CHAPTER 4: CLASSROOM ACTIVITIES

To the Teacher

Goal Setting Activity

Body Venture Activities
To the Teacher…

Classroom activities are an integral part of the Body Venture program. You are strongly encouraged to implement some of the suggested activities with your students. The activities are designed to introduce the concepts presented in Body Venture. Suggested follow-up classroom activities will help reinforce and extend the learning experience. As you know, students retain more knowledge when they are exposed to information more than once.

The first activity in this section is a general goal-setting activity. Additional activities are divided by Body Venture station. There is one suggested pre-Body Venture activity and one follow-up activity for each of the nine main Body Venture stations:

- Brain
- Mouth
- Stomach
- Small Intestine
- Heart
- Lungs
- Bones
- Muscles
- Skin

Materials and supplies needed are listed at the beginning of each activity as well as the time required to complete the activity and subject matter areas in which the activity might be incorporated. Some activities require worksheets or student handouts. These are included at the end of this section and are ready to be copied.

Electronic copies of these activities are available online at www.bodyventure.org. These activities can be e-mailed directly to teachers or may be photocopied from this school manual.

EAT SMART.
PLAY HARD.
Goal-Setting Activity

Body Venture was designed to provide teachers with a resource to help students make healthy lifestyle choices. To learn about these healthy choices, teachers can encourage students to set weekly health, nutrition and physical activity goals. The goals may include new behaviors or may increase the frequency of current positive behaviors.

Goals should be simple, achievable and easy to measure. Rewards are a great way to encourage students to achieve goals. Ideas for rewards include stickers, pencils, bookmarks, classroom or recess privileges or a walk with the principal. Goals can be recorded on bar or line graphs, on calendars or in journals or contracts.

Encourage students to determine and set their own goals. Here are a few suggestions for goals:

- Try a new vegetable or fruit
- Play active games or ride my bike after school
- Eat breakfast
- Choose nutritious after-school snacks
- Drink water instead of sweetened drinks
- Drink or eat 3 servings of foods from the dairy group each day
- Get involved in Walk Kansas (www.walkkansas.org) or The American Heart Association’s Jump Rope for Heart (www.americanheart.org enter “Jump Rope for Heart” in the search box)
- Refer to page 31 for goal setting ideas.

You may also want to consider working together as a classroom and setting weekly goals. As a class, students could encourage each other to drink water after recess. You might bring small samples of a new fruit or vegetable for everyone to taste or ask students to bring samples from home.

EAT SMART.
PLAY HARD.
Making food choices for a healthy lifestyle can be as simple as using these 10 Tips.

Use the ideas in this list to balance your calories, to choose foods to eat more often, and to cut back on foods to eat less often.

1. Balance calories
   Find out how many calories YOU need for a day as a first step in managing your weight. Go to www.ChooseMyPlate.gov to find your calorie level. Being physically active also helps you balance calories.

2. Enjoy your food, but eat less
   Take the time to fully enjoy your food as you eat it. Eating too fast or when your attention is elsewhere may lead to eating too many calories. Pay attention to hunger and fullness cues before, during, and after meals. Use them to recognize when to eat and when you’ve had enough.

3. Avoid oversized portions
   Use a smaller plate, bowl, and glass. Portion out foods before you eat. When eating out, choose a smaller size option, share a dish, or take home part of your meal.

4. Foods to eat more often
   Eat more vegetables, fruits, whole grains, and fat-free or 1% milk and dairy products. These foods have the nutrients you need for health—including potassium, calcium, vitamin D, and fiber. Make them the basis for meals and snacks.

5. Make half your plate fruits and vegetables
   Choose red, orange, and dark-green vegetables like tomatoes, sweet potatoes, and broccoli, along with other vegetables for your meals. Add fruit to meals as part of main or side dishes or as dessert.

6. Switch to fat-free or low-fat (1%) milk
   They have the same amount of calcium and other essential nutrients as whole milk, but fewer calories and less saturated fat.

7. Make half your grains whole grains
   To eat more whole grains, substitute a whole-grain product for a refined product—such as eating whole-wheat bread instead of white bread or brown rice instead of white rice.

8. Foods to eat less often
   Cut back on foods high in solid fats, added sugars, and salt. They include cakes, cookies, ice cream, candies, sweetened drinks, pizza, and fatty meats like ribs, sausages, bacon, and hot dogs. Use these foods as occasional treats, not everyday foods.

9. Compare sodium in foods
   Use the Nutrition Facts label to choose lower sodium versions of foods like soup, bread, and frozen meals. Select canned foods labeled “low sodium,” “reduced sodium,” or “no salt added.”

10. Drink water instead of sugary drinks
    Cut calories by drinking water or unsweetened beverages. Soda, energy drinks, and sports drinks are a major source of added sugar, and calories, in American diets.

Go to www.ChooseMyPlate.gov for more information.
### Sample Goal-Setting Calendar

<table>
<thead>
<tr>
<th>Name:</th>
<th>Week 1 8/1 - 8/7</th>
<th>Week 2 8/8 - 8/14</th>
<th>Week 3 8/15 - 8/21</th>
<th>Week 4 8/22 - 8/28</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>My goal this week: Try at least 2 new veggies</td>
<td>My goal this week: Ride my bike to my friends houses at least twice</td>
<td>My goal this week: Eat breakfast every day this week</td>
<td>My goal this week: Cut down on soda pop - Drink only 3 cans instead of 7</td>
</tr>
<tr>
<td>Sunday</td>
<td>Tried jicama - yum!</td>
<td>Rode bike to Matt’s</td>
<td>Yes - had to get up early because band practice</td>
<td>Can at Roger’s house</td>
</tr>
<tr>
<td>Monday</td>
<td>Mom put pea pods in the stir-fry</td>
<td>Susan’s (BIG hill!)</td>
<td>Yes - had to get up early because band practice</td>
<td>Can at Grandma’s</td>
</tr>
<tr>
<td>Tuesday</td>
<td>At school we had baby corn on salad. ok</td>
<td>Rode bike to Susan’s</td>
<td>Yes - had to get up early because band practice</td>
<td>Can at Grandma’s</td>
</tr>
<tr>
<td>Wednesday</td>
<td>Dad took us out to a breakfast buffet to celebrate</td>
<td>Overslept so ate at school. It was great!</td>
<td>Yes - had to get up early because band practice</td>
<td>Drink only 3 cans instead of 7</td>
</tr>
<tr>
<td>Thursday</td>
<td></td>
<td>Yes! Overslept so ate breakfast at school. It was great!</td>
<td>Yes - had to get up early because band practice</td>
<td>Drink only 3 cans instead of 7</td>
</tr>
<tr>
<td>Friday</td>
<td></td>
<td>Yes - had to get up early because band practice</td>
<td>Yes - had to get up early because band practice</td>
<td>Drink only 3 cans instead of 7</td>
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<tr>
<td>Saturday</td>
<td></td>
<td>Yes - had to get up early because band practice</td>
<td>Yes - had to get up early because band practice</td>
<td>Drink only 3 cans instead of 7</td>
</tr>
</tbody>
</table>

*Table: Sample Goal-Setting Calendar*

- **Week 1:** Tried jicama - yum!
- **Week 2:** Rode bike to Matt’s. Susan’s (BIG hill!)
- **Week 3:** Eat breakfast every day this week. Yes - had to get up early because band practice.
- **Week 4:** Cut down on soda pop - Drink only 3 cans instead of 7.
## My Goal-Setting Calendar

<table>
<thead>
<tr>
<th>Name:</th>
<th>Week 1</th>
<th>Week 2</th>
<th>Week 3</th>
<th>Week 4</th>
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<td><img src="image2.png" alt="Image" /></td>
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<td><img src="image6.png" alt="Image" /></td>
<td><img src="image7.png" alt="Image" /></td>
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<td><strong>Week 3</strong></td>
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<td><img src="image10.png" alt="Image" /></td>
<td><img src="image11.png" alt="Image" /></td>
<td><img src="image12.png" alt="Image" /></td>
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<tr>
<td><strong>Week 4</strong></td>
<td><img src="image13.png" alt="Image" /></td>
<td><img src="image14.png" alt="Image" /></td>
<td><img src="image15.png" alt="Image" /></td>
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Body Venture Activities
### Body Venture Activities

<table>
<thead>
<tr>
<th>Activity</th>
<th>Page</th>
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<tbody>
<tr>
<td>Brain</td>
<td>37</td>
</tr>
<tr>
<td>Mouth</td>
<td>39</td>
</tr>
<tr>
<td>Stomach</td>
<td>41</td>
</tr>
<tr>
<td>Small Intestine</td>
<td>43</td>
</tr>
<tr>
<td>Heart</td>
<td>45</td>
</tr>
<tr>
<td>Lungs</td>
<td>47</td>
</tr>
<tr>
<td>Bones</td>
<td>49</td>
</tr>
<tr>
<td>Muscles</td>
<td>51</td>
</tr>
<tr>
<td>Skin</td>
<td>53</td>
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Brain

Do this activity BEFORE Body Venture

POWER PANTHER says

EAT SMART.
PLAY HARD.

Healthy food choices and vigorous exercise help jump start your brain!

Overview:
You use your brain everyday to make important choices. Choose foods from each MyPlate food group each day. Choose to PLAY HARD! Physical fitness and physical activity are part of good health and help us grow. Being physically fit or active reduces the risk of certain diseases, encourages our bones to grow stronger, helps us make bigger muscles and keeps our bodies from storing too much fat. Always wear a helmet when you PLAY HARD. A helmet protects the brain from injury.

What is a Healthy Diet?

<table>
<thead>
<tr>
<th>Grades:</th>
<th>K–5</th>
</tr>
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<tbody>
<tr>
<td>Subjects:</td>
<td>Health, Science</td>
</tr>
<tr>
<td>Time Required:</td>
<td>30 minutes</td>
</tr>
</tbody>
</table>

Materials:
- MyPlate for Kids Handout (page 56)
- Assorted Food Labels—Have students bring in labels from foods they like (if possible)
- Poster Board
- Markers

Procedure:
1. Distribute the MyPlate Handout. Allow students time to read it and discuss it.
2. Explain that MyPlate represents a balanced diet to help people make healthy eating choices.
3. Have students work in teams to figure out how many foods they can name for each food group. In which food groups could they name the most foods? Where did they place combination foods such as burritos? Have them list their favorite foods and try to place them on MyPlate.
4. Older students can work in teams to make a serving-size poster showing full-scale drawings of serving sizes of their favorite foods. Discuss how to determine serving sizes using MyPlate and food labels.
Do this activity AFTER Body Venture

POWER PANTHER says EAT SMART. PLAY HARD.
Healthy food choices and vigorous exercise help jump start your brain!

Overview:
You use your brain everyday to make important choices. Choose foods from each MyPlate food group each day. Choose to PLAY HARD! Physical fitness and physical activity are part of good health and help us grow. Being physically fit or active reduces the risk of certain diseases, encourages our bones to grow stronger, helps us make bigger muscles and keeps our bodies from storing too much fat. Always wear a helmet when you PLAY HARD. A helmet protects the brain from injury.

Choices for a Snack Attack

<table>
<thead>
<tr>
<th>Grades:</th>
<th>K–5</th>
</tr>
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<tbody>
<tr>
<td>Subjects:</td>
<td>Health, Science</td>
</tr>
<tr>
<td>Time Required:</td>
<td>30 minutes</td>
</tr>
</tbody>
</table>

Materials:
- Worksheets:
  - K–2: MyPlate Worksheet and Power Panther’s Plate Snacks (pages 57–61)
  - 3–5: Fast Food Shake Down (pages 62–64)
- Pencils
- Glue (K-2)
- Scissors (K-2)

Procedure:

1. MyPlate Worksheet and Power Panther’s Plate Snacks: Distribute the worksheets (5 pages). Cut snack food blocks from page 59. Paste snack foods under the correct column. Discuss MyPlate snacks and FOS (Fats, Oils, Sweets) snacks. Encourage students to choose MyPlate snacks most often and eat fewer FOS snacks. Each student then draws his/her favorite non-FOS snack on the plate on page 60. Finally they complete the Choices for a Snack Attack Worksheet by marking a triangle on the foods that would be MyPlate snacks on page 61.

2. Fast Food Shake Down: Distribute the worksheets (3 pages). Discuss the food groups in pizza - a. Identify pizza - a with the most calories, fat grams and sodium. Ask students which pizza - a would be the healthiest choice for a snack attack. Next, look at the nutrients in fast food sandwiches. Answer the questions on the worksheet. Discuss which sandwiches would be the healthiest choices. Refer to teacher KEY on page 65.
Do this activity **BEFORE** Body Venture

**POWER PANTHER says EAT SMART.**
You need a healthy mouth to enjoy your food.
A healthy mouth gives you a nice smile!

**Overview:**
Tooth decay is one of the most common diseases today. Foods that are sticky, starchy or sugary can provide the food that bacteria use to make acids, which cause cavities on your teeth. Crunchy and hard vegetables and fruits help clean teeth as they are chewed. To take care of your teeth, brush and floss after meals and snacks.

**Sticky Snacks**

<table>
<thead>
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<th>Grades:</th>
<th>K–5</th>
</tr>
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<tbody>
<tr>
<td>Subjects:</td>
<td>Health, Science</td>
</tr>
<tr>
<td>Time Required:</td>
<td>25 minutes</td>
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**Materials:**
- 1 Marshmallow
- 1 Apple
- 1 Sharp Knife
- 1 Wet Towel
- 1 (per student) Carrot Slice
- 1 (per student) Hard Candy
- 2 (per student) Paper Cups
- 1 (per student) Paper Towel Sheet

**Procedure:**

1. Have students feel the carrot and candy and discuss the way they feel. Students can use words like: sticky, smooth, slick, rough, hard, soft, wet, dry, slimy, etc.

2. Have them put each food into a separate cup of water.

3. Wait a few minutes and then have the students feel the foods again. What do they feel like now?

4. Cut the marshmallow with the knife. Show how sticky it becomes. Then cut the apple with the knife and show the difference.

5. Point out the reasons for avoiding sticky sweets between meals.

6. Talk about foods from the dairy group (such as: milk, cheese, yogurt) that are especially healthy for the teeth as well as healthy snacks from the fruit and vegetable groups.
Do this activity **AFTER** Body Venture

**POWER PANTHER says EAT SMART.**

You need a healthy mouth to enjoy your food.
A healthy mouth gives you a nice smile!

**Overview:**

Tooth decay is one of the most common diseases today. Foods that are sticky, starchy or sugary can provide the food that bacteria use to make acids, which cause cavities on your teeth. Crunchy and hard vegetables and fruits help clean teeth as they are chewed. To take care of your teeth, brush and floss after meals and snacks.

**What Causes Tooth Decay?**

<table>
<thead>
<tr>
<th>Grades:</th>
<th>K–5</th>
</tr>
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<tbody>
<tr>
<td>Subjects:</td>
<td>Health, Science</td>
</tr>
<tr>
<td>Time Required:</td>
<td>5 minutes to set up. 15 minutes for observations on 2 days</td>
</tr>
</tbody>
</table>

**Materials:**

- 2 Raw Eggs
- 3 cups White Vinegar
- 1 oz. Fluoride Mouth Rinse
- 2 Plastic Cups

**Procedure:**

1. Put fluoride in a cup with water. Soak one egg with shell intact in this solution for 24 hours. Remove egg, rinse with clear water and mark with an “F”.

2. Put the treated and untreated eggs with shells intact into clean cups.

3. Cover each with vinegar (vinegar represents mouth acids).

4. Note bubbles on the shell of the untreated egg. This shows the dissolution of calcium.

5. Observe what happens to the shells on the eggs and record results. Note differences between the treated and untreated eggs.

6. This is a simulation of teeth decomposition. Explain the importance of brushing with fluoride toothpaste after meals and snacks.
Do this activity **BEFORE** Body Venture

POWER PANTHER says **EAT SMART.**
Digestion begins in the mouth and continues in the stomach and small intestine.

**Overview:**
The stomach is like a stretchy bag that holds food after it is eaten. The stomach helps break the food into smaller pieces so the body can use it. Little glands in the stomach make special juices that are waiting for food. Once the food enters the stomach, muscles move the walls of the stomach. This mashes and stirs the food with the special juices and breaks the food into smaller pieces. When the stomach is empty, it shrinks like a balloon without air. The stomach is a stretchy storage tank!

**Digest This!**

**Grades:** K–5

**Subjects:** Health, Science, Physical Education

**Time Required:** 30 minutes

**Materials:**
- 2 (for 2 students) Jars with Lids
- 1 (per jar) Chunked Potato
- 1 (per jar) Grated Potato
- Water
- Digestive System Handout (page 66)

**Procedure:**

1. Divide the class into pairs and give each pair two jars.

2. Put some potato chunks in one jar. Put some grated potato in the other jar. Add water to each jar. Fasten the lid.

3. Students take turns shaking both jars for 10 minutes.

4. Look at the mixture. Discuss what happened to the potato. Talk about the digestive action that takes place in the stomach. Food is churned into small pieces and mixed with gastric juices that change the solid food to liquid called chyme.

5. Distribute the digestive system handout. Use the chart to describe how food moves through the digestive system. The breaking down of food, called digestion, changes food into nutrients that can be used by the cells for growth, repair and energy. The digestive system can be compared to a giant food processor.
Do this activity **AFTER** Body Venture

**POWER PANTHER says** **EAT SMART.**

Digestion begins in the mouth and continues in the stomach and small intestine.

**Overview:**

The stomach is like a stretchy bag that holds food after it is eaten. The stomach helps break the food into smaller pieces so the body can use it. Little glands in the stomach make special juices that are waiting for food. Once the food enters the stomach, muscles move the walls of the stomach. This mashes and stirs the food with the special juices and breaks the food into smaller pieces. When the stomach is empty, it shrinks like a balloon without air. The stomach is a stretchy storage tank!

**OverfLOW!**

<table>
<thead>
<tr>
<th>Grades:</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Subjects:</td>
<td>Health, Science</td>
</tr>
<tr>
<td>Time Required:</td>
<td>20 minutes</td>
</tr>
</tbody>
</table>

**Materials:**

- 1 Tube of Toothpaste
- 1 Paper Cup

**Procedure:**

1. Hold the tube of toothpaste in your hands.
2. With the cap screwed on tightly, position the tube above the paper cup.
3. Moving your fingers, squeeze the tube in different places.
4. Remove the cap from the tube and squeeze the tube with your fingers.
5. Discuss the results. When the cap is secured, the toothpaste inside the tube moves around, but remains inside the tube. Without the cap, the toothpaste moves out the opening of the tube.
6. Explain that the stomach has three layers of muscles contracting in different directions. These squeezing actions, like your hand squeezing the toothpaste tube, thoroughly mash the food in the stomach and mix it with the digestive juices, forming a soupy paste. Between the stomach and the upper part of the small intestine there is a muscle called the pyloric sphincter. When the pyloric sphincter relaxes, it opens and a small amount of food is squeezed into the small intestine, just as toothpaste moves out of the tube when the cap is off. After a small amount of food leaves the stomach, the pyloric sphincter quickly closes, sealing off the passageway. The rest of the food remains in the stomach until the small intestine is ready to receive it.
Do this activity **BEFORE** Body Venture

POWER PANTHER says **EAT SMART.**

In the small intestine, foods are broken into small parts called nutrients and the nutrients travel to all parts of your body.

**Overview:**

Food moves from the stomach into the small intestine. Inside this approximately 20-foot-long tube, juices break the food down into tinier bits. The small intestine squeezes food along like toothpaste is squeezed through a tube. Tiny hairlike villi cover the inside walls of the small intestine. Villi are like doors in the walls of the intestine. Nutrients from food travel through the villi and into the bloodstream.

**Your Small Intestine**

<table>
<thead>
<tr>
<th>Grades:</th>
<th>K–5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subjects:</td>
<td>Health, Science, Language Arts</td>
</tr>
<tr>
<td>Time Required:</td>
<td>30 minutes</td>
</tr>
</tbody>
</table>

**Materials:**

- Digestive System Handout ([page 66](#))
- 1 teaspoon Black Pepper
- 1 cup Water
- 1 Bowl
- 1 Strainer
- 1 Coffee Filter

**Procedure:**

1. Mix the pepper and water. Explain that food has to be tiny to go through the villi.
2. Pour the water and pepper mixture through a coffee filter inside a strainer into a bowl.
3. Discuss what went through the coffee filter and what did not.
4. Compare the experiment to how the small intestine and villi work. The bowl represents the bloodstream, which receives the nutrients; the strainer represents the small intestine and the coffee filter, the villi.
5. Have the students write or draw a journal entry telling or showing how the small intestine and the villi work. What do they do to help with digestion?
Do this activity AFTER Body Venture

POWER PANTHER says EAT SMART.
In the small intestine, foods are broken into small parts called nutrients and the nutrients travel to all parts of your body.

Overview:
Food moves from the stomach into the small intestine. Inside this approximately 20-foot-long tube, juices break the food down into tinier bits. The small intestine squeezes food along like toothpaste is squeezed through a tube. Tiny hairlike villi cover the inside walls of the small intestine. Villi are like doors in the walls of the intestine. Nutrients from food travel through the villi and into the bloodstream.

How Long Am I?

<table>
<thead>
<tr>
<th>Grades:</th>
<th>K–5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subjects:</td>
<td>Health, Science, Math</td>
</tr>
<tr>
<td>Time Required:</td>
<td>20 minutes</td>
</tr>
</tbody>
</table>

Materials:
- 20 feet of Rope (approx. 1 inch wide), Yarn or String
- Ruler

Procedure:
1. Have students measure a 20-foot long piece of rope, yarn or string.
2. Using the ruler, also show students that the small intestine is about 1 to 1.6 inches wide.
3. Have the students coil the string so that it would fit into the abdominal cavity (about the size of a saucer).
4. Discuss why the intestines are so long, pointing out that the longer the intestines, the greater surface area through which nutrients from food can be absorbed into the bloodstream.
5. For older students, calculate the surface area of the small intestine.
Do this activity **BEFORE** Body Venture

**POWER PANThER says EAT SMART.**
Low-fat foods are good for your heart.

*Overview:*
The heart is a muscular organ that pumps blood through blood vessels throughout the body. A child’s heart is about the size of his/her clenched fist. The heart works 24 hours a day without stopping throughout a person’s whole lifetime. The heart never rests. It is important to take good care of the heart by exercising and eating healthy foods. Too much fat in the diet is unhealthy for the heart.

**Detecting Your Pulse**

**Grades:** K–5

**Subjects:** Health, Science, Math

**Time Required:** 15 minutes

**Materials:**
- Toothpicks
- Modeling Clay

**Procedure:**

1. Construct a simple apparatus to visually detect the pulse. Provide each student with a toothpick and a “dime-sized” piece of clay.

2. Have students stick the toothpick into the clay—this will be their “counter.”

3. Have students rest the “counter” on the inside of their wrist just below the base of the thumb.

4. Have students observe the toothpick as it moves. Let students work in pairs to time the counts in 15 seconds. Use this information to determine how many beats per minute (Count x 4). For younger students, have them count the movements they see in 6 seconds and then add a 0.

5. Optional: Have the students feel for their own pulse. After doing the activity with the clay, they can easily see where to feel for their own pulse.

6. Construct a class graph using the information from each student.
Do this activity AFTER Body Venture

POWER PANTHER says EAT SMART.
Low-fat foods are good for your heart.

Overview:
The heart is a muscular organ that pumps blood through blood vessels throughout the body. A child’s heart is about the size of a clenched fist. The heart works 24 hours a day without stopping throughout a person’s whole lifetime. The heart never rests. It is important to take good care of the heart by exercising and eating healthy foods. Too much fat in the diet is unhealthy for the heart.

Heartbeat:

<table>
<thead>
<tr>
<th>Grades:</th>
<th>K–5</th>
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<tbody>
<tr>
<td>Subjects:</td>
<td>Health, Science, Math</td>
</tr>
<tr>
<td>Time Required:</td>
<td>15 minutes</td>
</tr>
</tbody>
</table>

Materials:
- 1 (per every 2 students) Cardboard Tube from a paper towel roll

Procedure:
1. Have students pair up and listen for their partner’s heartbeat by placing the tube over the partner’s heart.
2. Count the number of beats per 30 seconds. Double this number to find out how many times each minute the person’s heart beats. Or count the number of beats for 6 seconds and then add a 0 for younger students.
3. Have one partner run in place for one minute, then listen again. Have the student write down what they hear and calculate the new beats per minute. Then have the partners switch.
4. Follow-up Discussion: The heart beats faster after the exercise in order to pump more blood (oxygen) to the working muscles.

NOTE: For older students, make graphs showing the difference in heart rate before and after exercise.
Do this activity **BEFORE** Body Venture

**POWER PANTHER says **PLAY HARD.**

Healthy lungs help you breathe faster and better when you run and play.

**Overview:**

Lungs are used in breathing to bring oxygen to all parts of the body. It is important to keep lungs healthy. Smoking is unhealthy because of the nicotine, tar and carbon monoxide produced. The best way to have healthy lungs is to eat a variety of healthy foods, to exercise and to never start smoking.

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**Fogger**

<table>
<thead>
<tr>
<th>Grades:</th>
<th>K–5</th>
</tr>
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<tbody>
<tr>
<td>Subjects:</td>
<td>Health, Science</td>
</tr>
<tr>
<td>Time Required:</td>
<td>15 minutes</td>
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</tbody>
</table>

**Materials:**

- Hand Mirror
- Paper Towels

**Procedure:**

1. Use the paper towel to clean and dry the mirror.
2. Hold the mirror near, but not touching, the mouth.
3. Exhale onto the mirror two or three times.
4. Examine the surface of the mirror.
5. The purpose of this experiment is to collect one of the gases in our breath. The surface of the mirror will become fogged because of respiration. Respiration is the process by which oxygen combines with glucose to produce energy and two waste by-products, carbon dioxide and water vapor (water in the form of a gas). Respiration is constantly occurring in each of the cells of the body. The water that is seen on the mirror is the water vapor produced by the respiration reaction inside the cells. When the warm water vapor comes in contact with the cool mirror, condensation (a process by which a gas loses heat energy and turns to a liquid) occurs because the mirror is colder than the inside of the lungs.
Do this activity **AFTER** Body Venture

**POWER PANTHER** says **PLAY HARD.**
Healthy lungs help you breathe faster and better when you run and play.

**Overview:**
Lungs are used in breathing to bring oxygen to all parts of the body. It is important to keep lungs healthy. Smoking is unhealthy because of the nicotine, tar and carbon monoxide produced. The best way to have healthy lungs is to eat a variety of healthy foods, to exercise and to never start smoking.

**Measuring Your Lung Capacity**

**Grades:** K–5

**Subjects:** Health, Science, Math

**Time Required:** 30 minutes

**Materials:**
- 1 (per student) String (24 inch lengths)
- 1 (per student) Balloon (round shaped)
- Rulers

**Procedure:**

1. Divide students into pairs and ask them to think of a way to measure the amount of air our lungs can hold. (Hold up a balloon and let them make the connection.)

2. Explain that they will be measuring their lung capacity (amount something can hold) using balloons. To show the size of the person’s lung capacity in comparison with another’s, you will be measuring how big around the balloon gets.

3. Demonstrate how to measure the circumference of a balloon that you’ve blown up with the string and then how to measure the amount of string used with a ruler.

4. Have each student actually blow up the balloon with ONE breath and measure it. Partners will take turns helping each other.

5. Give each student an opportunity to tell his/her lung capacity. Compare and discuss the lung capacity of different people. This activity creates a physical representation of the amount of air that the student’s lungs can hold in one breath.

6. **Optional:** Make a bulletin board! Tie off each balloon and attach it to the bulletin board with a label stating the child’s name and lung capacity.
Do this activity **BEFORE** Body Venture

**BONES**

POWER PANTHER says **EAT SMART.** Bones provide the framework for the body. Calcium in milk builds strong bones.

**Overview:**

Bones hold you up. They give the body its shape. Bones are very strong and hard on the outside to support the body. Inside, the bone cells are arranged like a sponge. The spongy bone is lighter, but still very strong. When you are born, you have about 300 bones. As you grow, some of these bones grow or fuse together. When you are an adult you will have 206 bones. Bones must have a daily supply of building materials to be strong and healthy. Calcium is an important nutrient needed by bones and it can be found primarily in the dairy group. Three servings from this group are needed for growing children. Other nutrients important for bone strength are vitamin D, a calcium absorption enhancer; vitamin C, a “cement” between bone layers; and protein, a basic body building material.

**Chicken Bone Experiment**

**Grades:** K–5

**Subjects:** Health, Science, Math

**Time Required:** 20 minutes on 2 days (Must soak one bone overnight)

**Materials:**

- 2 Uncooked Chicken Bones
- Vinegar
- 7 cups Flour
- 1 Jar

**Procedure:**

1. Fill a jar with vinegar and place one chicken bone in the jar overnight.

2. Leave one chicken bone untreated.

3. Observe the bones the next day. The chicken bone in the vinegar jar can now be bent. The vinegar will remove the calcium from the bone.

4. Discuss the importance of calcium in making strong bones. Ask the students what kind of bones they would like in their bodies. Stress the importance of eating foods rich in calcium so their bones will be healthy and strong.

5. Demonstrate the amount of calcium in the body. If calcium were removed from the body it would resemble flour. By using this display of varying amounts of flour, children can learn how much calcium a healthy body contains. Newborn—¼ cup flour; Age 10—3½ cups flour; Age 15—7 cups flour.
Do this activity AFTER Body Venture

**Overview:**
Bones hold you up. They give the body its shape. Bones are very strong and hard on the outside to support the body. Inside, the bone cells are arranged like a sponge. The spongy bone is lighter, but still very strong. When you are born, you have about 300 bones. As you grow, some of these bones grow or fuse together. When you are an adult you will have 206 bones. Bones must have a daily supply of building materials to be strong and healthy. Calcium is an important nutrient needed by bones and it can be found primarily in the dairy group. Three servings from this group are needed for growing children. Other nutrients important for bone strength are vitamin D, a calcium absorption enhancer; vitamin C, a “cement” between bone layers; and protein, a basic body building material.

**Backbone**

**Grades:** K–5

**Subjects:** Health, Science

**Time Required:** 45 minutes

**Materials:**
- 2 Large Thread Spools
- Pencil
- 2 Medium Thread Spools
- Ruler
- 2 Small Thread Spools
- Scissors
- Cardboard
- String (18 inches)
- Paper Hole-punch
- Tape

**Procedure:**
1. Place the flat ends of all the thread spools (except one of the small spools) on the cardboard.
2. Draw circles on the cardboard by tracing around the base of each spool.
3. Cut out the five paper circles from the cardboard and use the hole-punch to make a hole in the center of each.
4. Cut an 18-inch length of string.
5. Thread one end of the string through the hole in one of the large spools, then tape the end of the string to the bottom of the spool.
6. Thread the free end of the string through the hole in one of the large cardboard circles.
7. Add the second large spool to the string, followed by the second large cardboard circle.
8. Add the medium-sized spools and the medium cardboard circles alternately to the string.
9. Add the small spool to the string with the small cardboard circle between them.
10. Tape the free end of the string to the end of the small spool.
11. Stand the column of spools on a table, with the large spool on the bottom.
12. Holding the bottom spool on a table, push the top spool about 2 inches to one side.
13. Repeat the previous step several times, pushing the top spool in different directions.
14. A model of the spine is made. The string of spools is able to lean in any direction. Because the vertebrae, like the thread spools, form flexible joints, you can lean and bend in different directions. Between each pair of vertebrae is a disk of cartilage that acts as a shock absorber, just as the cardboard circle between the spools. Like the hole in the thread spool, there is a hole in each vertebra that creates a passageway called the spinal canal.
Overview:
All body movements are possible because of the more than 600 muscles in the body. Exercise helps maintain muscle strength, flexibility and endurance. It is important to provide good fuels for exercising muscles. Foods from the grain group like rice, pasta and bread are packed with carbohydrates—great fuel for exercising muscles. Protein foods like meat, poultry, eggs, nuts, beans and milk help build muscle tissue. Muscles need to be exercised in combination with a healthy diet to become bigger and stronger.

Muscle Power

Grades: K–5

Subjects: Health, Science, Physical Education

Time Required: 15 minutes

Materials:
- Chair
- Heavy Table

Procedure:
1. Ask students to work in pairs.
2. Ask one student to place his or her hands, palm up, under the edge of the table and to try to lift the table with medium pressure.
3. While pressure is being applied to the table, feel the front and back of the student’s upper arm.
4. Next, ask the student to place his or her hands, palm down, on top of the table and to press down.
5. Again, feel the same parts of the student’s upper arm.
6. Have students change places and repeat.
7. Discuss that the muscle in front of the arm feels harder than the muscle in the back of the arm when the hand is pushing up on the table. The back muscle in the arm feels harder when the hand is pressing down on the table.
8. Pushing up on the table causes the flexor muscle in the front of the arm to contract and harden. Pushing down on the table causes the extensor muscle in the back of the arm to contract and harden. Explain that different muscles are used for different movements.
Do this activity AFTER Body Venture

POWER PANTHER says EAT SMART.
Foods with carbohydrates provide fuel for exercising muscles and protein helps build muscle tissue.

Overview:
All body movements are possible because of the more than 600 muscles in the body. Exercise helps maintain muscle strength, flexibility and endurance. It is important to provide good fuels for exercising muscles. Foods from the grain group like rice, pasta and bread are packed with carbohydrates—great fuel for exercising muscles. Protein foods like meat, poultry, eggs, nuts, beans and milk help build muscle tissue. Muscles need to be exercised in combination with a healthy diet to become bigger and stronger.

Building Muscle Strength

<table>
<thead>
<tr>
<th>Grades:</th>
<th>K–5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subjects:</td>
<td>Health, Science, Physical Education</td>
</tr>
<tr>
<td>Time Required:</td>
<td>15 minutes</td>
</tr>
</tbody>
</table>

Materials:
- Heavy Book

Procedure:

1. Muscle Fatigue Exercise: Have students open and close their fist as many times as possible within a three-minute period (less for younger children). Tell the students why the hand becomes tired. The muscle was put through repetitive exercise to tire the muscle. The muscle becomes tired because the energy stores are used up.

2. Strength Building Exercise: Have the children stand and flex one arm for two minutes. Then have them put a heavy book in the other arm and flex for two minutes. Tell why the arm with the book became tired more quickly. It is important to push muscles past their limit to build strength. For example, you lift 50 pounds every day. After a few weeks, it becomes easier, so you add more weight. Eventually you can lift 100 pounds. As you gradually increase the work you ask your muscles to do, your muscles will grow and get stronger. This is called muscular strength.
Do this activity **BEFORE** Body Venture

**Skin**

POWER PANTHER says **EAT SMART.**

Nutrients we get from food help the skin heal.

**Overview:**

Skin is the largest protective organ that our bodies have. It is living tissue that can repair itself. It is important to take good care of the skin on the outside and the inside. We can take care of our skin on the outside by wearing sunscreen to limit the damage caused by the sun. Staying out of the sun during the most damaging time of the day (11:00 a.m. to 3:00 p.m.) and wearing protective clothing also help protect our skin. What we eat affects the health of our skin. Fruits and vegetables that contain vitamin C are important for helping the skin heal. Foods like oranges, green peppers, strawberries, broccoli and tomatoes have a lot of vitamin C.

**How Much Skin Do You Have?**

<table>
<thead>
<tr>
<th>Grades:</th>
<th>K–5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subjects:</td>
<td>Health, Science, Math</td>
</tr>
<tr>
<td>Time Required:</td>
<td>30 minutes</td>
</tr>
</tbody>
</table>

**Materials:**

- Large Paper or Graph Paper large enough to lie on
- Pencil

**Procedure:**

1. Assign the students to work in pairs.
2. One student lies down on a large piece of paper.
3. Have the other student draw around the student’s body.
4. The students then change places and repeat.
5. Each student then cuts out the body shape.
6. To estimate how much skin you have in inches, cover the cut out with 1-inch graph paper and count the squares. Alternatively, students can actually draw the outline on 1-inch graph paper.
Do this activity **AFTER** Body Venture

**Skin**

POWER PANTHER says **EAT SMART.**

Nutrients we get from food help the skin heal.

**Overview:**
Skin is the largest protective organ that our bodies have. It is living tissue that can repair itself. It is important to take good care of the skin on the outside and the inside. We can take care of our skin on the outside by wearing sunscreen to limit the damage caused by the sun. Staying out of the sun during the most damaging time of the day (11:00 a.m. to 3:00 p.m.) and wearing protective clothing also help protect our skin. What we eat affects the health of our skin. Fruits and vegetables that contain vitamin C are important for helping the skin heal. Foods like oranges, green peppers, strawberries, broccoli and tomatoes have a lot of vitamin C.

**Sun Sensitivity Survey**

**Grades:** K–5

**Subjects:** Health, Science, Math

**Time Required:** 20 minutes

**Materials:**
- Graph Paper
- Colored Pencils or Markers

**Procedure:**

1. Ask how many students in the class have been sunburned.

2. Draw conclusions about who is most likely to get sunburned based on skin color, hair color and eye color.

3. Graph the results.

4. Discuss the importance of using sun block, wearing protective clothing and limiting exposure during the most damaging time of the day (11:00 a.m. to 3:00 p.m.).
Student Worksheets for Classroom Activities
**MyPlate for Kids**

**FRUITS** Fuel Up With Fruits at Meals or Snacks
- Oranges, pears, peaches, plums, and apricots
- Make sure your juice is 100% fruit juice.

**VEGETABLES** Color Your Plate With Great-Tasting Veggies
- Broccoli, carrots, bell peppers, and zucchini
- Try to eat more dark-green, red, and orange vegetables, and beans and peas.

**GRAINS** Make at Least Half Your Grains Whole Grains
- Choose whole-grain foods, such as whole-wheat bread, oatmeal, whole-wheat tortillas, brown rice, and light popcorn, more often.

**PROTEIN** Vary Your Protein Foods
- Try fish, shellfish, beans, and peas more often. Some tasty ways include a bean burrito, hummus, veggie chili, fish tacos, shrimp or tofu stir-fry, or grilled salmon.

**DAIRY** Get Your Calcium-Rich Foods
- Choose fat-free or low-fat milk, yogurt, and cheese at meals or snacks. Dairy foods contain calcium for strong bones and healthy teeth.

**Eat Smart To Play Hard**
- Use MyPlate to help you fuel up with foods from each food group.
- Keep on Moving! You need at least 60 minutes of physical activity each day. Whether that's skateboarding, tossing a ball, or playing tag, every little bit counts!

**Know Your “Sometimes” Foods**
- Look out for foods with added sugars or solid fats. They fill you up so that you don't have room for the foods that help you eat smart and play hard.
# MyPlate Worksheet

**Check how you did yesterday and set a goal to aim for tomorrow**

<table>
<thead>
<tr>
<th>Write In Your Choices From Yesterday</th>
<th>Food and Activity</th>
<th>Tip</th>
<th>Goal (Based On a 1800 Calorie Pattern)</th>
<th>List Each Food Choice In Its Food Group*</th>
<th>Estimate Your Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakfast:</td>
<td>Grains</td>
<td></td>
<td>Make at least half your grains whole grains.</td>
<td>6 ounce equivalents (1 ounce equivalent is about 1 slice bread, 1 cup dry cereal, or ½ cup cooked rice, pasta, or cereal)</td>
<td>_ounce equivalents</td>
</tr>
<tr>
<td></td>
<td>Vegetables</td>
<td></td>
<td>Color your plate with all kinds of great tasting veggies.</td>
<td>2½ cups (Choose from dark green, orange, starchy, dry beans and peas, or other veggies.)</td>
<td>_cups</td>
</tr>
<tr>
<td>Lunch:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Snack:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dinner:</td>
<td>Dairy</td>
<td></td>
<td>Choose fat-free or lowfat most often.</td>
<td>3 cups (1 cup yogurt or 1½ ounces cheese = 1 cup milk)</td>
<td>_cups</td>
</tr>
<tr>
<td></td>
<td>Protein</td>
<td></td>
<td>Choose lean meat and chicken or turkey. Vary your choices—more fish, beans, peas, nuts, and seeds.</td>
<td>5 ounce equivalents (1 ounce equivalent is 1 ounce meat, chicken or turkey, or fish, 1 egg, 1 T. peanut butter, ¼ ounce nuts, or ¼ cup dry beans)</td>
<td>_ounce equivalents</td>
</tr>
<tr>
<td>Physical activity:</td>
<td></td>
<td></td>
<td>Build more physical activity into your daily routine at home and school.</td>
<td>At least 60 minutes of moderate to vigorous activity a day or most days.</td>
<td>_minutes</td>
</tr>
</tbody>
</table>

How did you do yesterday? [ ] Great [ ] So-So [ ] Not So Great

My food goal for tomorrow is: __________________________________________

My activity goal for tomorrow is: ______________________________________

* Some foods don’t fit into any group. These “extras” may be mainly fat or sugar—limit your intake of these.
Power Panther’s Plate Snacks

Cut snack food blocks from page 59. Paste snack foods under the correct column.
Power Panther’s Plate Snacks
Cut snack food blocks below. Paste snack foods under the correct column on page 58.

candy bar
banana
muffin
carrot
potato chips
soft drink
Power Panther’s Plate Snacks

Draw your favorite snack on the plate.
### Power Panther’s Plate Snacks

**CHOICES FOR A SNACK ATTACK**

Draw a triangle on each healthy snack from the five major plate groups.

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>apple</td>
<td>carrot</td>
<td>candy bar</td>
<td>orange</td>
</tr>
<tr>
<td>cheese</td>
<td>soft drink</td>
<td>banana</td>
<td>celery</td>
</tr>
<tr>
<td>peach</td>
<td>green peppers</td>
<td>potato chips</td>
<td>cauliflower</td>
</tr>
<tr>
<td>corn curls</td>
<td>broccoli</td>
<td>grapes</td>
<td>donut</td>
</tr>
</tbody>
</table>
### Pepperoni Pizza

- **Serving Size**: 6.5 oz.
- **Calories**: 526
- **Protein**: 19.5 gm
- **Fat**: 28.5 gm
- **Sodium**: 1365 mg

### Cheese Pizza

- **Serving Size**: 6.5 oz.
- **Calories**: 497
- **Protein**: 21.2 gm
- **Fat**: 24.5 gm
- **Sodium**: 828 mg

### Sausage Pizza

- **Serving Size**: 6.5 oz.
- **Calories**: 494
- **Protein**: 20 gm
- **Fat**: 27.5 gm
- **Sodium**: 1190 mg

---

**Answer the following questions:**

1. **What MyPlate Groups are in pizza?**
   
   [Blank Line]

2. **Which pizza has the most calories?**
   
   [Blank Line]

3. **Which pizza has the most fat grams?**
   
   [Blank Line]

4. **Which pizza has the most sodium?**
   
   [Blank Line]
Fast Food Shake-Down Sandwiches!

<table>
<thead>
<tr>
<th>Sandwich</th>
<th>Calories</th>
<th>Calories from fat</th>
<th>Total Fat</th>
<th>Sodium</th>
<th>Protein</th>
<th>Vitamin A</th>
<th>Vitamin C</th>
<th>Iron</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cheeseburger</td>
<td>318</td>
<td>144</td>
<td>16 gm</td>
<td>743 mg</td>
<td>15 gm</td>
<td>353 IU</td>
<td>2 mg</td>
<td>2.8 mg</td>
</tr>
<tr>
<td>Hamburger</td>
<td>263</td>
<td>101.7</td>
<td>11.3 gm</td>
<td>506 mg</td>
<td>12.4 gm</td>
<td>00 IU</td>
<td>2 mg</td>
<td>2.9 mg</td>
</tr>
<tr>
<td>Double Cheeseburger</td>
<td>570</td>
<td>144</td>
<td>16 gm</td>
<td>979 mg</td>
<td>24.6 gm</td>
<td>380 IU</td>
<td>3 mg</td>
<td>4.9 mg</td>
</tr>
<tr>
<td>Roast Beef Sandwich</td>
<td>347</td>
<td>120.6</td>
<td>13.4 gm</td>
<td>756 mg</td>
<td>22.4 gm</td>
<td>240 IU</td>
<td>3 mg</td>
<td>4 mg</td>
</tr>
<tr>
<td>Fish Sandwich</td>
<td>435</td>
<td>231.3</td>
<td>25.7 gm</td>
<td>799 mg</td>
<td>14.7 gm</td>
<td>186 IU</td>
<td>0 mg</td>
<td>2.5 mg</td>
</tr>
</tbody>
</table>

![Image of a sandwich with nutritional information]
Sandwiches

1. Which sandwich has the fewest calories? ________________________________

2. How many more calories does the double cheeseburger have compared to the regular cheeseburger? ________________________________

3. Compare the fried fish sandwich and the roast beef sandwich.
   a. Which sandwich has more Total Fat? ________________________________
   b. By how much? ________________________________

4. a. Which sandwich has the most Vitamin A? ________________________________
   b. Which sandwich has the least Vitamin A? ________________________________

5. Which sandwiches have less than 350 calories? ________________________________
   ________________________________
Pizza:

1. What MyPlate Groups are in pizza? Vegetable, grain, dairy, protein
2. Which pizza has the most calories? Pepperoni - 526 calories
3. Which pizza has the most fat grams? Pepperoni - 28.5 grams of fat
4. Which pizza has the most sodium? Pepperoni - 1365 mg.

Sandwiches:

1. Which sandwich has the fewest calories? Hamburger - 263 calories
2. How many more calories does the double cheeseburger have compared to the regular cheeseburger? 570 - 318 = 252 Calories
3. Compare the fried fish sandwich and the roast beef sandwich.
   a. Which sandwich has more Total Fat? Fried Fish Sandwich - 25.7 g
   b. By how much? 25.7g - 13.4g = 12.3g
4. a. Which sandwich has the most Vitamin A? Double Cheeseburger—380 IU
   b. Which sandwich has the least Vitamin A? Hamburger—100 IU
5. Which sandwiches have less than 350 calories? Hamburger (263 calories), Cheeseburger (318 calories) and Roast Beef Sandwich (347 calories)
The Digestive System

- Esophagus
- Spleen
- Stomach
- Pancreas
- Small Intestine
- Colon
- Caecum
- Appendix
- Rectum
- Diaphragm
- Liver
- Gallbladder