

Real World Experience: Grade 3 Unit 2 Multiplication & Division

- **Relate Multiplication and Division**
- **Essential Question:** How can multiplication and division strategies help us design a pet shop?
- **Scenario:** The Woodridge Building Commission has approved a new pet shop to be built in the strip center at Seven Bridges. You have been hired to determine which 30 animals should be available for sale. Dogs, cats, and rodents will be sold. You will be responsible for determining how much food the animals will need per day and week. You will also decide how to organize groups of animals into areas on a floor plan. Finally, you will compare and analyze a competitor's floor plan.

Task 1: Decide how many animals will make up each category.

Task 2: Calculate the amount of food each animal category will need per week.

Task 3: Determine how many square units will be needed to provide housing for the animals.

Task 4: Create a floor plan for the pet store.

Task 5: Analyze your competitor's three category floor plan by using the given food supplies to determine how many animals they will have in each category.

Task 6: Complete a compare and contrast of multiplication and division which requires a written paragraph.



Unit 2: Task 1

Directions: Based on the 30 animals, determine how many animals will be in each category. Use your knowledge of operations to represent the number of animals in each category. **You must have animals in each category.** No more than half of the total animals can be in any one category. This means that 15 is the max number of animals in one category!!!!

Animal Category	Number of Animals
Dogs	
Cats	
Rodent	

WORKSPACE: Use number sentences or illustrate groups.

Unit 2: Task 2

Directions: Calculate the amount of food each animal category will need per week. Use the distributive property, repeated addition, or two digit multiplication to solve the amount of daily and weekly.

Category	Ounces of Food Needed per Day/per animal	Total Number of Animals	Total Daily Food Needed	Total Weekly Food Needed
Dogs	10 oz per day			
Cats	6 oz per day			
Rodents	4 oz per day			

Workspace for TOTAL DAILY FOOD NEEDED:

Workspace for TOTAL WEEKLY FOOD NEEDED:

What multiplication strategy did you use? Explain how this strategy helped you determine the total daily and weekly food amounts?

Unit 2: Task 3

Directions: Using the table below determine how many square units you will need to provide housing for all animals in the pet store. Include a multiplication fact that supports the space need for each animal category.

Category	Total Number of Animals	Square Units Required per Animal	Total Square Units Required Category
Dogs		6	
Cats		4	
Rodents		2	

WORKSPACE:

What multiplication strategy did you use? Explain how this strategy helped you determine the total square units?

Unit 2: Task 4

Directions: Using the grid below, create a floor plan for the pet store. Each category of animals should be grouped together. Include the multiplication sentence and label each area. Each animal supply area must be half of the total square units of the animal living area.

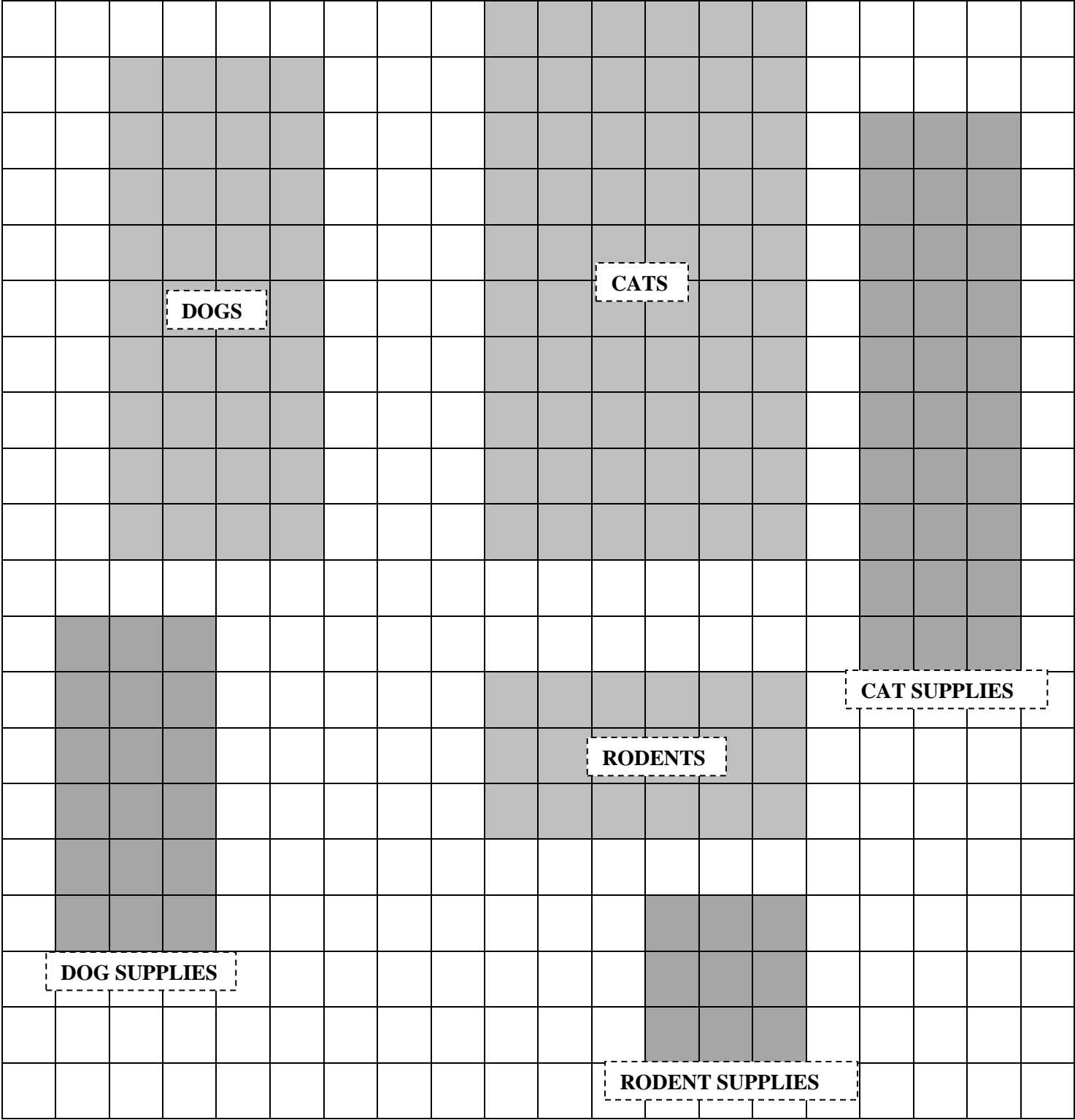


- ☐ dog area ☐ cat area ☐ rodent area
☐ dog supplies ☐ cat supplies ☐ rodent supplies

[illegible]

Unit 2: Task 5

Directions: Analyze your competitor’s three category floor plan to figure out how many animals they will have in each category.





Unit 2: Task 5

Directions: Use multiplication and division strategies to determine how many animals are in each category. Look back at your own plan to remind yourself how many square units each animal requires. Use number sentences to show your work and label the categories.

ANIMAL	MULTIPLICATION SENTENCE:	DIVISION SENTENCE:
DOGS		
CATS		
RODENTS		

How does the work that you did on your floor plan relate mathematically to the work that you did on the competitor's floor plan? Show relationship between multiplication and division.

Multiplication & Division

<i>Multiplication</i>	<i>Criteria</i>	<i>Division</i>
	<i>Symbols</i>	
	<i>Definition</i>	
	<i>Vocabulary</i>	
	<i>Rules</i>	

Comparison of Multiplication and Division:

Multiplication:

Division:

Similarities:

Conclusion:

1. Are the two operations more alike or more different? Use evidence when explaining your response.
2. Based on the information we collected, what is the MOST IMPORTANT difference between multiplication and division?

Application:

Write a comparative essay.

I am comparing _____ and
_____. Although
_____ and _____
are different, they are alike in some ways. For
example, _____ and
_____ both

_____.

There are also some interesting differences
between _____ and
_____. For example,

_____.

(ConcludingSentence:) Based on the information
collected, I feel the most important
difference/similarity between these operations
is _____.

Multiplication & Division

<i>Multiplication</i>	<i>Criteria</i>	<i>Division</i>
<ul style="list-style-type: none">• X	<i>Symbols</i>	<ul style="list-style-type: none">• /• ÷•)
<ul style="list-style-type: none">• quick way to add the same number over and over	<i>Definition</i>	<ul style="list-style-type: none">• how many times one number goes into another• quick way to subtract the same number over and over
<ul style="list-style-type: none">• factor• product• “groups of”	<i>Vocabulary</i>	<ul style="list-style-type: none">• dividend• divisor• quotient
<ul style="list-style-type: none">• commutative property• left to right or top to bottom• opposite of division because it's repeated addition	<i>Rules</i>	<ul style="list-style-type: none">• switch the divisor and quotient but still have the same dividend• opposite of multiplication because it's repeated subtraction

Comparison of Multiplication and Division:

Multiplication:

- Transfer info from criteria chart here
- May want to include other info learned like the associative property and distributive property

Division:

- Transfer info from criteria chart here
- May want to include other info learned during lessons

Similarities:

- Both part of story problems
- Fact families
- Both used in math
- Both are expressed by symbols
- Both follow a set of rules
- STUDENTS MAY OFFER OTHER IDEAS LEARNED AS WELL!!

Conclusion:

1. Are the two operations more alike or more different? Use evidence when explaining your response.

- Have the students choose a side of the room to stand on
- Have them begin a meaningful discussion where they have viable arguments for their side
- Kids who couldn't choose a side may be in the middle and based on viable argument, then they choose a side to stand on

2. Based on the information we collected, what is the MOST IMPORTANT difference between multiplication and division?

- Students decide for themselves but must use evidence to support their choice

Application: (Eventually students are to create this paragraph on own)

Write a comparative essay.

I am comparing _____ and
_____. Although
_____ and _____
are different, they are alike in some ways. For
example, _____ and
_____ both

There are also some interesting differences
between _____ and
_____. For example,

_____.
(ConcludingSentence:) Based on the information
collected, I feel the most important
difference/similarity between these operations
is _____

Real World Experience Scoring Guide: Grade 3 Unit 2

Power Standards:

CCSS.Math.Content.3.OA.3 Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.

CCSS.Math.Content.3.OA.5 Apply properties of operations as strategies to multiply and divide.2 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 8×7 as $8 \times (5 + 2) = (8 \times 5) + (8 \times 2) = 40 + 16 = 56$. (Distributive property).

CCSS.Math.Content.3.NBT.3 Multiply one-digit whole numbers by multiples of 10 in the range 10-90 (e.g., 9×80 , 5×60) using strategies based on place value and properties of operations.

Meeting:

- ☐ Had criteria and listed information correctly
- ☐ Transferred criteria into a top hat organizer
- ☐ Participated in group discussion on similarities and differences
- ☐ Chose a side and viably argued for that side
- ☐ Chose the most important reason why they are different and supported their choice with evidence
- ☐ Completed a comparative essay

Developing:

- ☐ Meets 4 out of 6 of the proficient area

Beginning:

- ☐ Meets fewer than 4 out of the proficient criteria
- ☐ Task to be repeated after re-teaching

Comments: