

# SEE THE DIFFERENCE

## Nutrient Bar Graph Cards



50 Different Foods

Leader's Guide With Activities





# See the Difference: Nutrient Bar Graph Cards

**Nutrient Bar Graph Cards** (bar cards) visually portray the nutrients in a wide variety of foods. This set of bar cards features 50 foods, including:

- All five food groups (Grains, Vegetables, Fruits, Dairy, and Protein Foods)
- Combination Foods (made from more than one food group)
- "Others" Category (not in any food group)

Selected for use in a variety of educational settings, these bar cards help children, teens, and adults "see" food label numbers in new, meaningful ways.

Lightly shaded borders help organize the bar cards. Shading depicts the food group colors. Combination foods have no border; the "others" category is gray.

Bar cards show the Nutrition Facts panel information from food labels. The Nutrition Facts panel lists the amounts of various nutrients in one serving of food. The percent

Daily Value (% DV) is listed for most nutrients. (Calories and protein are not usually shown as % DVs.)

Daily Values are the amounts of different nutrients needed every day by most people. The % DV shows how one serving of the food contributes to daily nutritional needs.

Figure 1: Nutrition Facts Panel Guide below offers an example of a food label, including nutrients on the label and each nutrient's main functions in the body.

See the Difference bar cards include most but not all nutrients that appear on food labels. The color bars on each bar card represent 10 nutrients plus calories (see Figure 2: Nutrient Bar Graph Card Legend below).

Each bar card shows the amount of each nutrient as compared to 100% of Daily Value. The tallest bar shows 33% DV; if a food's nutrient contribution is a higher amount, the bar appears as an arrow with the % DV noted above. "Not available" means no data for that nutrient; 0% means none of that nutrient is present.

This **Leader's Guide** provides:

- Nutrition information
- Fun, educational activities and tips
- Bulletin board ideas
- Websites with useful resources

Learning activities in this guide show how these colorful, versatile bar cards can be used to:

- Help others see the nutrients in foods
- Compare individual foods
- Show why each food group is important
- Identify nutrient-dense foods
- Show how a variety of nutrient-dense foods from all five food groups can add up to a healthful eating pattern

The information on this page and page 3 is essential reading when preparing for the activities that follow. Most activities can be enhanced by using the Dairy Farmers of Washington's *Food Group Guide* and National Dairy Council's *Food Models*.

**Calories** are energy units. The body uses energy to fuel physical activity, body functions and growth.

**Protein** provides the building blocks for muscles, body tissues, hormones and enzymes. It supplies energy, 4 calories per gram.

**Vitamin A** keeps eyes, skin and lungs healthy. It protects against infections and helps prevent night blindness.

**Calcium** builds bones and teeth and maintains bone mass. This mineral helps muscles to contract and relax, nerves to send signals and blood to clot. It promotes healthy blood pressure.

**Thiamin** helps the body use carbohydrates for energy. This B vitamin promotes proper nerve function, normal appetite and muscle tone.

**Niacin** helps the body use carbohydrates for energy. This B vitamin helps keep skin, nerves and the digestive tract healthy.

**Figure 1: Nutrition Facts Panel Guide**  
Fat Free Milk



**Fat** provides essential fatty acids and carries the fat-soluble vitamins A, D, E and K. It supplies energy, 9 calories per gram.

**Carbohydrate** supplies energy to fuel the body, 4 calories per gram.

**Fiber** maintains regularity and may help prevent heart disease and some cancers.

**Sugars** occur naturally in fruit and milk or may be added to foods.

**Vitamin C** heals cuts and wounds and helps prevent infection. It keeps gums and blood vessels healthy. Vitamin C helps absorb iron.

**Iron** carries oxygen in the blood and prevents anemia. This mineral helps the body resist infection and cells use energy.

**Riboflavin** helps the body use energy to fuel activities inside cells. This B vitamin promotes healthy skin and vision in bright light.

**Vitamin D** helps the body absorb calcium.

**Figure 2: Nutrient Bar Graph Card Legend**

Bar colors and the Nutrition Facts food label standards for 100% Daily Value (DV) are identified for each nutrient.

Nutrient	FAT	CARBOHYDRATE	PROTEIN	VITAMIN A	VITAMIN C	CALCIUM	IRON	THIAMIN	RIBOFLAVIN	NIACIN	CALORIES
Bar Color	Light Green	Dark Blue	Red	Yellow	Orange	Blue	Maroon	Brown	Green	Purple	Gray
Standard for 100% DV	65 g	300 g	50 g	5000 IU	60 mg	1000 mg	18 mg	1.5 mg	1.7 mg	20 mg	2000 kcal

(g = grams, mg = milligrams, IU = International Units, kcal = Calories)

Nutrient Bar Graph Cards do not include saturated fat, trans fat, cholesterol, sodium, dietary fiber, or sugars.



# Nutrient-Dense Foods

**Nutrient-Dense Foods** provide substantial amounts of vitamins, minerals and other nutrients with relatively few calories. Surveys show that most consumers want and need help choosing meals and foods with plenty of nutrients.

Nutrient-dense foods are:

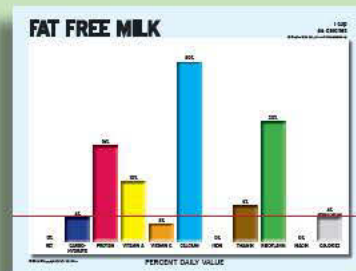
- Whole, fortified, and fiber rich grain foods
- Colorful vegetables and fruits
- Fat free and low fat milk and milk products
- Lean meats, poultry, fish, eggs, beans, and nuts

The bar cards show why all five food groups are important. Look for the colors of the bars common to each food group to see why foods are grouped together.

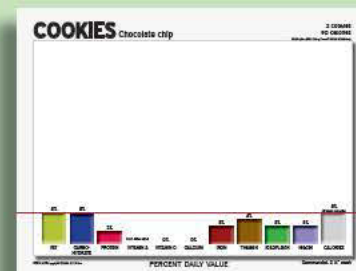
It is also easy to see why foods from every group make up a healthful and enjoyable diet.

## Spot Nutrient-Dense Foods at a Glance

- Using a nutrient bar graph card, hold a piece of paper level at the top of the calorie bar. Notice the number of color bars that are higher than the calorie bar. Nutrient bars above the calorie bar show that the food is rich in those nutrients in relation to calories.



- Foods that are less nutrient rich provide a small amount of essential nutrients compared to their calories. Nutrient-limited foods are easy to see. Again, hold a piece of paper level at the top of the calorie bar. If most nutrients are below this line, the food is less nutrient-dense.



A **Key Nutrient** is a main nutrient provided by a food group. Nearly all foods in that group provide substantial amounts of that nutrient. Some of the other nutrients commonly found in each food group are also listed in Figure 3.

The **2010 Dietary Guidelines for Americans** have identified four *nutrients of concern*: calcium, vitamin D, potassium, and fiber. These nutrients are too low in the diets of most Americans. They are found in vegetables, fruits, whole grains, and milk and milk products.

**See the Difference: Nutrient Bar Graph Cards** are based on a 2000 calorie diet consistent with food labels and general dietary guidance. Nutrients and calorie needs are based on a person's gender, age, and activity level. To customize food group amounts to meet individual needs, go to **www.ChooseMyPlate.gov** for interactive online tools.

The **ChooseMyPlate.gov** website provides a wealth of nutrition resources that can enhance the bar cards, including:

- Information about each food group
- Menu planners for all ages, including preschoolers and pregnant women
- Tips for healthy eating
- Interactive diet trackers
- Tools to learn more about foods

**Figure 3: Food Groups and Key Nutrients**

	GRAINS <i>Make half your grains whole.</i>	VEGETABLES <i>Vary your veggies</i>	FRUITS <i>Focus on fruits</i>	DAIRY <i>Get your calcium-rich foods</i>	PROTEIN FOODS <i>Go lean with protein</i>
	For a 2000 calorie diet, you need the amounts below from each food group. To find the amounts that are right for you, go to <a href="http://www.ChooseMyPlate.gov">www.ChooseMyPlate.gov</a> .				
	Eat 6 oz every day	Eat 2½ cups every day	Eat 2 cups every day	Get 3 cups every day	Eat 5½ oz every day
<b>Key Nutrients:</b>	<b>Thiamin</b> and other <b>B Vitamins</b>	<b>Vitamin A</b>	<b>Vitamin C</b>	<b>Calcium</b>	<b>Protein</b>
<b>Other Nutrients:</b>	<b>Iron</b> <i>Dietary Fiber</i> <i>Folate</i> <i>Magnesium</i>	<b>Vitamin C</b> <i>Dietary Fiber</i> <i>Folate</i> <i>Potassium</i>	<b>Vitamin A</b> <i>Fiber</i> <i>Folate</i> <i>Potassium</i>	<b>Protein</b> <b>Riboflavin</b> <i>Vitamin D</i> <i>Potassium</i>	<b>Iron</b> <b>Niacin</b> <i>Magnesium</i> <i>Zinc</i>

Nutrients that appear in **bold** are featured on Nutrient Bar Graph Cards.

Nutrients that appear in *italics* are *nutrients of concern* as identified in the **2010 Dietary Guidelines for Americans**.

The nutrient data for the cards comes from National Dairy Council's *Food Models*, which are life-size color pictures of foods. The majority of nutrient values for *Food Models* are from the U.S. Department of Agriculture's (USDA) *Composition of Foods* (Agriculture Handbooks 8-1 through 8-21) or *Nutritive Value of Foods* (Home and Garden Bulletin No. 72). Since nutrient data for specific foods is constantly being updated, a good source for the most current information is the USDA's Agricultural Research Service's "What's in the food you eat research tool" at <http://ars.usda.gov/Services/docs.htm?docid=17032>.



## Activity 1: Common Colors

Learners see how foods with similar nutrients are grouped together. The activity below is written to highlight the nutrients in dairy group foods. Adapt this activity and repeat to show each food group's unique nutrient profile.

### Main Concepts

- All types of cow's milk provide similar amounts of many nutrients.
- Calcium is a key nutrient for dairy group foods.
- Dairy group foods are nutrient-dense in protein, calcium, and riboflavin.

### Card Covers

- Card covers hide facts and allow learners to observe, predict or test ideas before seeing the entire card. Here is a simple way to make a card cover.
- Fold an 8½- by 11-inch sheet of paper to 8½- by 10-inches.

- To cover a food name, place the bar card in the fold so that the 1-inch strip covers the top of the card. Hold in place with paper clips.

*Tip: Heavy paper or dark colors hide the print better than lightweight paper.*

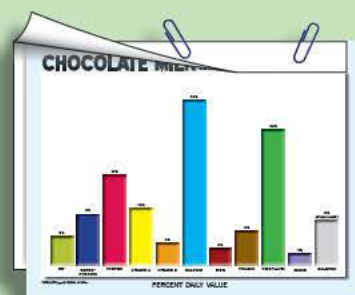
### Before the Activity

- Review pages 2 and 3 and this activity's Main Concepts and Content.
- Select the following bar cards and make card covers for each bar card:

- Fat free milk
- Chocolate milk, low fat 1%
- Reduced fat 2% milk
- Whole milk

- Keep the remaining dairy group bar cards on hand to use at the end of the activity.

*Option: Locate food pictures or National Dairy Council's Food Models for the four covered bar card foods to use during the activity.*



### Activity Content

- Display the four covered bar cards side by side.
- Ask the learners:
  - Do any color bars appear to be about the same height on each bar card? (Yes; red, blue, brown, and green)
  - Which of these color bars are the highest? (Red, blue, and green)
  - Which color bar is the tallest on each bar card? (Blue)
  - Which color bars appear to change in height? (Light green, dark blue, and gray)
  - What foods might the bar cards represent? (Accept all reasonable answers.)

*Option: Give four volunteers the matching Food Models or food pictures. Ask the volunteers, with the group's assistance, to match the Food Model to the correct bar card. When card covers are removed, see how well the group matched the bar cards and food images.*

- Remove the covers from the bar cards and identify the foods.
- Discuss how these different milks have similar amounts of many nutrients: protein, calcium, thiamin, and riboflavin.
- Point out that milk is rich in the nutrients represented by the bars that are higher than the calorie bar (protein, calcium, and riboflavin). Milk contains a large amount of calcium. Calcium is a key nutrient in milk.

*Note: The main differences between the milks are fat, carbohydrate and calorie levels. All of the milks are rich in the same vitamins and minerals. As the fat bar (light green) goes down, so does the calories bar (gray). The carbohydrate bar (dark blue) goes up for chocolate milk and so does the calories bar (gray). The other bars remain about the same. The three nutrients that provide calories are protein, carbohydrate, and fat. When milk supplies more of these nutrients, the calories bar is taller. The calories bar is lower for milk with less fat or added sugar.*

- Display the remaining dairy group bar cards. Reinforce the concept that all dairy group foods are rich in protein, calcium and riboflavin.

### Reinforce Main Concepts

- Conclude the activity and reinforce the Main Concepts. Suggested questions:
  - Do the different milks provide similar amounts of many nutrients? (Yes; protein, calcium, thiamin, and riboflavin)
  - What is the key nutrient in dairy group foods? (Calcium; dairy group foods provide a substantial amount of this nutrient.)
  - What other nutrients are commonly found in dairy group foods? (Protein, thiamin, and riboflavin)
  - Did you know that calcium is a nutrient of concern? Most Americans don't eat enough calcium rich foods each day. Two other nutrients of concern, vitamin D and potassium, are also found in milk and many other dairy foods.

**Repeat the activity with other food groups. Each food group provides different key nutrients. The nutrients within each food group are similar, although there may be great variation from one food to the next within the same group. Use the information on pages 2 and 3 for background on each food group and the Nutrient Bar Graph Cards.**



## Activity 2: Mystery Card Challenge

Learners see how each food group provides a unique set of nutrients.

### Main Concepts

- Foods grouped together are rich in similar nutrients.
- Each food group has a unique set of nutrients.
- A key nutrient is the main nutrient in a food group.
- All food groups are equal in importance.

### Before the Activity

- Review pages 2 and 3 and this activity's Main Concepts and Content.
- Select the five cards pictured below as samples and create card covers for each (see page 4).
- Select additional bar cards from each of the five food groups, one per person. (Do not use the Combination Foods or "Other" Category bar cards in this activity.) Cover the food name on each bar card with a card cover. Mix the covered bar cards in a random order.

### Sample Cards for Food Groups and Key Nutrients



### Activity Content

- Ask five volunteers to hold the five sample covered bar cards for the beginning of the activity. (Do not remove the covers.)
  - Point out the tallest color bar on each bar card and identify the nutrient name. Note how each bar card looks different from the next.
  - Introduce the Mystery Card Challenge game: Each person will have a bar card and may not remove the card cover during the game. The goal is to form five groups of bar cards that look similar (bar color and height) as quickly as possible.
  - Have the five volunteers take their sample covered cards to assigned places in the room.
  - Give out the remaining covered cards and tell the learners to gather next to the volunteer with a card similar to their "mystery" bar card.
  - Allow a few minutes for the five groups to form; provide assistance as needed.
- Tip: If needed, use the shading around the card edge to help learners find their groups.*
- Have the five groups stand in a line, with bar cards held so others can see them. Join each line to form a large circle.
  - One at a time, have each small group share its food group name prediction and then remove the card covers. Ask the learners to identify the key nutrient for their food group.
  - Continue around the circle with the remaining groups.
  - Lead a discussion about each food group's nutrients. Include the activity's Main Concepts for each food group.
- For example, when discussing the dairy group:
- Ask what color bar(s) learners notice most on the cards. (Red, blue, and green)
  - Tell the group the names of the nutrients that correspond to these colors. (Protein, calcium, and riboflavin)
  - Explain that dairy group foods are generally good sources of these nutrients.
  - Note that milk has large amounts of calcium. Calcium is a key nutrient for dairy group foods. It is also a nutrient of concern, a nutrient low in most Americans' diets.
- Explain that milk has many more nutrients than those shown on the card. For example, milk is a good source of potassium and vitamin D; both are nutrients of concern along with calcium.
  - Repeat the discussion for the other four food groups, using the information on pages 2 and 3 to guide the content.
- ### Reinforce Main Concepts
- Conclude the activity and reinforce the Main Concepts. Suggested questions:
    - Does any bar card show all 11 colors in equal amounts? (No; that is why all five food groups are important.)
    - Why are foods part of the same food group? (The foods have similar nutrients, though they may have different amounts of those nutrients. This is why eating a variety of foods from a food group is important.)
    - How does a bar card identify a key nutrient? (It is generally the tallest bar showing the key nutrient in a food group.)



### Activity 3:

Learners create their own Nutrient Bar Graph Cards using the Nutrition Facts food label from their favorite foods.

## Main Concepts

- Nutrient Bar Graph Cards show, in graph form, the Nutrition Facts on food labels (referred to as “Nutrition Facts” in this activity).
- Nutrition Facts are required to list certain nutrients; others are optional.

## Before the Activity

- Review pages 2 and 3 and this activity's Main Concepts and Content.
- Make copies of the Bar Card Master, one per person.
- Ensure that pens, colored pencils and calculators are available for each learner.
- Ask learners to bring the Nutrition Facts food label for a favorite food or provide them, one per person.
- Make a large image of Nutrition Facts for a sample favorite food on a white board or PowerPoint to display.
- Using the Bar Card Master, create a bar card for the sample favorite food using Nutrition Facts.

## Activity Content

- Distribute one blank Bar Card Master to each learner to use with their pens, colored pencils, calculators, and Nutrition Facts.
- Tell the learners that they will make bar cards using Nutrition Facts from their favorite foods. Refer to the large image of a sample Nutrition Facts and its corresponding bar card.
- Explain that the bar card shows the numbers on Nutrition Facts in bar graph form. Identify the bars on the sample bar card.
- Explain Daily Value, percent DV (% DV) and other Nutrition Facts terms, as needed.
- Guide the learners through the steps below using their Bar Card Masters and favorite food labels.

- Write the food name, serving size, and calories per serving on the lines at the top of the Bar Card Master.
- Circle the % DV on Nutrition Facts for the nutrients listed on the Bar Card Master. Put a \* next to the calories and grams of protein per serving (see Example 1).
- Write the number of each % DV on the line \_\_\_\_% above the bar for each nutrient except calories and protein (see Example 2).

Note: Write "0" on the line if Nutrition Facts lists "not a significant source." Write "NA" on the line if the % DV is not available on the label.

- d) Explain that Nutrition Facts usually do not list calories or protein as a % DV; those numbers have to be calculated. Show the learners how to determine the % DV for calories and protein using the large sample image. Then have learners calculate the values for their foods and write the two % DVs on the lines.

For % DV for calories, divide calories per serving by 2000 calories, then multiply by 100.

(Example: 310 calories per serving/2000 X100 = 15.5% or 16%)

For % DV for protein, divide grams of protein per serving by 50 grams, then multiply by 100.

(Example: 14 grams protein per serving/50 X 100 = 28%)

- e) Count the hash marks to find the correct height for the % DV number for each nutrient. Draw a line across the bar at that level. Stop after the first nutrient bar to verify that learners understand how to mark % DV.

Note: If a nutrient exceeds 33%, fill in the dotted lines for the arrow point at the top of the bar

- Color the bars of each nutrient. For colors, see Figure 2 on page 2 (see Example 3).
- Share and compare the created bar cards when finished.

## Reinforce Main Concepts

- Conclude the activity and reinforce the Main Concepts. Suggested questions:

- Does the bar card or Nutrition Facts make it easier to see a food's nutrient content? (Accept either answer.)
- What was discovered about favorite foods by creating a bar card? (Accept all reasonable answers.)

### Example 1

# Nutrition Facts

Serving Size 1/5 Pizza (142g)

Amount per serving

**Calories** 310 \* Calories from fat 80

	% Daily Value
<b>Total Fat</b> 9 grams	14%
<b>Saturated fat</b> 4.5 grams	22%
<b>Trans fat</b> 0 grams	0%
<b>Cholesterol</b> 15 mg	6%
<b>Sodium</b> 300 mg	33%
<b>Total Carbohydrate</b> 44 grams	15%
<b>Dietary Fiber</b> 2 grams	9%
<b>Sugars</b> 7 grams	
<b>Protein</b> 14 grams *	

<b>Vitamin A</b>	9%	<b>Vitamin C</b>	4%
<b>Calcium</b>	15%	<b>Iron</b>	15%

### Example 3



### Example 2

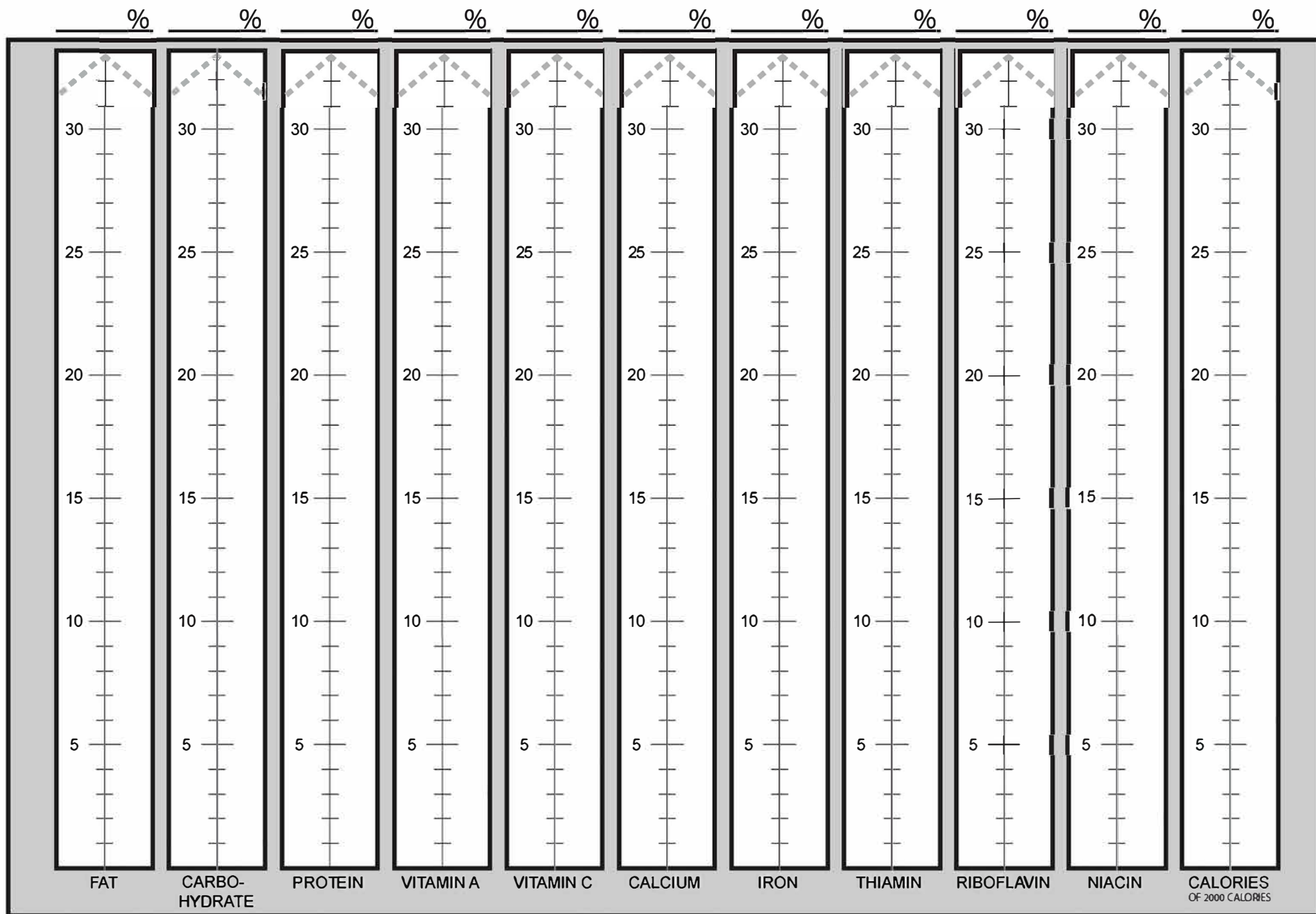
od: Canadian Bacon + pineapple pizza Bar Card Master Serving Size: 1/5 Pizza  
 Calories: 310  
14 % 15 %    % 8 % 4 % 15 % 15 % NA % NA % NA %    %  


Food: \_\_\_\_\_

# Bar Card Master

Serving Size: \_\_\_\_\_

Calories: \_\_\_\_\_





# Bulletin Board Ideas

## Meal Math

Show how a meal that includes foods from all five food groups provides a variety of nutrients. Title the board with the meal name and select bar cards from each food group. Example: "LUNCH: It All Adds Up!" Choose fat free milk, tossed salad, peanut butter, whole wheat bread, and apple bar cards. Post with pictures of foods or *Food Models* that match the bar cards.

## Think Your Drink

Post the bar cards for chocolate milk, soft drink, orange juice, and 10% juice drink. Post a header for the board, "Which choice has more \_\_\_\_?" Change the nutrient listed each day: protein, calcium, calories, vitamin C and carbohydrate.

For more ideas, check out the Think Your Drink resources at [www.wadairy.org](http://www.wadairy.org)

## Food Group Guide Line-up

Attach Washington State Dairy Council's *Food Group Guide* poster to the bulletin board. Post bar cards for some of the foods on the poster, using yarn or string to connect the food on the poster with its corresponding bar card.

## See any Differences?

In the upper half of the bulletin board, display two bar cards under the header, "What Differences Do You See?" Cover the lower half of the bulletin board with plain paper. Have a marker handy for others to write observations graffiti-style on the paper.

*Option: Choose bar cards specific to snack options such as the chocolate candy bar and string cheese bar cards.*

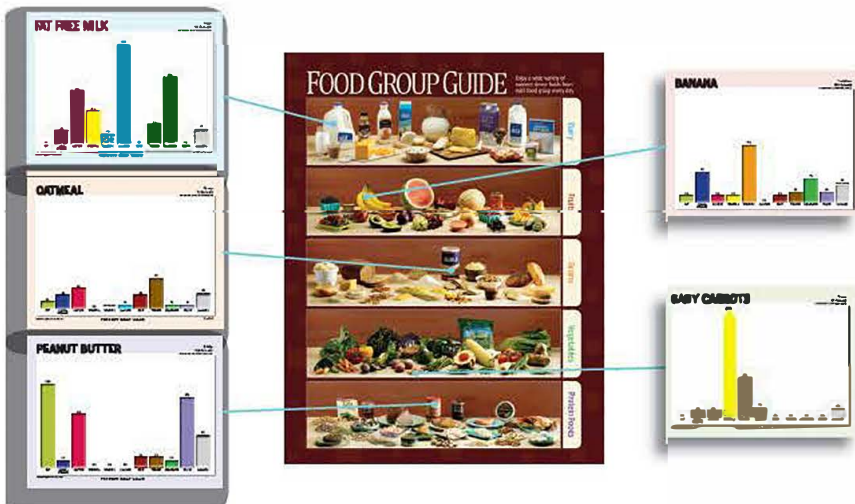
## Winning Combinations

Post the bar cards for a combination food and its components. Show how foods add up when eaten together. For example, a turkey sandwich combines sliced turkey and whole wheat bread.

Create combination foods that provide nutrients from all five food groups. Add foods to the turkey sandwich to provide missing nutrients. (Suggestions: cheese, spinach, tossed salad, tomato, avocado, and apple slices.)

## My Favorite Foods

Create and display individual bar cards for favorite foods (see page 6). Include the food package with its corresponding bar card.



# Resources and References to Enhance *See the Difference*



4201 198th St. SW  
Lynnwood, WA 98036  
425-744-1616

[www.wadairy.org](http://www.wadairy.org)

*See the Difference* Nutrient Bar Graph Cards are also available on a CD, which includes bar graphs for 278 foods in National Dairy Council's *Food Models*. On the CD, each food's bar graph is available in three formats: JPG, PDF, and GIF. All bar graphs and this Leader's Guide are available for free download at [www.wadairy.org](http://www.wadairy.org).



To obtain *Food Models*, developed by National Dairy Council®, contact Dairy Farmers of Washington or download at [www.wadairy.org](http://www.wadairy.org).

# See the Difference Nutrient Bar Graph Cards (50 cards total)

## Grains

Whole wheat bread  
Oatmeal  
Pasta  
Rice  
Corn tortilla  
Bagel

## Vegetables

Broccoli  
Tomato  
Tossed salad  
Baby carrots  
Spinach  
Corn  
Baked potato  
French-fried potatoes

## Fruits

Apple  
Banana  
Peaches  
Orange juice  
Strawberries  
Grapes  
Raisins  
Avocado

## Dairy

Fat free milk  
Chocolate milk  
Reduced fat 2% milk  
Whole milk  
Yogurt  
Frozen yogurt  
String cheese  
Cheddar cheese

## Protein Foods

Black beans  
Salmon  
Roast chicken  
Turkey  
Roast beef  
Scrambled egg  
Peanuts  
Peanut butter

## Combination Foods

Pizza  
Taco  
Cheeseburger  
Turkey sandwich  
Macaroni & cheese  
Lasagna

## "Others" Category

Cookies  
Potato chips  
Soft drink  
10% juice drink  
Granola bar  
Chocolate candy bar

Bar graphs for all 278 foods in National Dairy Council's *Food Models* may be downloaded at [www.wadairy.org](http://www.wadairy.org)