

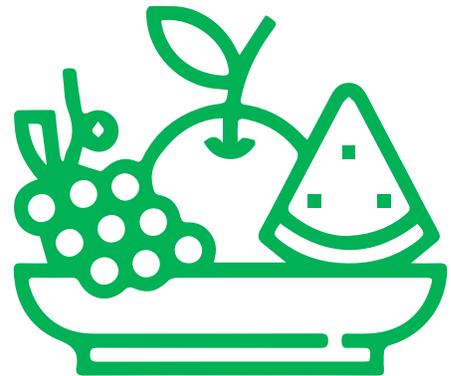
NUTRIENT WISE

AGE RANGE

10–13

OVERVIEW

Students will learn the different types of essential nutrients that organisms need to support growth, form new molecules, and release energy. Students will synthesize information and investigate what nutrients are in common foods. They will use this information to summarize why we need nutrients and what nutrients do for our body to reduce the risk of developing noncommunicable diseases (NCDs).



TIMING

45–60 minutes

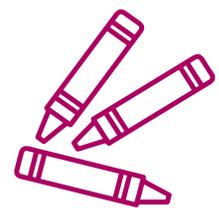
OBJECTIVES

Students will

- Identify the essential nutrients for growth and energy production
- Investigate the nutrients present in common foods
- Explain why nutrients are important in reducing the risk of developing NCDs

MATERIALS NEEDED

- Pencil, one per student
- **Essential Nutrients** student handout, one per student*
- **Essential Nutrients Answer Key**, one per educator
- **Nutritional Recommendations** student handout, one per student*
- **Nutrients and NCDs** student handout, one per student*



**Note:* There are facilitation options below if the students are in a virtual situation. Handouts can be provided electronically to be printed at home or as an editable Microsoft Word template to be submitted via email, learning management system, or as a live/shared document.

EDUCATOR PREPARATION

- Before each session, make sure students have access to the required handouts. If students are learning virtually, they can print them out at home or utilize shared online documents. You can also make them available through your chosen virtual learning platform or learning management system.
- If an activity calls for working with a partner or group, students learning virtually can share their answers out loud or write their definitions down to reference later, add to a live/shared document, or comment in a chat box. Alternatively, you can prepare breakout rooms in your learning management system prior to your session.
 - Platforms like [Zoom](#) allow you to pre-assign participants to breakout rooms. [Google Meet](#) will randomly distribute participants.



PROCEDURE

Engage

1. For approximately **4–5 minutes**, engage students in the upcoming lesson by asking one or more discussion questions similar to those below.
 - What makes something “food”?
 - What are “nutrients”?
 - What are some nutrients that you can name?
 - How do living things use nutrients?
 - How can we get more nutrients?
 - Do nutrients keep us healthy?

VIRTUAL FACILITATION OPTIONS

- If students are on video and/or able to use microphones, allow them to share their answers out loud.
- If students are not using video or microphones, encourage students to write their answers down to reference later or use the chat feature.

Learn¹

2. Explain to students that a noncommunicable disease or NCD is any disease that is not contagious and cannot be spread to others, unlike the flu. Some examples of NCDs are type 2 diabetes and heart disease.
3. Clarify that an NCD is often the result of a lifestyle choice, such as lack of physical activity or not making the most nutritional food choices possible. Explain that one way to make nutritious food choices is to pay attention to how much of nutrients they are consuming every day.
4. Remind students that “food” is a nutritious substance that people can eat or drink to help them live and grow. While it is usually made up of organic substances like plants, animals, or fungi, it can also be manufactured. Not all foods are equal in providing the essential nutrients needed to fuel and strengthen our bodies, so students will be investigating essential nutrients during today’s session.

¹ <https://bit.ly/31f5ddk>

5. Ask one or two volunteers if they know what nutrients are essential for any organism to grow and produce energy. Reinforce that all living organisms need hydrogen, oxygen, and carbon. From these, organisms like plants can create all the other nutrients they need. However, humans need to get most of their essential nutrients from food.
6. Distribute the **Essential Nutrients** handout to each student. Instruct students to fill in the first three boxes. Then ask one or two volunteers if they know what five essential nutrients humans need. Anticipated responses will probably include various types of vitamins (i.e., A, C, D, etc.), calcium, etc. Reinforce things that fit into the categories listed on the answer key while addressing any misconceptions as they arise.
7. Inform students of the five essential nutrients as they record them on their handouts, using the **Essential Nutrients Answer Key** as reference. Provide them with the main function of each nutrient. Ask students to provide examples of each of the nutrients to record on their handout, supplementing with those listed on the answer key when needed.

VIRTUAL FACILITATION OPTIONS

- If students are in a virtual situation, consider using a live document.

Apply



8. Remind students that in order to have a healthy and balanced diet, it is important to consume the right kinds and right amounts of nutrients. For example, sugary snacks and sodas have plenty of carbohydrates to provide short bursts of energy, but they aren't broken down in the same way as complex carbohydrates, like whole grain bread or brown rice. Over time, eating these types of foods will probably just lead to weight gain and other health issues such as type 2 diabetes and heart disease, rather than sustained energy and overall health. Likewise, highly processed food such as potato chips might contain potatoes but have little of the nutritional benefit of eating an actual potato, because they have been so processed.
9. For that reason, it is important to know the nutritional recommendations for each day, so they are able to make the most nutritious food choices possible. Distribute one Nutritional Recommendations handout to each student and give them a moment to review the MyPlate recommendations and investigate how each portion of the plate relates to the essential nutrients needed by humans.
10. Challenge students to think of five common foods that are both nutritious and contain essential nutrients for human health. Encourage students to make sure that all five essential nutrients are represented. If they can think of more than five examples, even better! Examples might include: brown rice, whole grain bread, milk, chicken, eggs, bananas, oranges, spinach, potatoes, peppers, peanuts, etc.

VIRTUAL FACILITATION OPTIONS

- If students are in a virtual situation, consider using a live document or the chat feature.

Challenge

11. Distribute one **Nutrients and NCDs** handout to each student. Read the instructions aloud and answer any questions. Encourage students to use all of their handouts as reference when writing their summaries.
12. Provide students with time to write their summaries, making yourself available to answer questions and facilitate understanding when needed.



Discuss (Assigned Volunteer(s) _____)

13. Invite students to share their conclusions with the class. After one has shared, he/she can “popcorn” to another student to share. To “popcorn” means the student will call out the next student’s name so he/she can “pop” up and begin sharing. Continue this activity until all have shared their summaries, as time permits.

VIRTUAL FACILITATION OPTIONS

- If students are in a virtual situation, consider using the chat feature or a shared/live document.

Reflect (Assigned Volunteer(s) _____)

14. If not addressed in students’ summaries, make sure that you reinforce the following before ending the session:
 - Making nutritious food choices will give you the nutrients you need to help you grow and learn as well as more sustained energy to play better every day.
 - Making nutritious food choices is one way to reduce your risk of developing NCDs like type 2 diabetes and heart disease in the future.
 - One way to make nutritious food choices is to follow MyPlate guidelines and eat a balanced diet.
 - Make sure your food choices include the five essential nutrients for humans: carbohydrates, fat, protein, vitamins, and minerals.

EXTENSION IDEAS FOR EDUCATORS

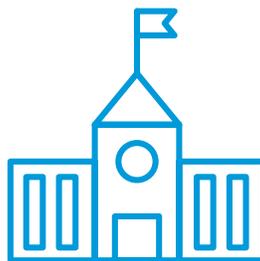
- Provide students with the opportunity to design a restaurant menu based on the nutritional recommendations and essential nutrients.
- Invite students to discuss the nutritional recommendations and essential nutrients with their families and analyze their grocery lists to see if they are making the most nutritious food choices possible.



NATIONAL CONTENT STANDARDS

UNITED STATES

- [National Health Standards](#)
 - Standard 1: Students will comprehend concepts related to health promotion and disease prevention to enhance health.
 - Standard 3: Students will demonstrate the ability to access valid information, products, and services to enhance health.
 - Standard 6: Students will demonstrate the ability to use goal-setting skills to enhance health.
- [Common Core State Standards for English Language Arts](#)
 - Writing
 - CCSS.ELA-LITERACY.CCRA.W.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
 - Speaking and Listening
 - CCSS.ELA-LITERACY.CCRA.SL.1 Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.
 - CCSS.ELA-LITERACY.CCRA.SL.2 Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.
- [Next Generation Science Standards](#)
 - MS-LS1: From Molecules to Organisms: Structures and Processes.



ESSENTIAL NUTRIENTS

All living organisms need the following nutrients to grow, produce energy, and reproduce:

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Humans also need the following essential nutrients from food:

ESSENTIAL NUTRIENT	MAIN FUNCTION	EXAMPLES

ESSENTIAL NUTRIENTS | ANSWER KEY

All living organisms need the following nutrients to grow, produce energy, and reproduce:

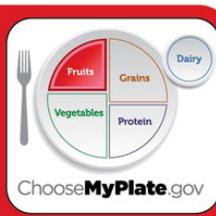


Humans also need the following essential nutrients from food:

ESSENTIAL NUTRIENT	MAIN FUNCTION	EXAMPLES
Carbohydrates	Provide energy	Brown rice, whole grain bread, noodles, tortillas
Proteins	Make up muscles, skin, organs, and blood	Meat, fish, eggs, beans, soy
Fats	Back-up energy	Whole milk, butter, avocado, olive oil
Vitamins	Help maintain healthy bodily functions	A, B, C, D, E, K usually found in fruits and vegetables
Minerals	Help maintain healthy bodily functions	Calcium, Magnesium, Sodium, Potassium, Iron

NUTRITIONAL RECOMMENDATIONS

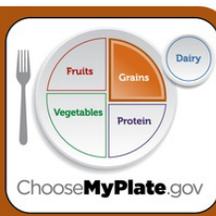
What's MyPlate All About?



Fruits include many vitamins, such as Vitamins A, C, D, and E and minerals, such as magnesium and zinc.



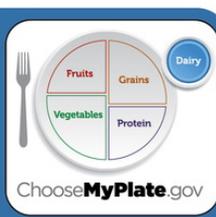
Vegetables include many vitamins, such as Vitamins A, C, and K and minerals, such as potassium and calcium.



Grains, especially whole grains, provide complex carbohydrates, fiber, and many B vitamins.



Protein foods are one of the three nutrients that provide calories, along with carbohydrates and fat.



Dairy provides many nutrients such as calcium, Vitamins A and D, and protein.

USDA United States Department of Agriculture
Center for Nutrition Policy and Promotion

Five common and nutritious foods that include essential nutrients for human health:
