



Lesson Plan

Unit 6: Lesson 1 of 3

Interpreting and Designing Nutritional Food Labels

Created: 08/2022 by the National FFA Organization

The purpose of this lesson is to interpret and design a nutritional food label. This lesson will help prepare students to complete part of the “Team Product Development” section of the food science CDE.

Student Learning Objectives:

After completing these activities, students will ...

1. Identify the parts of a nutrition label.
2. Describe the importance of a nutrition label.
3. Calculate parts of a nutrition label.
4. Design a nutrition facts label.

Suggested Grade Level:

Grades 9 and 10 (This lesson is written so instructors can scale up or down based on class needs.)

Suggested Time: 120 minutes (*Time requirements may vary based upon student understanding and class schedule.)

Resources/References:

1. Textbook: *Principles of Food Science*, 4th Edition, Janet D. Ward (Facts/information in this lesson were obtained from the textbook.)
2. Website: The Food and Drug Administration, <https://www.fda.gov/food/new-nutrition-facts-label/how-understand-and-use-nutrition-facts-label> (used in the Follow-up in the lesson)

Related Resources:

1. The Food and Drug Administration, <https://www.fda.gov/files/food/published/Food-Labeling-Guide-%28PDF%29.pdf> (PDF also included in this lesson) Highly recommended that students read this document if they are planning to compete in the food science CDE

Equipment and Supplies Needed:

1. Activity 1:
 - a. “Go Get It: Nutrition Facts” cards — make copies, cut out and place around the room prior to class starting.
 - b. “Activity 1: Go Get It — Nutrition Facts” student worksheet
2. Student worksheet “Activity 2: Nutritional Label Interpretation Challenge”
3. Student copy of handout “Food and Drug Administration’s Specifications for Health Claims and Descriptive Terms”
4. Activity 3:
 - a. Powerpoint: “Food Science: Product Development”
 - b. “Activity 3: Product Development” student worksheet
 - c. A copy of the Bread Kit scenario for each student, <https://ffa.box.com/s/cufsuc6dcqhfg8jge4w1rynb7ey27i3l>
 - d. A copy of the FFA Costs and Nutritional chart for each student, <https://ffa.box.com/s/fylpgjhawkjx2dndiqqi8d0m2j40ilz6>
 - e. A copy of the product development chart for each student
 - f. A copy of the “Label Design Challenge” worksheet for each student
5. Student “Exit Tickets”

6. Optional Activity:
 - a. Need a variety of prepackaged food items containing nutritional labels
 - b. "Label Design Challenge" worksheet, one copy/student
 - i. Note: There are no wrong answers for this activity. Be sure to grade or check for completion/accuracy in label creations.

Vocabulary:

1. Serving size
2. Calories
3. Total fat
4. Cholesterol
5. Sodium
6. Total carbohydrates
7. Protein
8. Nutritional label
9. *Optional Vocabulary:* Use all vocabulary listed on the "Food and Drug Administration's Specifications for Health Claims and Descriptive Terms" handout.

Cross-Curricular Connections:

English/Language Arts	Mathematics
Bell ringer, Activity 1, Activity 2: Students are challenged to read, interpret, analyze and record information for each activity.	- Nutritional Label Interpretation, Exit Ticket: Students are required to interpret and calculate numbers found on nutritional labels. - Optional Activity: Challenges students to create a nutritional label using realistic numbers.

Virtual Instruction Ideas:

This lesson can be converted to a virtual and/or online lesson. Students would need shared copies of all the handouts/activities and the PowerPoint. This lesson would work best virtually compared to online because the teacher could guide students through the activities as it would be done in the classroom.

Student Activity Sheets:

Direct access to student activity sheets without lesson plan or answer key for easy upload to a learning management system or printing for classwork.

<https://ffa.box.com/s/dryn7ihiusho1kpwevup5clgtp3mel34> (Word)

<https://ffa.box.com/s/bn6rjjqdah4frn23wo4pa7qfir4i30c> (PDF)

<https://ffa.box.com/s/bavvnnwa880gw47ak6neb2qtnv4b5l1do> (Non-Designed)

<https://docs.google.com/document/d/1Nf-jh74m7qJk4rHBa6P8VkkKvBok2S0NKYtxwrEO8l4/copy> (Google)

These Activities are Aligned to the Following Standards:

FFA Precept

- FFA.PL-A.Action: Assume responsibility and take the necessary steps to achieve the desired results, no matter what the goal or task at hand.
- FFA.PG-J.Mental Growth: Embrace cognitive and intellectual development relative to reasoning, thinking and coping.
- FFA-CS-M.Communication: Effectively interact with others in personal and professional settings.

Common Core – Reading: Informational Text

- CCSS.ELA-Literacy.RI.9-10.1 Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
- CCSS.ELA-Literacy.RI.9-10.2 Determine a central idea of a text and analyze its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.

Common Core – Writing

- CCSS.ELA-Literacy.W.9-10.2 Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.

Common Core – Speaking and Listening

- CCSS.ELA-Literacy.SL.9-10.1.C Propel conversations by posing and responding to questions that relate the current discussion to broader themes or larger ideas; actively incorporate others into the discussion; and clarify, verify, or challenge ideas and conclusions.
- CCSS.ELA-Literacy.SL.9-10.4 Present information, findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task.

Common Core – Science & Technical Subjects

- CCSS.ELA-Literacy.RST.9-10.1 Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions.
- CCSS.ELA-Literacy.RST.9-10.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or exceptions defined in the text.

Common Core – Literacy in Science & Technical Subjects: Writing

- CCSS.ELA-Literacy.WHST.9-10.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
- CCSS.ELA-Literacy.WHST.9-10.7 Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.

Common Core – Math Practices

- CCSS.MATH.PRACTICE.MP1 Make sense of problems and persevere in solving them.
- CCSS.MATH.PRACTICE.MP3 Construct viable arguments and critique the reasoning of others.
- CCSS.MATH.PRACTICE.MP6 Attend to precision.

National Standards for Financial Literacy

- Buying Goods and Services, Benchmarks: Grade 12, Statement 7 Governments establish laws and institutions to provide consumers with information about goods or services being purchased and to protect consumers from fraud.
- Buying Goods and Services, Benchmarks: Grade 12, Statement 1 Consumer decisions are influenced by the price of a good or service, the price of alternatives, and the consumer's income as well as his or her preferences.
- Buying Goods and Services, Benchmarks: Grade 12, Statement 2 When people consume goods and services, their consumption can have positive and negative effects on others.

AFNR Career Ready Practices

- CRP.02. Apply appropriate academic and technical skills. Career-ready individuals readily access and use the knowledge and skills acquired through experience and education to be more productive.
- CRP.04. Communicate clearly, effectively, and with reason. Career-ready individuals communicate thoughts, ideas and action plans with clarity, whether using written, verbal and/or visual methods.
- CRP.05. Consider the environmental, social and economic impact of decisions. Career-ready individuals understand the interrelated nature of their actions and regularly make decisions that positively impact and/or mitigate negative impact on other people, organizations and the environment.
- CRP.06. Demonstrate creativity and innovation. Career-ready individuals regularly think of ideas that solve problems in new and different ways, and they contribute those ideas in a useful and productive manner to improve their organization.
- CRP.07. Employ valid and reliable research strategies. Career-ready individuals are discerning in accepting and using new information to make decisions, change practices or inform strategies.
- CRP.08. Utilize critical thinking to make sense of problems and persevere in solving them. Career-ready individuals readily recognize problems in the workplace, understand the nature of the problem, and devise effective plans to solve the problem.
- CRP.09. Model integrity, ethical leadership and effective management. Career-ready individuals readily recognize problems in the workplace, understand the nature of the problem, and devise effective plans to solve the problem.
- CRP.11 Use technology to enhance productivity. Career-ready individuals find and maximize the productive value of existing and new technology to accomplish workplace tasks and solve workplace problems.

Partnership for 21st Century Skills

- Critical Thinking and Problem Solving

- Flexibility and Adaptability
- Implement Innovations
- Information Literacy
- Productivity and Accountability
- Think Creatively

Lesson Plan:

1. Bell Ringer:

- a. Have the following written on the board as students enter the classroom: "On a piece of paper, write down every food you have consumed/eaten in the past 24 hours."
- b. Once all students are seated and have recorded their responses, ask them to guess how many calories they have consumed from the foods they listed. Allow students to share (or teachers can share their calories/foods). Ask students: *How many of you think you are 100% correct on the number of calories you consumed? Why or why not? (Allow students to answer.) What would have made it easier to count our calories? Answer — food labels!*
- c. Tell students: *A food label for each item would be the first thing we would need before taking another shot at estimating the number of calories. The nutritional requirements of our bodies and the nutrients contained in the foods we eat don't always align! For a healthy lifestyle, it is important to understand the nutrient levels in the foods we eat. So, today we will learn how to read a food label.*
- d. Move into the Introduction section of this lesson.

2. Introduction:

- a. Begin the PowerPoint titled "It's All in a Label." Discuss all slides. When finished, move to Activity 1 in this lesson plan. It is recommended to have students take notes to be prepared for the activities to follow.

3. Activity:

- a. Activity 1:
 - i. Teacher Note: Be sure to have the cards that go with this activity cut out and placed around the room prior to the start of the class.
 - ii. Activity 1: Announce to students: *When you receive this activity sheet, quickly and quietly travel to each of the information sheets around the room and record information for each section of the sheet. The activity sheet has blanks for each component of a food label, and the sheets of paper around the room contain the information to be placed in each blank. Pay close attention to what we are recording; we will use it for real food labels. When finished, return to your seat and quietly wait for further directions. Please do not talk while completing this activity. What questions do you have?*
 - iii. Give each student a copy of the worksheet "Activity 1: Go Get It — Nutrition Facts." Read directions with students. Ask for questions; release students to find cards.
 - iv. Once all students have returned to their seats, go over the answers with them.
 - v. Move into Activity 2.
- b. Activity 2:
 - i. Tell students: *Now that we know the basic components of a food label, let's have a look at a few of them. Upon receiving this next activity sheet, read it carefully before beginning. The sheet contains four food labels and poses questions that challenge us to evaluate the labels. Feel free to refer to the information recorded from the last activity. Please turn sheets face down upon completion. This individual activity should take no more than five minutes to complete. What questions are there about this task?*
 - ii. Give each student a copy of "Activity 2: Nutritional Label Interpretation Challenge." Read through directions with students. Ask if there are any questions. Allow approximately five minutes to complete this challenge.
 - iii. Once all students have flipped their papers over, review the answers with them. This may be collected for a grade if desired.
- c. Activity 3:
 - i. Open the Powerpoint "Food Science: Product Development". Tell students: *Now we are going to learn how to calculate the different parts of a food nutrition label. When new food products are being developed, a nutrition label must also be developed.*
 - ii. Give each student a copy of "Activity 3: Product Development" and a copy of the "Product Development Chart". Have students record notes about how to develop a nutrition facts label. Students will use this notes sheet for the next step.
 - iii. Introduce students to the "Label Design Challenge" activity by handing out a worksheet to each student. This activity may take more than one day and/or may take additional teacher assistance for students in the classroom. This activity is part of the National FFA Food Science and Technology CDE (part of the Team Product Development portion of the contest). Have students read the Bread Kit scenario, <https://ffa.box.com/s/cufsuc6dcqhfg8jge4w1rynb7ey27i31>,

and use the FFA Costs and Nutritional chart, <https://ffa.box.com/s/fylpgjihawkjx2dndiqgj8d0m2j40ilz6>, and develop the nutrition label for a product that meets the scenario requirements. Tip: If you have time, consider having students practice making the entire package, including nutrition label, so that students can see multiple concepts come together.

4. **Follow-up:**

- a. Pull the following website up on the class overhead projector: <https://www.fda.gov/food/new-nutrition-facts-label/how-understand-and-use-nutrition-facts-label>. Scroll down through this site and discuss with students the pictures shown. It is a good review from today's information! No need to read all the information. Simply highlight the seven components of a nutritional label that were discussed in class.
- b. Provide each student with a copy of the handout "Food and Drug Administration's Specifications for Health Claims and Descriptive Terms." Go over the terms with students. (This information will be important if/when they create their own food product later.)
- c. If time, move on to the Extended Learning Opportunities section. Otherwise, move on to the Exit Ticket to end class for the day.

5. **Optional – Extended Learning Opportunities (Not factored into time requirement):**

- a. Have students examine nutritional labels on packaged snacks in their lockers, backpacks, etc. Be sure to have a variety of prepackaged items available for students to use. What are the similarities among the labels? Differences? What packaging is easy to read? Hard? Which catches the eye and why?

6. **Exit Ticket:** Approximately five minutes needed to complete the exit ticket.

- a. Give each student an "Exit Ticket." Direct students to answer the three questions listed and turn their tickets in as they exit the classroom.
- b. Answers for Exit Tickets:
 - i. 1) C
 - ii. 2) A
 - iii. 3) 200 calories

Aligned to the following standards: FFA.PL-A; FFA.PG-J; FFA-CS-M;
 CCSS.ELA.RI.9-10.1; CCSS.ELA.RI.9-10.2; CCSS.ELA.W.9-10.2; CCSS.ELA.SL.9-10.1.C; CCSS.ELA.SL.9-10.4; CCSS.ELA.WHST.9-10.7; MP1; MP3; MP6; Buying Goods and Services, Benchmarks: Grade 12, Statement 7 Governments; Buying Goods and Services, Benchmarks: Grade 12, Statement 1; Buying Goods and Services, Benchmarks: Grade 12, Statement 2; CRP.02; CRP.04; CRP.05; CRP.06; CRP.07; CRP.08; CRP.09; CRP.11

Activity 1: Go Get It — Nutrition Facts

Directions:

When given permission, move about the classroom to find 3 cards that contain different descriptions of the different parts of a nutrition label, seen below. When you find a description in the room, match it with the correct location on the nutrition label shown below; write the information found on the card in the space provided. Two of the categories will have the same information.

Nutrition Facts		Record Information Below	
Serving Size	Serving Size		
	Servings Per Container		
Calories	Amount Per Serving		
	Calories	Calories from Fat	
Nutrients		% Daily value*	
	Total Fat 1g		%
	Saturated Fat		%
	Trans Fat		
	Cholesterol		%
	Sodium		%
	Total Carbohydrate		%
	Dietary Fiber		%
	Sugars		
	Protein		
	Vitamin A		%
	Vitamin C		%
	Calcium		%
	Iron		%
Footnotes	*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	85g 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

What would you tell someone about what is included on a nutrition label based on the above activity?

Name: _____

Activity 2: Nutritional Label Interpretation Challenge

Directions:

Study food labels A, B, C and D below. Use the information in each label to answer the questions at the bottom of the page.

A

Nutrition Facts		
Serving Size 1/2 of recipe 57g (57g)		
Servings Per Container 12		
Amount Per Serving		
Calories 223	Calories from Fat 99	
% Daily Value*		
Total Fat 11g		17%
Saturated Fat 7g		34%
Trans Fat 0g		
Cholesterol 78mg		26%
Sodium 148mg		6%
Total Carbohydrate 27g		9%
Dietary Fiber 1g		2%
Sugars 13g		
Protein 4g		
Vitamin A	7% • Vitamin C	0%
Calcium	6% • Iron	3%
*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
Sat Fat	Less than	20g 25g
Cholesterol	Less than	300mg 300mg
Sodium	Less than	2,400mg 2,400mg
Total Carbohydrate	Less than	300g 375g
Fiber		25g 30g
Calories per gram:		
Fat 9	• Carbohydrate 4	• Protein 4
©www.NutritionData.com		

B

Nutrition Facts		
Serving Size 1 oz... (28g/About 21 pieces)		
Servings Per Container About 2		
Amount Per Serving		
Calories 170	Calories from Fat 110	
% Daily value*		
Total Fat 11g		17%
Saturated Fat 1.5g		8%
Trans Fat 0g		
Cholesterol 0mg		0%
Sodium 250mg		10%
Total Carbohydrate 14g		5%
Dietary Fiber less than 1g		2%
Sugars 0g		
Protein 2g		
Vitamin A 2%	•	Vitamin C 0%
Calcium 0%	•	Iron 4%
Vitamin E 6%	•	Thiamin 4%
Riboflavin 2%	•	Niacin 4%
Vitamin B ₆ 2%	•	Phosphorus 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		

C

Nutrition Facts		
Serving Size 1 cup, chopped 36g (36g)		
Amount Per Serving		
Calories 11	Calories from Fat 1	
% Daily value*		
Total Fat 1g		0%
Saturated Fat 0g		0%
Trans Fat 0g		
Cholesterol 0mg		0%
Sodium 30mg		0%
Total Carbohydrate 22g		1%
Dietary Fiber 2g		5%
Sugars 0g		
Protein 2g		
Vitamin A	48%	Vitamin C 21%
Calcium	5%	Iron 0%
*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	85g 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		

D

Nutrition Facts		
Serving Size 3 oz. (85g)		
Servings Per Container 1		
Amount Per Serving		
Calories 180	Calories from Fat 90	
% Daily Value*		
Total Fat 10g		15%
Saturated Fat 40g		20%
Trans Fat 0.5g		
Cholesterol 70mg		23%
Sodium 60mg		3%
Total Carbohydrate 0g		0%
Dietary Fiber 0g		0%
Sugars 0g		
Protein 22g		
Vitamin A 0%	•	Vitamin C 0%
Calcium 2%	•	Iron 15%
*Percent Daily Values are based on a 2,000 calorie diet your 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		

Questions	Letter
1. Which of the foods above has the most servings per package?	
2. Which of the foods above has the largest amount of cholesterol?	
3. Which of the foods above is highest in protein?	
4. Which of the foods above has the most calories per serving?	
5. Which of the foods above has the most calories from fat?	
6. Which of the foods above has the most carbohydrates?	
7. Which of the foods above has the least sodium?	
8. Which of the foods above has the highest %DV of iron?	
9. Which of the foods above is the least fattening?	
10. Which of the foods above is the least healthy to consume?	

Why do you think it is important for all of the above information to be included on a nutrition label?

Name: _____

Activity 3: Product Development

Directions:

Complete the following as you learn about product development. Use what you learn to complete the following activities.

1. Identify the possible product categories:

Categories	Platform	Market
Cereal	F	R
S	Refrigerated	Wholesale
M	Shelf-stable	Food Service
Side dishes	C	C
B	R	
Supplements	Heat and Serve	
Condiments	_____	_____
D	_____	_____

2. What changed between the original label and the new label from the FDA?

3. What questions should be considered when thinking about a product in development?

a.

b.

c.

4. Step 1: C_____ I_____

5. Step 2: D_____ A_____

a. What should the percentage equal? _____%

6. Step 3: Calculate amounts.

a. In your own words describe how this calculation is completed. Give an example.



Name: _____

7. Step 4: C _____ N _____
a. In your own words describe how this calculation is completed. Give an example.

8. Step 5: Determine percent D _____ V _____
a. In your own words describe how this calculation is completed. And give an example.

9. Step 6: Enter Values into N _____ F _____ P _____

10. How should the ingredient list for the ingredient statement be listed?

Name: _____

Label Design Challenge

Aligned to the following standards: FFA.PL-A; FFA.PG-J; FFA-CS-M; CCSS.ELA.RI.9-10.1; CCSS.ELA.RI.9-10.2; CCSS.ELA.W.9-10.2; CCSS.ELA.SL.9-10.1.C; CCSS.ELA.SL.9-10.4; CCSS.ELA.VHST.9-10.7; MP1; MP3; MP6; Buying Goods and Services, Benchmarks: Grade 12, Statement 7 Governments; Buying Goods and Services, Benchmarks: Grade 12, Statement 1; Buying Goods and Services, Benchmarks: Grade 12, Statement 2; CRP.02; CRP.04; CRP.05; CRP.06; CRP.07; CRP.08; CRP.09; CRP.11

DIRECTIONS:

As the developer of a new product, you must now design a nutritional label to go on the product. Using all the information learned in class regarding food labels, complete the required information below as it pertains to the food item you create based up on the provided scenario and chart. Remember to include the 7 KEY features + any additional needed information. Add lines, use markers, etc. to make your label look as realistic as possible.

Nutrition Facts

Name: _____

EXIT TICKET

Aligned to the following standards: FFA.PL-A; FFA.PG-J; FFA-CS-M; CCSS.ELA.RI.9-10.1; CCSS.ELA.RI.9-10.2; CCSS.ELA.W.9-10.2; CCSS.ELA.SL.9-10.1.C; CCSS.ELA.SL.9-10.4; CCSS.ELA.WHST.9-10.7; MP1; MP3; MP6; Buying Goods and Services, Benchmarks: Grade 12, Statement 7 Governments; Buying Goods and Services, Benchmarks: Grade 12, Statement 1; Buying Goods and Services, Benchmarks: Grade 12, Statement 2; CRP.02; CRP.04; CRP.05; CRP.06; CRP.07; CRP.08; CRP.09; CRP.11

name: _____

1. Sugar is an example of a

_____.

- a. calorie
- b. fat
- c. carbohydrate

2. Calories are a source of

_____.

- a. energy
- b. fat
- c. strength

3. If you consume a 4-oz. candy bar with 50 calories per each 1-oz. serving, how many calories are you consuming?

4. Why are nutrition labels important for food products on the market?

5. How do food labels impact you or someone you know on a daily basis?

ticket

exit

Name: _____

GO GET IT: Nutrition Facts Cards (To be used in Activity 1)

Directions for TEACHERS:

Make as many copies of this sheet as needed. Cut along each section line and place the sections around the classroom.

- **Serving Size**

- o Details the number of servings in the package.
- o Serving size standardizes food portions and allows consumers to compare foods through similar units of measure.
- o The size of servings in the packaging influences the number of calories in the food. Pay close attention to serving size because you may accidentally consume too many calories by consuming multiple servings.

- **Calories (and Calories from fat)**

- o A measure of energy in each serving of the packaged food.
- o Calories from fat are added to detail how many of the total calories are derived from fat.
- o Many Americans consume too many calories and this portion of the label helps consumers manage their caloric intake.
- o General Calorie Guide: 40 Calories is low, 100 Calories is moderate, 400+ Calories is high.

- **Nutrients**

- o This section details the quantity of specific nutrients offered by each serving of food.
- o Nutrients include: Total Fat (Saturated and Trans Fat), Cholesterol, Sodium, Total Carbohydrate, Dietary Fiber, Sugar, Protein, Vitamins A and C, Calcium, and Iron.
- o The FDA breaks the nutrients into two groups to assist consumers in healthy choices.
 - § Nutrients to be limited: Fat (Saturated and Trans Fat), Cholesterol and Sodium. Americans consume enough or too much of these.
 - § Nutrients to get enough of: Dietary Fiber, Vitamin A, Vitamin C, Calcium, and Iron. Most Americans don't get enough of these.

Name: _____

Food and Drug Administration's Specifications for Health Claims and Descriptive Terms:

Claim	Requirements that must be met before using the claim in food label
Fat-Free	Less than 0.5 grams of fat per serving, with no added fat or oil
Low fat	3 grams or less of fat per serving
Less fat	25% or less fat than the comparison food
Saturated Fat Free	Less than 0.5 grams of saturated fat and 0.5 grams of trans-fatty acids per serving
Cholesterol-Free	Less than 2 mg cholesterol per serving, and 2 grams or less saturated fat per serving
Low Cholesterol	20 mg or less cholesterol per serving and 2 grams or less saturated fat per serving
Reduced Calorie	At least 25% fewer calories per serving than the comparison food
Low Calorie	40 calories or less per serving
Extra Lean	Less than 5 grams of fat, 2 grams of saturated fat, and 95 mg of cholesterol per (100 gram) serving of meat, poultry or seafood
Lean	Less than 10 grams of fat, 4.5 g of saturated fat, and 95 mg of cholesterol per (100 gram) serving of meat, poultry or seafood
Light (fat)	50% or less of the fat than in the comparison food (ex: 50% less fat than our regular cheese)
Light (calories)	1/3 fewer calories than the comparison food
High-Fiber	5 grams or more fiber per serving
Sugar-Free	Less than 0.5 grams of sugar per serving
Sodium-Free or Salt-Free	Less than 5 mg of sodium per serving
Low Sodium	140 mg or less per serving
Very Low Sodium	35 mg or less per serving
Healthy	A food low in fat, saturated fat, cholesterol and sodium, and contains at least 10% of the Daily Values for vitamin A, vitamin C, iron, calcium, protein or fiber.
"High", "Rich in" or "Excellent Source"	20% or more of the Daily Value for a given nutrient per serving
"Less", "Fewer" or "Reduced"	At least 25% less of a given nutrient or calories than the comparison food
"Low", "Little", "Few", or "Low Source of"	An amount that would allow frequent consumption of the food without exceeding the Daily Value for the nutrient – but can only make the claim as it applies to all similar foods
"Good Source Of", "More", or "Added"	The food provides 10% more of the Daily Value for a given nutrient than the comparison food

Name: _____

Product Development Chart

Food Science CDE Contest 2015 - Product Development Portion

Nutritional Information (per 100g)

Ingredients	Calories	Total Fat (g)	Sat. Fat (g)	Trans Fat (g)	Chol (mg)	Sodium (mg)	Carbs (g)	Fiber (g)	Sugars (g)	Protein (g)
Flour Sources										
All Natural Pastry Flour	364.0	1	0	0	0	2	78	3	0	9
Barley Flour	395.0	7	2	0	0	12	64	31	0	20
Cassava Flour	377.0	1	0	0	0	0	93	7	1	1
Rice Flour, Brown	363.0	3	1	0	0	8	76	5	1	7
Rice Flour, White	366.0	1	0	0	0	0	80	2	0	6
Rye Flour	357.0	1	0	0	0	2	77	8	1	10
Sorghum Flour	361.0	3	0	0	0	4	77	7	2	8
Tapioca Flour	333.0	0	0	0	0	4	87	0	0	1
Other Ingredients										
Baking Powder	51.0	0	0	0	0	7893	24	0	0	0
Baking Soda	0.0	0	0	0	0	27360	0	0	0	0
Whole Eggs	143.0	10	3	0	372	142	1	0	0	13
Peanut Butter A	594.0	50	9	0	0	469	22	6	9	25
Peanut Butter B	554.0	51	11	0	0	474	20	7	9	23
Salt	0.0	0	0	0	0	38758	0	0	0	0
Sugar, Brown	380.0	0	0	0	0	28	98	0	97	0
Sugar, White	387.0	0	0	0	0	1	100	0	100	0
Unsalted Butter	714.0	79	50	0	214	0	0	0	0	0
Ingredient Statements:										
All Natural Pastry Flour: Wheat Flour										
Baking Powder: Calcium Acid Phosphate, Bicarbonate of soda, Corn Starch.										
Peanut Butter A: Roasted Peanuts and Sugar, Contains 2% of Less of: Molasses, Fully Hydrogenated Vegetable Oil (Rapeseed and Soybean), Mono Diglycerides, Salt.										
Peanut Butter B: Roasted Peanuts, Sugar, Palm Oil, Salt.										

Name: _____

KEY: Activity 1: Go Get It — Nutrition Facts

• Serving Size

- o Details the number of servings in the package.
- o Serving size standardizes food portions and allows consumers to compare foods through similar units of measure.
- o The size of servings in the packaging influences the number of calories in the food. Pay close attention to serving size because you may accidentally consume too many calories by consuming multiple servings.

= matches with the “Serving Size” section on student worksheet

• Calories (and Calories from fat)

- o A measure of energy in each serving of the packaged food.
- o Calories from fat are added to detail how many of the total calories are derived from fat.
- o Many Americans consume too many calories and this portion of the label helps consumers manage their caloric intake.
- o General Calorie Guide: 40 Calories is low, 100 Calories is moderate, 400+ Calories is high.

=matches with the “calories” section on the student worksheet

• Nutrients

- o This section details the quantity of specific nutrients offered by each serving of food.
- o Nutrients include: Total Fat (Saturated and Trans Fat), Cholesterol, Sodium, Total Carbohydrate, Dietary Fiber, Sugar, Protein, Vitamins A and C, Calcium, and Iron.
- o The FDA breaks the nutrients into two groups to assist consumers in healthy choices.
 - § Nutrients to be limited: Fat (Saturated and Trans Fat), Cholesterol and Sodium. Americans consume enough or too much of these.
 - § Nutrients to get enough of: Dietary Fiber, Vitamin A, Vitamin C, Calcium, and Iron. Most Americans don't get enough of these.

=matches with the “nutrients and footnotes” section on the student worksheet

Name: _____

KEY: Activity 2: Nutritional Label Interpretation Challenge

Questions	Letter
1. Which of the foods above has the most servings per package?	A
2. Which of the foods above has the largest amount of cholesterol?	A
3. Which of the foods above is highest in protein?	D
4. Which of the foods above has the most calories per serving?	A
5. Which of the foods above has the most calories from fat?	B
6. Which of the foods above has the most carbohydrates?	A
7. Which of the foods above has the least sodium?	C
8. Which of the foods above has the highest %DV of iron?	D
9. Which of the foods above is the least fattening?	C
10. Which of the foods above is the least healthy to consume?	A

Why do you think it is important for all of the above information to be included on a nutrition label?

Knowing what is on a nutrition label can ensure consumers are informed about their food choices which allows them to ensure a diet that meets their individual needs.

Name: _____

KEY: Activity 3: Product Development

Directions:

Complete the following as you learn about product development. Use what you learn to complete the following activities.

1. Identify the possible product categories:

Categories	Platform	Market
Cereal	Frozen	Retail
Snack	Refrigerated	Wholesale
Meals	Shelf-stable	Food Service
Side dishes	Convenience	Convenience Store
Beverages	Ready to eat	
Supplements	Heat and Serve	
Condiments	_____	_____
Desserts	_____	_____

2. What changed between the original label and the new label from the FDA?

Answers will vary. Examples, larger calorie font, addition of added sugar, etc.



3. What questions should be considered when thinking about a product in development?

- Do certain ingredients need to make up most of the product?
- Does a certain ingredient need to be replaced?
- Did I make these into easy-to-calculate percentages?

4. Step 1: Choose Ingredients

5. Step 2: Determine Amounts

- What should the percentage equal? 100%

6. Step 3: Calculate amounts.

- In your own words describe how this calculation is completed. And give an example.

Answers will vary.

Name: _____

7. Step 4: Calculate Nutritionals
 - a. In your own words describe how this calculation is completed. And give an example.
Answers will vary.

8. Step 5: Determine percent Daily Value
 - a. In your own words describe how this calculation is completed. And give an example.
Answers will vary.

9. Step 6: Enter Values into Nutritional Facts Panel

10. How should the ingredient list for the ingredient statement be listed?
Ingredients should be listed from most to least.