



Processed vs. Unprocessed Foods

By: Shelly Renfro

5th Grade Science Teacher

Length of Lesson: Length and duration depends on which activities are chosen

Audience: 5th Grade Science and Health Education Students

TEKS: *Note: Other TEKS could be applicable depending on the activity
Health Education

5.1(A) Examine and analyze food labels and menus for nutritional content

5.9(C) Utilize critical thinking in decision making and problem solving

Science

5.9(B) Describe the flow of energy within a food web, including the roles of the Sun, producers, consumers, and decomposers

National Agricultural Literacy Outcome:

Theme 3: Food, Health, and Lifestyle (Upper Elementary Grades 3-5)

T3.3-5.C. Distinguish between processed and unprocessed food

Lesson Objectives:

1. Examine and analyze food labels and menus for nutritional content
2. Distinguish between processed and unprocessed/whole foods
3. Make sound nutritional decisions based on the information on the labels

Background Information:

The United States Department of Agriculture (USDA) defines processed food “as any raw agricultural commodity that has been subject to washing, cleaning, milling, cutting, chopping, heating, pasteurizing, blanching, cooking, canning, freezing, drying, dehydrating, mixing, packaging or other procedures.”

Young people are likely to find this definition confusing, and therefore, it may be beneficial to help young students recognize that the foods we consume are somewhere between unprocessed (eaten ripe off the vine) or as defined by Healthline, range from “real food – whole food with one single ingredient” to fully processed foods, such as those that are packaged and include preservatives.

Explaining unprocessed and processed foods to young students like a continuum rather than a set category might bring better understanding of the terms.



Example of how to explain the terms to students:

Unprocessed	Minimally Processed	Moderately Processed	Highly Processed	Maximally Processed
Fresh apple off tree	Apple washed, sliced, and topped with a spritz of lemon juice	Apple blended with sugar and cinnamon to make homemade applesauce	Apples combined with sugar, butter, cinnamon, and crust to make apple pie	Store bought or frozen apple pie that contains preservatives

Vocabulary Terms:

*Suggested Activities: 1) Teacher could create a Kahoot! game to serve as a vocabulary activity.
2) Play “memory”- provide cards with the vocabulary words on them, provide cards with the definitions on them, have students match the word cards with the correct definition cards

- Food groups
- Processed
- Unprocessed
- Whole foods
- Nutrition facts
- Nutrition label
- Serving
- Classify
- Preservatives
- Additives
- Calories

Lesson/Activity Structure:

“Appetizer”

- Activities that get students excited and make them active participants in the learning as well as draw upon past experiences or prior knowledge

“Entre”

- Research or other activities that give students new information and new terminology

“Ala carte”

- Activities designed for choosing ways to be actively and physically involved in learning

“Dessert”

- Activities designed to extend the learning opportunities outside of the school/home, if possible

“Table Talk”

- Questions to encourage discussion and deeper thinking about the topic



Activities:

“Appetizer” Activities

Activity: “Food Fidget”	
Appetizer (5-10 Minutes)	Table Talk (3-5 Minutes)
<p>Ask students to sort the selection of foods. (Do not give any preconceived ideas or background information.)</p> <p><i>*NOTE: Leave groups sorted as is for later. If space is an issue, consider photographing the groups to use as a reference.</i></p>	<p>Ask Questions, such as:</p> <ul style="list-style-type: none"> • Why did you sort these items in this way? What was your thinking? • What do the foods you placed in this group have in common? • What do you know about the foods you placed in this group?

Materials: An assortment of foods from the pantry and refrigerator (Optional: Use pictures of various food and food groups)

- Several boxes of cereal
- Boxes of macaroni or other dry, packaged foods
- Canned foods
- Containers of treats/snacks
- Varieties of fresh fruits and vegetables
- Dairy products, etc.

Activity: “Whole in one!”	
Appetizer (5-10 Minutes)	Table Talk (5-10 Minutes)
<p>Place the food items in a line to replicate the minimally processed to the maximum processed food. Tell the students that you opted to classify the food items in this way.</p> <p>Allow students time to make observations and try to determine the reasoning behind the way you organized the food items.</p> <p><i>*Note: See example in “Background Information to assist in explanation to student.</i></p>	<p>Ask questions, such as:</p> <ul style="list-style-type: none"> • What do you think the food items in this stack have in common? • Why do you think I chose to classify the food items in this manner? • Have you eaten something similar to what is in each group today? • Is it possible to only eat unprocessed or minimally processed foods? Why? Why not?

Materials: Multiple examples of processed food and unprocessed/whole food continuum



“Entre” Activities

Activity: “Take a Bite Out of Books”	
Entre (20-30 Minutes)	Table Talk (5-10 Minutes)
<p>Read books about nutrition and food groups. While reading, refer to sorted selection (from the “Food Fidget” activity). Have students locate foods from each group in the sorted selection.</p> <p>Allow students to sort or classify the food products again. Encourage them to classify them in a different way than the first time.</p> <p><i>*Note: See suggested titles in the below book list.</i></p>	<p>Ask questions, such as:</p> <ul style="list-style-type: none"> • Why did you sort these food items in this way? What was your thinking? • What facts did you consider when sorting these food items? • What do you notice about the food items in each group? • What changes to the classification did you make and why? • What do the food items in this group have in common? • Have you eaten something from each food group today?

Materials:

- Books about food groups
- The sorted food items from the “Food Fidget” activity

Activity: “Food Fight”	
Entre (10-15 Minutes)	Table Talk (3-5 Minutes)
<p>Explain that one of the simplest ways to know if a food is processed or whole/unprocessed is whether or not it has a nutrition label. (Refer back to the USDA definition of processed food)</p> <p>Observe fresh fruit and canned fruit. Allow your students time to make observations about color, texture, taste, smell, and most importantly, nutrition.</p>	<p>Ask questions, such as:</p> <ul style="list-style-type: none"> • Why do you think fresh fruits and vegetables don’t have a nutrition label when bought at the store? • What can you learn from your food by reading the nutrition label? • Why do you think it is a law that foods come packaged with a nutrition label?

Materials:

- Foods with nutrition labels and foods without nutrition labels (i.e. fresh fruit and vegetables/canned fruits and vegetables)



Activity: "Chain of Events"	
Entre (20-30 Minutes)	Table Talk (5-10 Minutes)
<p>Observe a meal on a plate. Ask questions. Help students track the origin of every food item on the plate. Explain that this is called the "food chain." (Ex. Chicken Nuggets: chicken received energy from grain and the grain received energy from the Sun) Every food item should ultimately track back to the Sun as the energy for the food chain.</p> <p>Have your students sketch out the food chain/flow of energy for the items on their plate.</p>	<p>Ask questions, such as:</p> <ul style="list-style-type: none">• What are you eating?• Do you know where the chicken came from? (insert any food item)• Do you know where the pasta came from? (insert any food item)• Why do you think the origin of everything we eat is the energy from the Sun?• What do you notice about processed and unprocessed foods in the food chain?• How is the food chain related to the food continuum?

Materials:

- Dinner plate with balanced meal for observing and eating OR pictures of a balanced meal
- Paper
- Crayons/markers



Activity: "Taste Bud Teaser" (Part 2)	
Entre (prep ahead of time)	Table Talk
<p>Allow students the opportunity to observe the color, texture, taste of the various seasonings, etc.</p> <ul style="list-style-type: none">• Explain that one characteristic of processed foods is the salt, which flavors and preserves the food. Processed foods contain preservatives to lengthen the "shelf life" of the food. Explain that, sometimes, additional chemical preservatives are added to foods, such as sodium nitrate and potassium bromate. <p>Introduce the food nutrition label. Allow students to examine a few labels and search for added preservatives.</p>	<p>Ask questions, such as:</p> <ul style="list-style-type: none">• What seasonings do you prefer on your food?• What does it mean to "preserve?"• Why do our foods contain preservatives?• Which foods contain the fewest preservatives?• Which foods contain the most preservatives?• Does knowing the amount of preservatives in your food affect the food choices you'll make in the future?

*Note: This activity is best completed after Part 1 below.

Materials:

- Multiple examples of seasonings and spices AND food labels



Ala carte Activities

Activity: "Taste Bud Teaser" (Part 1)	
Ala carte (20-30 Minutes)	Table Talk (5-10 Minutes)
<p>Provide students with a small bite of various foods, both processed and whole. Keep score! How many tastings can your students correctly name?</p> <p><i>*Note: Encourage your students to be willing to try new things!</i></p>	<p>Ask questions, such as:</p> <ul style="list-style-type: none">• What sample was your favorite? Why?• What sample was your least favorite? Why?• Which food would you like more of today?• Where do you remember tasting something like this before?• Do the smells and tastes remind you of anything?

Materials:

- Something to cover eyes (i.e. a bandana)
- An assortment of processed and whole foods (prep ahead of time and keep covered)



Activity: "Edible Art"	
Ala carte (devoted minutes)	Table Talk (2-5 Minutes/Project)
<p>Art Project #1: Allow your students time to use the fruit and toothpicks to get creative. They could build a structure, an animal, a bouquet, etc. Afterwards, take pictures before enjoying this fun and unprocessed snack!</p> <p>Art Project #2: Inspire your students to make a collage or other visual diagram to show processed vs. whole/unprocessed foods to hang in the pantry or kitchen as a reminder when reaching for a snack or preparing a meal.</p>	<p>Ask questions, such as:</p> <ul style="list-style-type: none">• Which fruit is your favorite and why?• Did you like making art with your food?• Does being creative with your food encourage you to make healthy food choices?• How could we use your collage to help in snack and meal planning?• What do you understand about the difference between processed and unprocessed food?• How will knowing this information affect your decision making regarding the foods you choose to eat?

Materials:

Project #1:

- Fruit of all colors, textures, and shapes
- Toothpicks

Project #2:

- Magazines
- Scissors
- Paste
- Paper
- Markers/Crayons



“Dessert” Activities

Activity: “Plant a Seed”	
Dessert (devoted minutes)	Table Talk (devoted minutes)
<p>This activity is based on resources at your school. Ideas include:</p> <ul style="list-style-type: none">• Make an herb garden container garden• Create a raised bed garden• Design and maintain a larger, outdoor garden	<p>Ask questions, such as:</p> <ul style="list-style-type: none">• Why might it be beneficial to have our own garden?• If we don’t have space or time for a large garden, what could we grow best in a small garden?• How do we tend our garden?• What can we make with the herbs, fruits, or vegetables grown in our garden?• Would our garden grow processed or whole/unprocessed foods? How do we know?

Materials: (will vary depending on resources)

- Soil
- Seeds
- Gardening gloves/other tools
- Trowel
- Containers
- water

Activity: “Fun on the Field”	
Dessert (devoted minutes)	Table Talk (devoted minutes)
<p>This activity focuses on site visit opportunities. Options include:</p> <ul style="list-style-type: none">• Visit a local farm• Visit or volunteer at a local community garden• Shop at a community market• Visit a “you pick” farm	<p>Ask questions, such as:</p> <ul style="list-style-type: none">• What did you think about your experience? What did you notice?• Do you think you’d like to work on the farm?• What did you learn about purchasing items from a community market?• What can you make with the produce you picked at the “you pick” farm?

Materials:

- A list of local farms to visit



Activity: "Cookin' in the Kitchen"	
Dessert (devoted minutes)	Table Talk (devoted minutes)
<p>Have students create a meal plan that their family could follow for the week. Allow students the opportunity to look through a recipe book. Encourage them to find a recipe that has a majority of whole/unprocessed ingredients.</p> <p>Give students the opportunity to research the ingredients and evaluate the nutrition facts for the ingredients.</p> <p>Extension: Encourage students and parents to cook the meal that the student selects at home or select one meal that the class can help prepare at school.</p>	<p>As questions, such as:</p> <ul style="list-style-type: none">• If a recipe includes mostly processed foods, how could it be modified so that it contains more whole/unprocessed foods?• Why is it important to consider the ingredients in the recipe?• What spices could be added to enhance the flavor?• If the recipe contains minimal preservatives, how long can it be stored as a "leftover?"

Materials:

- Large sticky notes for students to brainstorm meal ideas
- Recipe book



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Recommended Books:

The following can be found at Barnes and Noble:

- *Growing Vegetable Soup* by Lois Ehlert
- *The Vegetables We Eat* by Gail Gibbons

The following can be found at Scholastic:

- *Staying Healthy: Eating Right* by Alice B. McGinty

The following can be found at Family Education:

- *From Seed to Plant* by Gail Gibbons
- *Good Enough to Eat* by Lizzy Rockwell

Citations:

- <https://texasfarmbureau.org/youth/ag-in-the-classroom/>
- <https://www.beetnikfoods.com/blog/whole-foods-vs-processed-foods-unprocessed-difference/>
- <https://www.wholeheartedfamilyhealth.com/common-food-preservatives/>
- <https://www.healthline.com/nutrition/21-reasons-to-eat-real-food#section1>
- United States Department of Agriculture (USDA): <https://www.usda.gov/topics/food-and-nutrition>
- Consult from Jolene Renfro - Retired Texas high school science teacher