



ACTIVITY #8

EMPTY CALORIES

You need to make wise food choices

All the foods we eat contain calories that provide energy for our bodies. However, only some foods are also packed with nutrients. **Nutrients** are the components of food that we need to survive. There are six essential nutrients: carbohydrates, protein, fat, vitamins, minerals, and water. These nutrients contribute to our good health because each nutrient has a special function that builds up our bodies, keeping us strong and healthy. Eating a variety of foods that are packed with these nutrients is part of a healthy diet.

To eat a healthy diet, you need to make wise food choices. Choosing nutritious foods means selecting **nutrient-dense** foods that contain a high number of nutrients compared to calories. Examples of nutrient-dense foods are vegetables, fruits, whole grains, and milk. Poor food choices means selecting **calorie-dense** foods that contain calories with very few nutrients. Most fast food and processed foods, like snack chips, snack cakes and packaged cookies are calorie-dense. Many of these foods contain **empty calories**, with very few nutrients, supplying little or no nutritional value. It is okay to eat foods that have empty calories every now and then, but it is important to try to eat those nutrient-dense foods.

How do you know if food is a nutrient-dense instead of just calorie-dense? Generally, fresh foods like fruits and vegetables are better choices than foods that have had sugars added during processing. You can check the nutritional value of a packaged food by reading the nutritional label. Vitamins and minerals in foods or drinks are measured in milligrams (mg) or micrograms (μg). **1 mg = 1000 μg .**

CHECK YOUR THINKING

Use the reading to find and support your answers

1. Circle the six essential nutrients found in foods.
2. Explain the difference between nutrient-dense foods and calorie-dense foods.
3. In the previous page, draw a box around an example of a food that contains empty calories.
4. Underline the unit of measure that is used for vitamins and minerals as they appear on food labels.

LET'S TRY IT TOGETHER

Empty Calories

Here's the Story

Savannah and James are in the cafeteria line getting lunch. The cafeteria offers both fresh strawberries and strawberry-flavored fruit roll-ups. Savannah chooses to eat the fresh strawberries to eat with her lunch, while James picks the fruit roll-up.

Let's examine the vitamin and mineral content of the strawberries and figure out if Savannah has picked a nutrient-dense or calorie-dense option.

Directions

First, take a look at Table 1, listing the vitamins and minerals in Savannah's strawberries. Put a star next to the column that shows the mineral content in strawberries. Put an "x" next to the column that shows their vitamin content.

Next, in the table, circle the total number of calories per serving in strawberries.

According to the table, how many calories are in one-cup serving of strawberries?

50 calories

Then, use the data from Table 1 to create a bar graph in Graph 1 and 2, illustrating the vitamin and mineral content found in strawberries. You may round each number to the nearest tenths place on the graph. Note: The unit of measure of vitamins and minerals can be either μg or mg .

Table 1: Micronutrients in Strawberries (1 cup, 50 calories)	
Vitamins	Minerals
Vitamin A: 142 μg	Phosphorus: 40 mg
Vitamin B1: 40 μg	Calcium: 27 mg
Vitamin C: 98 mg	Potassium: 254 mg

Graph 1: Vitamins in Strawberries

(1 cup, 50 calories)

200 µg _____
175 µg _____
150 µg _____
125 µg _____
100 µg _____
75 µg _____
50 µg _____
25 µg _____
0 µg _____

Vitamin A Vitamin B1 Vitamin C

Graph 2: Minerals in Strawberries

(1 cup, 50 calories)

300 mg _____
250 mg _____
200 mg _____
150 mg _____
100 mg _____
50 mg _____
0 mg _____

Phosphorus Calcium Potassium

Last, use Graphs 1 and 2 to help you decide whether if Savannah’s strawberries are nutrient dense or calorie dense. Remember that nutrient-dense foods contains large numbers of vitamins and minerals, while calorie-dense, or “empty calorie,” foods contain very few vitamins and nutrients.

Based on the data from the graphs, are strawberries nutrient dense or calorie dense?

Nutrient Dense

FUN FACT:

Empty calorie foods include cookies, cake, soda, ice cream, and other junk foods. Are some of your favorite foods calorie dense? Don’t worry – just enjoy them only a few times a week.

TRY IT ON YOUR OWN

Now that we have looked at the micronutrients in Savannah's strawberries, let's examine the vitamin and mineral content in James' strawberry-flavored fruit roll-up to figure out if James picked a nutrient-dense or calorie-dense snack.

Directions

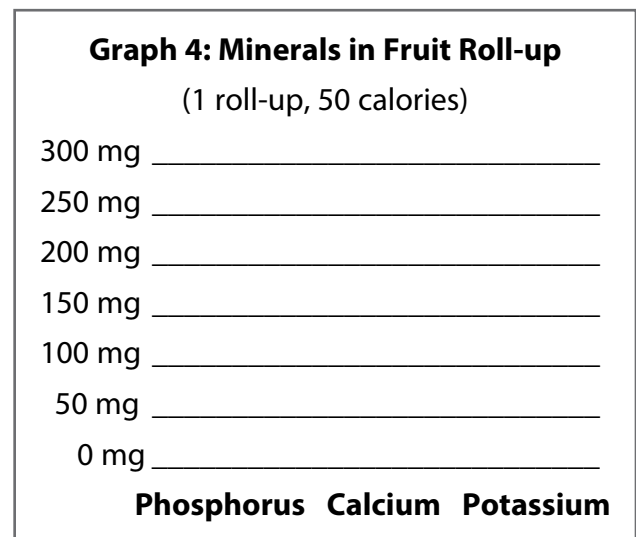
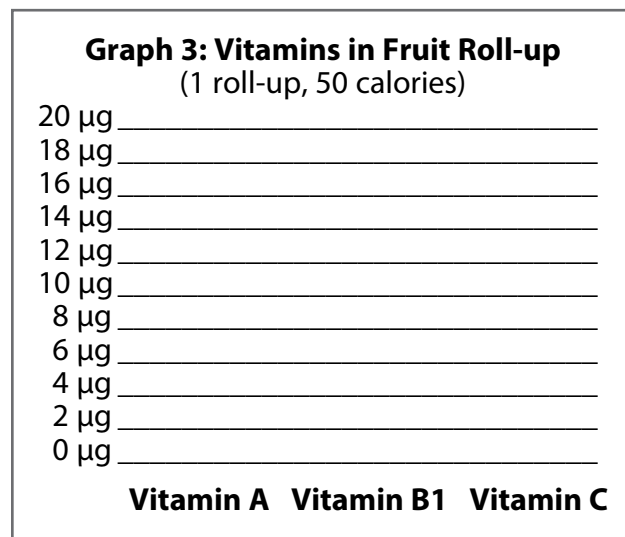
First, take a look at Table 2 below, which lists the vitamins and minerals in James' fruit roll-up.

Next, in the same table, find the total number of calories per serving of the fruit roll-up.

Then, use the data from the table to create Graphs 3 and 4, representing vitamin and mineral content found in a single fruit roll-up. You may round each number to the nearest tenths place on the graph. Note: The unit of measure of vitamins and minerals can be either μg or mg.

Last, use Graph 3 and Graph 4 to help you decide whether James' fruit roll-up is nutrient-dense or calorie-dense.

Table 2: Micronutrients in Fruit Roll-up (1 roll-up, 50 calories)	
Vitamins in Fruit Roll-up	Minerals in Fruit Roll-up
Vitamin A: 0 μg	Phosphorus: 0 mg
Vitamin B1: 0 μg	Calcium: 0 mg
Vitamin C: 17 μg	Potassium: 0 mg



Summarize it

1. According to the graphs, how many calories are in 1 fruit roll-up?
2. Based on the data from the graphs, is a fruit roll-up nutrient-dense or calorie-dense?

FUN FACT:

Some foods that you may think are healthy-like granola bars, sugar-filled yogurts, and veggie straws-are actually empty calorie foods. Be sure to read the ingredients and food labels before making your selection.

Thinking More Deeply

Though one serving of strawberries and one serving of fruit roll-up both have 50 calories, they have very different micronutrient content. Based on what you've learned so far, which snack is a healthier option? Why?

TAKE IT HOME: HOW ABOUT YOU?

Directions

Let's figure out if milk is a nutritious beverage choice for you based on its micronutrient content. Use the table below to create your own graph, showing the minerals and vitamins in milk.

Materials needed: colored pencils, pencil

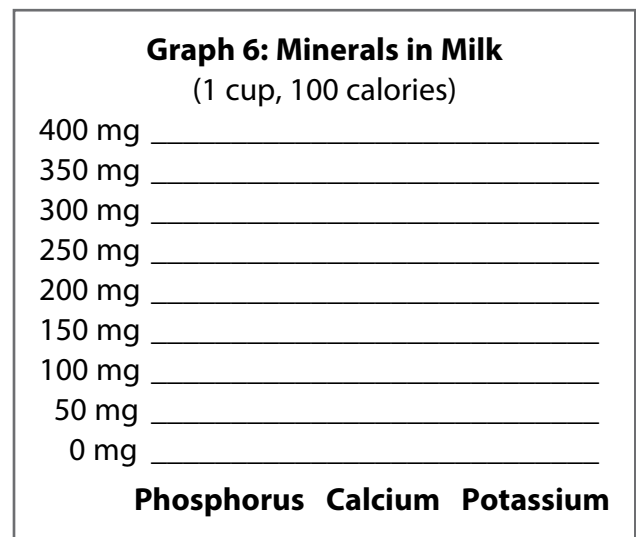
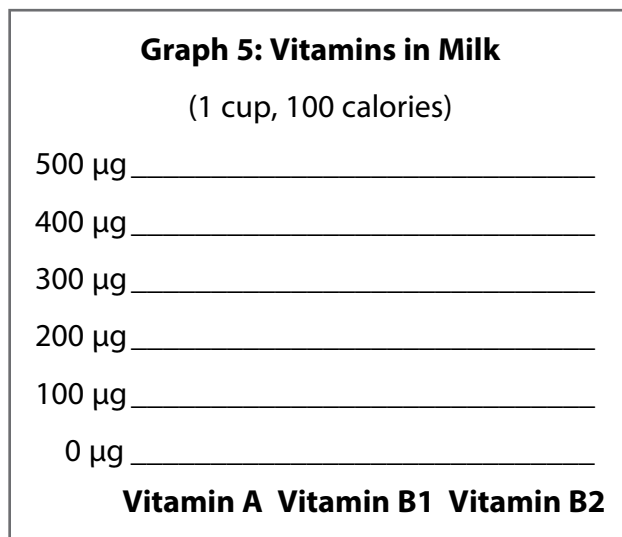
First, find Table 3 listing the vitamins and minerals in milk.

Next, in the same table, find the total number of calories per serving of milk.

Then, use the data from Table 3 create Graphs 5 and 6, representing vitamin and mineral content found in milk. You may round each number to the nearest tenths place on the graph. Note: The unit of measure of vitamins and minerals can be either μg or mg .

Last, use Graph 5 and Graph 6 to help you interpret if milk is nutrient-dense or calorie-dense.

Table 3: Micronutrients in Milk (1 cup, 100 calories)	
Vitamins in Milk	Minerals in Milk
Vitamin A: 142 μg	Phosphorus: 232 mg
Vitamin B1: 49 μg	Calcium: 305 mg
Vitamin B2: 451 μg	Potassium: 366 mg



Summarize it

1. According to the graphs, how many calories are in 1 cup of milk?
2. Based on the data from the graphs, is milk a nutrient-dense or calorie-dense food?

Thinking More Deeply

The following table identifies the micronutrient content of soda. Compare that to the table on the previous page which identifies the micronutrient content of milk.

Table 4: Micronutrients in Soda (1 cup, 100 calories)	
Vitamins in Soda	Minerals in Soda
Vitamin A: 0 μg	Phosphorus: 0 mg
Vitamin B1: 0 μg	Calcium: 0 mg
Vitamin B2: 0 μg	Potassium: 0 mg

One serving of milk and one serving of soda each have 100 calories, yet they have very different micronutrient content. Based on what you've learned so far, which beverage is a healthier option? Why?