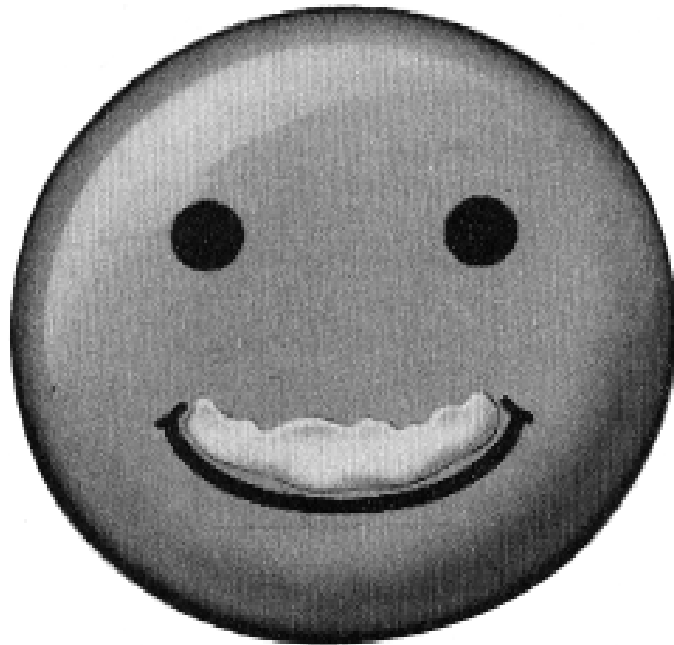


**“drink milk”
Patch**



leader's Guide

“drink milk” Patch

Purpose

Scientists have found that the brittle bone disease, osteoporosis, though not visible until later in life, begins with diet and exercise habits in childhood and adolescence. Children and teens who get too little of the mineral calcium and who are active fail to build bones as strong and dense as they could be, raising their risk for osteoporosis later in life.

National nutrition surveys indicate that six out of 10 girls ages 6-11, and six out of seven girls ages 12-19 do not meet the recommendations for calcium. Though calcium is available in a variety of foods, milk (and milk products like cheese and yogurt) is the best source because it is high in calcium, is widely available and is easy to incorporate into the diet. Milk as a calcium source is superior to supplements because along with calcium, milk provides additional essential nutrients, such as vitamin D, potassium and magnesium, all essential for optimal bone health and human development.

Children and teens can get enough calcium-rich milk and milk products with meals or snacks. However, milk is being increasingly replaced at meal and snack time by soft drinks and other low calcium beverages. Children, often concerned about their weight, may succumb to the myth that milk is “fattening,” and may decrease their milk intake for that reason. There are many low-fat, fat-free and low calorie varieties of milk and milk products available (as listed on the enclosed *Calcium Choices* sheet) that provide the needed calcium

The purpose of the “drink milk” patch program is to reinforce the milk-drinking habit in those who get the recommended amount of milk and milk products, and to motivate those who do not get enough milk to incorporate this important behavior into their lifestyles.

Girls who complete requirements for the ‘drink milk’ patch will be able to:

1. State the relationship between healthy bone development and getting three servings of milk/milk products daily.
2. Identify a variety of milk/milk products that will satisfy their taste preferences.
3. Make a personal plan for getting at least three servings of milk/milk products daily.

Objectives

Materials

The **Leader's Guide** includes the purpose, objectives, procedure and suggested introductory activities for the "drink milk" patch.

The **girls' materials** for the "drink milk" patch consist of the following:

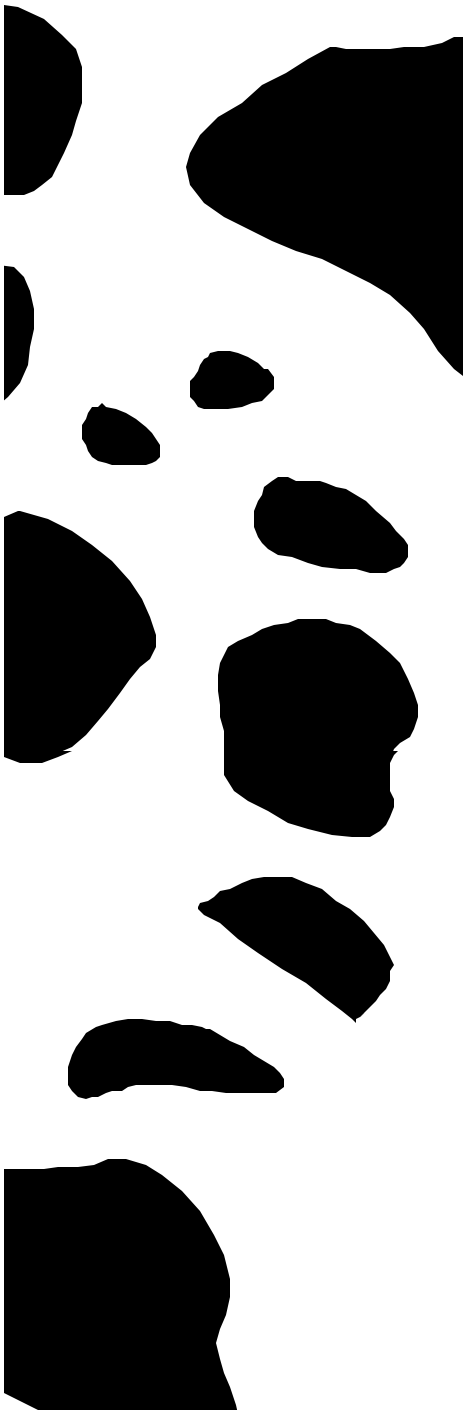
- one booklet of requirements, *Calcium Choices* and *After School Snacks for Refrigerator Raiders* for each girl ages 6-8
- one booklet of requirements, *Calcium Choices* and *After School Snacks for Refrigerator Raiders* for each girl ages 9-11

Procedures

- I. Use at least one of the teaching activities outlined on the next pages for the meeting at which you introduce the "drink milk" patch program. These activities will provide the scientific foundation for the "drink milk" program at an elementary level.
- II. Determine which of the requirements you will complete as a group at subsequent meetings. For example, you may have the girls actually prepare one of the milkshakes from the *After School Snacks* leaflet at a meeting for a snack, thereby completing one of the requirements.
- III. Initial (or have a parent initial) the box in the girls' patch booklet as requirements are met. Allow time for the girls to share what they have learned, discovered and created as they meet requirements for this patch. (**ages 6-8 complete for activities; ages 9-11 complete six activities to receive the patch.**)



Activity Ideas to Introduce the "drink milk" Patch



Activity I - Osteoporosis: Holey Bones

Girls Learn: When calcium leaves the bones, they become porous (holey) and are more easily broken.

Materials: → Sheet of paper per girl
→ Scissors
→ Hole punch

Procedure: Have the girls draw and cut out two bone shapes, approximately 3" x 6" each.



Using a hole punch, have them make a gridwork inside one bone cutout to represent normal bones. (See normal bone cross-section graphic.) Be sure to keep a continuous outer layer to represent compact bones.



On the second cutout, have them make the normal gridwork then continue punching holes to represent what happens when bones lose a lot of calcium and become weak and easy to break. (See osteoporosis bone cross section graphic.)

Discussion: What builds strong, healthy bones? *Getting enough calcium in the diet and getting plenty of exercise builds strong, healthy bones. Too little calcium during childhood and the teen years leads to a bone that does not reach its potential strength.* How do we get enough calcium in the diet? *Three servings every day of milk (and milk products like cheese and yogurt) will give children the calcium needed to build strong bones.* What is osteoporosis? *Osteoporosis is weak, brittle bones that are easily broken. It develops when a large part of the calcium built up in bones during the growing years is slowly lost.* Can osteoporosis be prevented? *Yes. Getting enough calcium in the diet and regular exercise are two important ways to help prevent osteoporosis.*

**Activity Ideas
to
Introduce the
"drink milk"
Patch**

Activity II - Calcium: It's in Your Bones

Girls Learn: Healthy, growing bones need increasing amounts of calcium.

Materials:

- 10 pound bag of flour
- Resealable plastic bags of varying size
- Index card labeled for different ages
- Spoons
- Measuring cups for dry ingredients

Procedure: Have volunteers measure out flour in the following manner and place in appropriate sized resealable bags:

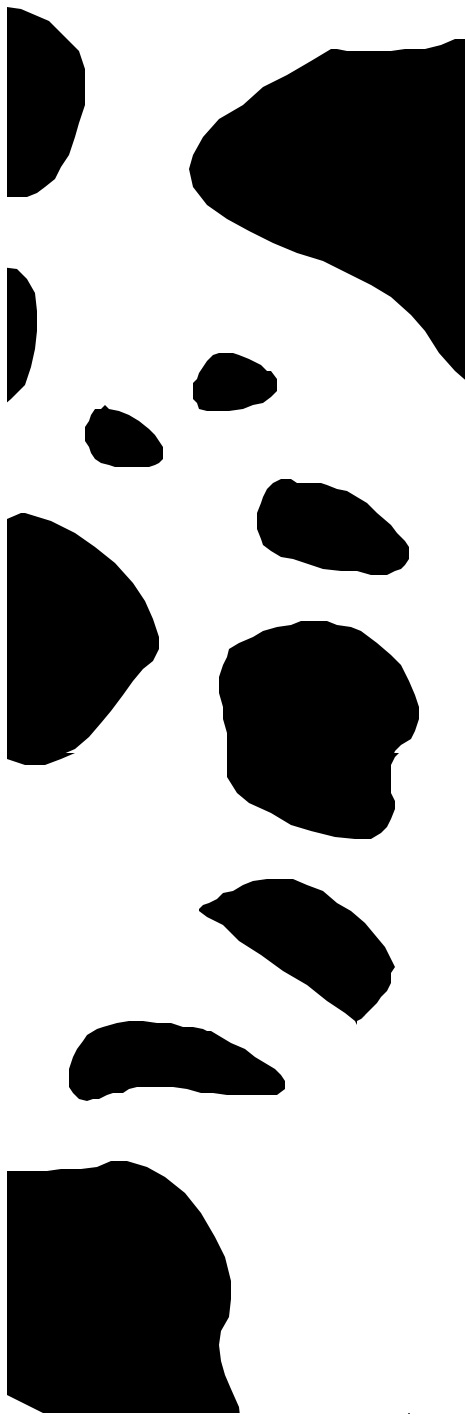
<u>Amount of flour:</u>	<u>Represents calcium in bones of</u>
-------------------------	---------------------------------------

1/4 cup	Newborn
3 1/2 cups	10 year old
7 cups	15 year old
11 cups	Adult
6 1/2 cups	Person with osteoporosis

Explain that the flour in these bags represents the amount of calcium in our bones at the different ages indicated on the index cards.

Ask the girls to estimate with their hands the average size of a newborn. We were all born with about 1/4 cup of calcium in our bones.

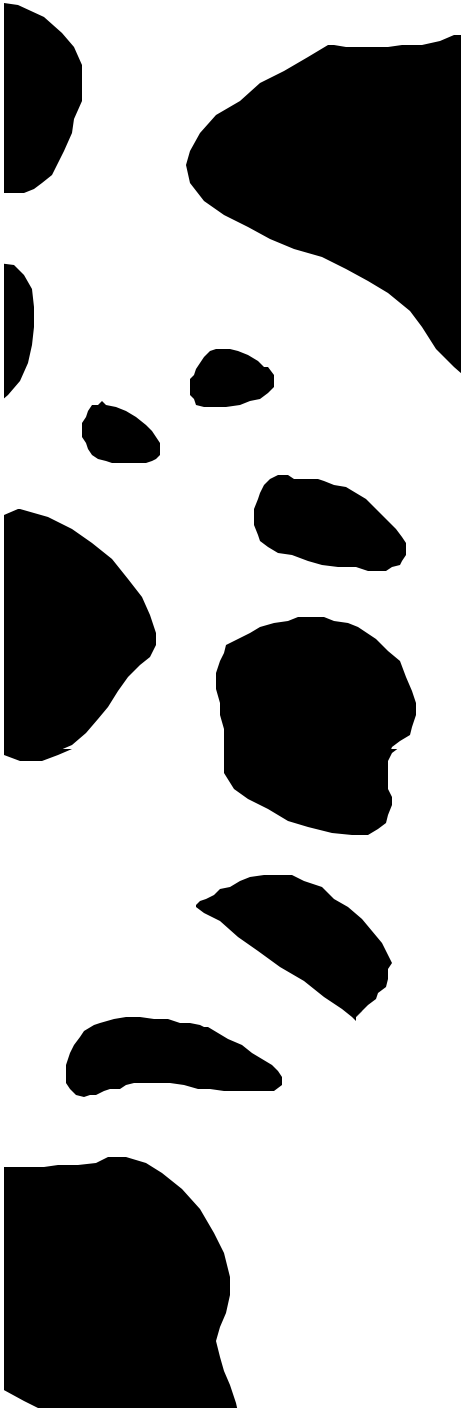
Explain that as we grow and bones lengthen, we're adding more and more calcium to them. Getting extra calcium in childhood and the teen years can mean an even stronger bone is built! Even young adults who are no longer growing taller can add more calcium to their bones to make them stronger.



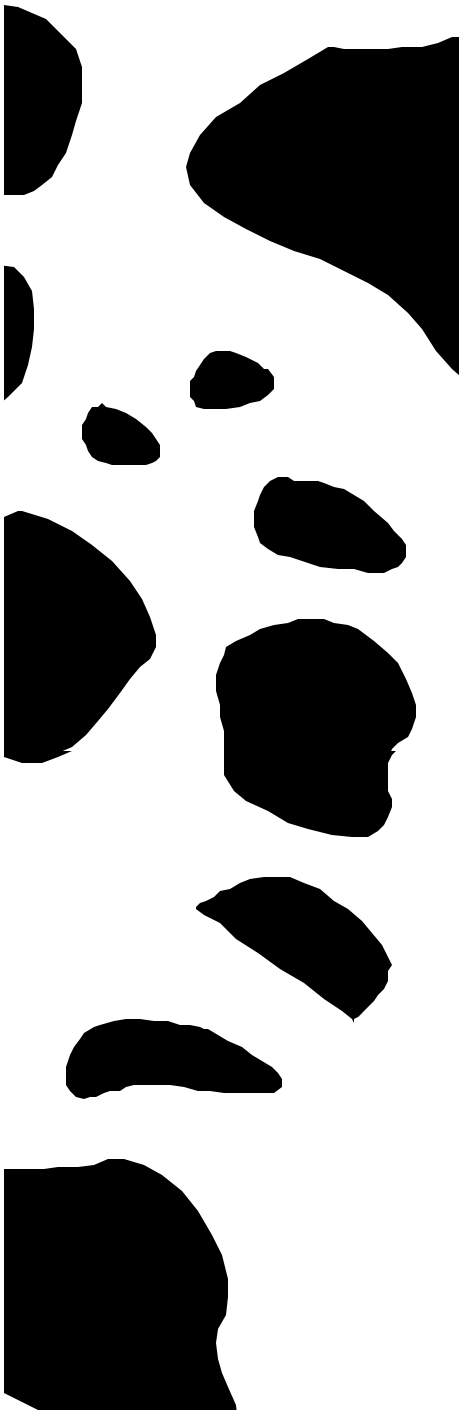
**Activity Ideas
to
Introduce the
“drink milk”
Patch**

Activity II - Calcium: It's in Your Bones (continued)

Discussion: How much calcium is in your bones as a child compared to when you were born? *Three and one fourth more cups. . . 14 times more!* How do we build up the calcium in our bones to make them as strong as possible? *Make sure you get at least three servings every day of milk (and milk products like cheese and yogurt) to get enough calcium. Preteens and teens need at least four servings and adults need three servings daily. Be sure to exercise often. Exercise helps build bone, too.* What happens to bones when osteoporosis develops? *Bones have lost 30% or more of their calcium. Loss of calcium weakens bones so they are more likely to break, especially the hip, wrist and spine.* What happens to people who have broken bones due to osteoporosis? *It causes pain, long periods of recovery and often spine deformities. About 1/4 of those who suffer an osteoporotic hip fracture die. About half of hip fracture survivors are no longer able to live by themselves.* How can we prevent osteoporosis? *Two of the main things we can do to prevent osteoporosis are to stay active and to get enough calcium from milk and milk products throughout life.*



Activity Ideas to Introduce the “drink milk” Patch



Activity III - Making Strong Bones

Girls Learn: Bone has a hard outer layer and a gridwork on the inside that is lighter but still hard and strong. When bone loses calcium, the strong gridwork is lost, large holes appear and bone becomes weak and easily broken (osteoporosis).

Materials:

- 2 sheets of white paper per group
- Paperback books
- Scissors
- Transparent tape
- Ruler

Procedure: Cut out 2 rectangles, 2 1/2" x 7" from the paper. Slightly overlap the short edge on one rectangle and tape the short edges together to form a cylinder about two inches in diameter. Repeat with the other rectangle.

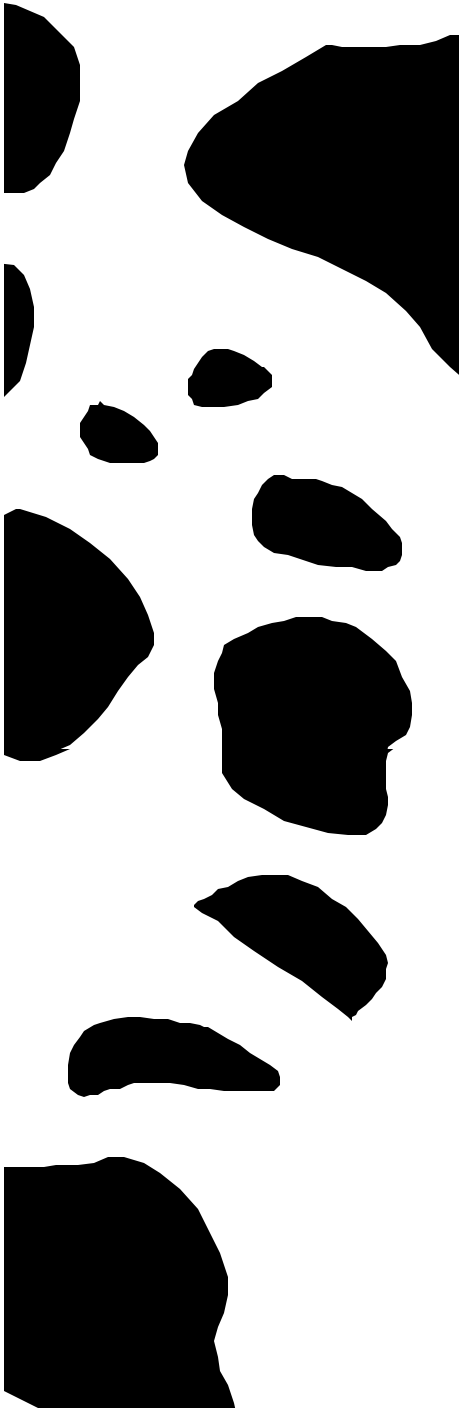
Cut out approximately 30 rectangles, 2" x 2 1/2". Roll each around a pencil and tape the 2 edges together to form small tube. (The larger the pencil used, the larger the tubes will be. The activity requires fewer tubes if they are rolled on a larger pencil to a larger diameter.)

Pack tubes into one of the cylinders until it is full. Tape just three or four tubes onto the inside of the second cylinder. Explain that the full cylinder is like a cross section of normal, healthy bone with a strong interior gridwork. The other cylinder represents a cross section of an osteoporotic bone that has lost calcium.

Test the strength of the almost empty cylinder by placing some paperback books on it, one at a time until it crumples. How many books did it take? This demonstration represents the weakness of a cross section of osteoporotic bone that has lost its interior gridwork.

Pile paperback books on the “normal bone” cylinder until it crumples. How many books

Activity Ideas to Introduce the “drink milk” Patch

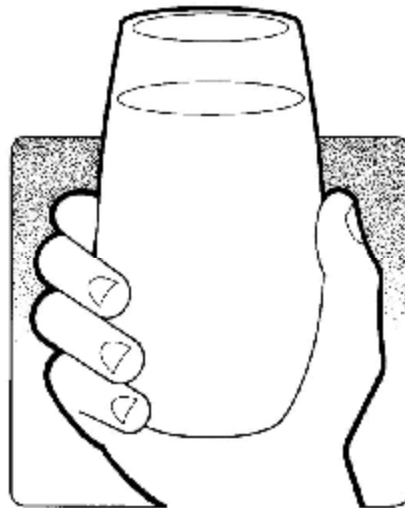


Activity III - Making Strong Bones (continued)

did it take? This demonstration represents the strength of a cross section of normal bones with healthy interior gridwork.

Discussion:

Why did it take more books for the second “bone” to crumple? *It had a regular, strong inside structure in addition to the outside core.* Why is healthy bone like the second cylinder? *It has a strong inside gridwork to give it strength.* What builds a bone with strong gridwork? *Regular exercise and getting enough calcium in the diet.* How do we get enough calcium to build a strong bone? *Make sure you get at least three servings each day of milk (and milk products like cheese and yogurt) in meals and snacks.* How do we prevent the loss of calcium from bone which leads to osteoporosis? *Two important ways are to get enough calcium in the diet and to exercise regularly.*



Calcium Choices

Your bones need calcium. That's why it's important to drink milk and eat foods made from milk, like cheese and yogurt. It's the best way to get enough of the bone-building mineral calcium. For strong, healthy bones on the inside, and to look and feel your best on the outside, I choose at least three servings every day from the high calcium foods listed below.

What's a serving? A serving of milk is 8 ounces. If you don't know what 8 ounces looks like, use a measuring cup to find out. Pour 8 ounces (one cup) of milk into your favorite drinking glass at home so you will know if you're getting a full serving when you drink a glass of milk. For most cheeses, to get the same calcium as milk, a serving is 1 1/2 ounces. That is about the same amount as 6 dice stacked together. Try putting 6 dice together to see what one serving of cheese looks like.

What about fat and calories? Don't worry. . .there are lots of milk and milk products chock full of calcium that have very little or not fat at all, and are low in calories. Milk provides loads of important nutrients along with its calories. Experts report you can get all the milk servings recommended and not gain weight at all.

Food High in Calcium	Serving Size	Calories Per Cup
Milk	8 Ounces	
regular		150
reduced-fat (1 1/2 and 2%)		110-120*
lowfat (1/2 and 1%)		90-100
skim/nonfat/fat free		80
lactose-reduced		80-110*
acidophilus, bifidum flavored (chocolate/ strawberry, etc.)		80-120*
buttermilk		150-210*
Yogurt	8 ounces	
(flavored/unflavored)		
regular		150**
lowfat		120**
non-fat/fat free		90**

Foods High in Calcium	Serving Size	Calories Per Ounce
Cheese	1 1/2 ounces	
cheddar		114***
mozzarella		80
swiss		107
colby		112
muenster		104
monterey jack		106
parmesan		111
brick		105
gouda		101
provolone		100
romano		110
string		80
edam		101
American	2 ounces	106

Important Notes:

1. Favorites like pudding, macaroni and cheese, milkshakes and pizza that are made with a serving of the foods above also count as an excellent calcium source.
2. Other foods made from milk like ice cream and cottage cheese also have some calcium, but not as much as the foods listed above. Get your three recommended servings from the excellent calcium foods above. Then enjoy other dairy foods for some extra calcium!
3. Sardines, canned salmon with the soft bones, tofu with calcium sulfate, greens and calcium-fortified beverages also have calcium. However, we don't normally eat these foods often enough or in quantities sufficient each day to get adequate calcium from them alone.

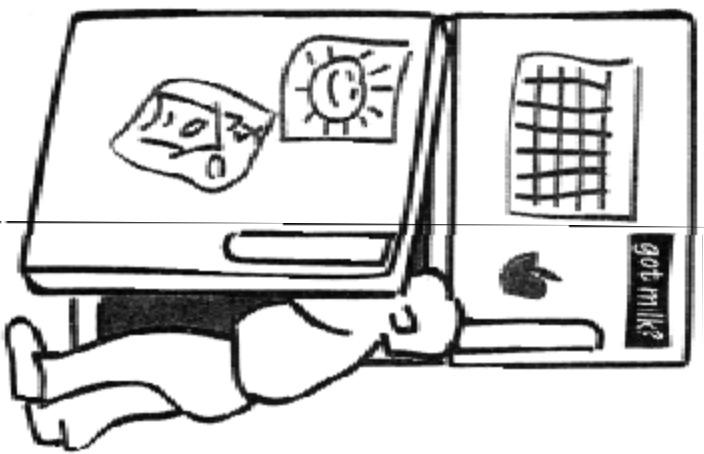
*Calories depend on type of milk used, Check the label.

**Check the labels for exact calorie content.

***Calories and fat are lower in reduced-fat cheeses. Check the label.

After School Snacks

for Refrigerator Raiders



Speedy Snacks with 2 to 3 Ingredients

Bagel Pizza

- 1 bagel, split open
- 2 to 4 teaspoons bottled pizza or spaghetti sauce
- 2 to 3 tablespoons grated mozzarella cheese

Spread 1 to 2 teaspoons sauce on each bagel half. Sprinkle with grated cheese. Microwave, bake or broil until cheese is melted.

Shaker Pudding

- 1 small box instant pudding mix, any flavor
- 2 cups milk

Pour milk into a jar that has a tight fitting lid. Add pudding mix. Put lid tightly on jar. Shake for 1 minute.

Tortilla Rollups

Flour tortillas
Colby-jack stick cheese
Salsa, if desired
Place one stick or Colby-jack cheese near edge of flour tortilla. Roll tortilla around cheese, Fasten with a toothpick. Microwave till cheese is soft. Dip in salsa. Note: Can substitute mozzarella string cheese for Colby-jack.

Easy preparation Snacks with 3 to 4 Ingredients

Yogurt Smoothie

- 1 cup milk
 - 6 ounce carton (3/4 cup) flavored yogurt or yogurt or
 - 3/4 cup frozen yogurt
 - 1/2 cup fresh or frozen fruit
- Sugar to taste

In blender container combine milk, yogurt, and fruit. Cover and blend until smooth. Add sugar to taste and blend a few seconds more. Makes 2 cups.

Dinosaur Dip with Veggies

- 1 cup plain yogurt
 - 1 cup sour cream
 - 1 (4 ounce) package dry ranch salad dressing mix
- Assorted fresh vegetables

In medium bowl, stir together yogurt, sour cream, and salad dressing mix until well combined. Serve with dinosaur munchies such as carrots, celery, or broccoli.

Peanut Butter and Banana Shake

- 1 cup milk
 - 1 large ripe banana, peeled and sliced
 - 3 tablespoons peanut butter
 - 2 1/2 cups vanilla ice cream
- Whipped cream and chopped peanuts, optional

In blender container, combine milk, banana, and peanut butter; blend until smooth. Add ice cream and a few seconds more. Pour into two tall glasses: top with whipped cream and peanuts if desired.

Instant -- No Preparation Snacks!

- Baby Carrots
- Frozen Yogurt or Ice Cream
- Mini Bagels
- Pudding (pre-packaged)
- Fresh Fruit
- Yogurt
- Pretzels
- Chocolate Milk
- Sunflower Seeds
- String Cheese

Others...

- Peanut butter or cheese on crackers
- Cereal with fruit and milk
- Yogurt topped with granola or fresh fruit

Summeriang Shake

- 1 ripe kiwi, peeled and sliced
- 1 large ripe banana, peeled and sliced
- 6 large strawberries, halved
- 1 cup milk
- 2 cups vanilla ice cream
- 2 whole strawberries

In blender container, place kiwi fruit, banana, halved strawberries and milk; blend until combined. Add ice cream; blend until smooth. Pour into two tall glasses; top with whole berries.

Orbiting Orange Satellite

- Colby-jack cheese snack sticks
- Large seedless grapes
- Strawberries
- Orange

Unwrap cheese sticks and place on cutting board. Cut cheese stick into 6 equal pieces. Put king size wooden pick through grape, then cheese cube, and then a strawberry. Place kabobs on plate to serve. Or stick in the skin of an orange for an orbiting orange satellite!

Mexican

- Flour tortilla
- 4 to 5 tablespoons canned refried beans
- Shredded cheese (cheddar, monterey jack, or co-jack), approximately 1/3 cup
- Salsa (optional)

Spread refried beans to edges of tortilla. Top with salsa, if desired. Sprinkle with shredded cheese. Bake or broil until cheese is bubbly. Cut into wedges. Note: For crispier tortilla, cook in covered, non-stick skillet over low heat. For extra taste (and nutrition!) top with chopped lettuce and tomato.