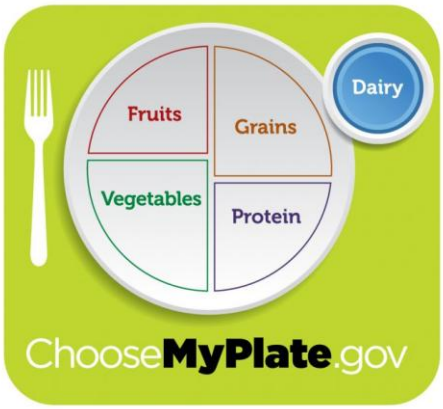

Lesson Overview

Students will learn about the dairy group within the MyPlate diagram and be able to identify these foods and the amount needed each day. It is important for students to choose low-fat and fat free dairy foods for the many health benefits and important nutrients to help them grow and stay healthy. Keeping your bones strong with physical activity also has many health benefits.

Lesson Objectives

- Understand the benefits of eating dairy foods to stay healthy.
- Understand how much we need each day.
- Understand how to choose healthier dairy options.
- Define "lactose intolerance".
- Identify ways we can strengthen our bones.

Arizona Department of Education (ADE) Academic Standards

Math Standards

Fifth Grade

5.MP.2 Reason abstractly and quantitatively.

Sixth Grade

6.MP.2 Reason abstractly and quantitatively.

Seventh Grade

7.MP.2 Reason abstractly and quantitatively.

Eighth Grade

8.MP.2 Reason abstractly and quantitatively.

English Standards

Fifth Grade

5.W.3 Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences.

5.RL.1, 5.RI.1 Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.

5.RI.7 Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.

5.RF.3 Know and apply grade-level phonics and word analysis skills in decoding words.

a. Use combined knowledge of all letter-sound correspondences, syllabication patterns, and morphology (e.g., roots and affixes) to read accurately unfamiliar multisyllabic words in context and out of context.

5.SL.3 Summarize the points a speaker makes and explain how each claim is supported by reasons and evidence.

5.L.4 Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grade 5 reading and content,* choosing flexibly from a range of strategies.

b. Use common, grade-appropriate Greek and Latin affixes and roots as clues to the meaning of a word (e.g., *photograph, photosynthesis*).

Sixth Grade

6.W.3 Write narratives to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences.

6.RL.1, 6.RI.1 Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.

6.RI.7 Integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue.

6.SL.5 Include multimedia components (e.g., graphics, images, music, and sound) and visual displays in presentations to clarify information.

6.L.4 Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grade 6 reading and content,* choosing flexibly from a range of strategies.

> b. Use common, grade-appropriate Greek or Latin affixes and roots as clues to the meaning of a word (e.g., *audience, auditory, audible*).

Seventh Grade

7.W.3 Write narratives to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences.

7.RL.1, 7.RI.1 Cite several pieces of textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.

7.RI.7 Compare and contrast a text to an audio, video, or multimedia version of the text, analyzing each medium's portrayal of the subject (e.g., how the delivery of a speech affects the impact of the words).

7.SL.5 Include multimedia components and visual displays in presentations to clarify claims and findings and emphasize salient points.

7.L.4 Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grade 7 reading and content,* choosing flexibly from a range of strategies.

> b. Use common, grade-appropriate Greek or Latin affixes and roots as clues to the meaning of a word (e.g., *belligerent, bellicose, rebel*).

Eighth Grade

8.W.3 Write narratives to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences.

8.RL.1, 8.RI.1 Cite the textual evidence that most strongly supports an analysis of what the text says explicitly as well as inferences drawn from the text.

8.RI.7 Evaluate the advantages and disadvantages of using different mediums (e.g., print or digital text, video, multimedia) to present a particular topic or idea.

8.SL.5 Integrate multimedia and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest.

8.L.4 Determine or clarify the meaning of unknown and multiple-meaning words or phrases based on *grade 8 reading and content,* choosing flexibly from a range of strategies.

b. Use common, grade-appropriate Greek or Latin affixes and roots as clues to the meaning of a word (e.g., *precede, recede, and secede*).

Physical Education Standards (Grade 5)

Strand 2: Demonstrates understanding of movement concepts, principles, strategies, and tactics as they apply to the learning and performance of physical activities.

Concept 2: Scientific Principles

PO 1. List physiological indicators of exercise

PO 3. Identify examples of moderate and vigorous physical activity

PO 4. List and define the components of health-related physical fitness

PO 5. Demonstrate exercises that can improve each component of health-related fitness

Physical Education Standards (Grades 6-8)

Strand 2: Demonstrates understanding of movement concepts, principles, strategies, and tactics as they apply to the learning and performance of physical activities.

Concept 2: Scientific Principles

PO 4. Evaluate examples of moderate and vigorous physical activity

PO 7. Explain a stress relieving physical activity that is personally effective

Strand 6: Values physical activity for health, enjoyment, challenge, self-expression, and/or social interaction.

Concept 1: Values Physical Activity

PO 2. Engage in physical activity for personal, social, and/or health benefits beyond the Physical Education program

Advanced Preparation

- ✓ Make sure Powerpoint and projection is set up; bring up PowerPoint Presentation via website.
- ✓ Plan for handouts or possible activity items.

Materials and Equipment

- ✓ MyPlate poster
- ✓ MyPlate handouts (for student)
- ✓ Food Models (optional for demonstration)
- ✓ School Lunch Menu (optional print off from school website for discussion)

Incentive Gifts

- » MyPlate Activity Books
- » MyPlate paper plates
- » MyPlate Pens
- » MyPlate Pencils
- » MyPlate Colored Pencils
- » MyPlate Magnets
- » MyPlate Bookmarks
- » MyPlate Stickers
- » Silly Food Group Eye Glasses
- » Got Milk Frisbees
- » Milk Erasers
- » Beach Ball
- » Recipes
- » Fun Food News

Please contact us to see if you are eligible to receive some of these incentive gifts.

Estimated Time

30 minutes for PowerPoint, additional time for the activities.

Presentation

This lesson plan is designed to help assist you and students in understanding the dairy group of MyPlate. Below are the notes from each slide within the MyPlate Powerpoint. It is designed to be adaptable for grades fifth through eighth.

Slide #1

Today, kids, we will be talking about the Dairy group of MyPlate and why it is important to Do Your Dairy!

Slide #2

In today's lesson, we will be talking about a few things:

First, we will learn why we should be eating dairy foods.

Then we will learn just how much you need each day.

Next we will talk about what are the healthier dairy food options.

We will end with discussing how being physically active can help keep our bones healthy.

Slide #3

But before we get into all that, a quick review!

Q.) Has anyone seen this picture before? What does it represent?

A.) MyPlate shows us how we should be eating each day. It shows five sections, all which represent the five food groups.

Today we will be talking about one specific food group, the Dairy Group!

Slide #4

Q.) What are some examples of foods found in the Dairy Group?

(Answers on next slide.)

Slide #5

A.) Milk, cheese, yogurt, cottage cheese, milk alternatives, puddings, frozen yogurt, and ice cream are all examples of foods found in the dairy group.

Q.) Does anyone know examples of a milk alternative?

A.) Milk alternatives are those that do not come from the cow. These milks are made from other foods such as soy, almonds, and rice. Has anyone ever drank soy, almond, or rice milk?

Q.) We just went over foods that are in the Dairy group. Can anyone think of ways to get more of these foods throughout the day?

A.) (Answers will vary) Some examples include the following: Add milk or a milk alternative to cereal in the morning. Make oatmeal using milk or a milk alternative. Add cheese to a sandwich. Eat some cottage cheese or a string cheese as a snack. Have cheese on your pizza. Put some cheese on broccoli at dinner. Have a dish of pudding made with milk for dessert.

All these are easy, yummy ways to eat more dairy throughout the day.

Slide #6

Some of you may be wondering, "Why should I eat dairy foods?"

Q.) Does anyone know why dairy foods are so important to our health?

A.) Dairy foods contain ***nutrients*** that help keep our bones and teeth strong!

A ***nutrient*** is a substance found in food that people need to stay healthy.

Slide #7

Q.) Can anyone tell one of the main nutrients that milk contains?

A.) Calcium! Calcium is a ***mineral*** that helps build and make your bones healthy and strong.

A ***mineral*** is a type of nutrient that keeps our body strong and healthy.

Slide #8

Dairy foods also contain vitamin D. Vitamin D helps your bones and teeth to absorb the calcium. Our bodies cannot benefit from calcium without vitamin D. Here's a fun fact, your body can naturally make vitamin D with a moderate amount of sun exposure!

Slide #9

Q.) Who can tell me how many bones they think are in the human body?

A.) There are 206 bones in the human body. Bones are living tissue. Just like our hair, skin and blood, our bones are constantly breaking down and rebuilding. Bones are what make up our skeleton which supports our bodies and keeps its shape.

Slide #10

By the time you are 18 or graduating from high school you will have 90% of all the bone density you will ever have. By the time you are 30 years old your bone density will not increase anymore and you will actually start to lose bone mass or calcium from your bones.

Think of your bones as a bank. If you put money in the bank today and every day until the age of 30, do you think your bank account would have a lot of money in it? Yes! The same thing is true for your bones. Every time you eat foods rich in calcium, your body makes a deposit or adds calcium to your bones. The more calcium you put in your bone bank today, tomorrow and every day after that the stronger your bones will be at age 30, 50, even 70.

Slide #11

Not consuming enough calcium-rich foods, will lead to weak bones. Weak bones are more likely to a broken bone. A broken bone is another name for a bone fracture. Bone fractures can be very painful and take a long time to heal.

Slide #12

Who knows what *osteoporosis* means?

Osteo is Latin for bone. *Porosis* means porous or full of holes. The two words put together means "porous bones" or "bones full of holes."

Osteoporosis is a condition in which bones gradually become weak and brittle. It typically occurs in the spine, hip, and/or wrist. This allows for your bones to break (fracture) easier, and can be painful and cause a stooped posture.

Here we have a two pictures of bone tissue.

Q.) What picture, the one on the left or the one on the right, looks healthier?

A.) The one on the left shows a healthy bone. The bone on the right shows one that has osteoporosis. The healthy one on the left appears to have a dense bone structure. Notice the one on the left has many holes which means there has been a loss of bone.

Slide #13

Q.) Does anyone know how many cups of dairy you need each day?

A.) Kids your age need 3 cups.

(Hold up a half-pint carton of milk. This equals one cup. Refer to http://www.choosemyplate.gov/food-groups/dairy-counts.html for more equivalencies to one cup for other dairy products.)

Slide #14

Overtime, skipping meals can weaken bones. By skipping meals, you are not giving your body enough nutrients, including calcium and vitamin D, that it needs to stay healthy. In time, this can lead to nutrient deficiencies, weak bones, and other serious conditions. Make it a goal to eat three meals per day with snacks in between. Also, focus on getting foods from all the five food groups to make sure you are getting a variety of nutrients.

Slide #15

When choosing dairy foods, try to choose low-fat and fat-free options. Low-fat and fat-free are better choices because they contain less unhealthy fats but still include the same amount of the healthy nutrients such as calcium and vitamin D.

Low-fat and fat-free options include skim and 1% milk, low-fat cheese (like mozzarella string cheese), and low-fat yogurt. Whole milk, ice cream, and butter are examples of dairy foods with high amounts of fat.

Low-fat and fat-free dairy foods are foods we would eat everyday. Dairy foods with higher amounts of fat are foods we would call "sometimes" foods, meaning you should try to only eat them only sometimes, like as a special treat.

Slide #16

Flavored milk can be healthy like white milk because it contains the same amount of healthy nutrients. Flavored milk is another way to get in the necessary daily servings of dairy.

Slide #17

Q.) Raise your hand if you have heard of lactose intolerance?

Some people are not able to drink milk because it causes their stomach to hurt and makes them feel sick. Many times this is due to what is called *lactose intolerance*. Lactose intolerance means you are not able to fully break down milk sugar, also called *lactose*, found in dairy products.

Yogurt and cheese are dairy foods that contain small amounts of lactose. Since they contain lower levels of lactose, some people with lactose intolerance are still able to eat them. It all depends on the person and their body.

People with lactose intolerance who are not able to consume any dairy, or those who can only eat small amounts, need to make sure to get their calcium and vitamin D through other foods. We will talk about these other foods on the next slides.

Slide #18

If you can't drink milk there are still other ways to get the calcium and vitamin D you need for strong bones and teeth. Calcium can be found in other foods such as almonds and spinach. It can be added to milk alternatives (such as soy, rice and almond milks,) orange juice, and cold and hot cereals.

Vitamin D can be found in foods canned fish and mushrooms. It can be added to foods such as milk alternatives (such as soy, rice and almond milks,) orange juice, and cold and hot cereals. Remember, our bodies can naturally make vitamin D when our skin is exposed to the sun.

Slide #19

Most milk alternatives have added calcium and vitamin D. To make sure, check the Nutrition Facts label and the ingredient list. The Nutrition Facts label should show approximately 30% Calcium. In the list of ingredients, look for the words *calcium* and *vitamin D*.

Slide #20

Q.) What is physical activity?

A.) Physical activity is anything that gets our bodies moving for a certain amount of time. With physical activity, you usually start to breathe faster, sweat more, and your heart starts to beat faster. Some examples include riding bike, running, playing basketball, and swimming.

Q.) What are some benefits from being physically active on a regular basis?

A.) Regular physical activity helps us build stronger muscles and bones, have a healthy weight for your body size and shape, increase our energy levels, look healthier, and sleep better.

A bone becomes stronger and denser, or more solid when you place demands on it. If your bones are not called upon to work, such as during physical activity, they do not receive any messages that they need to be strong. You cannot see your bones getting stronger with physical activity, but when you strike a tennis ball or land on your feet after jumping, messengers in your body tell your arm and leg bones to be ready to handle that weight and impact again. In fact, if you x-ray the arms of a tennis player, you would see that the bones in the playing arm are bigger and denser than the bones in the other arm.

Aim for 60 or more minutes each day for most days of the week. Make it fun! Do activities that you and your friends enjoy!

Q.) What are some fun ways you are physically active?

A.) (answers will vary.)

Slide #21

That is all for today's lesson, "Do Your Dairy!"

Let's do a quick review!

Q.) Name three foods found in the dairy section.

A.) Milk, cheese, cottage cheese, yogurt, milk alternatives (such as soy, rice and almond milks) (Answers will vary)

Q.) How many cups of dairy do you need each day?

A.) Kids your age need 3 cups.

Q.) What are two important nutrients found in dairy foods?

A.) Calcium and vitamin D

Q.) What is the name of the condition that means "porous bones" in which bones gradually become weak and brittle.

A.) Osteoporosis

Q.) What is the name of the condition in which people are not able to fully digest the milk sugar found in dairy foods?

A.) Lactose Intolerance

Q.) Name three other bone-healthy foods that are not in the dairy group but contain calcium and/or vitamin D.

A.) spinach, almonds, canned tuna, orange juice (in those products in which it has been added), cold and hot cereals (in those products in which it has been added)

Slide #22

That concludes the presentation, "Do Your Dairy!" Thank you for listening and your participation!

Background information

You may want to read this section before presenting to give yourself a little more information about the slides and lesson plan.

The dairy group within MyPlate is just one food group that offers many health benefits through the foods you eat and the key nutrients that you get. Below is a little more information about the dairy food group.

What foods are included in dairy?

All fluid milk products and many foods made from milk are considered part of this food group. Most Dairy Group choices should be fat-free or low-fat. Foods made from milk that retain their calcium content are part of the group. Foods made from milk that have little to no calcium, such as cream cheese, cream, and butter, are not. Calcium-fortified soymilk (soy beverage) is also part of the Dairy Group.

Milk*
all fluid milk:

- fat-free (skim)
- low fat (1%)
- reduced fat (2%)
- whole milk
- **flavored milks:**
  - chocolate
  - strawberry
- lactose-reduced milks
- lactose-free milks

- **Milk-based desserts***
  - puddings
  - ice milk
  - frozen yogurt
  - ice cream
- **Calcium-fortifiedsoymilk (soy beverage)**
- **Cheese***
  - **hard natural cheeses:**
    - cheddar
    - mozzarella
    - Swiss
    - Parmesan
  - **soft cheeses:**
    - ricotta
    - cottage cheese

        - **processed cheeses:**
            - American
- **Yogurt***
  all yogurt:
    - fat-free
    - low fat
    - reduced fat
    - whole milk yogurt

***Selection Tips**

- Choose fat-free or low-fat milk, yogurt, and cheese. If you choose milk or yogurt that is not fat-free, or cheese that is not low-fat, you are consuming extra fat.
- If sweetened milk products are chosen (flavored milk, yogurt, drinkable yogurt, desserts), they have added sugars.
- For those who are lactose intolerant, smaller portions (such as 4 fluid ounces of milk) may be well tolerated. Lactose-free and lower-lactose products are available. These include lactose-reduced or lactose-free milk, yogurt, and cheese, and calcium-fortified soymilk (soy beverage). Calcium-fortified foods and beverages such as cereals, orange juice, or rice or almond beverages may provide calcium, but may not provide the other nutrients found in dairy products.

How Much Food from the Dairy Group Is Needed Daily?

The amount of food from the Dairy Group you need to eat depends on age. Recommended daily amounts are shown in the chart below.

Daily recommendation		
Children	2-3 years old	2 cups
	4-8 years old	2 ½ cups
Girls	9-13 years old	3 cups
	14-18 years old	3 cups
Boys	9-13 years old	3 cups
	14-18 years old	3 cups
Women	19-30 years old	3 cups
	31-50 years old	3 cups
	51+ years old	3 cups
Men	19-30 years old	3 cups
	31-50 years old	3 cups
	51+ years old	3 cups

What Counts as a Cup in the Dairy Group?

In general, 1 cup of milk, yogurt, or soymilk (soy beverage), 1 ½ ounces of natural cheese, or 2 ounces of processed cheese can be considered as 1 cup from the Dairy Group.

The chart lists specific amounts that count as 1 cup in the Dairy Group towards your daily recommended intake:

	Amount That Counts as a Cup in the Dairy Group	Common Portions and Cup Equivalents
Milk (choose fat-free or low-fat milk)	1 cup milk	
	1 half-pint container milk	
	½ cup evaporated milk	
Yogurt (choose fat-free or low-fat yogurt)	1 regular container (8 fluid ounces)	1 small container (6 ounces) = ¾ cup
	1 cup yogurt	1 snack size container (4 ounces) = ½ cup
Cheese (choose reduced-fat or low-fat cheeses)	1 ½ ounces hard cheese (cheddar, mozzarella, Swiss, Parmesan)	1 slice of hard cheese is equivalent to ½ cup milk
	⅓ cup shredded cheese	
	2 ounces processed cheese (American)	1 slice of processed cheese is equivalent to ⅓ cup milk
	½ cup ricotta cheese	
	2 cups cottage cheese	½ cup cottage cheese is equivalent to ¼ cup milk
Milk-based desserts (choose fat-free or low-fat types)	1 cup pudding made with milk	
	1 cup frozen yogurt	
	1 ½ cups ice cream	1 scoop ice cream is equivalent to ⅓ cup milk
Soymilk (soy beverage)	1 cup calcium-fortified soymilk	
	1 half-pint container calcium-fortified soymilk	

Health Benefits and Nutrients

Consuming dairy products provides many health benefits, especially improved bone health. Foods in the Dairy Group provide nutrients that are vital for health and maintenance of your body. These nutrients include calcium, potassium, vitamin D, and protein.

Health Benefits

- Intake of dairy products is linked to improved bone health, and may reduce the risk of osteoporosis.

- The intake of dairy products is especially important to bone health during childhood and adolescence, when bone mass is being built.
- Intake of dairy products is also associated with a reduced risk of cardiovascular disease and type 2 diabetes, and with lower blood pressure in adults.

Nutrients

- Calcium is used for building bones and teeth and in maintaining bone mass. Dairy products are the primary source of calcium in American diets. Diets that provide 3 cups or the equivalent of dairy products per day can improve bone mass.
- Vitamin D functions in the body to maintain proper levels of calcium and phosphorous, thereby helping to build and maintain bones. Milk and soymilk (soy beverage) that are fortified with vitamin D are good sources of this nutrient. Other sources include vitamin D-fortified yogurt and vitamin D-fortified ready-to-eat breakfast cereals.
- Milk products that are consumed in their low-fat or fat-free forms provide little or no solid fat.

Why is it important to make fat-free or low-fat choices from the Dairy Group?

Choosing foods from the Dairy Group that are high in saturated fats and cholesterol can have health implications. Diets high in saturated fats raise "bad" cholesterol levels in the blood. The "bad" cholesterol is called LDL (low-density lipoprotein) cholesterol. High LDL cholesterol, in turn, increases the risk for coronary heart disease. Many cheeses, whole milk, and products made from them are high in saturated fat. To help keep blood cholesterol levels healthy, limit the amount of these foods you eat. In addition, a high intake of fats makes it difficult to avoid consuming more calories than are needed.

Tips for Making Wise Choices in the Dairy Group

- Include milk or calcium-fortified soymilk (soy beverage) as a beverage at meals. Choose fat-free or low-fat milk.
- If you usually drink whole milk, switch gradually to fat-free milk, to lower saturated fat and calories. Try reduced fat (2%), then low-fat (1%), and finally fat-free (skim).
- If you drink cappuccinos or lattes — ask for them with fat-free (skim) milk.
- Add fat-free or low-fat milk instead of water to oatmeal and hot cereals.
- Use fat-free or low-fat milk when making condensed cream soups (such as cream of tomato).
- Have fat-free or low-fat yogurt as a snack.
- Make a dip for fruits or vegetables from yogurt.
- Make fruit-yogurt smoothies in the blender.
- For dessert, make chocolate or butterscotch pudding with fat-free or low-fat milk.
- Top cut-up fruit with flavored yogurt for a quick dessert.

- Top casseroles, soups, stews, or vegetables with shredded reduced-fat or low-fat cheese.
- Top a baked potato with fat-free or low-fat yogurt.

For Those Who Choose Not to Consume Milk Products

- If you avoid milk because of lactose intolerance, the most reliable way to get the health benefits of dairy products is to choose lactose-free alternatives within the Dairy Group, such as cheese, yogurt, lactose-free milk, or calcium-fortified soymilk (soy beverage) or to consume the enzyme lactase before consuming milk.
- Calcium choices for those who do not consume dairy products include:
  - Calcium-fortified juices, cereals, breads, rice milk, or almond milk.
  - Canned fish (sardines, salmon with bones) soybeans and other soy products (tofu made with calcium sulfate, soy yogurt, tempeh), some other beans, and some leafy greens (collard and turnip greens, kale, bok choy). The amount of calcium that can be absorbed from these foods varies.

Physical Activity

Physical activity simply means movement of the body that uses energy. Walking, gardening, briskly pushing a baby stroller, climbing the stairs, playing soccer, or dancing the night away are all good examples of being active. For health benefits, physical activity should be moderate or vigorous intensity.

Children and adolescents should do 60 minutes or more of physical activity each day. Most of the 60 minutes should be either moderate- or vigorous intensity aerobic physical activity, and should include vigorous-intensity physical activity at least 3 days a week. As part of their 60 or more minutes of daily physical activity, children and adolescents should include muscle-strengthening activities, like climbing, at least 3 days a week and bone-strengthening activities, like jumping, at least 3 days a week. Children and adolescents are often active in short bursts of time rather than for sustained periods of time, and these short bursts can add up to meet physical activity needs. Physical activities for children and adolescents should be developmentally-appropriate, fun, and offer variety.

Being physically active can help you:

- Increase your chances of living longer
- Feel better about yourself
- Decrease your chances of becoming depressed
- Sleep well at night
- Move around more easily
- Have stronger muscles and bones
- Stay at or get to a healthy weight
- Be with friends or meet new people
- Enjoy yourself and have fun

References:

MyPlate: http://www.choosemyplate.gov/

Dairy Council of Arizona: http://www.dairycouncilofaz.org/

Arizona Building Better Bones Program

Activities

See activities folder for various age appropriate activities.