3-3 Understanding and Analyzing Food Groups

In Task 3-1 and Task 3-2 the team collected a variety of food journals from the community. These journals provide data on all the things people eat during a period of time. You may have noticed in these journals that people eat many different types of food. Because of this variety, it can be difficult to analyze the journals. Creating a smaller number of categories or groups of foods can help. By establishing food groups, long lists of different foods can be sorted into shorter lists of categories. This sorting will help you analyze the data the team collects when working with the problem question, How do we ensure good nutrition for all?

Objective

In this task, you will learn about different food groups. The team will then analyze global consumption data for some of the different food groups. Finally, the team will conduct a food group analysis of the data in the food journals collected in Task 3-1 and Task 3-2. You will be focusing on the following questions from the question map:

• What are the basic food groups of good nutrition?
• What are different foods and diets people eat to meet their daily needs?

1. Go to the Task 3-3 folder and get the Food Group Card Game and Global Food Group Consumption Data. You will also need the food journals from Task 3-1 and Task 3-2.

2. Play the food group card game, following the instructions in the task folder.

3. Graph the game data and discuss the following:
   • What are the five major food groups?
   • What are some similarities and differences between the foods that make up each food group?

4. Look at the global food group consumption data in the task folder.

5. Use the questions in the data file to analyze and discuss the food group consumption data. How might this global food group consumption data...
be useful when thinking about the problem question, How do we ensure good nutrition for all?

6. Look at the food journals the team collected in Task 3-1 and Task 3-2. The last column of these food journals is labeled "Food groups." For each meal on the journals, identify and write which food groups were eaten, based on the information provided.

7. If the team is unable to determine which food groups were eaten in a meal, mark it "unknown." If the team is unfamiliar with a food, conduct research on that item, follow up with the person who wrote that food journal, or ask any partners you identified in Task 2-6 to help you with this analysis.

8. For each journal, identify the following:
   • Which food groups were most commonly eaten by the person?
   • Which food groups were least commonly eaten by the person?
   • Does the person eat a balance of all food groups? If not, what would you suggest to this person to eat a better balance of all food groups?

9. Looking across all of the journals collected, identify:
   • Which food groups were most commonly eaten?
   • Which food groups were least commonly eaten?
   • When looking at all the journals, do people in your community generally eat a balance of all food groups? If not, what would you suggest to these people to eat a better balance of all food groups?

10. How might this global food group consumption data be useful when thinking about the problem question, How do we ensure good nutrition for all?

Hooray! You completed Task 3-3. Check it off the task list. Go to Task 3-4!
Task 3-3. Understanding and Analyzing Food Groups—Food Group Card Game

1. Cut out the deck of cards.
2. Shuffle the cards and place them in a stack with the picture side down.
3. This game can be played with two or more players.

The Cards

The card pack includes 52 cards total. Forty of the cards are broken into the following food group categories, numbered with a value of one through eight.

- Fruits
- Vegetables
- Protein
- Dairy
- Grains

The remaining 12 cards are labeled Junk Food and have a value of 10. The number on the Junk Food cards is only for scoring purposes, not game play.

Object of the Game

The goal is to be the first player to get rid of all your cards.

The Deal

1. Deal five cards face down, one at a time, to each player, beginning with the player to the left of the dealer.
2. Place the remaining cards is face down in the center of the table to form the stock.
3. The dealer turns over the top card from the stock stack and places it face up next to the stock. This is the starter pile. If a Junk Food card is turned, stick it back into the stock at a random location and turn up another card.

The Play

1. Starting to the dealer’s left, each player must place one card face up on the starter pile. Each card played (other than a Junk Food card) must match either the food group (Fruits, Vegetables, Protein, Dairy, Grains) or the number on the card that was just played.

For example, if the card on the starter pile is Fruit (4), you can play either another Fruit card with any number on it, or you can play a card from another food group that has the number 4, such as Protein (4).

2. If any player unable to play a card from their hand, they draw a card from the top of the stock. If this card can be played on the starter pile, then it should be played and the turn is complete. If the drawn card cannot be played, the player keeps it and it’s the next player’s turn.

3. Junk Food cards are wild and can be played at any time. However, when a Junk Food card is played, the player must then draw two cards from the stock pile and keep them in their hand. Their turn is over. The next player then gets to choose any card they would like to play on top of the Junk Food card in the starter pile, and play continues.
4. If someone is unable to play and draws a Junk Food card from the top of the stock, they may immediately play it, but must then draw two additional cards from the stock and their turn is done. They can also choose to hold the Junk Food card in their hand, not play it, and their turn is complete.
5. Play continues until a player gets rid of all of their cards.
6. If the stock pile runs out before that happens, leave the top card from the starter pile on the table and reshuffle the rest of the starter pile to make a new stock pile. Continue play until one player uses all of their cards.
7. All players then score their hands, as described below. Use the score card to keep track of your scores.
8. Play another round.
9. After the desired number of rounds are played, add up the total score for each player. The player with the lowest total score is the winner.

**Scoring**

The player who is the first to get rid of all their cards ends the round and gets zero points for that round. The remaining players in that round count the total value of the cards remaining in their hand, using the number values (one through eight) on each card. All Junk Food cards have a value of 10 points.

<table>
<thead>
<tr>
<th>Player</th>
<th>Round 1</th>
<th>Round 2</th>
<th>Round 3</th>
<th>Round 4</th>
<th>Round 5</th>
<th>Round 6</th>
<th>Round 7</th>
<th>Round 8</th>
<th>Game total</th>
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Math Connection

Graph the score data.

- Create a line graph with round numbers on the X axis and points per round on the Y axis.
- Create a bar graph with players on the X axis and game total points on the Y axis. Develop a way to mark or color each bar to include the individual round scores for each person.
- Design your own graph to visualize the data.
<table>
<thead>
<tr>
<th></th>
<th>DAIRY</th>
<th>DAIRY</th>
<th>DAIRY</th>
<th>DAIRY</th>
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<tbody>
<tr>
<td>1</td>
<td>Blue Cheese</td>
<td>Camel Milk</td>
<td>Cow Milk</td>
<td>Queso Fresco</td>
</tr>
<tr>
<td>2</td>
<td>Yogurt</td>
<td>Kefir</td>
<td>Swiss Cheese</td>
<td>Goat Milk</td>
</tr>
</tbody>
</table>
1. PROTEIN
   Beans

2. PROTEIN
   Clam

3. PROTEIN
   Crickets

4. PROTEIN
   Hazelnuts

5. PROTEIN
   Lentils

6. PROTEIN
   Mealworms

7. PROTEIN
   Sardines

8. PROTEIN
   Tofu
1. Arugula
2. Beet
3. Broccoli
4. Carrot
5. Garlic
6. Green Beans
7. Lettuce
8. Onion
10 JUNK FOOD
Cheesy Puffs

10 JUNK FOOD
Donut

10 JUNK FOOD
Chocolate Cake

10 JUNK FOOD
Cookies

10 JUNK FOOD
French Fries

10 JUNK FOOD
Sugary Drink
JUNK FOOD
Cheesy Puffs

JUNK FOOD
Donut

JUNK FOOD
Chocolate Cake

JUNK FOOD
Cookies

JUNK FOOD
French Fries

JUNK FOOD
Sugary Drink
Task 3-3. Exploring and Analyzing Food Groups
Global Food Group Consumption Data

DOI: (10.1016/S0140-6736(19)30041-8)
Global Fruit Intake

1. What is the optimal level of fruit intake per day for good health?
2. What was the global fruit intake in 2017 per day?
3. Which regions have the highest fruit intake? Why do you think that might be?
4. Which regions have the lowest fruit intake? Why do you think that might be?
5. Do any regions meet the daily optimal level for fruit intake?
6. Do any regions exceed the optimal level for fruit intake?
7. Are any regions below the optimal level for fruit intake?
8. How could this information be helpful when thinking about the problem question: How do we ensure good nutrition for all?

1. What is the optimal level of vegetable intake per day for good health?
2. What was the global vegetable intake in 2017 per day?
3. Which regions have the highest vegetable intake? Why do you think that might be?
4. Which regions have the lowest vegetable intake? Why do you think that might be?
5. Do any regions meet the daily optimal level for vegetable intake?
6. Do any regions exceed the optimal level for vegetable intake?
7. Are any regions below the optimal level for vegetable intake?
8. How could this information be helpful when thinking about the problem question: How do we ensure good nutrition for all?

Global Whole Grains Intake

1. What is the optimal level of whole grains intake per day for good health?
2. What was the global whole grains intake in 2017 per day?
3. Which regions have the highest whole grain intake? Why do you think that might be?
4. Which regions have the lowest whole grain intake? Why do you think that might be?
5. Do any regions meet the daily optimal level for whole grain intake?
6. Do any regions exceed the optimal level for whole grain intake?
7. Are any regions below the optimal level for whole grain intake?
8. How could this information be helpful when thinking about the problem question: How do we ensure good nutrition for all?

Global Dairy Milk Intake

1. What is the optimal level of milk intake per day for good health?
2. What was the global milk intake in 2017 per day?
3. Which regions have the highest milk intake? Why do you think that might be?
4. Which regions have the lowest milk intake? Why do you think that might be?
5. Do any regions meet the daily optimal level for milk intake?
6. Do any regions exceed the optimal level for milk intake?
7. Are any regions below the optimal level for milk intake?
8. How could this information be helpful when thinking about the problem question: How do we ensure good nutrition for all?

1. What is the optimal level of red meat intake per day for good health?
2. What was the global red meat intake in 2017 per day?
3. Which regions have the highest red meat intake? Why do you think that might be?
4. Which regions have the lowest red meat intake? Why do you think that might be?
5. Do any regions meet the daily optimal level for red meat intake?
6. Do any regions exceed the optimal level for red meat intake?
7. Are any regions below the optimal level for red meat intake?
8. How could this information be helpful when thinking about the problem question: How do we ensure good nutrition for all?

Global Processed Meat Protein Intake

1. What is the optimal level of processed meat intake per day for good health?
2. What was the global processed meat intake in 2017 per day?
3. Which regions have the highest processed meat intake? Why do you think that might be?
4. Which regions have the lowest processed meat intake? Why do you think that might be?
5. Do any regions meet the daily optimal level for processed meat intake?
6. Do any regions exceed the optimal level for processed meat intake?
7. Are any regions below the optimal level for processed meat intake?
8. How could this information be helpful when thinking about the problem question:
   How do we ensure good nutrition for all?

1. What is the optimal level of legumes intake per day for good health?
2. What was the global legume intake in 2017 per day?
3. Which regions have the highest legume intake? Why do you think that might be?
4. Which regions have the lowest legume intake? Why do you think that might be?
5. Do any regions meet the daily optimal level for legume intake?
6. Do any regions exceed the optimal level for legume intake?
7. Are any regions below the optimal level for legume intake?
8. How could this information be helpful when thinking about the problem question: How do we ensure good nutrition for all?

Global Nuts and Seeds Protein Intake

1. What is the optimal level of nuts and seeds intake per day for good health?
2. What was the global nuts and seeds intake in 2017 per day?
3. Which regions have the highest nuts and seeds intake? Why do you think that might be?
4. Which regions have the lowest nuts and seeds intake? Why do you think that might be?
5. Do any regions meet the daily optimal level for nuts and seeds intake?
6. Do any regions exceed the optimal level for nuts and seeds intake?
7. Are any regions below the optimal level for nuts and seeds intake?
8. How could this information be helpful when thinking about the problem question: How do we ensure good nutrition for all?

Global Sodium Intake

1. What is the optimal level of sodium intake per day for good health?
2. What was the global sodium intake in 2017 per day?
3. Which regions have the highest sodium intake? Why do you think that might be?
4. Which regions have the lowest sodium intake? Why do you think that might be?
5. Do any regions meet the daily optimal level for sodium intake?
6. Do any regions exceed the optimal level for sodium intake?
7. Are any regions below the optimal level for sodium intake?
8. How could this information be helpful when thinking about the problem question: How do we ensure good nutrition for all?

Global Sugar-Sweetened Beverage Intake

1. What is the optimal level of sugar-sweetened beverage intake per day for good health?
2. What was the global sugar-sweetened beverage intake in 2017 per day?
3. Which regions have the highest sugar-sweetened beverage intake? Why do you think that might be?
4. Which regions have the lowest sugar-sweetened beverage intake? Why do you think that might be?
5. Do any regions meet the daily optimal level for sugar-sweetened beverage intake?
6. Do any regions exceed the optimal level for sugar-sweetened beverage intake?
7. Are any regions below the optimal level for sugar-sweetened beverage intake?
8. How could this information be helpful when thinking about the problem question: How do we ensure good nutrition for all?