Solve by using a bar model.  Write an equation using the answer to #1. _____ is _____ times as many as _____ _____ = _____ x _____	4 Partner Practice #2 Payden has 6 pencils. Victoria has 4 times as many pencils as Payden. How many pencils does Victoria have? Solve by using a bar model and write an equation. _____ is _____ times as many as _____ _____ = _____ x _____ #3 Camden has 5 blue paws. Kevin has 3 times as many as Camden. How many blue paws does Kevin have? Solve by using a bar model and write an equation. _____ is _____ times as many as _____ _____ = _____ x _____	5 Individual Practice #4 McKenzie ate 4 Gushers. Demarcus ate 3 times as many as McKenzie. How many Gushers did Demarcus eat? Solve by using a bar model and write an equation. _____ is _____ times as many as _____ _____ = _____ x _____ #5 Julius has 7 basketball cards. Cody has 3 times as many as Julius. How many basketball cards does Cody have? Solve by using a bar model and write an equation. _____ is _____ times as many as _____ _____ = _____ x _____	Multiplicative Comparisons 4.OA1 Name: _____ Date: _____ Learning Goals I can use a _____ to represent a multiplicative comparison. I can write an _____ for a situation involving a multiplicative comparison.

Differentiation

Due to the heterogeneous nature of the class, differentiated guided notes were created to meet the needs of students needing low, moderate, and high levels of support.

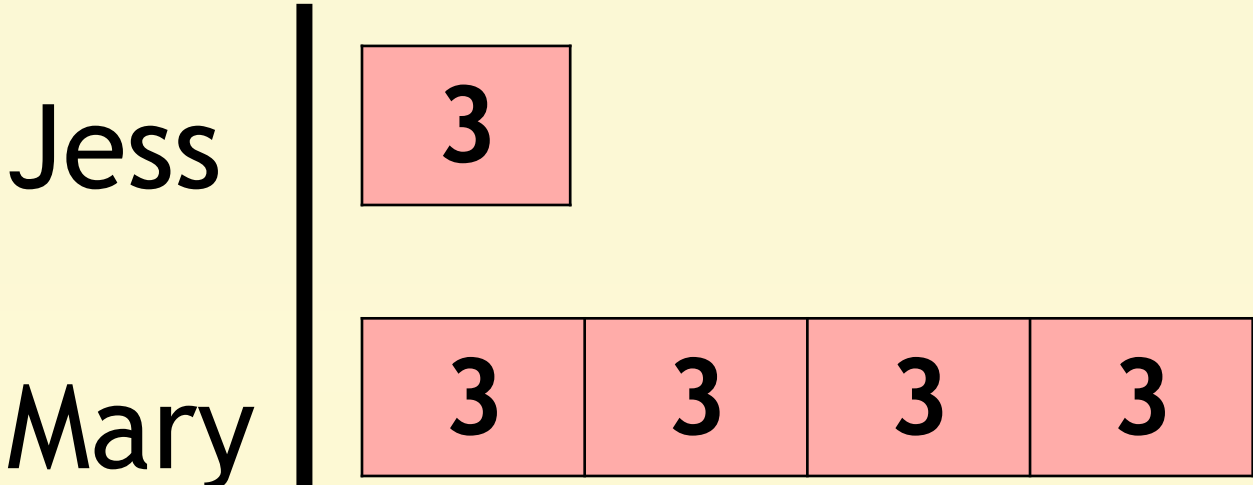
Identifying Key Information

Jess is 3 years old. Mary is four times as old as Jess. How old is Mary?

_____ is _____ times as many as _____

OR _____ = _____ x _____

Bar Model



Writing an Equation

Mary is 12 years old

12 is 4 times as many as 3

12 = 4 x 3

Results

Three of the 28 students chose to not use a bar model to represent the multiplicative comparisons as they could look at the two amounts and mentally multiply. However, 2 of these 3 students also failed to master writing a correct equation to represent the multiplicative comparison and instead wrote additive comparison equations (i.e., $10 = 7 \times 3$ instead of $21 = 7 \times 3$).

To correct this, I would re-teach the bar model using simpler numbers and gradually make the numbers more complex so they see how important bar models are to comparing and finding the product.