



CLASSROOM ACTIVITIES

Key Concepts:

1. Exercise is an important component of fitness.
2. Exercise increases muscular strength, flexibility and endurance.
3. Nutrition is important when exercising muscles. Carbohydrates provide energy for exercising muscles and muscle maintenance.

Lesson Summary:

Students at the muscle station learned the importance of proper exercise and nutrition for fitness. Exercise can be fun! Exercise helps maintain muscle strength, flexibility and endurance. It is important to provide good fuels for exercising muscles. Foods from the grain, rice, pasta and bread group are packed with carbohydrates—great fuel for exercising muscles. Protein foods, like meat, poultry, eggs, nuts, beans and milk, provide components for muscle maintenance. Muscles need to be exercised in combination with a good diet to become bigger and stronger.

MUSCLE:

STRENGTH AND ENDURANCE

MEASURE YOUR MUSCLES

Did you know that there are more than 400 different muscles in the human body's muscular system? These muscles are of three different types: skeletal, cardiac and smooth. We use our skeletal muscles to move our bones! Find out if skeletal muscles change in size and shape as we use them.

Supplies needed:

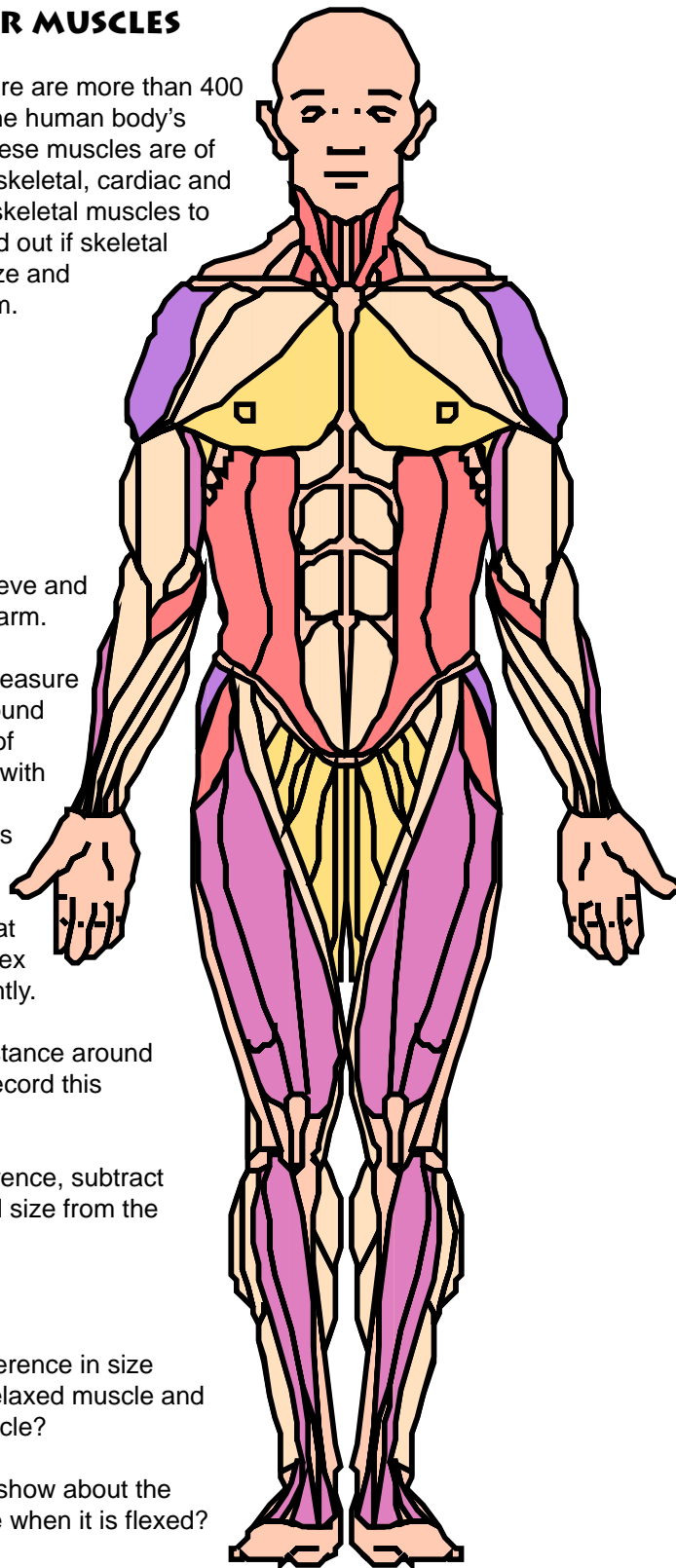
- pencil
- tape measure
- a friend

Directions:

1. Roll up your sleeve and straighten your arm.
2. Have a friend measure the distance around the widest part of your upper arm with the measuring tape. Record this measurement.
3. Bend your arm at the elbow and flex your muscle tightly.
4. Measure the distance around your muscle. Record this measurement.
5. To find the difference, subtract the straightened size from the bent size.

Think it Over:

- Is there any difference in size between your relaxed muscle and your flexed muscle?
- What does this show about the size of a muscle when it is flexed?



BUILDING MUSCLE STRENGTH

MUSCLE FATIGUE EXERCISE

Have students open and close their fist as many times as possible within a three minute time period. (Less for younger children.)

Tell the students why the hand becomes tired. The muscle was put through a repetitive exercise to tire the muscle. The muscle becomes tired because the energy stores are used up.

STRENGTH BUILDING EXERCISE

1. Have children stand and flex one arm for two minutes.
2. Then have them put a heavy book in other arm and flex for two minutes.
3. Tell why the arm with the book became tired quicker.

It is important to push muscles past their limit to build strength. For example, you lift 50 lbs. every day. After a few weeks, it becomes easier, so you add more weight. Eventually you're lifting 100 lbs. By overusing muscles, over a period of time it takes more to tire the muscle, therefore making the muscle stronger. This is called endurance.



MY WEEKLY ACTIVITY LOG

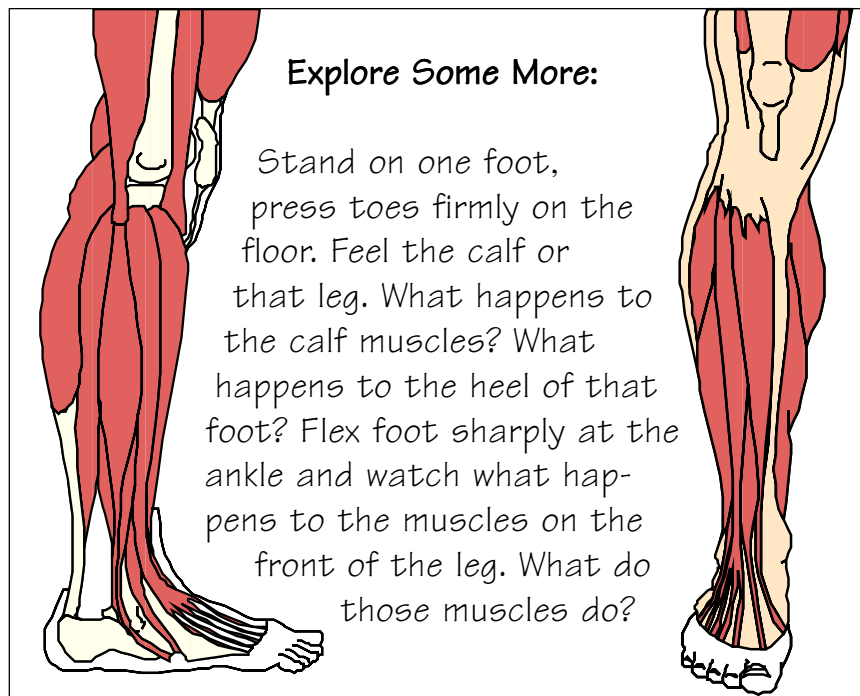
To motivate children to get moving and to help them see how much physical activity they are actually getting over time.

Directions:

1. Use the Weekly Activity Log on the following page. Have the children record their daily exercise for the first week.
2. At the end of the first week, have all the children bring in their completed logs for discussion.

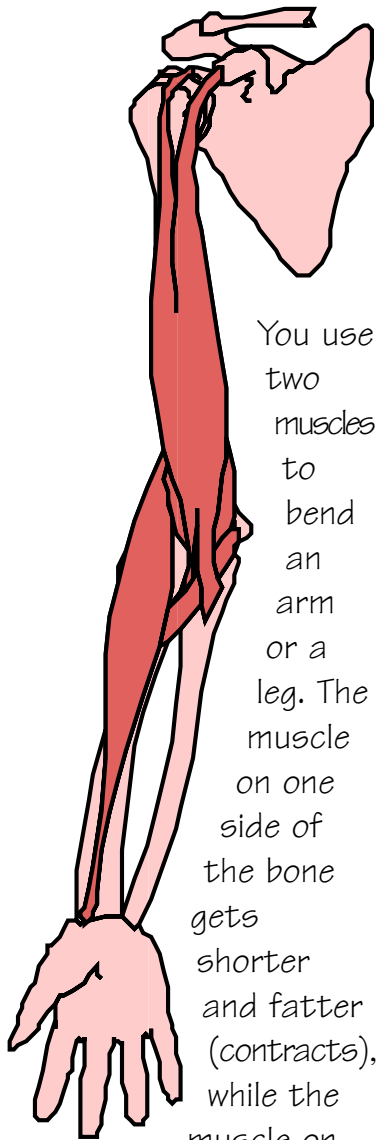
Ask some of these questions:

- Did anyone try new activities through the week, or find a new activity that he or she wishes to try?
 - Were family and friends involved with your physical activities?
 - Does anyone feel they should increase their level of activity?
3. Encourage the children to reproduce this log and keep up the activity.



My Weekly Activity Log

Day	Physical Activities	10 Min.	20 Min	30 Min	40 Min	50 Min	60 Min	70 Min	80 Min	90 Min
Monday	_____	___	___	___	___	___	___	___	___	___
	_____	___	___	___	___	___	___	___	___	___
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Tuesday	_____	___	___	___	___	___	___	___	___	___
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Wednesday	_____	___	___	___	___	___	___	___	___	___
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Thursday	_____	___	___	___	___	___	___	___	___	___
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Friday	_____	___	___	___	___	___	___	___	___	___
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Saturday	_____	___	___	___	___	___	___	___	___	___
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Sunday	_____	___	___	___	___	___	___	___	___	___
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You use two muscles to bend an arm or a leg. The muscle on one side of the bone gets shorter and fatter (contracts), while the muscle on the other side of the bone gets longer (relaxes). When you straighten an arm or a leg, the opposite happens. The muscle that was contracted relaxes, and the muscle that was relaxed contracts.

BUILD A MUSCLE MODEL

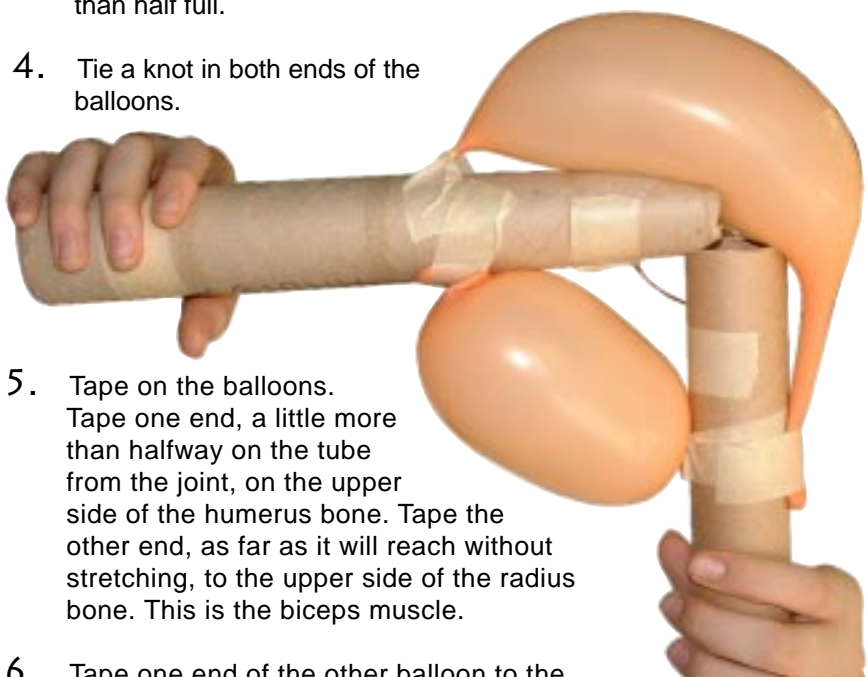
Construct an arm to see how the biceps and triceps muscles work.

Materials Needed:

- three paper towel tubes
- scotch tape
- 6 inches of wire
- Two long balloons



Follow these steps:

1. Construct the arm by placing two tubes together. These will be the radius and ulna bones in the forearm. Tape these two tubes together.
 2. Now set the other tube at one end. Using about 3 inches of the wire, tape one end of the wire to the single tube, which is the humerus. Tape the other end of the wire to the radius bone. Now you should have the arm bones.
 3. Blow a little air into the two balloons, making the balloons no more than half full.
 4. Tie a knot in both ends of the balloons.
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5. Tape on the balloons. Tape one end, a little more than halfway on the tube from the joint, on the upper side of the humerus bone. Tape the other end, as far as it will reach without stretching, to the upper side of the radius bone. This is the biceps muscle.
 6. Tape one end of the other balloon to the underside of the humerus, about even with the balloon on top. Again tape the other on the radius bone as far as it will go, without stretching it. This is the triceps muscle.
 7. Test your arm by bending and straightening. One muscle should stretch and the other should get short. This is how your muscles work.

HOW CAN I STRENGTHEN MY MUSCLES?

Exercises that involve bending, stretching, tensing and relaxing are good for strength and suppleness. Weight lifting and exercise such as chin-ups, push-ups and sit-ups are all good examples.

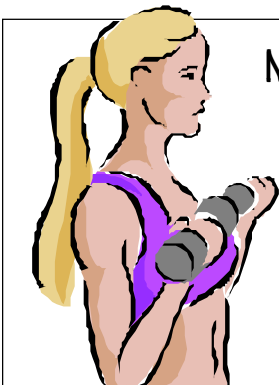


WATER WEIGHTS

1. Thoroughly wash two empty plastic one-half gallon milk bottles (with handles).
2. Fill them with about two inches of water. You now have a pair of weights to do biceps curls.
3. Do seven curls. As you get stronger, add more water to the bottles to make them heavier. Or you can increase the number of curls that you do.

SANDWEIGHTS

1. Fill two empty quart-size milk cartons about one half of the way up with sand. Tape them closed.
2. Holding one carton in each hand, stretch your arms out (parallel to the floor) and make small, slow circles clockwise in the air for 30 seconds.
3. Then reverse; do small, slow circles counter clockwise for 30 seconds.
4. As your endurance builds, increase the time you do this exercise.



More Body Facts:

Skeletal muscles naturally get bigger as a person grows. However, a person can also make his muscles bigger by lifting weights and exercising.



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Muscle Trivia Quiz

1. Which muscles never rest?

2. How are muscles attached to bone?

3. Which is the strongest muscle?

4. How many muscles are there in my hand?

5. How much do my muscles weigh?

6. How many muscles do you have?

Muscle Trivia Answer Key

1. Heart (cardiac) muscle keeps contracting 70 or so times a minute, while the smooth muscle in your digestive tract moves all the time.

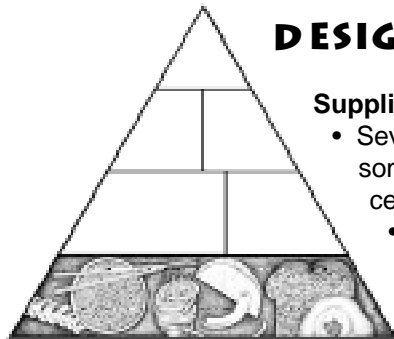
2. Muscles are attached to bone by tendons. These are strings of a tough protein called collagen. You can see the tendons in your wrist if you clench your fist.

3. Size for size, the strongest muscle in your body is the masseter. One masseter is located on each side of the mouth. Working together, the masseter gives a biting force of about 150 pounds.

4. You have more than 30 muscles in each forearm and hand. These are needed to control the delicate movements of the fingers.

5. Your muscles make up about 40 percent of your overall weight. In all, they weigh much more than your bones.

6. You have about 650 muscles, with more than 50 in your face alone. You use 17 muscles to smile, but more than 40 to frown.



DESIGN YOUR OWN CEREAL

Supplies Needed:

- Several different kinds of cereal including some whole grain (enough for snack and cereal take home).
- raisins, nuts, seeds
- small brown lunch bags
- markers
- snack supplies and ingredients

What to Say:

Which group on the Food Guide Pyramid has cereal in it? What are some other foods in this group? To stay healthy, we should eat foods from this group, and make sure some of them are whole grain. That means eating some whole grain bread and cereals (shredded wheat, bran flakes, rolled oats, brown rice, etc.)

We're going to make our own healthy cereal today, and you'll have a chance to design a container (use bags instead of boxes) that you think other students would want to buy.

What to Do:

1. Have everyone wash their hands.
2. Give each student a bag and some markers (they can share these).
3. Today they can imagine they have just been elected the boss of a big breakfast cereal company. Their company isn't making as much money as it should, so they have to figure out a new cereal to sell. It has to be healthy and also appeal to students.
4. Give them 10-15 minutes to choose the ingredients for their new cereal, and then design a container for it. They should first decide what they'll put in their container, then design the container, and finally put the cereal ingredients in the container.
5. Complete the activity by displaying the cereal containers on a table so everyone can look at them. The students should take their "new cereal" home with them, and then tell their family about making their healthy cereal.





TAKE A HIKE

TASTING AND PHYSICAL ACTIVITY

Advance Preparation:

1. Prepare fruit and cups of water and set up at several stations in the classroom.
2. Write on the chalkboard or flip chart:

Purpose:

Gives students a chance to participate in a fun activity that reinforces the importance of combining physical activity and nutrition to stay healthy.

Supplies Needed:

- Several pieces of fresh fruit in a paper cup for each student like apple slices, strawberries or orange sections.
- Small paper cups filled with water
- Chalkboard or flip chart and markers

Tasting Alternative:

If you are not able to use tasting, just do the physical activity and have the students plan several snacks they would like to make at home using two or more food groups.

Adapted from: Pyramid Power—Food Choices for Winners, Oregon State University Extension Service

Activity (Do them in order)	What it Represents
a. Eat some fruit.....	Healthy snack
b. 5 side stretches.....	Warm-up
c. 5 jumping jacks.....	Activity
d. 10 steps, walking in place.....	Cool-down
e. Drink some water.....	Replace fluids

Directions:

Invite students to Take a Hike. Tell them that:

1. Doing a fun physical activity each day is just as important as eating healthy foods.
2. They should do each task in the order you have written it on the board or flip chart.
3. Remind students not to bounce when doing the side stretches.
4. Go over the activities and what they represent:
 - a. Eating fruit represents having a nutritious snack to give you fuel for your activity.
 - b. Side stretches represent warming up.
 - c. Jumping jacks represent the physical activity.
 - d. Walking in place represents cooling down after physical activity.
 - e. Drinking water represents how important it is to drink fluids when exercising

WHAT FOOD AM I THINKING ABOUT?

Purpose:

Helps students learn to recognize a variety of foods from the Meat, Poultry, Fish, Dry Beans, Eggs and Nuts Group.

Supplies Needed:

- Food models or pictures of foods from the Meat, Poultry, Fish, Dry Beans, Eggs and Nuts Group

Directions:

Tell students that there are many foods that help us build strong muscles. They come from both animals and plants. Use some of the riddles below, or make up some riddles to see if the students can guess what food you are thinking about. Put out food models or post pictures of foods to help the students solve the riddles.

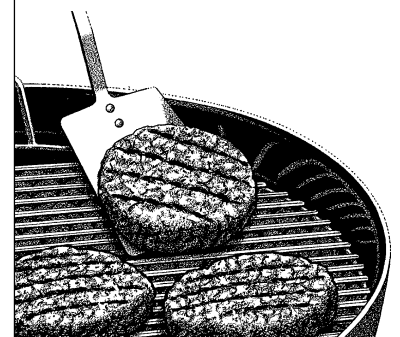
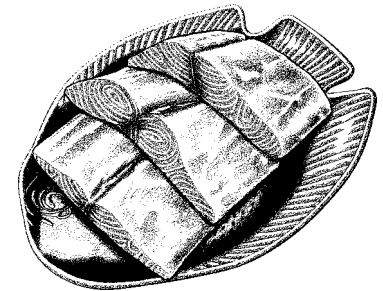
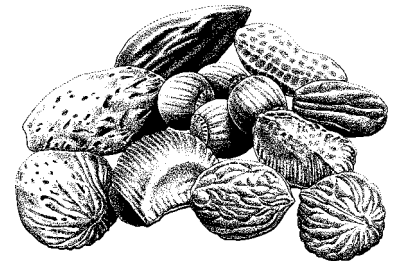
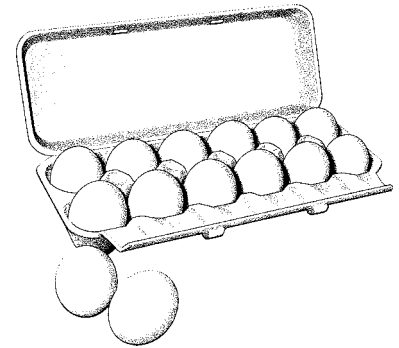
- I am thinking about a food that is white and round.
- Some people like to eat this food for breakfast with bacon or sausage.
- This food comes from an animal that makes this sound: cluck, cluck, cluck.
- What food am I thinking about? (egg)

- I am thinking about a food that grows on a tree.
- Squirrels like to bury it in the ground.
- It is brown, and hard and round.
- What food am I thinking about? (nut)

- I am thinking about a food that swims in the ocean.
- Some people like to catch this food using a pole, a hook and a string.
- This food is very tasty to eat, but watch out for bones.
- What food am I thinking about? (fish)

- I am thinking about a food that grows on a vine in a pod.
- This food is used to make chili.
- This food is red and round.
- What food am I thinking about? (bean or kidney bean or chili bean)

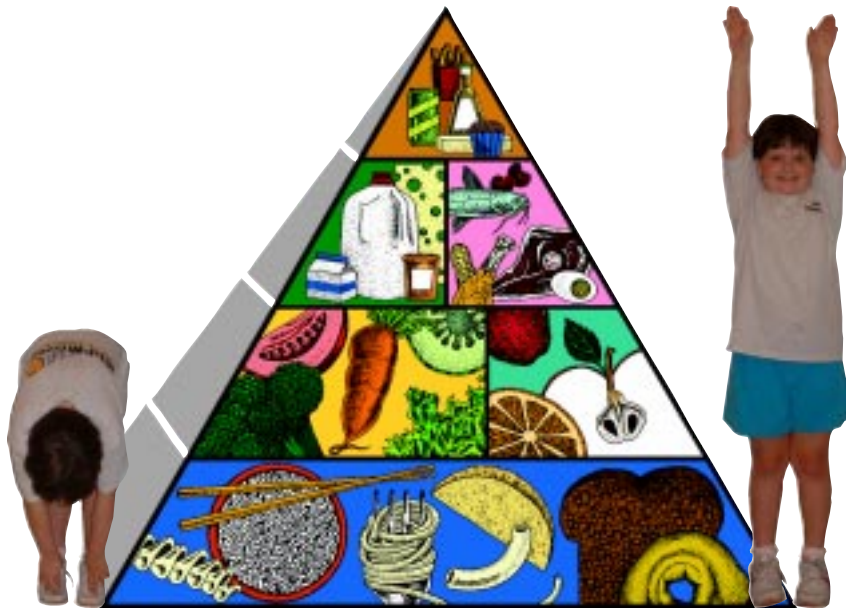
- I am thinking about a food that I like to eat on a bun with ketchup, pickles and cheese.
- Some people like to eat this food with French Fries.
- This food is shaped like a circle.
- What food am I thinking about? (hamburger)



PYRAMID STRETCH

Food and Activity go together; we need both everyday to be healthy.

Supplies needed:
Food Guide Pyramid Poster



Activity:

1. Show the students the Food Guide Pyramid.
2. Ask them to reach down and pretend to touch the bottom where they see all the grains.
3. Next, have them to reach to the side and grab a fruit and the other side for a veggie. While stretching, have different students tell what kinds of food they are grabbing such as apples and carrots.
4. Then have them reach higher on the side for the milk group and to the other side for something from the meat group.
5. Now, have the students stand up and stretch their arms high to reach the tip for sometimes food.
6. Have the students grab a grain for energy.
7. Now, have the students stand up and stretch their arms high to reach the tip for a chocolate kiss or their favorite candy.

Good Job, we just did the pyramid stretch!