Title:	**A Trip to the Beach**
Grade:	**6**
Claim(s):	**Claim 4: Modeling and Data Analysis** Students can analyze complex, real-world scenarios and can construct and use mathematical models to interpret and solve problems. **Claim 3: Communicating Reasoning** Students clearly and precisely construct viable arguments to support their own reasoning and to critique the reasoning of others. **Claim 2: Problem Solving** Students can solve a range of well-posed problems in pure and applied mathematics, making productive use of knowledge and problem-solving strategies.
Assessment Target(s):	**Claim 4** **A.** Apply mathematics to solve problems arising in everyday life, society, and the workplace. **F.** Identify important quantities in a practical situation and map their relationships (e.g., using diagrams, two-way tables, graphs, flowcharts, or formulas). **Claim 3** **C:** State logical assumptions being used. **E:** Distinguish correct logic or reasoning from that which is flawed and—if there is a flaw in the argument—explain what it is. **Claim 2** **A.** Apply mathematics to solve well-posed problems in pure mathematics and arising in everyday life, society, and the workplace. **C.** Interpret results in the context of the situation.
Standard(s):	1. 6.EE.7 C4TF 2. 6.RP.1 C2TA 3. 6.G.2 C4TA 4. 6.EE.8 C3TE 5. 6.EE.7 C3TC 6. 6.RP.3b C2TC 6.EE.7, 8.EE.8, 6.RP.1, 6.RP.3b, 6.G.2
Mathematical Practice(s):	1, 2, 3, 4, 6
Revised Bloom's Taxonomy Level:	Analyzing - 4
DOK Level:	Strategic Thinking/Reasoning - 3
Score Points:	12 points possible
Difficulty:	High
Resources:	Calculators are needed throughout this performance task.
Notes:	N/A
Task Overview:	The student will solve problems involving volume, fractions, ratios, and data analysis.
Teacher Preparation/Resource Requirements:	None required

Time Requirements:	Approximately 60-80 minutes

Prework:	None

Sample Top-Score Response	Your friend Ana won a trip to a beach resort, and is preparing for her trip. In this task, you will use your math skills to help Ana plan for her trip. **Part A** 1. Ana has $500 to spend shopping for her trip. She spends her money on the following: • $120 on swimsuits • $50 on sunblock • $100 on clothes • $25 on sunblock • *y* on other expenses Write an equation to represent the amount of money Ana has left, based on how much she spends on other expenses. Let *x* represent the amount of money Ana has left, and let *y* represent how much Ana spends on other expenses. **$x = 205 - y$** **or** **$205 - y = x$** 2. To plan for packing, Ana thought about what she might want to bring. Ana knew that she wanted to have three tops for every two bottoms she brought. What would be the ratio of bottoms to tops? **2:3**

Part B

3. To help with packing, Ana needs to find the volume of her suitcase to determine how much she could pack. Her suitcase is a rectangular prism, with dimensions of 19 inches tall, 13 inches wide, and $7\frac{1}{2}$ inches deep. What is the total volume of her suitcase? Explain how you found the volume.

The total volume of Ana's suitcase is $1852\frac{1}{2}\text{in}^3$. I found this by multiplying the length, width, and height of the suitcase. I found that $19\text{in.} \times 13\text{in.} \times 7\frac{1}{2}\text{in.} = 1852\frac{1}{2}\text{in}^3$, so the total volume was $1852\frac{1}{2}\text{in}^3$.

4. Ana decided to pack 9 tops, 6 bottoms, some swimsuits, and 3 pairs of shoes for her trip. She determined that she would have enough room to pack all those items in her suitcase and more because the volume of the tops, bottoms, swimsuits, and shoes was 1600 in^3. Based on your answer from question 3, determine if Ana is correct. Explain your reasoning and write an inequality to show whether or not Ana is correct.

Ana's reasoning is correct. She will have enough room to fit all of that and more because the volume of what she wants to pack is smaller than the volume of her suitcase. The inequality I can use to show this is $1852\frac{1}{2}\text{in}^3 > 1600\text{in}^3$.

5. Ana wanted to find how much money she was saving by winning the trip to the beach resort. Use the information in the table to answer the question below.

Cost per Day
$250.00

If Ana thought she would save $1500 on herself for this trip. How many days did Ana assume her winning trip was for? Write an equation to help you solve this and explain your reasoning.

Ana assumed she would be on the trip for 6 days. I found this by setting up the equation 250x = 1500. I then divided 250 into 1500 to get the number of days, 6, that Ana would be on her trip.

	6. Ana was thinking of extending her trip to participate in all activities the resort offers. The resort offers 22 activities in total, and Ana can participate in 3 activities each day. . Using the number of days you found in question 5 to enter a whole number to represent the fewest number of days that Ana will need to extend her trip to participate in all activities. Explain how you solved this. **Ana would need to extend her trip by two days. She would need at least 8 days total to participate in all activities. I found this by dividing the total number of activities by 3 to get 7.333… Since she will only be there 6 days and would need more than 7 days to complete all activities, she would need to extend her trip by two days.**

End of Performance Task

Scoring Rubrics for Part A:

Scoring Rubric Question 1:	
1 Point:	The student demonstrates good understanding of creating equations in the form of $x + p = q$. The student correctly creates an equation.
0 Points:	The student demonstrates no understanding of creating equations in the form of $x + p = q$. The student does not correctly create an equation.

Scoring Rubric Question 2:	
1 Point:	The student demonstrates good understanding of representing ratios. The student correctly creates a ratio to display the information.
0 Points:	The student demonstrates no understanding of representing ratios. The student does not correctly create a ratio to display the information.

Soring Rubric for Part B:

Scoring Rubric Question 3:	
2 Points:	The student demonstrates good understanding of finding the volume of a rectangular prism. The student correctly identifies the volume and correctly explains how they found the volume.
1 Point:	The student demonstrates limited understanding of finding the volume of a rectangular prism. The student correctly identifies the volume but does not explain how they found the volume.
0 Points:	The student demonstrates no understanding of finding the volume of a rectangular prism. The student does not correctly identify the volume and does not explain how they found the volume.

Scoring Rubric Question 4*:	
3 Points:	The student demonstrates thorough understanding of interpreting reasoning, explaining reasoning, and creating inequalities. The student identifies that Ana's reasoning is correct, explains that reasoning correctly, and creates a correct inequality to support the reasoning.
2 Points:	The student demonstrates good understanding of interpreting reasoning, explaining reasoning, and creating inequalities. The student identifies that Ana's reasoning is correct and creates a correct inequality to support the reasoning, but does not explain why Ana's reasoning is correct.
1 Point:	The student demonstrates limited understanding of interpreting reasoning, explaining reasoning, and creating inequalities. The student identifies that Ana's reasoning is correct or creates a correct inequality, but does not explain their reasoning.
0 Points:	The student demonstrates no understanding of interpreting reasoning, explaining reasoning, and creating inequalities. The student does not identify that Ana's reasoning is correct, does not explain that reasoning correctly, and does not correctly create an inequality to support the reasoning.

**A student should receive full credit for this question if they correctly calculate with the incorrect numbers from the previous question(s).*

Scoring Rubric Question 5:	
3 Points:	The student demonstrates thorough understanding of creating and solving equations in the form of $px = q$. The student correctly determines that Ana assumed her trip would be six days, correctly creates an equation to help solve that, and explains their reasoning.
2 Points:	The student demonstrates good understanding of creating and solving equations in the form of $px = q$. The student correctly determines that Ana assumed her trip would be six days and correctly creates an equation to help solve that but does not explain their reasoning.
1 Point:	The student demonstrates limited understanding of creating and solving equations in the form of $px = q$. The student correctly determines that Ana assumed her trip would be six days or correctly creates an equation to help solve that but does not explain their reasoning.
0 Points:	The student demonstrates no understanding of creating and solving equations in the form of $px = q$. The student does not correctly determine that Ana assumed her trip would be six days, does not correctly create an equation to help solve that, and does not explain their reasoning.

Scoring Rubric Question 6*:	
2 Points:	The student demonstrates thorough understanding of solving rate problems. The student correctly identifies that Ana would need to extend her trip two days and correctly explains their reasoning.
1 Point:	The student demonstrates good understanding of solving rate problems. The student correctly identifies that Ana would need to extend her trip two days but does not correctly explain their reasoning.
0 Points:	The student demonstrates no understanding of solving rate problems. The student does not correctly identify that Ana would need to extend her trip two days and does not correctly explain their reasoning.

**A student should receive full credit for this question if they correctly calculate with the incorrect numbers from the previous question(s).*