

Performance Assessment(s)

Mathematics Grade 7 Unit 06 PA 01

Analyze the problem situation(s) described below. Organize and record your work for each of the following tasks. Using precise mathematical language, justify and explain each solution process.

1. Susie buys her lunch at a local sandwich shop.

<u>Bread</u>	<u>Spread</u>	<u>Meat</u>
Sourdough	Mayonnaise	Chicken
Wheat	Mustard	Ham
White		Roast Beef
Whole-Grain		

- a. Use a tree diagram to represent the sample space of selecting a sandwich with one type of bread, one type of spread, and one type of meat.
 - b. Find the probability of creating a sandwich with whole-grain bread and its complement. Write an expression that can be used to describe the relationship between the probability of this event and its complement.
 - c. With or without technology, identify an appropriate method to simulate the experiment of randomly making a sandwich, deciding on one type of bread, one type of spread, and one type of meat.
 - d. Complete your simulation 25 times to generate a set of experimental data. Use your data to predict the number of times a sandwich will be created with whole-grain bread if the experiment was completed 750 times.
 - e. Compare the theoretical and experimental probabilities of creating a sandwich with whole-grain bread and describe how the Law of Large Numbers will affect the experimental probability of this event.
 - f. Determine the theoretical probability of selecting one type of bread, one type of spread, and two meats, roast beef and ham. If 501 sandwiches are made, predict the number of times the sandwich will have one type of bread, one type of spread, and two meats, roast beef and ham.
2. The sandwich shop also sells loaves of bread to its customers. A random sample of customers of the sandwich shop was asked which type of bread they prefer to purchase. Their responses are recorded in the table below.

Sourdough	24
Wheat	46
White	58
Whole-grain	72

- a. Based on the data from the random sample, how many loaves of each type of bread should they bake if they plan on baking 700 loaves of bread? Justify your inference with both qualitative and quantitative descriptions.

Standard(s): [7.1A](#) , [7.1B](#) , [7.1C](#) , [7.1D](#) , [7.1E](#) , [7.1F](#) , [7.1G](#) , [7.6A](#) , [7.6B](#) , [7.6C](#) , [7.6D](#) , [7.6E](#) , [7.6F](#) , [7.6H](#) , [7.6I](#)

ELPS [ELPS.c.1A](#) , [ELPS.c.2C](#) , [ELPS.c.2D](#) , [ELPS.c.2E](#) , [ELPS.c.3C](#) , [ELPS.c.3D](#) , [ELPS.c.3H](#) , [ELPS.c.4D](#) , [ELPS.c.4H](#) , [ELPS.c.5B](#) , [ELPS.c.5E](#) , [ELPS.c.5G](#)