

# NUTRITION VOYAGE:

## THE QUEST TO BE OUR BEST

# TREK 2

## Grade 8

### Backpack Full of Snacks!

#### Time required:

Three 40-minute sessions

#### Sample timing:

First Session – **Investigate**

Second Session – **Challenge: Understand the Label**

Third Session – **Evaluate and Reflect**

#### Supplies:

Notebooks, pens, pencils, laptops or computers (optional), Student Printables: **Learn the Label** and **Snacks for Your Journey**.

#### Standards:\*

Students will...

##### Math

- Investigate patterns of association in bivariate data. (8.SP)
- Solve real-world and mathematical problems involving the four operations with rational numbers. (7.NS.3)

##### English Language Arts

- Conduct short research projects to answer a question, drawing on several sources and generating additional related, focused questions for further research and investigation. (8.W.7)
- Present claims and findings, emphasizing salient points in a focused, coherent manner with pertinent descriptions, facts, details, and examples. (8.SL.4)

\*Sources: Science education standards: National Academy of Sciences, Math and English Language Arts education standards: Common Core.

**Subject Focus:** Math

#### Lesson Overview:

The reality is that by middle school, kids are making their own dietary choices, especially when it comes to between-meal snacks. How can we give them the tools to make the best possible decisions? In this lesson, students will learn how to evaluate the snack options at school based upon the Nutrition Facts label and the *Dietary Guidelines for Americans*. They will use mathematical analyses to evaluate the most nutritious snacks available at school and to think critically about how the school could offer healthier snacking choices.

By the end of the lesson, students will better understand what constitutes a healthy snack and will have made a direct impact on their school environment.

#### Learning Objectives:

Students will be able to:

- Analyze the nutrition information on food labels to compare products.
- Make healthier food and beverage choices.
- Develop strategies for making healthier choices at school.
- Describe strategies a person can use to reduce the amount of empty calories consumed.

#### Questions for This Trek?

1. What snack options are available at my school?
2. Why choose healthier snacks? How do I know if a snack is a healthy choice?
3. How do I read a Nutrition Facts label?

# Instructional Steps

## 1 Investigate

### 1. What snack options are available at my school?

Ask students where they can purchase snacks at school (for example: cafeteria, vending machines, or school store). Divide students into teams and challenge each team to document the snacks available at one of these sources. Students might take pictures of each snack and add them to a class blog or journal. Or, they might record the names of each snack in their notebooks.

### 2. What's the impact of choosing certain snacks? How do I know if a snack is the right choice for me?

Discuss the impact of choosing certain snacks. For example, of the snacks students documented, which do they think will help them stay healthy, learn, and be their best? Ask students to share their reasoning. Explain that evaluating the ingredients list, the **Nutrition Facts label** found on packaged foods and beverages, and **MyPlate** (found at <http://www.choosemyplate.gov>) can help them discover the answers to these questions and decide whether or not a particular snack is a smart choice for them.

**3. How do I read a Nutrition Facts label?** Distribute the **Student Printable: Learn the Label**. Give small groups 15 minutes to complete the activity. Then discuss students' responses to the questions as a class, evaluating the different terms found on the Nutrition Facts label. Explain that the Nutrition Facts label does not show

#### Learn the Label Answer Key

- a. Grains; not a whole-grain snack
- b. 1 ounce (28 grams/about 18 pieces)
- c. 3
- d. 180
- e. 540 (c x d)
- f. 450 (d x 2.5)
- g. 22 grams (11 g x 2)
- h. 45 grams (15 g x 3)
- i. 3% (2% x 1.5)
- j. 250 milligrams; 750 mg (250 mg x 3)
- k. 0 grams; 4 g. (Note to teachers: When *trans* fat is below 0.5 grams per serving, it is labeled as having 0 grams.)
- l. 10%; no
- m. No
- n. No

the amount of *added* sugars or whole grains in a food product. To identify these, the ingredients list on the food package must be used instead. (Note to teachers: The Nutrition Facts label lists only total sugars, which includes both the naturally occurring sugars found in many healthy

foods and any added sugars.) Are Spicy Cheese-Flavored Puffs a healthy choice? Why or why not?

**Share:** Remind students that all packaged foods and beverages include a Nutrition Facts label. Then, explain that they can find nutrition information for foods and beverages that *don't* come with a Nutrition Facts label, such as fresh fruits and vegetables, at Food-a-Pedia (<http://www.choosemyplate.com/foodapedia>).

**4. What are the Five Food Groups?** Explain to students that the Nutrition Facts label is not the only way to evaluate whether a snack is a smart choice. Students should also consider how a snack contributes to a healthy diet. Explain that five food groups form the building blocks of a healthy diet: Fruits, Vegetables, Protein Foods, Grains, and Dairy.

### MyPlate's Five Food Groups

#### The Five Food Groups and a few examples of each.\*

##### Fruits

Apples, grapefruits, lemons, limes, blueberries, watermelon, bananas, kiwi fruit, papaya, oranges, 100% fruit juice.

##### Vegetables

Tomatoes, black beans, spinach, avocados, beets, carrots, plantains, lettuce, mushrooms, corn, potatoes.

##### Protein Foods

Meats (beef, pork, lamb), poultry (chicken, turkey), eggs, beans and peas (black beans, chickpeas, lentils), processed soy products (tofu, veggie burgers), nuts and seeds (almonds, peanut butter, sesame seeds), seafood (cod, salmon, shrimp, tuna).

##### Grains

Whole grains (brown rice, oatmeal, whole-wheat bread/pasta/cereal/tortillas, popcorn), refined grains (white rice, white bread, flour tortillas, pretzels, cornbread, corn flakes).

##### Dairy

Milk, cheese (cheddar, American, cottage cheese), yogurt, calcium-fortified soymilk (soy beverage).

**\*Not a complete list. Visit <http://www.choosemyplate.gov> for more.**

Students can see a daily food plan that indicates how much food they need from each food group each day at <http://www.choosemyplate.gov/supertracker>.

Discuss how snack choices might provide foods from the five food groups (for example: a snack of strawberries and fat-free yogurt provides foods from the Fruit and Dairy groups, respectively). Note that some snacks contain only fats and added sugars and do not contribute to any food group (for example: candy, soda, and sports drinks).

Continue



Some foods within the various food groups are also higher in solid fats and added sugars (for example, cookies in the Grains group). These foods provide extra calories. Calories that our bodies don't use are stored as fat.

## 2 Challenge: Understand the Label

**5. Explore the snacks that are available at school.** Revisit the snacks each team documented at the beginning of the lesson. Invite teams to evaluate the Nutrition Facts label on each of the snacks they found. (If the Nutrition Facts label for the snack isn't available, students can research nutrition information at Food-a-Pedia (<http://www.choosemyplate.gov/foodapedia>). Have teams use each snack's Nutrition Facts label (and ingredients list, to spot added sugars and whole grains), along with the five food groups at <http://www.choosemyplate.gov> to complete the activity on the **Snacks for Your Journey** printable, then share their reasoning with the class.

- What patterns do students notice from this activity?
- Do higher calorie snacks also tend to be higher in saturated fat and added sugars?
- What foods or beverages are high in saturated fat or added sugars?
- Are most snacks from the Grains food group whole grains?
- How does each snack contribute to the five food groups? Are all of the food groups represented?

Invite students to make posters featuring charts or graphs comparing two or more snack products (for example: the saturated fat and calories per serving in two similar products). Display the posters along with the snack packaging and Nutrition Facts label in the hallway or school cafeteria for others to learn from.

**6. Consider: Do snack options need to be improved at school?** After evaluating the snacks available at school using the Nutrition Facts labels and the five food groups, what do students think about the choices offered? Are there enough snacks that can help students to do their best? Why or why not? For each of the food sources at school (cafeteria, vending machines, school store), are each of the food groups represented? In particular, are fruits, vegetables, whole

grains, and fat-free or low-fat dairy products available? If students only ate snack foods during the day, would they get the foods they need to grow and be their best? What recommendations would students make to improve the snack options available at school and to encourage their classmates to make better choices?

## 3 Evaluate

**7. Share knowledge with peers.** Based upon their research, invite students to create a piece of visual communication that will inspire their peers to make healthier snack choices. For example, this might be an interactive nutrition label to teach others how to use it, a 3-D continuum of healthy to not-so-healthy snacks with nutrition labels and packaging, a snack recipe book, or a video blog/investigative piece to share online.

## 4 Reflect

**8. Journal lesson outcomes.** Have students reflect in their journals about the project. Did they inspire change? What improvements were made? What barriers still exist? Do students have any ideas for what they can do next? How will their learning influence their own eating? What change do students still wish to see?

## End of Trek

### Extension Ideas

- Have students share their success stories about improving school snacks with local media by writing a press release.
- Invite a chef, Cooperative Extension agent, or local dietitian into the classroom to teach students how to prepare simple, healthy snacks.



# Learn the Label

**MyPlate** and the **Nutrition Facts** label can help you in your quest to do your best. Use this label for **Spicy Cheese-Flavored Puffs** to answer the questions below. You'll need to do a bit of math, so use your notebooks for extra space.

## 1. Identify How This Snack Fits on MyPlate:

a. Does this snack fit into a food group? Which one(s)? \_\_\_\_\_

## 2. Check serving size and calories:

- b. What is the **serving size**? \_\_\_\_\_
- c. How many **servings** are in the package? \_\_\_\_\_
- d. How many **calories** are in a single serving? \_\_\_\_\_
- e. How many **calories** are in the whole package? \_\_\_\_\_
- f. How many **calories** are in 2.5 oz.? \_\_\_\_\_

## 3. Explore What's Inside:

The label helps you choose those snacks that are lower in saturated fat and sodium and that have 0 grams of *trans* fat. If a food has a % Daily Value that is 5 percent or lower in a specific nutrient, it is considered "low" in that nutrient. Practice label-reading to see what's inside each serving of **Spicy Cheese-Flavored Puffs!**

- g. How many **grams of total fat** are there in two servings? \_\_\_\_\_
- h. How many **grams of total carbohydrates** are there in the whole package? \_\_\_\_\_
- i. What is the **% Daily Value** of **dietary fiber** in one and a half servings? \_\_\_\_\_
- j. How many milligrams of **sodium** are in one serving? \_\_\_\_\_ In the whole package? \_\_\_\_\_
- k. How many grams of **trans fat** are in one serving? \_\_\_\_ Grams of **saturated fat** in two servings? \_\_\_\_
- l. What is the **% Daily Value** of **saturated fat** in one serving? \_\_\_\_ Is this snack "low" in saturated fat? \_\_\_\_

### The Truth About Fat

Not all fats are bad! Fat is a necessary nutrient for your body to grow and remain healthy. But certain fats like **saturated** and **trans fat** can increase **blood cholesterol** and the risk for heart disease.

## 4. Use the Ingredients List:

- m. Choose grains that are whole-grain rich. If the word "whole" is before the first ingredient listed, then it's whole grain. Is this snack **whole-grain** rich? \_\_\_\_\_
- n. Choose snacks that are low in added sugars (such as: high-fructose corn syrup, sugar, brown sugar, corn syrup, fructose, honey, molasses, anhydrous dextrose, and crystal dextrose). Does this snack include **added sugars** in the first three ingredients? \_\_\_\_\_

**Tip!** *Ingredients are listed in order of amounts by weight. So, for example, if sugar is listed as the first ingredient, the snack contains more sugar than any other ingredient!*

## Sample Nutrition Label: Spicy Cheese-Flavored Puffs

Nutrition Facts	
Serving Size 1oz (28g/about 18 pieces)	
Servings Per Package about 3	
Amount Per Serving	
Calories 180	Calories from Fat 100
% Daily Value*	
Total Fat 11g	17%
Saturated Fat 2.0g	10%
Trans Fat 0g	
Cholesterol	0%
Sodium 250mg	10%
Total Carbohydrate 15g	5%
Dietary Fiber less than 1g	2%
Sugars 0g	
Proteins 1g	
Vitamin A 0%	Vitamin C 0%
Calcium 0%	Iron 2%
* Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:	
	Calories: 2,000 2,500
Total Fat	Less than 65g 80g
Saturated Fat	Less than 20g 25g
Cholesterol Less than	300mg 300mg
Sodium	Less than 2,400mg 2,400mg
Total Carbohydrate	300g 375g
Dietary Fiber	25g 30g

- 1 Serving Size
- 2 Amount of Calories
- 3 Limit These Nutrients
- 4 Get Enough of These Nutrients
- 5 Percent (%) Daily Value
- 6 Footnote With Daily Values (DV's)

For educational purposes only. This label does not meet the labeling requirements described in 21 Code of Federal Regulations 101.9.

**Ingredients:** Enriched Corn Meal, Vegetable Oil, Spicy Seasoning, Partially Hydrogenated Soybean and Cottonseed Oil, Sunflower Oil, Cheddar Cheese (Milk, Cheese Cultures, Salt, Enzymes), Corn Syrup Solids, and Salt.

**5. Ask:** Is this food right for me? Why or why not? What snack could I choose instead? \_\_\_\_\_

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You are going on an important journey. You can only take up to 500 grams of snacks in your backpack—and they have to be obtained from your school! You'll want to choose the healthiest snacks so that you can keep up your energy level and do your best on your mission.



What snacks would you bring?

**Too Sweet= Extra Calories Without Extra Nutrition**

- Sodas and sports, energy, and fruit drinks
- Candy, ice cream, cookies, and cakes

**Energizing Snacking Tips:**

- Pick snacks that help you get foods from each food group.
- Choose foods that won't weigh you down with a lot of extra calories from added sugars and solid fats.
- Pick some snacks that are not "prepackaged," like fresh fruits.

**Power-up Snacks:**

- Fresh fruit like apples, pineapple, tangerines, bananas.
- Baby carrots with low-fat dip.
- Fat-free yogurt.
- Baked whole-grain chips with salsa.
- Nuts and raisin mix.

**Hint:** Use the Nutrition Facts label and the five food groups to evaluate your options! If the Nutrition Facts label for a snack isn't available, you can research its nutrition information at <http://www.choosemyplate.gov/foodapedia>.

Look for snacks that:

- Contribute to at least one of the five food groups
- Are low in saturated fat (5% DV or less)
- Contain 0 grams of *trans* fat
- Contain less than 200mg of sodium per package
- Have a whole grain as the first ingredient (if it's a grain product, such as corn chips, crackers, or cookies)
- Are low in added sugars (a form of sugar is not one of the first three ingredients)

**Remember:**

*The information on the Nutrition Facts label is based upon **one serving**. If there are multiple servings in a package, be sure to do the math!*

**Nutrition Facts**

Serving Size 1 oz (28g/about 18 pieces)

Servings Per Container about 3

Amount Per Serving		Calories from Fat 100	
		% Daily Value*	
<b>Total Fat</b> 11g			<b>17%</b>
Saturated Fat 2.0g			<b>10%</b>
<i>Trans</i> Fat 0g			
<b>Cholesterol</b> 0mg			<b>0%</b>
<b>Sodium</b> 250mg			<b>10%</b>
<b>Total Carbohydrate</b> 15g			<b>5%</b>
Dietary Fiber less than 1g			<b>2%</b>
Sugars 0g			
<b>Proteins</b> 1g			
Vitamin A 0%	•	Vitamin C 0%	
Calcium 0%	•	Iron 2%	
* Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:			
	Calories:	2,000	2,500
Total Fat	Less than	65g	80g
Saturated Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g
Calories per gram:			
Fat	9	• Carbohydrate	4
		• Protein	4

**The sources of our snacks** (for example: vending machine, school store, cafeteria):

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Snack name	Weight in grams per package	Calories per package	Food group	% Daily Value for Saturated Fat per package	Grams of <i>Trans</i> Fat per package	Milligrams of Sodium per package	Added Sugars in first three ingredients
Sample: Spicy Cheese-Flavored Puffs	84g	540	Grains; not a whole grain	30% (too high)	0g	750mg (too high)	None. (corn syrup solids shown at end of ingredients list)
1.							
2.							
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							
<b>Total:</b>	500 grams						