

## *Build Your Bones, Girlfriend!*



## National Health Education Standard

### STANDARD 1\*

Students will comprehend concepts that enhance personal, family, and community health.

## Learning Objectives

After completing this lesson, students will be able to meet the following objectives:

- Explain the importance of calcium and vitamin D for bone health and prevention of osteoporosis.
- Name the quantities of calcium in various dairy and non-dairy foods.
- Identify dietary supplement sources that provide the recommended daily amount of calcium.
- Explain how physical activity (exercise) contributes to bone growth and health.

## Lesson Overview

This lesson is geared toward female youth ages 11 to 14, and will provide the following learning opportunities:

- Create discussion and raise awareness about their calcium needs — that pre-teens and teens need more calcium than adults (1,300 milligrams per day for teens versus 1,000 milligrams per day for adults).
- Help students recognize good sources of calcium.
- Demonstrate the importance of making good food choices to help ensure bone health.
- Explain how their bone health can be negatively affected when their diet contains too little calcium or when they get too little physical exercise.

## Materials

- MS PowerPoint lesson slides and handouts
- MS PowerPoint activity "*The Calcium Game*"
- 4-fold brochure, "*Build Your Bones, Girlfriend*"

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### Teacher Preparation Time

- 30 minutes.

### Teacher Preparation Activities

- Make enough copies of the handouts/ brochures so that every student has one set.

### Classroom Activity (Calcium Lesson)

#### Activity Steps:

- Ask students if they know what calcium is and why it is important.
- Highlight the following responses:
  - Calcium is necessary for building strong bones.
  - Bones grow fastest during adolescence
  - During ages 9 to 18, people need the most calcium—1,300 milligrams (mg) of calcium every day.
  - If you don't get enough calcium during these years, you can't make up for it later.
  - Once teens finish the growth spurts around age 18, 90% of adult bone mass is achieved.
- Ask students to name foods that are high in calcium.
- Highlight the following responses:
  - Many foods contain calcium. But dairy products—milk, yogurt, and cheese—are particularly excellent sources.
  - Milk products aren't the only sources of calcium.
  - Because some people have trouble digesting milk products, and others choose not to consume them, some food companies are adding calcium to foods that don't naturally have it. There are calcium-fortified soy beverages, orange juice, sports bars and shakes, and breakfast cereals.
  - Another way to get calcium is by eating non-dairy foods that have smaller amounts of calcium, such as dark green leafy vegetables, almonds, figs, beans.
  - Another way to get calcium is by taking supplements which can be pills, capsules, chewables, or other forms.
- Ask students whether they know why vitamin D is important to bone health.
- Highlight the following responses:
  - Vitamin D is required for the absorption of calcium
  - We need about 400 International Units (IU) of Vitamin D each day
  - We make vitamin D in the body when the sun's UV rays make contact with our skin
  - Sunscreens greater than SPF 8 block our ability to make vitamin D

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- Ask students to name good food sources of vitamin D
- Highlight the following responses:
  - Some milk products, such as yogurts, also have vitamin D
  - Much vitamin D comes from butter, margarine, eggs, fish, seafood & mushrooms
  - Many supplements contain both calcium and Vitamin D
- Ask students if they know why physical activity (exercise) is important to bone health
- Highlight the following responses:
  - All exercise is important, but in particular weight-bearing exercise – running, walking, tennis, basketball – just about every exercise form except swimming and bicycling.

## Task: Classroom Activity (Calcium Game)

### Activity Steps (For Teachers):

- Divide students into teams for this game. Have each team assign a scorekeeper
- Explain the object of the game is to score the most correct answers.
- Display each question on the screen and allow teams to “score as they go.”

## Task: Classroom Discussion

### Discussion Questions:

1. What foods from the list are higher in calcium than others?
2. Which ones were you surprised about?
3. What is the relationship between Vitamin D and sunscreens?
4. Should you change sunscreen habits because of Vitamin D?
5. Why is getting good exercise and physical activity important for building bone?

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### Task: Class Assignment

#### Information Sheet for Activity

*The school newspaper is looking for information for an article about how we make our bones. Your assignment as a young reporter is to find information for the article for the newspaper editor, your teacher. Calcium and vitamin D work together to build strong bones, and strong teeth. Calcium also is needed for muscle contraction and blood clotting. We also can have stronger bones by weight-bearing exercise.*

1. Why does the body need calcium?
2. Explain why it is important to get enough calcium during teen years.
3. Describe the time period when most of the bone tissue is formed.
4. Locate good sources of calcium-rich foods – remember some foods are **NATURALLY** rich in calcium, and other foods are **FORTIFIED** with calcium. You can use both.
5. Where else, besides foods, can we get calcium?
6. Find out how much calcium a teenager needs each day. Then use your food list from #4 above to show which foods to eat and how much of them to eat so that a teenager get the needed calcium?
7. Describe the importance of Vitamin D in bone growth?
8. What are some good sources of vitamin D?
9. Interview a classmate about changes that could be made in what he/she eats to increase the amount of calcium and vitamin D intake. Focus on foods that he/she enjoys and eats often at home and school.
10. What else, other than foods, contributes to building good bones?