

Situational Problem

- **To develop Competency 1:** Solves a situational problem

Geometric Nutrition

You own a local delicatessen and have been asked to prepare lunches to be delivered to an office meeting. You must select items from your menu (Appendix B) that will meet the criteria given to create different lunch options.

Then, you will determine which lunches fit the guest's preferences, using a tree diagram to determine the possible choices. Cross out any options that do not meet the nutritional criteria given.

Each type of lunch will be packaged in a container of a different shape or colour as stated in the criteria list. Once you have determined how many of each lunch you will prepare, you must calculate the total amount of each colour of cardboard necessary for the packaging.

? How can you build a nutritious lunch from the given menu that fits each guest's preferences?

Your task is to create a variety of nutritious lunches for these guests that meet the following criteria and to determine the necessary amount of cardboard packaging:

- A complete lunch can have at most 400 calories.
- A complete lunch can have at most 16 g of fat.
- All the food must be selected from the given menu (See the menu in Appendix B).
- There are 20 employees that will be attending the luncheon.
- 40% of the guests prefer turkey.
- 60% of the guests prefer ham.
- Of those who would like turkey, $\frac{3}{4}$ would like it on whole-wheat bread, while the others would like white bread.
- Of those choosing ham, $\frac{1}{3}$ would like white bread and the remainder would like wheat bread.
- No one selecting turkey would like cheddar cheese.
- No one selecting ham would like yogurt.
- No one selecting whole-wheat bread with ham would like cheddar cheese or Swiss cheese.
- Provide guests with a variety of lunch selections.
- Sandwiches made on whole-wheat bread are placed in a container shaped as a rectangular prism, with dimensions 30 cm \times 12 cm \times 12 cm.
- Sandwiches made on white bread are placed in a container shaped as a cube, with a base having area 144 cm².
- Ham sandwich containers are white, while turkey sandwich containers are blue.

Name: _____ Date: _____

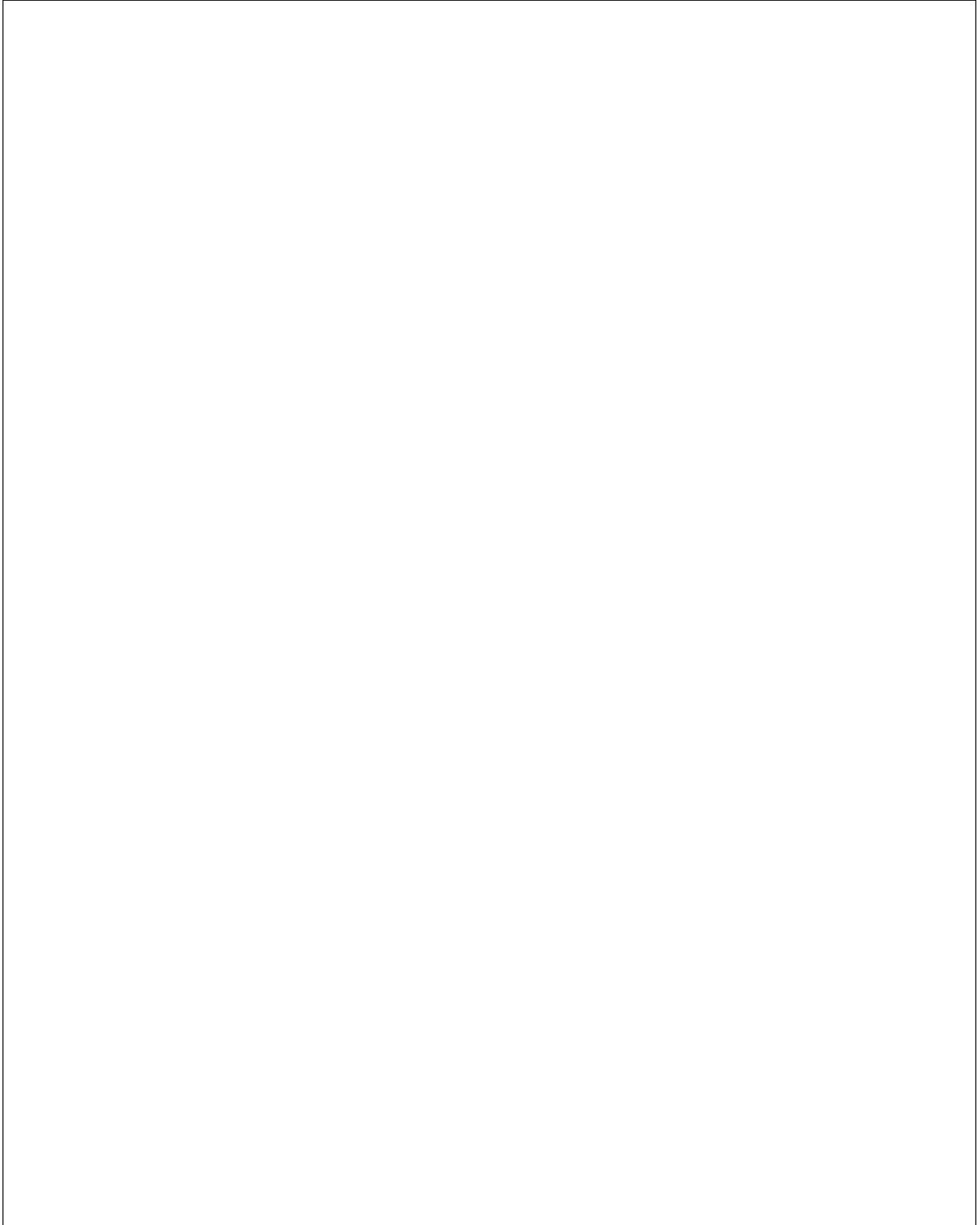
A. Think of a plan

What steps will you follow to create a nutritious lunch for each guest that meets the given criteria and to determine the amount of packaging needed?

Name: _____ Date: _____

B. Carry out your plan

Use the space below to select your food choices and determine the necessary amount of packaging.



C. Evaluate your plan

Now that you have a solution, you know whether your plan helped you. Did you follow your plan? While you were selecting the foods for the lunches and determining the amount of packaging necessary, did you change your strategies and/or steps?

D. Evaluate your solution

Explain what you did to include all of the given criteria into your lunch selections and how you made sure that each meal is healthy and well-balanced.

Evaluation Criteria Checklist

- All food was selected from the menu provided.
- You met all of the given criteria for the lunches.
- You explained why your meals are healthy and well-balanced.
- You calculated the amount of materials needed for packaging.
- You used correct mathematical language in your explanations.