

GROW YOUR PALS PROGRAM GUIDE



THE NATIONAL FFA MENTORING PROGRAM

Sponsored by



LESSON 43

*Understanding the importance of protein and calcium
in milk*

Unit:
FOOD SCIENCE

PRECEPTS

- G. Physical Growth
 - G1. Practice healthy eating habits

NATIONAL STANDARDS

NPH-H.K-4.1 Health Promotion and Disease Prevention



Lesson Type:
One-on-one

STUDENT LEARNING OBJECTIVES

As a result of this lesson, the student will ...

1. Define protein and calcium.
2. Identifying the importance of protein and calcium.





TIME

Instruction time for this lesson: **15 minutes.**



RESOURCES

<http://kidshealth.org/kid/htbw/bones.html>



TOOLS, EQUIPMENT AND SUPPLIES

- ✓ writing surface
- ✓ notebook paper
- ✓ 2 small jars with lids
- ✓ 2 chicken leg bones
- ✓ water
- ✓ vinegar
- ✓ writing utensil

Optional supplies

- ✓ homogenized whole milk
- ✓ saucepan
- ✓ stove or Bunsen burner
- ✓ hot cocoa mix

KEY TERMS



The following term is presented in this lesson and appears in ***bold italics***:

protein
calcium

INTEREST APPROACH



Let's see who is the strongest. Make a muscle. *Have your PALS make a muscle or take a moment to have a quick arm wrestling game with him or her. Discuss who is the strongest and what things make us grow stronger.*

What makes us grow? What things make us strong? *Allow time for responses.*



Today we are going to explore two substances that help make our bodies grow and become stronger.

These things are known as **protein** and **calcium**.

SUMMARY OF CONTENT AND TEACHING STRATEGIES

OBJECTIVE 1: | Define protein and calcium.



*Have your mentee take out a piece of paper and ask him or her to define **protein** and **calcium**.*

Protein is a nutrient that is essential to life. It is found in many animal, vegetable and synthetic sources. Our bodies use **proteins** to grow, move, reproduce, repair and digest.

Calcium is a mineral that is essential to life. Our bodies use **calcium** to build strong bones and teeth, contract and relax muscles, keep nerves healthy and clot blood.

Use the Hieroglyphics Moment for your mentee to define these words. When using the Hieroglyphics Moment your mentee will create pictures or icons that will help them to remember the information presented. Ideas include someone running, someone eating, teeth, bones, etc.



OK, now in what foods do we find **protein** and **calcium**?

*Make a list of the different foods that contain **protein** and **calcium**.*

Protein: Animal foods such as meat, fish, poultry, milk and eggs are rich in **protein**. Plant sources are beans, peas, nuts and whole grain breads and cereals.



Calcium: Milk and other dairy products such as cheese, yogurt and ice cream are good sources of **calcium**. So are leafy greens, nuts and small boney fish.

OBJECTIVE 2: | Identifying the importance of protein and calcium.



*Talk with your PALS about why we need **protein** and **calcium** in our bodies. What would happen if our bodies did not have any **calcium** or **protein**? Let's take a look.*

Place one chicken bone in a jar and cover it with tap water. Place another bone in a jar and cover it with vinegar. Put the lids on. Wait a few days to see how one becomes softer than the others. Cut the bones.

*(You may do this step in advance to have the bones ready to discover.) Discuss why it is important to have a healthy diet to insure we get the things, such as **calcium** and **protein**, we need. Without protein and calcium in our diets, our bones would become weak and brittle and our muscles would not develop properly nor function normally.*

Within the experiment you should see how the vinegar makes the bones soft, bendable and breakable. Discuss what happens to the nutrients. The vinegar dissolves the calcium that is located in the chicken bone, the lack of calcium allows the bone to become flexible and break. Whenever you run, sit, walk or even stand, your bones and muscles are working together in the activity. Bones are similar to the framework of a building; they provide the shape and protection. Without strong bones and muscles we would not have the ability to participate in many of the daily activities that we enjoy, like gym class, sports, etc.



REVIEW / SUMMARY / EVALUATION

Use the Me-You-Us Moment to share what they have learned or seen today. Me-You-Us allows the mentees to share their knowledge by first recalling to themselves the information presented. They will then share the information with you, and then you can challenge them to share the information with a small group, their class or family members at home.

APPLICATION



Large Group Suggestion: *Have students heat milk to see how it coagulates, and then let them make hot cocoa. (Be sure there are no food allergies to milk.)*



Small Group Suggestion: *Discuss the functions of bones in the body. Discuss the importance of the skeletal system.*