Lesson Overview
The educator will lead an interactive discussion focused on eating for fitness. Students will discover that food supplies the building blocks for their growth and development, contributes to health and learning, and provides the fuel to play for at least 60 minutes each day. Students will then participate in an active game that reinforces the importance of nutrition and fitness in building strong bones.

Using the Fuel Up With Milk – It Does a Body Good! poster, students will complete an activity sheet that highlights the nine nutrients found in milk. The optional Fuel-up Food Prep activity features Energy Boosting Trail Mix paired with low-fat or fat-free plain or flavored milk.

Lesson Objectives
The student will:
1. Discover the important role that food plays in building bones and bodies for fitness and learning.
2. Participate in an active “food game” that reinforces the importance of nutrition and fitness in building strong bones.
3. Use the Fuel Up With Milk – It Does a Body Good! poster to complete an activity sheet which highlights the 9 essential nutrients found in milk.
4. (optional) Gain food preparation skills by making Energy Boosting Trail Mix served with milk, a simple, fun, nutrient-rich snack.

Academic Integration
Health, Critical thinking, Science, Language Arts

Leader Background
This lesson ties in with the content and goals of the Fuel Up to Play 60 program. With an emphasis on building strong bones and bodies for fitness, students are enticed to choose more servings of nutrient-rich foods, including dairy, fruits, vegetables, grains and protein foods.

Because the bones continually grow and develop throughout childhood and young adulthood, it is important to have adequate dietary calcium and vitamin D in these bone-building years. The recent 2010 Dietary Guidelines for Americans policy report identified calcium and vitamin D as two of the four nutrients of concern (the other two are potassium and dietary fiber).
Page 2: Eating for Fitness: Building bones and healthy bodies

In addition to the food we eat, weight-bearing exercise contributes to the development of healthy bones and helps them become stronger. Weight-bearing means your muscles and bones are working against gravity and includes activities such as walking, jumping, running, dancing, soccer, tennis, basketball, karate and lifting light weights (i.e. 2-5 pounds). Studies show that children are not getting enough calcium, vitamin D or physical activity.

Dairy foods, including milk, yogurt and cheese, are a significant source of calcium. Fluid milk and some brands of yogurt provide a good or excellent source of vitamin D. Children ages 2-8 require 2.5 servings of dairy a day while children ages 9-18 require 3 servings daily. A serving is 8 ounces of yogurt or low-fat or fat-free milk (white or flavored) and 1.5 ounces of cheese. The 2015 Dietary Guidelines for Americans note that it is especially important to establish the habit of drinking milk in young children, as those who consume milk at an early age are more likely to do so as adults.

As time and resources permit, consider conducting the Fuel-up Food Prep activity. Students gain life skills and are more willing to try nutrient-rich choices when they have hands-on experience in food preparation.

Before teaching the lesson, review the following resources:

1. fueluptoplay60.com
2. choosemyplate.gov
3. If you are interested in more in-depth information on the 2015 Dietary Guidelines for Americans, you can access the policy document at www.cnpp.usda.gov/DietaryGuidelines.htm
4. Fuel Up With Milk – It Does a Body Good! poster and additional resources available from your local SUDIA representative - www.southeastdairy.org/about-us/contact-us

Materials Needed

To Teach Lesson:
1. MyPlate graphic (download from choosemyplate.gov)
2. Board or flip chart
3. National Dairy Council paperboard food models, free by request free by request from your local SUDIA representative - www.southeastdairy.org/about-us/contact-us
4. (optional) Display Projector or large classroom computer monitor
6. Gym or outside space for physical activities, cones, jump ropes

For Fuel up Food Prep* (per student):
(Be sure to inquire about food allergies before conducting this activity.)
1. Ingredients: a variety of grains, nuts, and dried fruit such as low-fat granola cereal, toasted "O" cereal, popped popcorn, shelled sunflower seeds, peanuts, raisins, dried cranberries and perhaps a few mini chocolate chips.
2. Small snack-size resealable plastic bags
3. Equipment: bowls and serving spoons for ingredients
4. Low-fat or fat-free plain or flavored milk (one per student).

*For Fuel-Up Food Prep activities, consider applying for grants such as the Fuel Up to Play 60 grants available from the National Dairy Council (details at school.fueluptoplay60.com/funds). You can also ask your local booster club, parent organization, or local businesses for donations.
Teaching the Lesson

1. Begin by asking students for ideas on how they can be fit and healthy. Write down all of their ideas on the board or a flip chart. Students will likely mention healthy eating and physical activity as two of the ideas. Point out that students also learn better when they eat healthy foods and participate in 60 minutes of physical activity each day.

2. Ask students if they can explain how healthy eating helps to fuel 60 minutes of active play each day. (possible answers: food provides energy, keeps you healthy, makes you grow, has vitamins, etc.) Write down their ideas on the board or flip chart.

3. Next, ask a student why having a healthy skeleton is important for fitness and activity. (possible answers: healthy bones are important to support the body, strong bones are less likely to fracture, a healthy skeleton is important to support growth in children).

4. Explain to students that good nutrition and 60 minutes of physical activity during childhood are needed to build strong bones for a lifetime. In addition to overall balanced nutrition that includes all five food groups, the nutrients calcium and vitamin D are important building blocks needed for bone building. Ask students if they know which food group supplies the most calcium and vitamin D (answer: dairy). Ask if they know of a non-food way to get vitamin D (answer: Sunshine reacts with the skin to produce vitamin D. Fifteen minutes of playtime in the sun (without sunscreen) is sufficient. In addition, weight bearing activities such as running and jumping are needed to build strong bones.

5. Display and review the MyPlate food guide and five food groups. Ask students if they can recall the food groups and list examples of foods included in each group.

6. Explain that you will now go to the gym or outside play area and play an active "bone building" game which will remind the students that weight-bearing activity, dairy foods, and a balanced diet containing all five food groups are needed to build strong bones.

7. Building Bones Game:

   To play the Building Bones Games, you will need to move to a gym or outside play area. Punch out and display National Dairy Council food models (including all five food groups) on a nearby bench or table. The objective of the game is to acquire a balanced diet which includes all five food groups while engaging in weight bearing activities. Play the game as follows:
   
   1) Set out cones to mark 3-5 short courses (length depending on age and abilities of students) with start and finish lines. The finish lines should be near the bench or table where the food models are displayed.
   
   2) Students need to complete the course from start to finish in order to earn a food group. They need to earn all five food groups to complete the game.
   
   3) Challenge students to mix up their activity on the course. They can walk, jog, march, skip, gallop, jump rope, hop or dance from start to finish. For students with limited lower body mobility, lifting light weights or pulling arm bands are an option. These are all weight bearing activities.
   
   4) Students need to repeat the course five times in order to earn all five food groups. Students who finish first can continue to repeat the course for added activity until the entire class is finished.

8. As homework or during free classroom time, assign students to complete the Fuel Up With Milk – It Does a Body Good activity sheet on page 5.
Fuel Up Food Prep
Energy Boosting Trail Mix and Milk

1. In advance, ask for student or parent volunteers and assign tasks for set-up, coordination and clean up.
2. Make sure all students wash their hands with warm water and soap for at least 20 seconds prior to this snack activity.
3. Give each student a small plastic resealable bag.
4. On a clean table, set out bowls with ingredients and spoons.
5. Ask students to create their own version of trail mix, adding some or all of the ingredients to their plastic bag (limit students to 1 spoon of each ingredient to make sure there is enough for all students).
6. Serve with a carton of low-fat or fat-free flavored milk. Point out that a snack of trail mix and milk is a good way to "refuel" after sports or 60 minutes of activity.
7. Encourage students to identify the food groups in their trail mix and enjoy their snack!

Going Further
- Visit the Fuel Up to Play 60 interactive Playbook at school.fueluptoplay60.com/playbook for ideas on action strategies and ideas that can be implemented by students.
- Challenge students to come up with their own FUTP60 "plays" that reinforce this lesson. For example:
  - Ask students to develop a bone-building dance routine to their favorite music.
  - Play the building block game “Jenga” as an illustration of bone density. Explain that as the blocks are taken out of the game, the structure becomes increasingly weak. This is similar to how bones can lose calcium and become more likely to break if the diet doesn't include enough calcium and vitamin D.
  - Challenge students to name three different types of dairy foods and to eat or drink three dairy servings each day. Have students track their dairy consumption for one week and graph the results.
- Students can learn more about dairy production by watching the Milk on the Mooove Video available at www.southeastdairy.org.
To complete this activity, you will need to refer to the "Fuel Up With Milk – It Does a Body Good!" poster.

1. Find and circle the nine essential nutrients that milk provides in the puzzle below.

A V I T A M I N B 1 2 C
A N I M A T I V R Z S P
S R O R S N B D V 2 1 O
V H D G U I M X W H J T
L B N U R C Z R L G S A
C C I L O A Y C 1 C V S
A B M R H I M D 2 J 1 S
L Z A T P N Q C E V 2 I
C I T K S I U O R H Y U
I R I B O F L A V I N M
U D V V H N I E T O R P
M D N A P O Y H L N W M

Word bank: Calcium, Potassium, Phosphorus, Protein, Vitamin A, Vitamin D, Vitamin B12, Riboflavin, Niacin

2. Match the nutrient with the job it does? Refer to the poster if you need a hint.

__________________ Helps your body digest food
__________________ Builds strong bones and teeth
__________________ Creates cell energy and also helps make your bones sturdy
__________________ Also known as vitamin B2, helps turn your food into energy
__________________ Builds and repairs muscles to help keep you moving
__________________ Helps your body absorb calcium and improve bone strength
__________________ Keeps your eyes and skin healthy and aids in fighting germs
__________________ Builds red blood cells that carry oxygen and help your muscles work
__________________ Helps control body fluid balance; keeps heart and muscles healthy

Bonus question: List three different foods in the dairy group ____________, ____________, and ____________.
Fuel Up With Milk
It Does A Body Good! Activity Sheet

To complete this activity, you will need to refer to the “Fuel Up With Milk – It Does a Body Good!” poster.

1. Find and circle the nine essential nutrients that milk provides in the puzzle below.

Word bank: Calcium, Potassium, Phosphorus, Protein, Vitamin A, Vitamin D, Vitamin B12, Riboflavin, Niacin

2. Match the nutrient with the job it does? Refer to the poster if you need a hint.

NIACIN ______________ Helps your body digest food
CALCIUM ______________ Builds strong bones and teeth
PHOSPHORUS ______________ Creates cell energy and also helps make your bones sturdy
RIBOFLAVIN ______________ Also known as vitamin B2, helps turn your food into energy
PROTEIN ______________ Builds and repairs muscles to help keep you moving
VITAMIN D ______________ Helps your body absorb calcium and improve bone strength
VITAMIN A ______________ Keeps your eyes and skin healthy and aids in fighting germs
VITAMIN B12 ______________ Builds red blood cells that carry oxygen and help your muscles work
POTASSIUM ______________ Helps control body fluid balance; keeps heart and muscles healthy

Bonus question: List three different foods in the dairy group __________________, __________________, and __________________.