

Nutrient Detectives

Grade Band: 3-5

Student Objectives:

- Explain what a nutrient is
- Learn how different nutrients help the body in different ways
- Conduct research to learn about a specific nutrient
- Create a project that teaches other classmates about their nutrient
- Identify amounts of different nutrients from a Nutrition Facts label

Materials:

- Orange or photograph of an orange
- Student Activity Sheet: Nutrient Detective Capture Sheet (one per student)
- Various art materials including construction paper, poster board, crayons, markers, scissors, and colored pencils
- Optional: Access to PowerPoint or Prezi
- Several Nutrition Facts labels
- Access to Internet

Suggested Time Frame: 2-3 class periods (based on 45-minute intervals). May need additional research time in class or at home.

Instant Expert:

According to the Centers for Disease Control and Prevention (CDC), **health literacy** is defined as “the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make healthy choices, to think about and practice health-enhancing skills, to say kind words, and to learn about feelings and how to express them.”

An important foundation of helping children become health-literate is teaching them about **wellness**. Wellness is more than just being healthy. It is the active process of becoming aware of and making choices toward a healthy and fulfilling life.

In the first set of lessons, students learned about different types of wellness. One of those was **physical wellness**. Physical wellness is wellness related to our bodies. This includes taking care

of our bodies, being physically active, having good personal hygiene, having healthy eating patterns and nutrient intake, and being safe.

This lesson focuses on the physical wellness subcomponent of nutrition. Students are introduced to the term “nutrient,” and they learn how different nutrients in foods help the body in different ways. During the lesson, student teams are asked to select nutrients to research. They can select any nutrient found on a Nutrition Facts label, including but not limited to, fat (could break out saturated and trans), cholesterol, sodium, carbohydrates (could break out dietary fiber and sugars), protein, Vitamin A, Vitamin C, Vitamin D, calcium, iron, and potassium. Students can research information about these nutrients at the web resources listed below. It is most important that young children understand that different foods provide different nutrients that can help them stay healthy, another reason to maintain balance and variety. At this age, they can also be introduced to the fact that some nutrients are especially important to our health so they should be eaten in abundance while others, although needed to help our bodies, should be eaten in moderation.

As students will learn, there are many different nutrients needed to stay healthy. Since different nutrients have different jobs, they should eat a balance of different food groups and a variety of foods within each group so they get all of the nutrients they need.

- Foods in the vegetable group can include dietary fiber, potassium, Vitamin A, Vitamin C, Vitamin K, copper, magnesium, Vitamin E, Vitamin B6, folate, iron, manganese, thiamin, niacin, and choline.
- Foods in the fruit group can contain dietary fiber, potassium, and Vitamin C among other nutrients.
- Foods in the grains group, particularly whole grains, can include dietary fiber, iron, zinc, manganese, folate, magnesium, copper, thiamin, niacin, vitamin B6, phosphorus, selenium, riboflavin, and Vitamin A.
- Foods in the dairy group can include calcium, phosphorus, Vitamin A, Vitamin D (in products fortified with Vitamin D), riboflavin, Vitamin B12, protein, potassium, zinc, choline, magnesium, and selenium.
- Foods in the protein group can include protein, Vitamin B, niacin, Vitamin B12, Vitamin B6, and riboflavin; selenium, choline, phosphorus, zinc, copper, Vitamin D, and Vitamin E. Seafood includes polyunsaturated omega-3 fatty acids. Eggs and nuts have Vitamin E. Soy products include copper, manganese, and iron.

To help reinforce the real-world connection to nutrients in their foods, students will be introduced to a Nutrition Facts label. For information and resources to help children understand Nutrition Facts labels, go to

www.fda.gov/Food/IngredientsPackagingLabeling/LabelingNutrition/ucm20026097.htm.

For specific information about these nutrients, including nutrients to encourage and limit, go to <http://www.choosemyplate.gov/nutrition-nutrient-density>. For information about other nutrients and key dietary recommendations, go to the Dietary Guidelines 2015-2020, <http://health.gov/dietaryguidelines> or to USDA's MyPlate at www.choosemyplate.gov.

In addition to the *Dietary Guidelines 2015-2020*, the United States Department of Agriculture (USDA's) MyPlate is another tool that can help students learn about and follow a healthy eating pattern. MyPlate is a pie chart that illustrates a place setting with a plate and glass divided into five food groups. For more information on MyPlate, go to www.choosemyplate.gov.

Note: As always, you will want to be sensitive to individual students' unique situations and follow your school's or district's policy when it comes to the collection of personal information related to minors. At this age, students' food choices are often most influenced by their parents and by what is available in their homes and schools. The "family connection" activity at the end of this lesson offers an opportunity to extend what is learned at home.

Additional Resources

- Centers for Disease Control and Prevention- Body and Mind!
<http://www.cdc.gov/bam/nutrition/index.html>
- USDA ChooseMyPlate- Eating healthier and feeling better using the Nutrition Facts Label
<http://www.choosemyplate.gov/sites/default/files/sites/default/files/images/NutritionFactsLabel.pdf>
- USDA ChooseMyPlate <http://www.choosemyplate.gov>
- USDA ChooseMyPlate Games <http://www.choosemyplate.gov/games>
- ChooseMyPlate Nutrient-Density <http://www.choosemyplate.gov/nutrition-nutrient-density>
- USDA Super Tracker <https://www.supertracker.usda.gov/foodtracker.aspx>
- USDA Dietary Guidelines for Americans 2015-2020
<http://health.gov/dietaryguidelines/2015/guidelines/executive-summary/>

Procedure:

Session 1: Nutrient Detectives

1. Divide students into teams and give each team a picture of an orange or, if possible, an actual piece of the fruit. Challenge the teams to list on a sheet of paper as many words

or phrases as they can in two minutes that describe the orange. Encourage them to be as quiet as possible since they will be competing with other teams. Likely descriptions will include terms like orange, round, hard, and juicy.

2. After two minutes, tell students that time is up. Ask them to count their descriptions. Then tell them that they have to cross off any descriptions that they would be able to see with their eyes. (This would include all of the descriptions listed above). Ask students to count the number of answers left on their papers. Tell them they will get an additional two minutes to add any descriptions of the orange that they wouldn't be able to see with their eyes. At the end of the time period, invite groups to again count answers. Then, go around the room and invite each group to read one answer at a time without repeating answers.
3. Explain to students that all foods have invisible elements like building blocks called nutrients that have specific jobs in our bodies. Ask students if they have any idea what nutrients are in an orange. Invite students to find a Nutrition Facts label for an orange or to go to this site where they can find one.
https://www.whatscooking.fns.usda.gov/sites/default/files/factsheets/HHFS_ORANGES_DEc2012.pdf
4. Explain that Nutrition Facts labels are included on most packaged foods to let people know what makes up the food, including the nutrients. For fruits and vegetables, we often have to go online or look for information at the store. Challenge students to list all of the nutrients that are in an orange, according to the label. This includes carbohydrates (fiber and sugar), protein, calcium, Vitamin A, and Vitamin C. Explain that the percentages next to each nutrient show one serving of the food contributes to the amount of that nutrient we should consume each day.
5. Challenge students to identify which nutrient has the highest percentage daily value in an orange. (Vitamin C). Remind students that we need a balance of nutrients to keep our bodies functioning. Some nutrients are especially important to our health so we should try to get plenty of them each day. Other nutrients are also important to help our bodies function, but we should consume them in moderation because too much of them is not good for us. Today, they will be Nutrient Detectives to learn all they can about one nutrient found in foods. They then will need to create a project to help teach that information to the rest of the class.

6. Divide students into research teams. Assign each team of detectives one nutrient from the Nutrition Facts label or invite them to select one of their choice. Distribute the “Nutrient Detective Capture Sheet.” Explain that each research team’s job is to develop 5-8 questions they would like to learn about their nutrient and to then research to learn the answers. Suggested questions are included. Give students ample time and resources to conduct research. They can use books from the library or web sites included in the Instant Expert section. Each student should complete his or own research sheet but they can work together to find the information. Students may need additional time at home to complete research.
7. Inform students that when they have completed their research, they must develop an interesting, creative presentation or project to help teach other students about their nutrient. Their project could be a newspaper article, interview show, nutrient trading card, graphic novel poster, Prezi, PowerPoint presentation, graffiti wall, or poster. They must somehow include answers to all of the questions in their project.

Session Two: Teach and Reteach

1. After research is completed, invite students to teach the rest of the class about their nutrient. Once all groups have presented, invite students to make connections between nutrients and to draw conclusions about why a balance of different types of nutrients are important.
2. Finally, distribute Nutrition Facts labels to each group. As the final part of their mission, challenge them to identify how much of the nutrients they researched are in the foods that the labels represent. You may want to share that the percentages next to each nutrient amount is a guide to the amount of that nutrient in one serving of food compared to what is needed each day. Distribute the “Nutrition Facts label capture sheet” to help them capture this information.
3. Invite groups to share their observations. Challenge students to identify knowing about nutrients can help them maintain wellness.

You Decide: *This feature helps to reinforce decision-making with students and can be integrated into the lesson or serve as an extension.*

Right now, students’ food choices may be primarily influenced by their parents, caregivers, and school cafeteria staff. But, as they get older, they will be able to make more food choices for

themselves. Invite students to identify nutrients that they may not get enough of along with strategies for how they could increase their daily intake of those nutrients.

Family Connection:

Invite students to work with family members to identify all of the nutrients that are part of one family meal.

For other tools to extend learning outside of the classroom, refer to the School-to-Home activities on TogetherCounts.com. Begin these activities together at school and then encourage students to continue them with their families.

Community Connection:

Invite someone from the school nutrition staff at your building or at the district-level to explain how information about nutrients play a role in the foods that are selected to be part of the school breakfast or lunch menu.

Standards Correlations:

National Health Education Standards

- Students will comprehend concepts related to health promotion and disease prevention to enhance health.
- Students will demonstrate the ability to access valid information, products, and services to enhance health.
- Students will demonstrate the ability to advocate for personal, family, and community health.

SHAPE America, National Physical Education Standards

- Recognizes the “good health balance” of good nutrition with physical activity.

Common Core State Standards for English Language Arts

- Participate in collaborative conversations with diverse partners about grade level topics and texts with peers and adults in small and larger groups.
- Ask and answer questions about what a speaker says in order to gather additional information or clarify something that is not understood.
- Add drawings or other visual displays to descriptions when appropriate to clarify ideas, thoughts, and feelings.
- With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.

- Distinguish between information provided by pictures or other illustrations and information provided by words in text.
- Determine or clarify the meaning of unknown and multiple-meaning words and phrases.

** Source: <http://www.choosemyplate.gov/snapshot-2015-2020-dietary-guidelines-americans>

Student Activity Sheet: Nutrient Detective Capture Sheet

1. Choose a nutrient.
2. Develop 5-8 questions you would like to research about your nutrient.
3. Research and record answers below.
4. Once your research is finished, work with group members to develop an interesting, creative presentation to teach the rest of your class about your nutrient. Present answers to all of your questions. Be sure to involve all group members in the presentation.

Name of nutrient:

Question 1:

Question 2:

Question 3:

Question 4:

Question 5:

Question 6:

Question 7:

Question 8:

Possible questions

What is my nutrient?

Why is my nutrient important?

What job does my nutrient have in the body?

Why does the body need my nutrient?

Which food groups commonly have this nutrient?

Which foods are good sources of my nutrient?

Is there more than one type of this nutrient?

How much of this nutrient should kids your age have each day?

Is it considered a nutrient we want to eat plenty of or a nutrient we want to eat in moderation, and why?

What's one strategy for eating more (or less) of my nutrient?

What is one interesting fact about my nutrient?

Does the way foods are prepared or cooked affect my nutrient?

Student Activity Sheet: Nutrition Facts Label Capture Sheet

Food:

Nutrient	Serving Size	Amount of Nutrient	%DV

My observations about this food: