Be Strong! Get your calcium-rich foods!

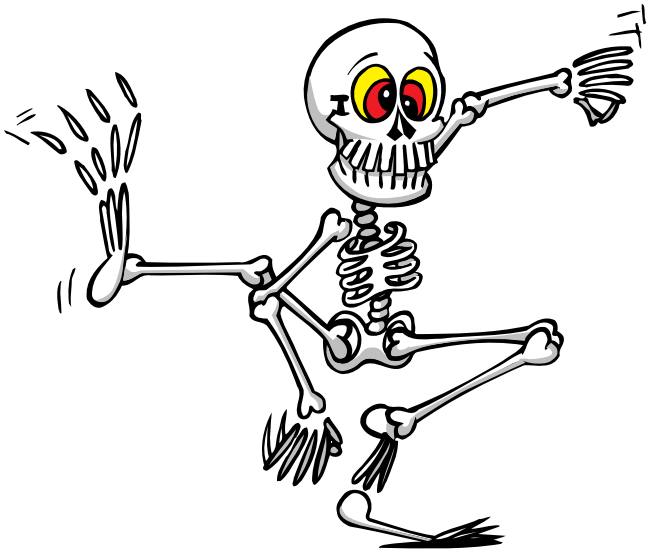
Bone Building

Objectives:

- Students will be able to identify calcium-rich foods.
- Students will understand how much calcium is necessary for healthy bones.

Materials Needed:

- Included in the lesson:
  - Calcium content worksheet
  - Bone graph worksheet
- Straws



Lesson Introduction:
Begin by discussing the following questions with students. What do bones do? What are they like? What makes them strong? How do you build strong bones? (Bones protect us and make it possible to sit, stand, eat, move, etc. Consuming calcium-rich foods and drinks and being physically active help build strong healthy bones.) For more information go to http://kidshealth.org/kid/htbw/bones.html

Ask students, "How many milligrams of calcium do most fourth graders need every day?" Discuss that 9-18 year olds need 1300 mg. This is almost twice as much calcium as younger kids need because 9-18 year old bodies are really busy building and growing bones. Unfortunately, fewer than one in ten girls and only one in four boys ages 9 to 18 get enough calcium.

Activity:
1. Ask students if they know what 1300mg of calcium looks like? Explain that students will take part in an activity that will help them understand how much and what kinds of food they need to consume 1300mg of calcium every day.

2. Divide class into groups of three or four. Each person in the group will pick a food from the calcium content list that they like to eat. The group will add up the total amount of calcium from their food choices and record it on the bone graph.

Remind students that although they are completing this activity in groups, each one of them should consume enough calcium to fill up the bone graph on their worksheet.

Continued on back

Funded by USDA's Supplemental Nutrition Assistance Program (SNAP), an equal opportunity provider and employer, in collaboration with the Iowa Department of Public Health and your school district. Iowa's Food Assistance Program provides nutrition assistance to people with low income. It can help you buy nutritious foods for a better diet. Go to www.yesfood.iowa.gov for more information.

3. As a group, students will then build their bone by gathering the correct number of straws corresponding to the amount of calcium on their bone graph. Each straw will be worth 100 mg. When all groups are finished, have one person stand up from each group and show the class how strong their bones are by trying to bend their total number of straws in half. The more straws in a bundle (representing more calcium) the harder it is to bend the bundle.

Alternatively, show how one straw bends easily but as more straws are added together, they are harder to bend. This represents how our bones are stronger as we add calcium to them.

Activity Extension:
Science: Explore the role of vitamin D in calcium absorption.

Book: *Bonz Inside-Out* by Byron Glaser & Sandra Higashi

Science: What do egg shells and our bones have in common? (Calcium makes them strong.) Conduct an egg shell experiment. Hard boil two eggs or use pieces of an egg shell. Cover one egg (shell) in vinegar and one in milk. Observe what is happening. Predict what will happen to the egg shell in one day. The shell covered in vinegar will be flexible. This experiment can be done with bones, but it will take several days for the bones to soften.

Student to Student game
Have students stand in groups of two. Name two bones using the scientific or common names (See table for names of bones that work well for this activity). The students will touch the two bones together.
For example, the leader says, "cranium to scapula" or "skull to shoulder blade." Students will touch one person's head with the other person's shoulder.

Common Name	Scientific Name
Skull	Cranium
Shoulder blade	Scapula
Funny bone (arm or elbow)	Humerus
Spine	Vertebrae
Wrist	Carpals
Kneecap	Patella
Shin bone	Tibia

Name _____

CALCIUM CONTENT OF FOODS

Name of Food	Serving	Calcium Content
Plain yogurt, fat-free 	1 cup	450
Fruit yogurt, low-fat 	1 cup	340
Milk (1% or fat-free) 	1 cup	300
Swiss cheese 	1 oz	270
String Cheese (Mozzarella, part skim) 	1 oz	210
Cheddar cheese, low-fat or fat-free 	½ cup	200
Ice cream or ice milk 	1 cup	200
Frozen yogurt 	1 cup	200
Cheese pizza 	1 slice	200
Cottage cheese 	1 cup	160
Pudding, prepared 	½ cup	150
Macaroni and Cheese 	1 cup	100

Calcium in Foods

Instructions: Write your favorite dairy foods or drinks in the "name of food" column. Look at the Calcium Content of Foods worksheet or nutrition label and write down the amount of calcium in the food. Add the amount of calcium and write in the "total" box. Finally, color in the bone to the total amount of calcium in your favorite foods! Does it total 1300 mg?

Name of Food	Calcium Content

TOTAL _____