MeTEOR Performance Task
Fi h Grade

Mathematics
I Want That Room

Performance Task Item: I Want that Room!

Grade Level: Fifth Grade

Focus Area: Numbers and Operations - Fractions
Essential Question: How do I use concrete materials and drawings to show understanding of how to use fractions in relationship to area?
Core Ideas:

- Understands the use of fractions to solve real life problems.
- Understands how to use mathematical tools correctly and with precision.
- Understands how to convert a fraction to a percent.
- Understands how to compare fractions, length, and width.

Learning Targets:

- Students will work cooperatively with others.
- Students will use fractions to solve problems.
- Students will make connections between area and actual space.
- Students will talk and write mathematically.
- Students will compare fractions.
- Students will convert fractions to decimals.
- Students will convert yards to feet.

STANDARDS

Domain: Number and Operations – Fractions
Content Standards:

- Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.
- Interpret the product $(a/b) \times q$ as a part of a partition of q into b equal parts; equivalently, as the result of a sequence of operations $a \times q \div b$.
- Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.
- Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication.
- Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence $a/b = (n \times a)/(n \times b)$ to the effect of multiplying a/b by 1.

Supporting Standards:

Writing:

- Write opinion pieces on topics or texts, supporting a point of view with reasons and information.
- Introduce a topic or text clearly, state an opinion, and create an organizational structure in which ideas are logically grouped to support the writer's purpose.
- Provide logically ordered reasons that are supported by facts and details.
- Link opinion and reasons using words, phrases, and clauses (e.g., *consequently*, *specifically*).
- Provide a concluding statement or section related to the opinion presented.

Speaking and Listening:

- Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grade 5 topics and texts*, building on others' ideas and expressing their own clearly.

Math Practice Standards:

MP 1: Make sense of problems and persevere in solving them.
MP 2: Reason abstractly and quantitatively.
MP 4: Model with mathematics.
MP 5: Use appropriate tools strategically.
MP 6: Attend to precision.
MP 7: Look for and make use of structure.

Materials:

- Performance Task
- Pencil
- Paper

Task/Question 1:

DOK Level 2: Basic Application of Skills and Concepts

Math Practice Standards:

- MP 1: Make sense of problems and persevere in solving them.
- MP 2: Reason abstractly and quantitatively.
- MP 7: Look for and make use of structure.

Scenario: Your family is moving to a new house with five bedrooms. One room will be for your parents, one room will be yours, one room will be for your brothers, one room will be for your sisters, and the last room will be for guests.

Your parents took the entire family to look at the house in order to see each room and choose the one you wanted.

To make a decision, your dad asked you to help measure each room. Below are the dimensions:

Rooms	Length	Width
Bedroom A (tan room)	40 feet	15 and 1/3 yards
Bedroom B (blue room)	3/4 the length of Bedroom A	15 and 1/3 yards
Bedroom C (purple room)	1 and 3/16 the length of Bedroom A	15 and 1/3 yards
Bedroom D (pink room)	1 and 1/8 the length of Bedroom A	15 and 1/3 yards
Bedroom E (white room)	7/8 the length of Bedroom A	15 and 1/3 yards

A. Based on the room dimensions, which bedrooms are larger than bedroom A?

B. Based on the room dimensions, which bedrooms are smaller than bedroom A?

C. Explain how you arrived at your answers for Part A and B above:

Task/Question 2:

DOK Level 2: Basic Application of Skills and Concepts

Math Practice Standards:

- MP 1: Make sense of problems and persevere in solving them.
- MP 2: Reason abstractly and quantitatively.

A. Using the chart in Task 1, order the rooms in ascending order in terms of size:

B. Write an explanation about how you determined the order of the room:

Task/Question 3:

DOK Level 2: Basic Application of Skills and Concepts

Math Practice Standards:

- MP 1: Make sense of problems and persevere in solving them.
- MP 2: Reason abstractly and quantitatively.
- MP 4: Model with mathematics.
- MP 7: Look for and make use of structure.

A. Use the chart in Task 1 to find the total area for each bedroom. Show your work.

Bedroom A:

Bedroom B:

Bedroom C:

Bedroom D:

Bedroom E:

B. The family decided that Room E would be the guest room. This room will have a bed, a dresser and a desk that takes up 2/3 of the area in the room. Create a fraction bar, shade in the area to represent the amount of space needed for the bed, dresser and desk:

C. What percentage of space is the bed, dresser and desk? (round to nearest ones)

Task/Question 4:

DOK Level 3: Strategic Thinking and Complex Reasoning

Math Practice Standards:

- MP 2: Reason abstractly and quantitatively.
- MP 4: Model with mathematics.
- MP 5: Use appropriate tools strategically.
- MP 6: Attend to precision.

Note to Teacher: Task/Question 4 requires space to work. A suggestion would be to use the gym or the playground. The class will need to be divided into 5 groups. Each group represents one of the five rooms in the house (Room A, B, C, D and E).

A. You want feedback from your classmates on selecting the best room for yourself. They all looked confused when you "told them" the dimensions and area of each room. Therefore, your group task is to create an authentic model of your assigned room (A, B, C, D, or E) so students can visualize the true size of each room. Use the following tools to create your model: duct tape and a tape measure.

B. Determine any three items you might find in this bedroom. On your notecard list the three items and their estimated dimensions.

C. Using your tape measure and duct tape place the three items in the room. Be sure to label your items.

D. With your group start at Room A; observe and take notes. Complete the same process for rooms B, C, D, and E. Once finished, stop and think to yourself for three minutes. Reflect on the differences of each room. Discuss with your group members how adjusting the length of room A by 3/4, 1 3/16, 1 1/8, and 7/8 changed the area.

Task/Question 5:

DOK Level 3: Strategic Thinking and Complex Reasoning

Math Practices:

- MP 1: Make sense of problems and persevere in solving them.
- MP 2: Reason abstractly and quantitatively.
- MP 4: Model with mathematics.

Using your knowledge of calculating area, seeing the actual size of each room and considering additional items in the room. Write about which room you want in your family's new house? Use evidence to support your reasoning. (Don't forget your Mom said she gets the biggest room. ☺)

Complete Performance Task Scoring Rubric
I Want that Room!

27-31 Proficient 21-26 Good 14-20 Satisfactory 8-13 Poor 0-7 Unsatisfactory

	Depth of Knowledge Level	Points	Total Possible Points for Task	Total Points Earned by Student
Task 1: A. Bedrooms C and D	**1**	**1**	**4**	
B. Bedrooms B and E	**1**	**1**		
C. Students responses will vary based on mathematical thinking.	**2**	**2**		
Task 2: A. B, E, A, D, C (Based on Length of Rooms)	**1**	**1**	**3**	
B. Students responses will vary based on mathematical thinking.	**2**	**2**		
Task 3: A. Area: Room A= 1,840 square feet Room B= 1,380 square feet Room C= 2,185 square feet Room D= 2,070 square feet Room E= 1610 square feet	**1**	**5**	**7**	
B. 	**2**	**1**		
C. 66%	**1**	**1**		
Task 4: Students can receive a total of 17 points for participating in Task 4. (Teacher will	**3**	**17**	**17**	

determine if points are taken off for non-participation, etc.)				
Task 5: A. Answers will vary. Students receive full points for a viable argument based on mathematical thinking.	**3**	**10**	**10**	
			TOTAL POINTS: