

Protein & Food Safety

Create My Plate for Teens Grades 6-8

MATERIALS NEEDED

Glo germ kit, MyPlate poster, access to screen to view video, food items, food safety infographic sheet, snack ingredients

OVERVIEW & PURPOSE

Students will learn about the importance of protein in their diets and how to handle food safely.

Utah Health Education Standards 2; Objective 1

1. Objective 1: Describe the components and benefits of proper nutrition.

SNAP-Ed Message

1. Identify the healthiest forms of protein and what foods have protein.
2. Identify nutrients in the protein groups and how they help our bodies.
3. Demonstrate how many ounces of protein they need to eat each day and discuss how much 5.5 ounces is.
4. Taste a food from the protein group.
5. Identify symptoms of food-borne illness.
6. Learn how fast bacteria multiply.
7. Learn the 4 steps to food safety.
8. Learn how taking care of food properly reduces the chance of a food-borne illness.
9. Learn that there are good bacteria and how they help your body.

BACKGROUND INFORMATION (not to be taught as part of the lesson)

Protein is an essential nutrient that we must consume everyday in order to fuel our bodies. Many animal proteins are high in saturated fat and are recommended to be consumed in moderation. Adding plant-

based and leaner protein sources are smart choices. Protein foods are also major sources of microbes that cause food-borne illness. Maintaining proper food safety will help prevent sickness.

PROTEIN

Anchor:

Have an assortment of the plastic demo foods, some packaged foods/snacks (single packet of nuts or PB, can of beans, jerky, plastic egg, (empty) yogurt cup, protein bar, canned fish, etc) and some fruit/veg on the table in a pile. Select a few of the protein food items and apply a liberal coating of glo-germ to them before class, but make sure they're dry before starting class. You'll want everything mixed and touching because this will help demonstrate the importance of food safety in the second portion of the class.

(MyPlate poster) Today we're learning about protein! It's in lots of different foods. We have a big pile of groceries here on the table, let's sort out the protein foods from the rest of the food. Ask 2 or 3 students to come up and separate the protein items from the rest of the foods and leave them in the center.

Ask students for input; did they miss anything?

Are there any foods in the protein pile that maybe don't belong?

Ask students for more examples of protein-rich foods that aren't included on the table (this will vary depending on which items you have in the demo).

Add:

Why is protein an important part of our diet?

Our bodies can't store protein but every single cell needs it to function, so it's important to eat protein throughout the day. It supports lean muscle mass and helps repair tissues.

Protein-rich foods also contain essential vitamins and minerals. Does anybody know what vitamins and minerals are found in protein foods? (they will probably know some of these already, like iron found in red meat)

- Iron: important for red blood cells' ability to carry oxygen (forms part of hemoglobin) and eliminate carbon dioxide
- Zinc: healthy skin, appetite, immune function
- B-vitamins: healthy skin and appetite, supports healthy metabolism (how our bodies use food)
- Omega 3 fatty acids: found in fish, supports heart health and skin
- Fiber: found in beans, supports healthy gut function

Apply:

We have our protein foods separated out, which protein foods are the healthiest for us? Let's work together as a class to rank them or put them into healthy/mostly healthy/least healthy groups.

Bring another student or two up to the front to help sort the protein items into groups while you make a list of the students' ideas of categories on the board. How would we go about determining which items are healthier? How would we group these protein foods? What do they have in common?

- How the items were cooked (fried vs grilled)
- Maybe how processed the item is
- What type of meat (lunch-meat or bacon vs chicken breast)
- Look at ingredient lists and nutrition fact labels
- What nutrients would you watch out for? Sodium and fats mostly
- Plant-based or animal protein (plant-based sources tend to be lower in fat and calories)

Decide on a few different categories and have the student put the food items into their corresponding groups: fish, beans, nuts/seeds, chicken/turkey, eggs, game meat, beef, pork and mutton/lamb are ranked in order of healthiest (lowest cholesterol) to least healthy.

Diets high in saturated fat are associated with increases in unhealthy cholesterol and heart disease which even young people are becoming more susceptible to.

Away:

Protein doesn't take up a lot of space on MyPlate, does it? So, how much do we need to eat?

5.5 ounces or 50 grams. Do you think you eat more or less than that everyday?

Most Americans eat enough protein but need to add in leaner choices, like plant-based proteins and fish.

What happens if we get most of our protein from the sources that we identified as being less healthy?

- We might over-consume nutrients that we don't need, like sodium or fat

Transition to food section portion of lesson: Let students know that you forgot one really important piece of information about the protein group...that sometimes meat can have some really nasty germs on it...should we see if any of protein foods were contaminated?

FOOD SAFETY

Anchor:

Turn off the lights and get out the blacklight to find the glo-germ contamination that has surely spread across the classroom at this point. Tell the students that the glowing represents germs that can spread from meat to other surfaces and foods. Check the hands and desks of the students who helped sort out the food, look at the non-protein food items and see if the glo-germ transferred to any of those, etc.

Are all germs bad? No, not at all! We have lots of beneficial bacteria that live on our skin and microbes that live in our guts to help us break down food. The problem is that some types of microbes can make us really sick if it's in or on our food, which is called food-borne illness.

Food-borne illness is also sometimes called "food poisoning". Has anyone here had food poisoning before? What kind of symptoms did you have?

Pass out food safety infographic/worksheet for students to fill in.

Add:

Almost 48 million people get food poisoning in the US each year, that's about 1 in every 6 people.

Does anyone know *how* food can make us sick?

- There could be germs (bacteria, viruses) growing on or in the food if it isn't handled properly
- Cross contamination between uncooked meat and foods that don't need to be cooked
- Maybe someone who touched the food forgot to wash his/her hands after going to the bathroom, bringing their bathroom germs onto your food--YUCK!
- Some germs produce toxins as they grow in or on our food, those by-products can make us sick too

There are 4 main ways we prevent food-borne illness, does anyone know what they are? Clean, separate, cook and chill.

Clean:

- What to clean: hands, surfaces and utensils, everything!
- Use soap and water to clean hands, dish detergent for dishes and utensils
- Sanitizing sprays or soapy water for surfaces
- Wash hands for 20 seconds and rinse well

Separate:

- Separate, don't cross contaminate! (Think about how easily the germs spread with the glo germ activity!)
- Keep raw meat and foods with raw eggs away from cooked foods or foods that are eaten raw/don't need to be cooked (fresh fruit and veg, bread, etc.)
- Bacteria on the surface of meat can easily get onto other foods
- Separate raw protein in the fridge, while preparing meals, and when serving

Cook:

- Cooking food to the appropriate temperature kills bacteria
- The recommended temperature varies between proteins, but most bacteria are killed at 165 degrees
- Using a thermometer is the most accurate way to make sure your food is safe

Chill:

- The "danger zone" for bacteria growth is between 40-140 degrees
- These are the temperatures where bacteria can *double* every 20 minutes
- What temperature is this room? (if there's a thermostat, check it otherwise have the kids guess)
- Do you think leaving food out at room temperature then is a good idea?
- Getting food chilled quickly, refrigerating it within 2 hours, helps slow bacteria growth and keeps food safe

Apply:

How could we have prevented these "germs" from getting all over our classroom?

- Kept the protein items separate
- Washed hands before and after touching them
- Washed the counter

Away:

We're going to watch a video of someone cooking. Every time you see something that goes against our 4 rules, say "fight bac!" (You could pause every time she does something wrong and ask the students what happened, but there's a lot of mishaps, so it might be best to wait until the video is finished and recap what happened). You don't have to watch the whole video if time doesn't allow for it.

<https://www.youtube.com/watch?v=IA8IW5abQTg&list=PLHf8srzO32d8rF-ns5gHMn3h7zbuU9ED&index=41>

HEALTHY SNACK

SOURCES

Centers for Disease Control and Prevention. (n.d.) *National Center for Emerging and Zoonotic Infectious Diseases: Foodborne Illness, 4 Steps to Food Safety*. <https://www.cdc.gov/ncezid/what-we-do/our-topics/foodborne-disease.html#:~:text=CDC%20estimates%20that%20each%20year,are%20hospitalized%2C%20and%203%2C000%20die.>