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Note to Educators

Professor Wellbody’s Academy of Health & Wellness is built around the story of innovative physician Eleanor Wellbody, her nephew Professor Arden Wellbody and their quest to bring the science and fun of health and wellness to the masses. In keeping with the academy theme, this Educator’s Handbook is presented in the form of a school handbook. We hope the Academy’s joyous, inquisitive nature inspires you and your students to find the fun in developing and maintaining healthy habits.

The story of Eleanor and Arden are shared at the beginning of the Handbook and help set the stage around Wellbody Academy as a place where learning about health and wellness abound. Also through these pages you will meet some other characters from the Academy. These characters help tell the story of the different focuses within the Academy walls, from nutrition to sleep to hygiene to physical activity. These four mentors have notebook pages in the Handbook that give you and your students a glimpse into their personality and area of expertise and upon visiting Wellbody Academy you and your students will find desks that will continue to tell the stories of these Academy mentors. Below is quick introduction to each of them. We hope you enjoy their pages and your exploration of Wellbody Academy.

Victoria Dash is a female in her early 30s. Victoria is a vigorous, confident and competent camp counselor type (the one who can always get the camp fire started.) She’s welcoming and encouraging towards people of all physical abilities and takes the greatest pleasure in the success of others. Victoria is a physical omnivore who is interested in all sorts of non-traditional ways to be physically active and is interested in activities that require full utilization of the body. She’s an organized list maker and scheduler.

Rosemary Baker is a female in her 50s. Rosemary is a vibrant, earthy woman who is passionate about food and loves to garden. She’s rather disorganized and messy and quite experimental when it comes to food and projects (reflected in her love of kitchen gadgets.) Rosemary is very involved in the local food community from Seattle Tilth to back yard chicken farming. She’s fascinated by all different types of cuisine and encourages others to broaden their palettes in order to discover their own joy of good food.

Hugo Knapp is a male in his mid-20s. Hugo is pretty laid back and for someone so young he’s very centered and comfortable, not easily excited. His style tastes of quiet mid-century modern aesthetic matches his personality. He orchestrates his environment and there’s a sense of deliberateness about what he chooses to keep at his desk.

Dustin McLean is a male in his mid-40s. While an accomplished scientist who is fascinated by the ways we try to hold back the forces of bacteria, Dustin is the jokester of the mentors with a broad sense of humor. Maybe it’s the love of disgusting/scary topics, but kids are totally drawn to Dustin who makes hand washing, bad breath and oral hygiene fun and interesting.
Welcome to the Wellbody Academy

Dear Educator,

I would like to extend a warm welcome to you from Pacific Science Center and our newest exhibit, Professor Wellbody’s Academy of Health & Wellness, or Wellbody Academy. I am excited and heartened that you are taking the time to consider and prepare for your class’s visit. As our nation faces the rise of preventable conditions such as type 2 diabetes and obesity, Pacific Science Center has chosen an inspiring and interactive environment, Wellbody Academy, to help children and families better understand how to make healthier choices in everyday life.

Through this Educator’s Handbook you will find information to help prepare for your visit to Wellbody Academy as well as activities that support classroom learning, help set the stage for your field trip and encourage reflection on the experience after the trip. There is information in the Handbook that also illustrates how the exhibit and the activities in the Handbook align with and support Washington State Essential Learning Standards in Health and Fitness as well as Science.

The Handbook helps illustrate the story of Wellbody Academy and introduces you and your students to the mentors who play a role in telling the story of everyday decisions relating to nutrition, exercise, sleep and hygiene that affect overall wellness. Your students will then have the opportunity to experience Wellbody Academy first hand and participate in the exhibit’s playful and hands-on activities that will encourage them to discover new perspectives relating to their wellness as a key part of their everyday life.

I hope that you enjoy this journey to Wellbody Academy and learn as much as your students do and that our halls welcome you back from time to time to assist you in leading a life that is well-balanced and healthy.

In good health!

R. Bryce Seidl
President and CEO
Pacific Science Center
Welcome to Professor Wellbody’s Academy of Health & Wellness also known as Wellbody Academy where we believe there is something each of us can do each day to improve our general health and wellbeing. Some time ago, my dear Aunt Eleanor had a vision. She believed that each person could take charge of his or her health by following some simple and common sense rules about exercise, eating, good hygiene and sleep. She also imagined many fun ways to share these healthy messages with others.

Aunt Eleanor devoted her life to matters of health. She came from a long line of doctors and spent her early years providing health care to those who couldn’t afford it. She saw the potential of an academy as an opportunity to focus on promoting wellness rather than treating disease and this fueled her interest.

At some point in the 1930s, she decided to make this dream a reality. An expert outdoorswoman who firmly believed that she did her best thinking in the forest, Aunt Eleanor trekked the wilderness of the Washington backcountry until she found a site for Wellbody Academy. She built herself a tree house and began tinkering with ideas and tools. Over time, her vision of a play- and apparatus-based approach to wellness education began to take shape before her eyes. My Aunt Eleanor built a joyful, interactive place that served as a nursery for innovative ideas—Professor Wellbody’s Academy of Health & Wellness.

Soon word about Wellbody Academy got out and visitors from all walks of life began to visit my aunt in her wilderness hideaway. Some stayed for a few days, others for years—all were welcome as long as they were committed to helping people to choose healthier lifestyles. Over time, the school grew and evolved with the input of these kindred spirits who shared my aunt’s passion for helping people have fun while they improved their health and well-being.

As a child, I spent summers at Wellbody Academy and always enjoyed dreaming up new, playful health-related contraptions. Before she passed on (dying peacefully in her sleep of natural causes at age 101!), Aunt Eleanor asked me to officially join her in her efforts. It was not a difficult decision for me to choose Wellbody Academy as my life’s work.
After moving to Wellbody Academy, I started a visiting scientists’ program to enrich our students’ learning with cutting-edge ideas in health science research. Missing Aunt Eleanor’s daily presence and sage advice, I also began a mentor program, inviting the best and brightest of our Wellbody Academy students to stay on and do their research here, directly involving our students in scientific explorations related to health and wellness. Our current mentors are Victoria Dash (fitness), Rosemary Baker (nutrition), Hugo Knapp (sleep) and Dustin McLean (hygiene).

The founding premise of Wellbody Academy is that each one of us can always take at least one concrete step, no matter how small to improve our health and well-being each day. As scientific understanding has advanced, our recommendations for healthy living have become more refined. Wellbody Academy only promotes well-tested, evidence-based recommendations. We also believe in supporting the expansion of health knowledge. That’s why Wellbody Academy showcases the cutting-edge science that will lead to the health breakthroughs of tomorrow.

We hope you will join us by making more informed choices to support your own health and wellness. As Aunt Eleanor knew, we are all wonderfully different—each with our own unique gifts and challenges. No matter where we start from, there is always something each of us can do every day to enhance our individual well-being.

Welcome and, above all, have fun!

Arden Wellbody

Exercise well
Eat well
Wash well
Sleep well
— and live well!
About Professor Arden Wellbody

Professor Wellbody’s work history is rich and varied. In the 1980s he trekked the Himalayas to drink in (and study) the health benefits of pomegranate juice. An “eat local” pioneer in the 1990s, the Professor walked across Washington harvesting and eating only locally grown and raised foods. Along the way he scouted out every playground he could find—not only because he loves to play but also because he was on a mission to discover new fitness + fun contraptions—some of which you may get to test out yourself when you visit the Academy! In 2004, Professor Wellbody volunteered to have his sleep monitored for a month in a laboratory to help answer important questions about sleep cycles. As these activities demonstrate, he lives by the words on Wellbody Academy seal: Imagine—Plan—Grow.

Though he has lived for weeks at a time in many countries around the world, the Professor is always excited to return home to Wellbody Academy, where he reports he is healthiest and happiest. As he puts it, “Home is where the health is!”
WASHINGTON STATE LEARNING STANDARDS
Emphasized in Wellbody Academy

We’ve taken special care to make sure Wellbody Academy’s teachings reinforce other learning experiences for our visitors. The Washington State Essential Academic Learning Requirements (EALRs) in Health and Fitness* establish the concepts and skills necessary for safe and healthy living and in turn, for successful learning. Wellbody Academy addresses these four health and fitness EALRs to varying degrees:

- **EALR 1** captures movement, physical fitness, and nutrition.
- **EALR 2** recognizes dimensions of health, stages of growth and development, reduces health risks and promotes safe living.
- **EALR 3** analyzes and evaluates the impact of real-life influences on health.
- **EALR 4** analyzes personal information to develop an individualized fitness plan.

The EALR components most directly addressed by Wellbody Academy are provided in the table below:

<table>
<thead>
<tr>
<th>Health and Fitness EALR 1: The student acquires the knowledge and skills necessary to maintain an active life in movement, physical fitness, and nutrition.</th>
<th>1.3: Understands the concepts of health-related fitness, and interprets information from feedback, evaluation, and self-assessment in order to improve performance.</th>
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<td></td>
<td>1.5: Understands relationship of nutrition and food nutrients to body composition and physical performance.</td>
</tr>
<tr>
<td>Health and Fitness EALR 2: The student acquires the knowledge and skills necessary to maintain a healthy life: Recognizes dimensions of health, recognizes stages of growth and development, reduces health risks and lives safely.</td>
<td>2.1: Understands foundations of health.</td>
</tr>
<tr>
<td></td>
<td>2.3: Understands the concepts of prevention and control of disease.</td>
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<tr>
<td>Health and Fitness EALR 3: The student analyzes and evaluates the impact of real-life influences on health.</td>
<td>3.1: Understands how family, culture, and environmental factors affect personal health.</td>
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<tr>
<td></td>
<td>3.2: Evaluates health and fitness information.</td>
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<tr>
<td></td>
<td>3.3: Evaluates the impact of social skills on health.</td>
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</table>

Wellbody Academy’s Guided Tour
by Professor Wellbody

One of my favorite things to do is give tours of Wellbody Academy. Drawing on tour notes I’ve made over the years, I’ve prepared this written tour of the school’s “must see” highlights to help you plan your visit.

Our main objective at Wellbody Academy is to empower students to begin taking control of their own health and wellness. We have succeeded if every child leaves Wellbody Academy with the understanding that he or she can always do something—take some concrete step—to improve his or her health and well-being. We’ve done even better if they know what first steps to take and best of all if they begin to turn these first steps into healthy habits!

Wellbody Academy has four main areas of focus: fitness, nutrition, sleep and hygiene, each with a defined location where kids can play and learn about the topic. Following are brief overviews of some of Wellbody Academy’s finest activities followed by thought-provoking questions/challenges to help you further engage your students on these topics.

Wellbody Hall Highlights
This student union building introduces visitors to the skills they need to implement healthy changes in their daily lives.

• **With a Little Help …**

  Make new friends as you work with other Wellbody Academy visitors to guide a ball through a complex maze. *Were you more successful solo or with the help of your friends?*

Playdium Highlights
In the Playdium, reconnect with the joy of physical play and learn how “moving it” keeps you well… and happy!

• **Loft-a-Palooza**

  Is it a bird? Is it a plane? No! It’s Loft-a-Palooza! This high-flying fabulous fitness machine lets you bounce and jump your way to victory as you launch balls sky high. Use “butt bouncers,” a jump pump or a hand pump to power up pressure tanks and launch balls toward overhead targets. *I dare you not to laugh!*

• **Whirligigerator**

  Get moving to put the whirl in these overhead “gigerators!” The more you move, the more active they become. *What kind of movement did you enjoy the most and what kind of activity could you do at home that would be similar?*

• **Mentor Victoria Dash’s Work Area**

  Take a look at the desk of this fitness guru. *What can you learn about Victoria Dash by examining her work area?*
Cafédium Highlights

Come to the Cafédium to play games that boost your knowledge of food and nutrition and whip up your own recipe for healthy eating.

• Food Analyzer

Your challenge, should you choose to accept it, is to create a day’s worth of balanced meals! Select foods from the conveyor belt and use the Food Analyzer to learn their nutritional content and decide if you want to add it to your “virtual meal plan”. Did you learn anything surprising about any of the foods you scanned?

• Burger Planet

Play fast-food drive-through in this role-playing game that helps you determine the calorie “price tags” of different fast-food choices. It’s not easy to create a healthy meal with only fast-food options, but you can learn how to lower your overall calorie “costs.” What fast-food item would you order to keep your calorie cost low? What item would you avoid to keep the cost from getting too high?

• Mentor Rosemary Baker’s Work Area

Take a look at the desk of this nutrition expert. What can you learn about Rosemary Baker by examining her work area?

Slumbertorium Highlights

Wake up to this humorous introduction to the importance of sleep, the often underappreciated key to overall health and wellness.

• Sleep Machine

Sleep is no yawner! This enormous mechanical and digital contraption whirs and pings as wheels, dials, videos and blinking lights show us that there is a whole lot going on inside our bodies while we sleep. View Bed Head Theater and decide who has the best “bed head” in your family and why.

• Sleepability System Maximizer

Dig into the physical and environmental factors that impact the ability to get a good night’s sleep. How do a TV, window shade, dog, skateboard and pizza box relate to good ZZZs? Find out using this activity. What would you change about your own bedtime environment to improve your sleep?

• Mentor Hugo Knapp’s Work Area

Take a look at the desk of this sleep scientist. What can you learn about Hugo Knapp by examining his work area?

Germnasium Highlights

Gross out and giggle as you find out what getting clean, like washing your hands and brushing your teeth, has to do with staying healthy!
• **Sneeze Wall**

You might want to wear your raincoat during this very dramatic reminder of why it’s important to cover your mouth and nose when you sneeze. *Show me how you’ll cover your next sneeze!*

• **Tic-Tac-Ewww**

Points for (spying) bad behavior! In this Tic-Tac-Toe/Bingo hybrid, your challenge is to beat your opponent in spotting the bad hygiene behaviors enacted on the video. The first to identify three bad behaviors in a row wins! *What kind of bad hygiene behavior grossed you out the most?*

• **Odor Decoder**

Your nose knows. Squeeze the bottles to sniff different types of bad breath and discover their causes. *Quick! Name three things that could cause bad breath!*

• **Mentor Dustin McLean’s Work Area**

Take a look at the desk of this hygiene researcher. *What can you learn about Dustin McLean by examining his work area?*

**The Studio Highlights**

Check out cutting-edge science in The Studio, an exhibit and program space that features the latest in current health sciences research. This space changes regularly, so be sure to come back often.

• **Rotating Exhibit**

The Studio exhibit will feature a new topic in health science research every six months, showcasing the latest from laboratories and research institutions in the Pacific Northwest. Planned topics include: Genetics (Dec. 2012–May 2013), Neuroscience (June 2013–Nov. 2013), Translating Research into Medicine (Dec. 2013–May 2014), Environment and Health (June 2014–Nov. 2014), and Cancer (Dec. 2014–May 2015), with future topics to be determined. *What was the featured research topic during your visit?*

**The Loft Highlights**

What does it mean to be healthy for an entire lifetime? Swap stories of healing, aging and a lifelong commitment to wellness.

• **Face Facts!**

How will you look when you’re 70? See what kind of impact health and wellness choices could have on your physical appearance as you age. Take a photo and watch as your image changes based on weight, sun exposure and smoking. *What influenced your computer image most and why?*

• **Who Do You Turn To…**

Create a word collage that illustrates the important roles different friends and family members play in your life using this fun computer program. *What characteristics made you want to add the particular people featured in your collage?*
Time to spare?
Send the kids on a scavenger hunt through Wellbody Academy.

See if you can find a…

- Hourglass
- Skateboard
- Deck of cards
- A stuffed sheep
- A big clock
- French fries
- Dental floss
- Fork
- Baseball
- Bike
- Golf ball

THE WELLBODY WAY

Drink that extra glass of water,
eat that fifth and sixth green bean.
Go to sleep ‘cause your body needs it.
Take a shower—keep real clean.

Put down the head set,
est those thumbs.
Grab some fresh air.
Brush ‘round your gums.

The rules are simple,
it’s easy to do.

The payoff’s huge.
The power’s with you.
Grades K–3 Classroom Activities

Wellbody Academy has created these science activities to help your students make the most of their visit to this exhibit.

The pre-visit activities help spark students’ curiosity about the four topic areas they will encounter during their visit to the Wellbody Academy: fitness, nutrition, sleep and hygiene. Students are challenged to make four health and wellness pledges before they visit Wellbody Academy. In addition, relevant scientific background information has been provided allowing you and your students to peek into the pages of the notebooks of each of Wellbody Academy’s esteemed mentors. You will also find a variety of suggested resource for teachers, including a glossary, websites and books to share with students as well as career connections.

The post-visit activities invite students to check in and reflect on their own health behavior changes sparked both by the pre-visit activities and their visit to Wellbody Academy. It works well if these activities are presented shortly after visiting Wellbody Academy. In addition, a Take-Home Letter for Parents/Guardians is provided as a way to follow up with students’ families to extend the learning experience to the home environment.
Curriculum Connections for Wellbody Academy Pre- and Post-Visit Activities

The pre- and post-visit activities provided in this Educator’s Handbook are aligned to the Grades K-3 Washington State Essential Academic Learning Standards* for Health and Fitness as well as for Science. The table below provides alignment information between the activities and the learning standards. Pre-visit activities are shaded light blue while post-visit activities are shaded dark blue.

<table>
<thead>
<tr>
<th>Grades 4 – 6 Washington State Essential Academic Learning Standards</th>
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<tbody>
<tr>
<td>Health and Fitness Learning Standards</td>
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<tr>
<td>EALR 1 - 1.3: Understands the concepts of health-related fitness, and interprets information from feedback, evaluation, and self-assessment in order to improve performance.</td>
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<tr>
<td>EALR 1 - 1.5: Understands relationship of nutrition and food nutrients to body composition and physical performance.</td>
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<tr>
<td>EALR 2 - 2.1: Understands foundations of health.</td>
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<tr>
<td>EALR 2 - 2.3: Understands the concepts of prevention and control of disease.</td>
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<tr>
<td>EALR 3 - 3.1:</td>
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<tr>
<td>Understands how family, culture, and environmental factors affect personal health.</td>
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<table>
<thead>
<tr>
<th>EALR 4 - 4.1:</th>
<th></th>
<th>✓</th>
<th>✓</th>
<th>✓</th>
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<tr>
<td>Analyzes personal health and fitness information.</td>
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<td></td>
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</table>

<table>
<thead>
<tr>
<th>Science Learning Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>EALR 1 Systems:</td>
</tr>
<tr>
<td>Identify parts of living and non-living systems (part-whole relationships). See how parts of objects, plants, and animals are connected and work together (role of each part in a system).</td>
</tr>
</tbody>
</table>

| EALR 2 Inquiry: |
| Answer questions by explaining observations of the natural world (making observations). Carry out investigations by using instruments, observing, recording, and drawing evidence-based conclusions (conducting investigations). | ✓ | ✓ | ✓ | ✓ | ✓ |

| EALR 4 Life Sciences: |
| Plants and animals meet their needs in different ways (plant and animal parts). | ✓ |  |  |  |  |

*Sources:*

http://www.k12.wa.us/HealthFitness/Standards.aspx.

Overview of Pre-Visit Activities

21 General Exhibit Activity
   Health Behavior Poll: Pre-Visit

25 Playdium Activities
   Fitness Science Information: From the notebook of Victoria Dash
   Activity: Zoo Fitness Challenge
   Fitness Pledge
   Resources

45 Cafédium Activities
   Nutrition Science Information: From the notebook of Rosemary Baker
   Activity: Nutrient Sleuths
   Nutrition Pledge
   Resources

59 Slumbertorium Activities
   Sleep Science Information: From the notebook of Hugo Knapp
   Activity: Recipe for Good ZZZs
   Sleep Pledge
   Resources

69 Germnasium Activities
   Hygiene Science Information: From the notebook of Dustin McLean
   Activity: Fabulous Floss and Brilliant Brush
   Hygiene Pledge
   Resources
General Exhibit Activity

Health Behavior Poll: Pre-Visit

Students can join a statewide science activity by completing this simple pre-visit questionnaire! By providing answers about his or her health behaviors, each student will be able to compare his or her personal results with those for his or her class both before and after visiting Wellbody Academy as well as with data from other students across Washington state who have visited Wellbody Academy.

Main Concepts:
Students will provide baseline data so they can assess any changes to their health behaviors after attending Wellbody Academy.

Materials:

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Behavior Poll</td>
<td>1 per student</td>
</tr>
<tr>
<td>Pencils</td>
<td>1 per student</td>
</tr>
</tbody>
</table>

Time: 15 minutes

Do This!
1. Explain to the students that as part of their preparation for their visit to Wellbody Academy, they will participate in a statewide survey about health behavior and behavior change. They will answer a set of questions before and after their visit to see if the field trip experience influences them to make and maintain any changes to their health habits.
2. Pass out one copy of the Health Behavior Poll to each student.
3. Ask students to write their name at the top along with the letter A (to signify pre-visit poll.)
4. Depending on students’ reading level, either ask them to answer the questions on their own or go through the questions one by one as a class, helping students mark their answers.
5. Collect and save students’ papers to use in comparison with the post-visit poll.
6. Later on, after compiling the students’ results, you can show the students how they answered as a class so they can compare their personal answers with those of the class overall (e.g., half of the class had breakfast this morning).
7. Let students know their upcoming visit to Wellbody Academy will help them understand the importance of healthy behaviors and to think about these topics when they are on their field trip.

8. Remind students that they will have the opportunity to take the same poll a week or so after visiting Wellbody Academy to find out if there have been any changes in their health habits. They will be able to note and discuss any individual or class changes.

9. Keep the consolidated pre-visit survey answers for comparison with the post-visit survey responses. In determining the impact of individual and collective behavior change we would like to invite you to submit the pre- and post-survey results online. Entering results is straightforward and should take no more than 15 minutes to complete, if you have the surveys consolidated (e.g., number of students that answered most days for question 1 on the pre-visit and then on the post-visit). It will be particularly valuable if most of the students completed both the pre- and post-visit surveys. As an incentive and to thank you for taking the time to enter your class’s data we will send you a thank you in the form of four exhibit passes to Pacific Science Center that you can use with your family or friends.
Name: ___________________________   Date: __________________

**Health Behavior Poll**

1. What grade are you in?
2. How often do you eat breakfast?
   a. Every day
   b. Most days (4 to 6 times a week)
   c. Some days (1 to 3 times a week)
   d. Rarely
3. How often do you eat fresh fruit?
   a. Every day
   b. Most days (4 to 6 times a week)
   c. Some days (1 to 3 times a week)
   d. Rarely
4. How often do you eat fresh vegetables?
   a. Every day
   b. Most days (4 to 6 times a week)
   c. Some days (1 to 3 times a week)
   d. Rarely
5. Do you brush your teeth in the morning?
   a. Always
   b. Sometimes
   c. Rarely
6. Do you floss your teeth once a day?
   a. Always
   b. Sometimes
   c. Rarely
7. In the morning, how do you usually feel?
   a. Rested
   b. A little sleepy
   c. Very tired
8. How often do you wash your hands before meals?
   a. Always
   b. Sometimes
   c. Rarely
9. How often do you wash your hands after using the bathroom?
   a. Always
   b. Sometimes
   c. Rarely
10. How many times during the week are you physically active for 30 minutes or longer (such as playing a sport, taking a walk, riding your bike)?
    a. Every day
    b. Most days (4 to 6 times a week)
    c. Some days (1 to 3 times a week)
    d. Rarely
11. How important do you feel it is to:
    A. Eat healthy foods
       a. Very Important
       b. Kind of important
       c. Not important
    B. Exercise regularly
       a. Very Important
       b. Kind of important
       c. Not important
    C. Get a good night’s sleep
       a. Very Important
       b. Kind of important
       c. Not important
Playdium Activities

Fitness Science Information: From the Notebook of Victoria Dash

Why do people crave sugar?

Hint: Think bananas! Though our tongues can taste four basic flavors—salty, sour, bitter and sweet—we often crave sweet foods because we are primates. Our monkey ancestors were tree-dwelling fruit eaters. Monkeys and apes learned to prefer sweet, ripe fruit because it holds more sugar than unripe fruit, so it provides more energy to the body. Ripe fruit also packs more water, which is a bonus for those who choose the safety of the trees over the risks of a visit to the water hole. Because of this history, when we eat sugar, our brains produce chemicals that make us feel “good.” No wonder sweets are so hard to resist!

What is a calorie and how many are burned by doing different physical activities?

Calories are a unit of measurement, like a centimeter, a mile or a pound. Calories provide a measure of how much energy a food or beverage can make available to your body after you eat or drink it. For example, a medium-sized apple has about 95 calories. A half-cup of peanut butter has around 590 calories. A glass of 2% milk has 122 calories. If you are curious about how many calories are in your food, look at the nutrition facts label on packages, but make sure to read it carefully and consider the serving size, too. If you eat two servings, you eat double the calories!

<table>
<thead>
<tr>
<th>Nutrition Facts</th>
<th>Amount/Serving</th>
<th>% Daily Value*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serving Size</td>
<td>1 package (39g)</td>
<td></td>
</tr>
<tr>
<td>Servings Per Container</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Calories</td>
<td>140</td>
<td>115%</td>
</tr>
<tr>
<td>Calories from Fat</td>
<td>60</td>
<td>8%</td>
</tr>
</tbody>
</table>

Your body uses calories all the time—even when you are sleeping. Calories provide the energy needed to keep your body running just like gas is needed to keep a car running. When you are physically active, you use (or burn) more calories. Here are some examples of different physical activities and how many calories an 80-pound 11-year-old student would use by doing each activity for 30 minutes:

- Sleeping: 16
- Reading: 24
- Eating: 27
- Swimming: 109
- Jumping rope: 181
- Playing with a dog: 51
- Vacuuming: 62
- Skateboarding: 91
- Attending class: 32
- Shooting hoops (basketball): 81
- Doing homework: 33
- Listening to music: 18

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Why does the body need physical activity?

Being active builds strong bones and muscles, helps your body fight illness, improves concentration, relieves stress, helps you sleep better and increases overall energy levels. Best of all, physical activity can be a lot of fun! I just can’t do boring when it comes to working out! I also like to get active with my friends and family and there’s no denying that it’s great for your body, mind and mood.

What happens to the body when you are physically active?

When you are physically active, do you notice that your breathing increases? When you huff and puff, you are working your heart muscle. Lifting a weight won’t exercise your heart muscle; you have to do activities that make you breathe hard, like soccer, hip-hop dancing or rollerblading. When you’re working hard doing these activities, your lungs also get a workout. The body needs to breathe more when you are active because your muscles need more oxygen to keep working. The lungs pump extra oxygen into the blood and then your heart pumps that oxygen-rich blood throughout your body. As you do more physical activity, your lungs and heart get stronger and better at their jobs: supplying your body with the oxygen it needs to sink that basket or do that cartwheel.

Fun Facts:

• You have more than 630 muscles in your body.
• Your heart beats about 100,000 times a day — that’s 40 million beats a year!
• Your body has 3 million sweat glands.
• By eating 100 more calories a day than necessary, the average American could gain about 10 extra pounds a year.
• Physically active children are more likely than inactive children to have healthy hearts as adults.

Craziest Sports I Must Try:

1. Curling in Canada: Shuffleboard played with brooms on ice!
2. Bog snorkeling in Wales: Flippers required… and no recognizable swim strokes allowed.
3. Cheese rolling in Gloucester, UK: Can I roll down the hill faster than a round of cheese?
4. Octopush in New Zealand: Underwater hockey, of course.
5. Bossaball in Spain: Combines volleyball, soccer, gymnastics, and capoeira (a Brazilian martial art that uses music and dance), played on a specially designed inflatable court with a trampoline on each side of a net!
6. Quidditch at Hogwarts: I can dream, can’t I?

To Do:

☐ Buy new rock-climbing rope for trip to Metaline Falls
☐ Make granola for trip
☐ Sign up for yoga class
☐ Call Alex about organizing fun run
☑ Tune-up bike
Why should I warm up before I play soccer?

Warming up sends messages to your muscles and tendons: Wake up—we’re going to get active! As you stretch and move, you increase blood flow to the muscles, which helps them do their jobs better. Warm-up stretches and moves also raise your body temperature, sending more oxygen to important muscles and joints. It can also help prevent injuries and help you score more goals!

What kind of physical activity does the body need to stay healthy and why?

Your body needs three kinds of activities to keep fit. Aerobic, strength and stretching activities are all key to keeping your heart and other organs healthy and your muscles flexible and strong. Aerobic (1) means “with oxygen” and refers to any activity that requires extra air—like when you are jogging and breathing faster than normal. Strength (2) exercises, such as push-ups or wall sits, require short bursts of hard work; they help build muscles. You can’t do these activities for long because your muscles can’t get enough oxygen to keep up such hard work for a long time. That’s why these types of strengthening activities are also called anaerobic (“without oxygen”). Stretching (3) exercises like touching your toes or side bends help increase your flexibility, which helps lengthen your muscles and protects you from getting hurt.

How can being active improve my mood?

It sure is exciting to make that winning goal or learn a new swim stroke but being active feels good for another reason. When you work your body hard, your brain releases a group of chemicals called endorphins that can make you feel happy. So, what are we waiting for? Let’s get moving!
Activity: Zoo Fitness Challenge

In this crazy, get-up-and-move fitness challenge, students will exercise their laugh muscles just as much as their bodies, true to Wellbody Academy’s belief that fitness can (and should) be fun!

Main Concepts: Students learn the difference between aerobic, strength and flexibility activities and that the body needs all three to be fit. In this class challenge they learn that fitness can be fun.

Materials:

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timer</td>
<td>1</td>
</tr>
<tr>
<td>6–8 (16-ounce) cans of food for bicep curls</td>
<td>2 cans per student per group (number needed depends on size of student groups)</td>
</tr>
<tr>
<td>Zoo Fitness Challenge Handout</td>
<td>9 sheets of paper (1 per activity station)</td>
</tr>
<tr>
<td>Use of large activity room or gym (large classroom works fine)</td>
<td>1</td>
</tr>
</tbody>
</table>

Time: 45 minutes

Adaptation: If you’re tight on space, divide the class into groups of 4–5. Assign one Zoo Fitness Challenge movement to each group of students. Have them practice the moves and sounds, and then demonstrate it to the class. The class then tries to determine which of the three types of exercise the group is doing: aerobic (A), strength (S) or flexibility (F).

Do This!

1. Set up a fitness course in the activity room or gym based on the Zoo Fitness Challenge Handout. You will need nine activity stations. The stations include the following activities:
   - Jumping jacks—ribbit like a frog (S)
   - Toe touches—make monkey noises (F)
   - Wall sit—roar like a lion (S)
   - Run in place and windmill arms—laugh like a hyena (A)
   - Crab walk—make water/wave noises (S)
   - Plank hold (like the top of a push-up)—hiss like a snake (S)
   - Dance crazily—show us your lemur moves while you giggle like a lemur! (A)
   - Bicep curls—Hee haw like a donkey (S)
   - Neck rolls—hoot like an owl (F)
2. Introduce the class to the importance of fitness, as it relates to their health and wellness. For example, you may want to begin by asking students to respond to the following questions:

- What are some things we can do to stay healthy?
- What does it mean to be physically fit?
- What are some reasons for exercising regularly?
- What are some of your favorite physical activities? (e.g., team sports, bike riding, karate, playing ball with friends, dance classes, etc.)

3. Using the Playdium *Nutrition Science Information: From the Notebook of Victoria Dash* (See question: “What kind of physical activity does the body need to stay healthy and why?”), teach the class that the body needs different types of physical activity to stay fit: aerobic, strength and flexibility. Make a chart on the board and ask the class to list activities that fit into each of these three categories. Write their ideas on the board.

<table>
<thead>
<tr>
<th>Aerobic Activities</th>
<th>Strength Activities</th>
<th>Flexibility Activities</th>
</tr>
</thead>
</table>

4. Explain to students that they will be doing activities to work the body in these three different ways. Each student will visit nine activity stations and spend one minute at each station but there is a twist. *Wellbody Academy* strongly supports the idea that getting fit should be fun! This fitness course has an added challenge: as the students do each activity they must make the accompanying zoo animal noises/motions. The students will get to move, stretch and make animal sounds.

5. Demonstrate each activity for the entire class, moving to the different stations as you go. Ask students to join you in making the animal noises.

6. Divide the class into nine groups and start with one group at each station.

**Important note:** This activity involves a lot of physical movement. Remind students to rest if they feel out of breath, or to get a drink of water if they feel thirsty. Tell them that just as it is important for us to be physically active, it is also important to take care not to push our bodies too hard. Remind students that when doing stretching moves (touching toes and neck rolls), it’s best to go slowly to protect muscles and get the most out of the stretch.

7. Staying with their group, the students will move around the course trying out the activities at the various stations. Set the timer for one minute and announce “next move!” when the time is up. Ask student groups to move onto the next station.

8. Encourage students to try to do each activity for the full minute. If they have to rest, ask them to join back in as soon as they feel ready.

9. After everyone has gone to each nine activity stations and has completed all of the activities, allow them to rest and get a drink of water, if needed.
10. Go through each activity one at a time and have one person demonstrate it for the class. Ask students to raise their hands if they can name which category the activity fits into: aerobic, strength or flexibility. Explain that some of the activities will fit into more than one category.

11. After students have shared their ideas, reveal which category each activity most strongly demonstrates (refer to Step #1 for a list of the nine activities, and whether they are aerobic (A), strength (S) or flexibility (F)).

12. If there is time, ask students to think of other physical activities they could do that are aerobic, strength or flexibility exercises. Ask for student volunteers to demonstrate the activity and related animal noise, and to give it a name (e.g., bear walk or butterfly leg stretch).

13. Tell students that all nine physical activities are things that they can do at home to increase their physical fitness.

14. **Take home idea:** Ask students to teach their favorite activity to their family and tell them about how it helps the body stay fit—aerobic conditioning, strength or flexibility.

15. **Health extension:** Have older students take their resting pulse at the beginning of the lesson, and then take their pulse at the end of the lesson. What is the difference? What does it mean for their heart? Their health? Introduce the concept of a “target heart rate” and come up with a class range for target heart rates based on the average heart rates for kids their age (http://www.heart.com/heart-rate-chart.html). Ask students to share their ideas about activities they can do to get their hearts pumping.

16. **Creative arts extension:** Ask students to draw a self-portrait featuring their favorite physical activity that targets either aerobic conditioning, strength or flexibility. Have them mark it with an A, S or F and post these around the room. You can incorporate the drawings into a modified game of charades where classmates must silently act out one of the activities represented by these pictures, such as kicking a soccer ball or doing ballet. The student who guesses the activity correctly can act out the next one.

17. **Fitness pledge:** Wellbody Academy is committed to helping us change behavior to improve our health and wellness. To help kids focus on tangible changes they can take towards improving their health, we’ve provided pledge certificates after each activity for you to use with your students. You can choose to make a pledge as a class, or allow each student to come up with his or her own. Younger students can draw a picture to symbolize their pledges. After the Zoo Fitness Challenge, ask students to pledge to do some kind of aerobic, strength or flexibility activity every day.
This certificate hereby proclaims (name) to be a fitness fan!

I (name) pledge to (write in fitness activity) every day to keep my body healthy!

Signed, (your signature)

Arden Wellbody Professor Arden Wellbody
Jumping Jacks—Ribbit Like a Frog

Start standing straight and tall with hands at your sides. Keeping your arms straight, raise them until they clap above your head and at the same time jump your legs out wide. Swing your arms back to your sides as you jump your legs back together and then repeat.
Toe Touches—Make Monkey Noises

Go slowly on this one! Stand up straight and tall. Bend over and slowly reach your hands toward your feet while trying to keep your legs straight. Touch your toes or reach toward them as far as you can go without hurting yourself. Hold, but don’t bounce. Come up to standing straight and try it again.
Wall Sit—Roar Like a Lion

Stand with your body against a wall. Pressing your back against the wall, slide your back down the wall until you are in a sitting position as if you were in a chair. Hold this position as long as you can and then return to standing.
Run in Place and Windmill Arms—Laugh Like a Hyena

Jog in place (or around in wide circles if there is space) and move your straight arms in huge circles. Move your arms forward, then backward in large circles like a windmill, then try to move one arm forward and one arm backward at the same time!
Crab Walk—
Make Water/Wave Noises
This is like crawling, but face-up. Put your feet and hands on the ground with your face up. Walk around on your hands and feet.
Plank Hold (like the top of a push-up)—Hiss Like a Snake

Start like you are going to do a push-up, and stay in the “up” part of the push-up. Keep your back in one straight line and hold.
Dance Crazily—Show Us Your Lemur Moves While You Giggle Like a Lemur!

Find the lemur inside you and move it free style!
Bicep Curls—Hee Haw Like a Donkey

Stand up straight and tall. Hold one can of food of equal weight in each hand with your arms straight and the insides of your elbows facing forward. Bend your elbows up so the cans gently touch your shoulders. Lower them down and repeat. How many can you do in one minute?
Neck Rolls—Hoot Like an Owl

Go slowly on this one! Stand up straight and tall and gently bend your head down so you are looking at your feet. Slowly circle your neck to the right and then back so you are looking up. Hold the position. Now continue the circle back to where you started and hold. Start over, circling to the left this time. Keep switching sides. Caution: Your neck needs long, slow stretches. Don’t jab your head from side to side or push beyond what feels good.
Glossary:

**Aerobic activity**: Aerobic means “with oxygen.” These activities need oxygen to keep the muscles in motion for a longer period of time, like when you’re jogging, swimming, mountain-biking or skiing.

**Anaerobic activity (also called strength exercise)**: Anaerobic means “without oxygen.” This doesn’t mean you stop breathing when you do this type of exercise! It means that these activities are so hard for muscles to do that they don’t receive enough oxygen to keep going for a long period of time. Examples include sprinting and lifting weights.

**Calorie**: A unit of measurement for the amount of energy in food and drinks.

**Endorphins**: Chemicals the brain releases when you are physically active that can improve your mood and make you feel happy.

**Flexibility**: Being able to bend and stretch your body in a full range of motion—moving your arms and legs without tightness or pain.

**Heart Rate**: The number of times your heart beats per minute.

**Muscle**: The tissues attached to bones and tendons that help you move, lift and stretch. (The heart is a muscle that pumps blood through your body.)

**Observation**: The act of watching something closely to gather information.

**Physical Activity**: Any body movement that uses your muscles and burns more energy (calories) than when you are resting.

**Strength**: Body or muscle power.

**Fit-as-a-Fiddle Careers**:  
This list can be used as a resource for a class activity focused on fitness. Ask students to research one of the careers listed below and make a poster of someone doing that job. Have them share what they learned with the class. Or invite someone who works in one of these careers to come talk to your class.

**Athletic trainers** work with injured athletes and other people with sports injuries. They can provide emergency treatment for injuries, bandage or brace body parts and teach athletes how to prevent injury.

**Chiropractors** are healthcare providers who treat people experiencing problems with their muscles, bones, ligaments and tendons. They use techniques such as spinal manipulation, which involves applying force to parts of the spine to relieve pain.

**Coaches** lead sports teams in competitions and teach athletes the skills needed for their sport.
Dance instructors teach individuals or groups various forms of dance.

Orthopedic surgeons are doctors who focus on bones, muscles, ligaments, tendons, and joints. They perform joint-replacement surgery and repair broken bones.

Physical therapists help people with injuries or disabilities improve their range of movement and manage pain.

Rehabilitation nurses help people with chronic illnesses or physical disabilities adapt to their situations.

Suggested Websites for Teachers:

KidsHealth
http://kidshealth.org/kid/

The President’s Council on Fitness, Sports, and Nutrition
http://www.fitness.gov/

Bam! Body and Mind: Centers for Disease Control and Prevention
http://www.bam.gov/

Wheelchair & Ambulatory Sports, USA
http://www.wsusa.org/

Disabled Sports USA
http://dsusa.org/

Kidnetic (A site of the International Food Information Council Foundation)
http://www.kidnetic.com/

Books to Read with Students (K–3):

The Busy Body Book

Exercise (Health and Fitness)
A.R. Shaefer (Heinemann Library, 2010)

Exercise (Health Choices)
Sharon Dalgleish (Smart Apple Media, 2006)

Exercise (Looking After Me)
Liz Gogerly and Mike Gordon (Crabtree Publishing Company, 2009)

Which Animals Are the Best Athletes?
Faith Hickman Brynie (Enslow Elementary, 2010)
Bibliography:


KidsHealth
http://kidshealth.org

United States Department of Agriculture, Agricultural Research Service National Agriculture Library, Nutrient Data Library, Foods List


What are nutrients and how does my body use them?

I’m so glad you asked! When I was out in the garden this morning weeding the carrots I was thinking about how food is such an important part of our lives, yet most of us know so little about how it provides materials that our bodies need to function. Nutrients are the important things contained in your food that help you stay healthy. Most of them are so small that you can’t see them without a microscope. Your body needs five different kinds of nutrients: carbohydrates, fats, proteins, vitamins and minerals. Your body also needs water which may contain minerals.

Your body has more water inside it than any other element—in fact water makes up half or more of your weight (up to 70 percent)! Your body needs water for everything it does—from digesting food to carrying nutrients around the body to making sure you’re not too hot or cold. Carbohydrates and fats are nutrients that provide the body with energy. Proteins are your personal construction workers—building and repairing tissues wherever they are needed. Vitamins and minerals help the body use other nutrients.

To do its job, your body needs 13 major vitamins and about 20 minerals. The best way to get your vitamins and minerals is to eat foods that are chock full of them! Here’s a chart of just a few of the important vitamins and minerals, what foods provide them and how they help your body:

<table>
<thead>
<tr>
<th>Vitamin or mineral</th>
<th>How it helps the body</th>
<th>How to get it</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vitamin D</td>
<td>Strengthens bones</td>
<td>Fish, eggs, exposure to sunshine</td>
</tr>
<tr>
<td>Vitamin E</td>
<td>Protects cells and tissues; supports red blood cells</td>
<td>Whole grains, leafy green vegetables, vegetable oils, nuts and seeds</td>
</tr>
<tr>
<td>Vitamin C</td>
<td>Important for healthy bones, teeth, gums and blood vessels; helps the body heal</td>
<td>Oranges, sweet red peppers, kale, broccoli, cauliflower, strawberries and papaya</td>
</tr>
<tr>
<td>Iron</td>
<td>Helps cells carry oxygen all over the body</td>
<td>Eggs, spinach, peas, beans, nuts, dried fruit, seaweed and red meat</td>
</tr>
<tr>
<td>Calcium</td>
<td>Builds strong bones and teeth</td>
<td>Dairy products, dark leafy green vegetables</td>
</tr>
<tr>
<td>Sodium (Salt)</td>
<td>Balances water in body tissues and blood</td>
<td>Sea salt, table salt (Caution: it’s easy to get too much salt from processed and canned foods)</td>
</tr>
</tbody>
</table>
How can eating keep me from getting sick?

Well, it's not just eating, but what you eat, dear. All the nutrients that make up the food we eat help our body systems work and one of their jobs is building and maintaining a healthy immune system to fight sickness. For example, Vitamin C and the mineral zinc help fight infections and Vitamin E helps destroy germs that could make us sick.

How do the nutrients get to the parts of the body that need them?

As food enters the body, the digestive system breaks it down so the nutrients can enter the bloodstream. Your body knows how to put each of the nutrients to work!

How can you find out what's in your food?

Great question! All packaged food has a nutrition facts label that lists the serving size, calories per serving and number of calories from fat, amount of saturated fat, cholesterol, sodium and daily values of nutrients (based on a 2,000 a day calorie diet for adults), as well as the ingredients. The ingredients that weigh the most (and make up most of the food) are listed first.

What is a balanced diet?

That's kind of a funny phrase isn't it? Makes me think of balancing plates of food on my head! Here's another way to think of it: scientists at the United States Department of Agriculture (USDA) created MyPlate (http://www.choosemyplate.gov/print-materials-ordering/graphic-resources.html) to show healthy eating guidelines—it's a picture of a plate with different sections representing the five food groups: fruits, vegetables, grains, protein and dairy. Oils are not considered a food group but they contain essential nutrients, so it's best to eat a small amount of healthy oils.

Science Now:

DO COLORFUL FOODS LEAD TO BETTER EATING HABITS

-Ithaca, New York

Parents can encourage their children to eat more nutritionally diverse diets by introducing more color to their meals, according to a Cornell University study. Food in a variety of colors is more appealing to children than to adults, researchers found. Plates with seven food items and six colors were kids' favorites, while adults preferred plates with only three food items in three colors.

Researchers at Cornell's Dyson School of Applied Economics and Management presented 23 preteen children and 46 adults with full-size photos of 48 different combinations of food on plates that varied by number of items, placement of entree and organization of the food. Findings showed that children not only like plates with more items and colors, but also prefer their entrees at the front of the plate and arranged in designs. The study demonstrates that people appear to be significantly influenced by the shape, size and visual appearance of food presented to them. The study was published in the January 2012 issue of Acta Paediatrica.
To eat a balanced diet, fill half your plate with fruits and vegetables and make at least half your grains whole grains (which contain the entire seed of the plant, not just part of it as in refined flours). It’s better to drink fat-free or low-fat (1%) milk and to choose water over sugary drinks. Because many Americans eat too much salt, compare sodium (a mineral found in salt) levels in foods like soup, bread and frozen meals, then pick foods that have less salt. USDA My Plate also recommends to limit portion size because large portions contain too many calories—so supersizing is out!

Are calories bad for me?
No! You could not survive without consuming calories. They give you energy to do everything from breathing to boogie-boarding. But if you take in too many calories and don’t burn enough calories than your body has more calories available to it than it is using and you can become overweight. If you eat more calories than you need, your body changes the leftover calories to fat and too much fat can be bad for you. The important thing is to find the right personal energy intake for your weight, gender, age and activity level.

How many calories do I need?
Because kids come in all sizes and everyone burns calories at different rates, there is no magic number of calories that you should eat. Most school-age kids should eat between 1,600 and 2,200 calories a day depending on their activity level, age and gender. If you are more active, you need more calories. One way to think of the calories you need each day is as a “calorie budget.” Just like it’s helpful to have a budget for how much money you have to spend, it helps to think about how many calories you need to consume. Based on whether you are a boy or girl, your age and your activity level, you can calculate your personal calorie budget.

Is fat good for your brain?
Without fat, you could not read this sentence because about 2/3 of your brain is composed of fats. The membranes of neurons and the brain cells responsible for communication in your brain are made up of fatty acids. Your brain depends on fat not only to read but to do all its other work—from making sure you breathe to learning how to spell “cerebrum!”

So then, why are people so concerned about eating fat? Well, there are good fats and bad fats. Unsaturated fats (polyunsaturated and monounsaturated fats) are in plant-based foods like corn, avocados, nuts and olives, but they’re also found in fish. Eating this kind of fat can help your blood vessels stay clear so the blood can flow easily. Saturated fats, like butter, are solid and mainly come from animals. Too much saturated fat can clog your blood vessels, making it hard for the blood to flow through them easily. Trans fats (also called partially hydrogenated oils) are made when vegetable oils are turned into solid fats like margarine. Most scientists agree that trans fats are bad for your blood flow and they can even undermine the smart work of the good fats. So stick with unsaturated fats whenever you can. In a balanced diet, school-age kids should aim to keep the (good) fat they eat to around 30 percent of their daily caloric intake.
Recipe for Krispy Kale Chips

- Preheat oven to 425° F.
- Wash, rinse and cut stems off one bunch of Tuscan/Dino kale.
- Chop leaves into two-inch pieces.
- Toss to coat lightly with organic olive oil and season as you like—with coarse salt, fresh ground pepper and/or a pinch of cayenne.
- Place the leaves in a single layer on a baking sheet and put them in a hot oven for 8–12 minutes.
- Watch chips closely! They are ready when they just start to dry/curl/color but should not become over-brown or brittle.

Fun Facts:

- One mini pretzel will give your body enough fuel to walk about two blocks.
- If you add up the time it takes to chew and swallow every snack and meal you spend 15 days a year eating!
- If you put it all together and melted it down, what could you make with all the iron in your body? About two nails! Now for that hammer . . .
- Humans have about 10,000 taste buds. What will you taste next?
- Your body uses thousands of different kinds of proteins to grow and maintain itself—just one reason it’s so important to eat a variety of different foods.
How much salt is too much?

Salt is made up of the minerals sodium (40%) and chloride (60%). Our bodies need sodium to do many different jobs including balancing fluids but too much sodium can cause high blood pressure, stroke and kidney disease in adults. Eating habits formed in childhood usually continue into adulthood. So, if you avoid high-sodium foods and don’t add extra table salt to food when you’re young, you’re less likely to overdo it as an adult. Children ages 7 to 11 should eat no more than 5–6 grams of salt per day (1 teaspoon of salt has 2.3 grams of sodium). To avoid getting too much sodium, read nutrition facts labels and be aware of “salt bad guys” like fast foods and some prepared and canned foods, including:

- Tomato sauce
- Frozen meals
- Soups
- Pickles and sauerkraut
- Cured meats (bologna, salami, hot dogs, ham, bacon, sausage)
- Processed cheeses
- Condiments (ketchup, mayonnaise, salad dressing)
- Salty snacks

Sugar’s Many Aliases

More than 50 different names for sugar might appear on a nutrition facts label! If you’re curious about what’s in the food you’re eating—look it up! Here are a few common names for different forms of sugar:

- Barley malt
- Caramel
- Corn syrup
- Dextrose
- Fructose
- Fruit juice concentrate
- Glucose
- High-fructose corn syrup
- Lactose
- Maltose
- Molasses
- Sucrose
- Syrup
- Evaporated cane juice
**Activity: Nutrient Sleuths**

Ever wonder about what your food is made of? In this activity, students get to play with their food to learn about hidden nutrients essential to their health. As sleuthing scientists, they will seek out nutritional secrets in their classroom science lab.

**Main Concepts:** Students will learn that food is made up of nutrients that our bodies need to be healthy, that the body needs different types of nutrients and that we get a variety of different nutrients by eating a healthy variety of foods. They will practice making predictions and conducting scientific investigations.

**Materials:**

<table>
<thead>
<tr>
<th>For All Three Investigations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colored pens (different color for each group)</td>
</tr>
<tr>
<td>Paper towels to wipe up spills</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>For the Sodium Investigation (set up two experiment stations)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bowls</td>
</tr>
<tr>
<td>Salt</td>
</tr>
<tr>
<td>Iceberg lettuce, head. Remove the tough outer leaves. Keep chilled.</td>
</tr>
<tr>
<td>Measuring cup (1/2-cup size)</td>
</tr>
<tr>
<td>Tablespoon measuring spoon</td>
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<tr>
<td>Water</td>
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<table>
<thead>
<tr>
<th>For the Vitamin C Investigation (set up two experiment stations)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakfast cereals (1 box of Total®* and 1 box of other cereal with 25% iron content or less)</td>
</tr>
<tr>
<td>* Allergy note: Total® is produced in a factory with almonds. If you are concerned about nut allergies, substitute another cereal.</td>
</tr>
<tr>
<td><strong>High iron content cereal recommendations:</strong> Grape Nuts®, Wheat Chex®, Rice Krispies® or Life®.</td>
</tr>
<tr>
<td><strong>Low iron content cereal recommendations:</strong> Original Shredded Wheat, Corn Pops®, Golden Grahams® or Trix®.</td>
</tr>
<tr>
<td><strong>Note:</strong> To save time, you may want to break up the cereal into small pieces in advance (no larger than the size of your pinky nail).</td>
</tr>
<tr>
<td>Metal forks or spoons for breaking up cereal</td>
</tr>
<tr>
<td>Measuring cup (1/4-cup size and 1-cup size)</td>
</tr>
<tr>
<td>Paper bowls</td>
</tr>
<tr>
<td>Neodymium magnets (available in Seattle at Math ‘n’ Stuff at 8926 Roosevelt Way or online at <a href="http://www.teachersource.com">www.teachersource.com</a>)</td>
</tr>
<tr>
<td><strong>Caution:</strong> These magnets are super strong—keep them away from credit cards, computer disks and videotapes because they can change magnetized coding.</td>
</tr>
</tbody>
</table>
Time: 45 minutes, plus rest time for results to show.

The first two investigations take 10 minutes each and they both need a 30-minute rest for results to show. The iron investigation takes 15 minutes. Have students do all three investigations (35 minutes), then take a 30-minute break and return to the first two investigations to view and record results (10 minutes).

[Note: This activity goes more smoothly if you have at least one adult to assist at each experiment station.]

Adaptation: If you do not have any other adults to help you in the classroom, you may prefer to break this activity up into three activities, doing one experiment each day.

Do This!

1. Set up your food detective lab: Set up two stations for each of the three investigations, so two student groups can do each experiment at the same time (see supplies listed in the Materials table above). Three large tables work well, each hosting two stations.

2. Divide students into groups of four or five. Explain that they will be acting as food detective scientists on the lookout for nutrients in food. Remind students that although they will be working with food, they should not eat it because it’s going to be used for their science experiments. Assign each group a different colored pen that they can use to mark their investigations at each station.

3. Use the Cafédium Nutrition Science Information: From the Notebook of Rosemary Baker, to teach students about the six types of nutrients our bodies need. (Refer to the question: “What are nutrients and how does my body use them?”).
   - Carbohydrates
   - Fats
   - Proteins
   - Vitamins
   - Minerals

4. Explain that, in these investigations, students will learn about a specific vitamin (Vitamin C) and two minerals (sodium—an element found in salt and iron). Use the Cafédium “Nutrition Science Information” to teach about what role these nutrients play in the body. Also discuss dietary sources of Vitamin C, sodium and iron. (Refer to the questions: “What are nutrients and how does my body use them?” and “How much salt is too much?”).

5. Describe each of the three investigations. Explain and demonstrate step-by-step the procedures that students will follow at each station (see below for descriptions and procedural steps).

6. Before they begin the investigations, ask students to make a prediction about what will happen in each investigation, just as scientists do in the lab. As a class, invite students to share their predictions as you write them on the board.

[Note: The first two investigations (sodium and Vitamin C) need to rest for 30 minutes before they yield results. Have students do another classroom activity before returning to observe the results.]
7. **Sodium Investigation:** Students will sprinkle salt on lettuce to examine how sodium affects water in cells (this will also help explain why salty foods like potato chips make us thirsty).
   a. Ask the class to predict what will happen in this investigation. Write their responses on the board.
   b. Have them label two bowls “salt” and “no salt” in their team color.
   c. Pour 1/2 cup of water into each bowl.
   d. Add one tablespoon of salt to the bowl labeled “salt.” Stir.
   e. Put one lettuce leaf in each bowl so it is fully submerged (break the leaf up if is not completely covered with water).
   f. Note the time and return in 30 minutes.
   g. Examine the lettuce leaf in each bowl. Look at it and touch it. What is the difference between the lettuce leaves in the two bowls? Write student observations on the board.
   h. **What happened?** The lettuce leaf in the “salt” bowl should feel limp, compared to the crisp leaf in the “no salt” bowl. Lettuce is crisp because of water in its cells. Salt changes the water level inside those cells. It causes the lettuce to push the water out of its cells, leaving it limp. Water is an important part of the blood, but too much salt in your body moves the water outside of your cells. Cells need water, so your body responds by making you feel thirsty to urge you to replenish water to the cells. Have you ever felt this after eating potato chips or other salty food? That is one way to tell if there is a lot of salt in food.

8. **Vitamin C Investigation:** Students sprinkle lemon juice onto sliced bananas to see how the lemon juice (because it contains Vitamin C, an antioxidant) keeps the cells from breaking down.
   a. Ask the class to offer their predictions about what will happen when you put lemon juice on the banana. Write their responses on the board.
   b. Label the two paper plates “lemon” and “no lemon,” and mark the plates with your team color.
   c. Cut and place three thin slices of banana on each plate.
   d. Sprinkle one tablespoon of lemon juice onto the bananas on the “lemon” plate. Do not add anything to the bananas on the “no lemon” plate.
   e. Check the time and let the investigation rest for 30 minutes.
   f. Examine the bananas. What differences do you see between the bananas on the two plates? Write their observations on the board.
   g. **What happened?** When bananas and other fruits like apples or pears are cut and the cells are exposed to the air, the fruit turns brown because the cells on the cut edge are broken. The broken cells release chemicals that make the damaged fruit turn brown. The Vitamin C in the lemon juice stopped the browning process because it is an “antioxidant.” Antioxidants are like vitamin and nutrient superheroes that fight “the bad guys” that can make your body sick. Foods that have a lot of Vitamin C include lemons, oranges, sweet red peppers, kale, broccoli, cauliflower, strawberries and papaya.
9. **Iron Investigation**: In this investigation, students will use a magnet (which is attracted to—pulled towards—ferrous metals like iron) to see if they can find iron in two breakfast cereals. Students will compare the iron content of the two breakfast cereals. Remind students that iron is not only a strong metal used for making tools, but also an important mineral that helps their blood carry oxygen all over their bodies. Iron-rich foods include eggs, red meat, peas, beans, nuts, dried fruit, seaweed and spinach. Some foods (like breakfast cereals) have added minerals, including iron.

   a. Ask the class to make predictions about which cereal will have more iron: Total® or the second cereal. Write their responses on the board.

   b. Pour 1/4 cup of each kind of cereal into two bowls. Label the two bowls with the names of the cereals in your team color.

   c. Crush the cereal in each bowl with your spoon or fork so it is in small bits—about the size of your pinky fingernail.

   d. Add one cup of water to each bowl of cereal. Wait until the cereal stops moving around from the force of the water. **Be careful not to bump the table or the bowl; the cereal needs to be very still during the investigation.**

   e. First try the bowl with Total® in it. Hold the magnet about a centimeter above the water, and slowly try to move a floating cereal piece around the bowl. **Do not put the magnet in the water.** Try another area of the bowl. Can you get the cereal to follow the magnet?

   f. Now try the same thing with the cereal in the second bowl.

   g. What does this tell you about which cereal had more iron?

   h. Have students look at the nutrition facts labels on the cereal boxes and help them find the iron listings to compare the percentage of iron in each cereal. Do their experiment results reflect the difference? Write their observations on the board.

   i. **What happened?** Total® cereal has 100% of the recommended daily allowance of iron. Because of the nature of iron, it stays in tiny chunks in the cereal. The other cereal has 25% or less of the recommended daily allowance of iron. It is unlikely that the students were able to get the iron in this cereal to respond to their magnet.

10. In closing, ask students for other ways they can “discover” nutrients in food. Examine and discuss the nutrition facts labels on the cereal packages together and remind the students that these labels are on all packaged foods. Invite them to explore reading food labels at home. Ask students what would happen to their bodies without these nutrients.

11. **Health/math extension**: Ask students to compare the number of ingredients in different types of apple products (a fresh apple, apple-flavored cereal, dried apples, apple sauce, apple pie, apple juice, apple butter, etc.). Explain the basics of reading nutrition facts labels, and that the ingredients are listed in order of weight, so the first ingredient listed makes up the biggest part of the product. Younger students can count the number of ingredients in each product, while older students can write out a list of ingredients for each product. How much apple is in each product? How much sugar? (Refer to “Sugar’s Many Aliases” in the Cafédium “Nutrition Science Information.”) Are there any words that the students can’t recognize or pronounce? Ask older students to research the ingredients they do not recognize to learn what they are and why they are added to the product.
12. Nutrition pledge: Wellbody Academy is committed to helping us change behavior to improve our health and wellness. To help kids focus on tangible changes they can make in their own lives, we’ve provided pledge certificates after each activity for you to use with your students. You can choose to make a pledge as a class, or allow each student to come up with his or her own. Younger students can draw a picture to symbolize their pledges. After the Nutrient Sleuth activity, ask students to pledge to eat one food with vitamin C or iron in it every day, or to eat less salt (either by reducing table salt use, or by reading labels and choosing foods with less sodium).

Credits: The sodium and Vitamin C investigations were adapted from Food and Nutrition for Every Kid by Janice VanCleave (John Wiley & Sons, Inc., 1999). The iron investigation was adapted from “Eating Nails for Breakfast” at Steve Spangler Science (www.stevespanglerscience.com).
Wellbody Academy of Health & Wellness

Nutrition Pledge

This certificate hereby proclaims ____________________________ (NAME) to be a nutrition nut!

I ____________________________ PLEDGE TO READ NUTRITION LABELS AND EAT ONLY ONE SERVING SIZE OF ____________________________ (WRITE IN FOOD ITEM) TO SUPPORT MY HEALTHY BODY EVERY DAY!

Signed, ____________________________ (YOUR SIGNATURE)

Arden Wellbody...
Professor Arden Wellbody
Glossary:

**Antioxidant:** A substance that keeps cells from breaking down.

**Calorie:** A unit of measurement for the amount of energy in different food and drinks.

**Carbohydrates:** Chemicals that are the body’s most important source of energy; mainly derived from plants.

**Fats:** Combined chemicals called fatty acids that are integral components of the human body that help create body structures, move messages around the brain and help the body store nutrients and energy.

**Food:** Plant or animal parts eaten to provide energy and support life systems in the body.

**Ingredient:** An item that is used to make a particular food. For example, salt and potatoes are ingredients for potato chips.

**Minerals:** Inorganic nutrients from water or soil that help the body use other nutrients.

**Nutrition:** The science of studying food and how it works in your body.

**Nutrient:** Substances in food that your body uses to make energy, grow and be healthy.

**Nutrition facts label:** The label on most food products that lists the nutrients, ingredients, calories and suggested serving size for each product.

**Proteins:** Complex structures your body uses to build and repair itself.

**Serving size:** The amount of a particular food that makes up one serving as listed on a nutrition facts label.

**Vitamins:** Organic nutrients that help the body use other nutrients.

Tasty Careers:

This list can be used as a resource for a class activity focused on careers in nutrition. Ask students to research one of the careers and make a poster of someone doing that job. Have them share what they learned with the class. Or, invite someone who works in one of these careers to come talk to your class.

- **Agricultural and food scientists** do research that helps farmers improve their crop yields; they also work on food safety issues.
- **Chefs** are responsible for preparing food in restaurants. They supervise kitchen staff, plan menus and prepare food.
- **Dietetic technicians** work with registered dieticians to evaluate and educate people about their diets.
Dieticians and nutritionists advise people on the foods they should eat to stay healthy or to manage diseases such as diabetes.

Farmers grow fruits and vegetables and/or raise animals for food.

Public health administrators work in organizations that focus on keeping a whole community healthy by sharing information about disease prevention and health.

Suggested Websites for Teachers:

- KidsHealth
  http://kidshealth.org/kid/

- MyPlate (this new USDA food guide replaces the previous food pyramid)
  http://www.choosemyplate.gov/

- Local Harvest (find food grown close to you)
  http://www.localharvest.org/

- Spoons Across America (children’s culinary education focused on healthy eating habits)
  http://spoonsacrossamerica.org/

- The Edible Schoolyard Project (lesson plans covering “edible education”)
  http://edibleschoolyard.org/

- Fuel Up to Play 60 (making schools healthier places through healthy eating and exercise)
  http://www.fueluptoplay60.com/

- Smart-Mouth (interactive site with games, recipes, and calorie counters)
  http://www.cspinet.org/smartmouth/index1.html

Books to Read with Students (K–3):

- *How Did That Get in my Lunchbox? The Story of Food*
  Chris Butterworth (Candlewick Press, 2011)

- *Eat Healthy, Feel Great*
  William Sears, MD, Martha Sears, RN, and Christie Watts Kelly (Little, Brown and Company, 2002)

- *The Monster Health Book*
  Edward Miller (Holiday House, 2006)

- *Let’s Eat*
  Ana Zamorano (Scholastic Press, 1996)
Bibliography:


When did people start studying sleep?

Awesome question! People have been curious about sleep and dreams since...well, probably since they started sleeping and dreaming! And even though the American Medical Association didn’t recognize sleep medicine as a specialty until 1996, more than 3,000 years ago the Egyptians were treating people with sleep problems. A lot has been learned about sleep in the past 60 years. Until the 1950s, people didn’t think much happened during sleep but scientists have since learned that our brains are very active during sleep and that good sleep is key to good health.

What goes on in the body while we sleep?

Even though someone who is sleeping looks pretty relaxed, his or her brain is still busily making connections and storing memories. How do we know this? Scientists can produce images of brain activity with a special machine called an electroencephalograph. They attach sensors called electrodes to a person’s head so they can see the activity of the brain on an electronic display. The picture of brain activity is called an electroencephalogram (EEG) and the wavy patterns that this process generates are called “brain waves.” Brain waves follow a pattern that is repeated several times per night.
What is REM?

While REM is the name of a band from the ‘90s and I do love their song “Man on the Moon!” , REM refers to the stage of sleep when body muscles are totally relaxed and most of a person’s dreaming takes place. REM stands for “rapid eye movement”—and that's a great name for it. Watch someone in REM sleep and you will see their eyeballs doing a crazy dance under their eyelids!

Is all sleep the same?

I'm so glad you asked that and the short answer is no! When we sleep, our bodies follow a cycle that repeats about 4 or 5 times during an 8-hour period of sleep. During each sleep cycle, the sleeper passes through different stages of sleep including non-REM and REM. Brain waves show different types of activity taking place during each stage. As the sleep cycle repeats throughout the night, the periods of REM sleep tend to become longer. Growth hormones are released during the deep-sleep stage, so kids and teenagers spend more time in this phase than older people. Infants spend about half their sleep time in REM sleep, compared to adults who spend just 20 percent of their sleep time in this stage.

Why do we sleep?

One of the most exciting things about sleep science is that we're still learning about what happens during sleep! Many of the reasons why we sleep remain an exciting mystery, though scientists have proven that sleep is essential to survival. Studies have shown that if laboratory rats are kept awake too long they start to die. Other experiments show that sleep is essential to a healthy immune system—meaning sleep helps keep us from getting sick. Most scientists agree that sleep allows your body to:

- Restore itself—Studies show that even though part of your brain is asleep, other parts are busy helping you heal and grow.
- Support memory and learning—While you sleep, your brain is making sure all that thinking you did during the day is being organized and stored in your “memory bank.”
- Relax—After you've been busy all day eating, watching, listening, playing, learning and putting off practicing the piano, sleep gives your body the break it needs so you can do it all again tomorrow.

Fun Facts:

- If you sleep eight hours a day, by the time you turn 80 you've slept 233,600 hours—or almost 27 years!
- They better be sweet dreams because we have about 18,250 a year. By the time you're 12 years old, you've had nearly 22,000 dreams.
- Your cat feels well-rested with 12 hours of sleep a day, while a giraffe needs only two!
- Researchers believe that the “clock” gene (responsible for waking and sleeping in humans) is one reason you might be more of a night person or a morning person.
How much sleep do I need?

Kids from 5 to 12 years old need 10 to 11 hours of sleep each night. How much did you get last night? It's hard to get enough but worth giving it your best shot. Sleep needs vary from person to person. To find your sleep “sweet spot,” check in and see if you feel tired during the day. If you're dragging through your favorite sport or art class, try to get more sleep. Many people find the quality of sleep improves if they go to bed at the same time every night.

What is a healthy sleep environment and what are some healthy pre-bedtime habits?

A healthy sleep environment is a fancy way of saying a good place to sleep. What makes some places better than others? Check out the lists below. You can also make a difference in the quality of your sleep by practicing healthy pre-bedtime habits.

Your Sleep Environment

Things that improve sleep

- Your lights and electronics are off and your window shades are closed.
- Your room is the perfect sleep temperature (a bit on the cool side).
- Sleeping without your pets.

Your Pre-Bedtime Habits

Habits that improve your sleep

- Going to bed and getting up at the same time every day.
- Doing something calming before bed, like taking a bath or listening to quiet music and not playing computer games right before bed or watching scary or fast-paced TV shows.
- Drinking a glass of warm milk before bed and not eating chocolate, coffee, ice cream or soda before bed—they contain caffeine and sugar, which can make it hard to relax.
- Eating healthy food during the day.
- Getting plenty of physical activity during the day.
- Not being physically active right before you try to sleep.

“In sleep we are all equal.”

—Spanish Proverb

“Sleep is better than medicine.”

—English Proverb

“The beginning of health is sleep.”

—Irish Proverb
Poor sleep habits in high school are linked with a lower grade-point average (GPA), according to a study presented at the SLEEP 2011 meeting in Minneapolis, MN, during the 25th Anniversary Meeting of the Associated Professional Sleep Societies. After going to college, the same students reported even worse sleep habits. The students with poor sleep habits also showed a greater decline in their college GPAs.

According to the American Academy of Sleep Medicine, good sleep habits promote healthy sleep and include a relaxing bedtime routine and avoiding caffeine in the afternoon and evening.

What is a sleep study?

A sleep study is when doctors measure how much and how well you sleep. These studies are used to find out if someone has a sleep illness, like sleep apnea.

For a sleep study, you go to a sleep lab or center and go to sleep! Really—the room where the tests are done usually looks a bit like a hotel room, with a bed, chair, TV and lamp. Sleep technicians put sticky patches called electrodes on the person's face, head, chest, arms, legs and a finger. It doesn't hurt—but it does look kind of funny. The person having the test goes to sleep and while they are sleeping the electrode sensors record brain activity, eye movements, heart rate and rhythm, blood pressure and the amount of oxygen in the blood. The sleep technician monitors the results on a computer screen in another room. Doctors can use the test results to find out why the person is not sleeping well and to try to help them.

How does weight relate to sleep apnea?

Sleep apnea is a common sleep problem related to breathing. A person with sleep apnea breathes fine during the day but when they go to sleep the walls of their breathing tubes tighten and they cannot get enough air. Because not enough oxygen is getting into their blood, they wake up, but not so much that they are fully awake, just enough for them to take a deep breath to restore their oxygen levels. People with sleep apnea can wake up hundreds of times a night, which really messes with their sleep cycle. They are not getting enough restful sleep and begin to feel very tired during the day. Sleep apnea is more common in very overweight people because fat collects around the walls of the breathing tubes.
**Activity: Recipe for Good ZZZs**

In this not-so-snoozy activity, students will act out and identify healthy and unhealthy pre-bedtime habits before stepping into the shoes of a sleep scientist to concoct their own recipe for good sleep.

**Main Concepts:** Students will learn about scientifically proven attributes that help someone get a good (or a bad) night’s sleep, and act as a sleep scientist as they evaluate their own sleep habits.

**Materials:**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper</td>
<td>1 sheet per student</td>
</tr>
<tr>
<td>Crayons, felt pens or colored pencils</td>
<td>Assortment</td>
</tr>
<tr>
<td>Optional: Magazines for a collage, scissors and glue</td>
<td>Assortment</td>
</tr>
<tr>
<td>A bedtime story book (teacher’s choice)</td>
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**Time:** 45 minutes

**Do This!**

1. Introduce the activity by engaging students in a discussion about sleep. Some starting questions include:
   - When is your bedtime? When do you wake up?
   - How do you feel when you don’t sleep well the night before?

2. Ask students to help you come up with ideas for why a good night’s sleep is important. Make a list on the board.

3. Using the Slumbertorium *Sleep Science Information: From the Notebook of Hugo Knapp,* explain that scientists study how we can get a better night’s sleep (Refer to the question: “What is a sleep study?”). They do this in sleep laboratories—where people go and are observed while they sleep, so the scientists can learn more about what happens in our minds and bodies while we sleep.

4. Tell students they will be playing a game to explore pre-bedtime habits that make it easier or harder to get a good night’s sleep. Discuss what the word “habit” means.

5. Explain that in each round of the game (a modified version of charades) a volunteer will act out a pre-bedtime habit, while the rest of the class act as “sleepers.” The sleepers’ first job is to determine what the person is acting out. But instead of calling out what they think the person is doing, they will respond by first deciding if this pre-bedtime activity would help someone sleep better or make it harder to sleep.

6. If they think it will help make it easier to sleep, the sleepers will act out being sleepy by stretching, yawning and pretending to fall asleep with their heads down on their desks. If they think this pre-bedtime habit will make it harder to sleep, the sleepers will act out being not sleepy by moving around in their seats, pretending to toss and turn in bed.
7. Start the game: Invite a volunteer to act out a pre-bedtime habit. Choosing from the list below, whisper in the student’s ear one pre-bedtime habit to act out. They can use words and noises, but cannot say the word you give them. (For example, if they are acting out playing a computer game, they can use their hands to move pretend controls and say things to respond to the game as if they were playing, but cannot say what they are doing.)

8. The job of the class is to try to determine what the person is acting out, and to respond to the actions as either making it easier to get to sleep or making it harder to get to sleep (with the actions described above).

9. Look around the class at how the students are responding. Do they generally agree about whether the activity is making them “sleepy” or “not sleepy?” Ask the students to stop their responses (wake up or stop tossing and turning), and to raise their hands if they have a guess about what the person is acting out. Discuss as a class whether this pre-bedtime habit helps or hinders sleep. Why?

10. Choose another person to act out a new pre-bedtime habit and have the class respond as before. Discuss the class response to the habit and its affect on sleep after each activity is acted out.

11. Repeat as time allows.

12. Use the Slumbertorium “Sleep Science Information” to discuss with students what scientists have learned about how pre-bedtime habits can affect the quality of your sleep. In particular, share with students the “Your Pre-Bedtime Habits.”

13. Next, explain that in addition to pre-bedtime habits, things in your sleep environment (bedroom) can make it easier or harder to fall asleep. Challenge students to name what kind of things make up a healthy sleep environment—the things in their bedroom that make it easier to sleep. What kinds of things make up an unhealthy sleep environment?

14. Use the Slumbertorium science information to discuss with students what scientists have learned about how your sleep environment can affect the quality of your sleep. In particular, share with students the “Your Sleep Environment.”

15. Tell students that next they are going to become a sleep scientist and think about how they can improve their own sleep conditions. Explain to students that they are in charge of their own sleep and they are going to come up with a personal sleep recipe.

16. Hand out one piece of paper and crayons/pens to each student. Demonstrate how to fold the paper (horizontally) into three equal sections. This is where students will draw their sleep recipe.

**Pre-bedtime habits to invite students to act out:**
- Watch a scary movie.
- Read a book quietly.
- Eat pizza and drink a soda (i.e., eat a big meal with a sugary drink).
- Take a bath.
- Play computer or video games.
- Jump on a trampoline or go for a bike ride.

**Healthy Pre-bedtime Habits**
- Take a bath.
- Listen to quiet, relaxing music.
- Have someone read or sing to you.
- Drink a glass of warm milk.
17. Orienting the paper vertically, in the top section, challenge students to draw the things they can do before bed to make it easier to fall asleep and have a good night’s sleep. Challenge students to be as specific as possible—including listing exactly which book they would like to read and what kind of music they would like to hear. (Optional: Students can cut out pictures from magazines and make a collage of their sleep recipe.)

18. In the middle section, challenge the students to draw the things they can do to make their bedroom a good place to sleep.

19. In the bottom section, challenge students to draw a picture of themselves enjoying the things they will be able to do better when they have gotten a good night’s sleep. Examples include:
- Playing the piano.
- Riding a bike.
- Climbing a tree.
- Doing an art project.
- Playing on the playground with friends.

20. Encourage students to share their sleep recipes with the class.

21. Remind students that reading a book or being read to before bed is a good way to relax and prepare for sleep. Ask students to share the titles of their favorite bedtime stories. Then, gather the class together and read your favorite sleepy-time book aloud.

22. Optional: Collect all of students’ bedtime book ideas and type them up as a “great bedtime reads” take-home for the class.

23. Health and fitness/creative arts extension: Discuss elements of a healthy sleep environment and ask the students to draw colorful pictures/maps of their bedrooms, labeling (or circling and crossing out, depending on their writing level) elements that might make it easier or more difficult to get a good night’s sleep.

24. Health and fitness/creative arts extension: Show students the “A Night at the Sleep Lab” slideshow from Children’s Hospital Boston (http://www.childrenshospital.org/gallery/index.cfm?G=36&page=1). Ask students to share their perceptions of a sleep laboratory and the people who work there. Using the “Good ZZZs Careers” list at the end of this lesson, have students choose a sleep-related profession and, using their imagination, draw a picture of a person who works in that profession. They can make up a name for the person and draw what they look like. Depending on the age of the students, invite them to write a schedule of “A typical day in the life of Jamal, a sleep researcher,” for example.

25. Sleep pledge: Wellbody Academy is committed to helping us change behavior to improve our health and wellness. To help kids focus on tangible changes they can make in their own lives, we’ve provided pledge certificates after each activity for you to use with your students. You can choose to make a pledge as a class, or allow each student to come up with his or her own. Younger students can draw a picture to symbolize their pledges. After the Recipe for Good ZZZs activity, ask students to pledge to improve their sleep environment or sleep habits in one way.

A Healthy Sleep Environment
- Window shades.
- Lights off (a nightlight is okay if it helps you feel safe).
- Comfy pillow.
- Stuffed animal for companionship.
- No pets in your bed.
- No TVs or other electronics.
- Quiet.
Sleep Pledge

Wellbody Academy of Health & Wellness

THIS CERTIFICATE HEREBY PROCLAIMS

TO BE SUPER SLEEP SMART!

Signed,

Arden Wellbody

(name)

(your signature)

Sleep environment or sleep habits to support my healthy body every day!

Pledge to change

ABOUT

(name)

(your signature)

(name)

(your signature)

(name)

(your signature)
Resources

Glossary:

**Brain waves:** The wavy patterns that show brain activity on an EEG.

**Electroencephalograph:** A machine that measures brain activity.

**Electrode:** Is an electrical conductor used to make contact with a nonmetallic part of a circuit. This conductor is attached to the body and sends signals to an electroencephalograph that measures brain activity.

**Electroencephalogram (EEG):** A picture of brain activity used by sleep scientists.

**Non-REM sleep:** The four stages of sleep that lead to REM sleep.

**REM sleep:** Rapid eye movement sleep; the stage of sleep when we dream most.

**Sleep apnea:** A sleeping illness where someone does not get enough oxygen in their blood; it is generally associated with obesity (being very overweight).

**Sleep environment:** The setting where you sleep and the things in the place where you sleep.

**Sleep habits:** The things you do before you sleep and the time you go to bed and wake up. These habits impact the quality of your sleep.

**Sleep stage:** There are five stages of sleep defined by different types of brain activity and physical activity.

**Sleep study:** When doctors measure how much and how well someone sleeps. These studies are used to find out if someone has a sleep illness, like sleep apnea.

Good ZZZs Careers:

This list can be used as a resource for a class activity focused on careers. Ask students to research one of the careers and make a poster of someone doing that job. Have them share what they learned with the class. Or, invite someone who works in one of these careers to come talk to your class.

- **Neurologists** are doctors who focus on diseases of the nervous system. They use tests that produce images of the brain to help diagnose diseases, including sleep disorders.

- **Respiratory therapists** work with people who have trouble breathing, such as children with asthma, to help them breathe easier and get enough oxygen. They work with doctors to decide when someone needs a breathing machine to help them sleep.

- **Sleep scientists** study animals and humans to learn about sleep and sleep disorders. They analyze data from sleep studies and develop treatments for sleep disorders.

- **Sleep specialists** are doctors trained in the study of sleep and sleep disorders. They often work in sleep centers where they see patients who have difficulty sleeping.

- **Sleep technologists** assist sleep specialists in diagnosing and treating sleep-related disorders. They are responsible for monitoring patients during sleep studies.
Suggested Websites for Teachers:

- KidsHealth
  http://kidshealth.org/kid/
- Neuroscience for Kids: Sleep
  http://faculty.washington.edu/chudler/sleep.html
- Talk About Sleep
  http://www.talkaboutsleep.com
- National Sleep Foundation
  http://www.sleepfoundation.org
  http://www.ninds.nih.gov/disorders/brain_basics/understanding_sleep.htm

Books to Read with Students (K–3):

- Counting Sheep! Why Do We Sleep?: Experiments in Your Room
  Janice Lobb (Kingfisher, 2001)
- Sleep (My Health)
  Dr. Alvin Silverstein, Virginia Silverstein, and Laura Silverstein Nunn (Franklin Watts, 2000)
- Where Do I Sleep?: A Pacific Northwest Lullaby
  Jennifer Blomgren (Sasquatch Books, 2002)
- Dr. Seuss’s Sleep Book
  Geisel, Theodor Seuss (Random House, 1962)

Bibliography:

- Neuroscience for Kids: Sleep
  http://faculty.washington.edu/chudler/sleep.html
  http://www.nhlbi.nih.gov/health/health-topics/topics/slpst/during.html
What are germs?

Germs are tiny living things that we can’t live with and can’t live without. Some are essential to our good health and others can make us sick. They are so small that you can’t see them without a microscope (they are also known as microorganisms or microbes) but they are so strong that they can make you stay in bed sick for a week. Here’s the dirt on the four major types of germs:

- **Bacteria**—Only one cell in size, these microbes can survive outside or inside our bodies. Certain types of bacteria are responsible for strep throat, cavities and ear infections. But not all bacteria are bad! Our bodies rely on certain bacteria to digest our food and to stay healthy.

- **Viruses**—Many viruses make us sick because they kill healthy cells. These viruses invade cells, taking over and multiplying. Most of them need living things to survive. Viruses cause the common cold, flu, chickenpox and measles.

- **Fungi**—We’re not talking toadstools here, though they are related. Fungi cannot make their own food so they depend on plants, people and other animals for their nutrition. They thrive in damp, warm spots in or on the body and can cause athlete’s foot and ringworm.

- **Protozoa**—These moisture-loving, single-celled microorganisms can spread disease through water. If they get inside your body, it may result in diarrhea.

Are all germs bad?

No! In fact, we need bacteria to get nutrients from our food—they help break it down so our body can use it. Other bacteria help keep us from getting sick by making it hard for disease-causing organisms to find a place to set up shop.
Why should I wash my hands?  
They don’t look dirty!

Ah, it’s probably a good thing we can’t see all the microbes covering our bodies—just seeing their sheer numbers might make us sick! But they are the reason why it’s so important to wash our hands. We are all busy touching things all day long…and our hands are busy picking up all kinds of bacteria. Good hand-washing is one of the best (and easiest!) ways to keep yourself, your friends and your family healthy. I find I have more fun washing my hands if I sing a song while I do it. You can use mine if you like, and remember to sing it twice while you wash in order to get truly clean hands!

Science Now:

SMOKING KILLS THE MOUTH’S HEALTHY BACTERIA

-Columbus, Ohio

According to results released in Feb. 2012 from an Ohio State University study, smoking changes the mouth’s bacteria, making it easier for smokers to get mouth-related diseases such as gum disease. This helps explain why smokers suffer from more mouth diseases than non-smokers. A healthy mouth hosts a thriving community of healthy bacteria that helps prevent disease. Smoking destroys the good bacteria and allows the disease-causing germs to move in, multiplying more rapidly than they would in a non-smoker’s mouth.

In the study, which compared the mouths of 15 healthy smokers and 15 healthy non-smokers, not only did researchers find that the smokers were missing the mouth’s “good” bacteria, but they showed higher levels of a substance released by certain cells when they are fighting an infection. The bodies fight against infection, or immune response, causes swollen gums and can lead to bone loss. The smokers’ results showed that their bodies were fighting the harmful bacteria as well as attacking healthy bacteria. The researchers are still studying the results, trying to explain how smoking upsets the body’s ability to distinguish healthy and unhealthy bacteria. Study results were published in the journal, *Infection and Immunity*. 

Hand Washing Ditty
(Sung to the tune of “Happy Birthday to Me”)

Clean warm water and soap
Wash and lather my hands
Scrub my nails and my fingers
Now I’m done, dry and fly!

Science Now:

How did one virus call the other? On its cell phone
How do germs get into my body?

Germs can enter your bloodstream through a wound (that’s why it’s important to wash and cover a cut or sore) and through your nose and mouth. Germs hang out on doorknobs and desks, just waiting to hitch a ride from your hands to your mouth. This is why washing your hands is so important—especially before you eat and after you use the bathroom. Some germs can travel through the air and that’s where good sneeze/cough etiquette comes in. If possible, sneeze or cough into a tissue and throw it away. If you don’t have a tissue, sneeze or cough into your elbow to keep from spraying germs all over the room (and blasting your friends and family!) and to keep germs off your hands.

What causes body odor?

This is a stinky question with an even smellier answer. When your feet or armpits start to smell, it’s because the bacteria trapped on your skin are releasing organic acids. These acids feast on your dead skin cells and the oil on your skin, then produce waste that stinks! How’s that for making you want to run to the shower?

How can I fight bad breath?

I’ve got two words for you: brush and floss. Poor dental hygiene is the number one cause of bad breath. If bits of food get stuck in your teeth, they start to rot and smell. Though some kinds of food (like onions and garlic) can cause a stinky “hello,” stubborn bacteria clinging to your tongue and teeth are largely to blame. If you have good dental hygiene and still have bad breath that won’t go away, see a dentist. You may have a tooth or gum infection.

What’s a cavity?

A cavity is a hole in your tooth caused by bacteria in plaque. Plaque is a slimy coat of bacteria that is constantly forming on teeth. Germs in plaque make acids that can eat away at the enamel, or top layer, of your teeth. If you don’t get rid of these bacteria by brushing and flossing, they keep chomping away at your teeth and can make a hole, or cavity. If the cavity does not get filled by a dentist, the bacteria can get to the root of the tooth where the nerves are, causing a painful toothache.

Only floss the teeth you want to keep!
What do you mean by good oral hygiene?

“Oral” means mouth and “hygiene” is just a fancy word for cleanliness (or “being clean”)! Scientists have discovered strong connections between a healthy mouth and good long-term overall health. Here is my six-step program for a sparkling clean mouth:

1. Brush your teeth with fluoride toothpaste after every meal or at least two times a day, especially before bed.
2. Brush up and down on both the inside and outside of your teeth, making little circles with your toothbrush as you go.
3. Gently brush your gums and tongue.
4. Floss your teeth once a day to remove plaque and food stuck between your teeth.
5. Cut back on sweets and sugary drinks, like soda and fruit juice (check the nutrition facts label to find out if a drink has sugar in it and don’t forget sugar’s aliases as listed in the Nutrition Science Information: From the Notebook of Rosemary Baker). Drink plenty of water!
6. See your dentist twice a year.

What is gum disease?

Gum disease has nothing to do with bubblegum—unless you chew gum with sugar in it. Also called periodontal disease, this disease happens when the bacteria in plaque buildup and infect your gums and teeth. If left unchecked, it can even destroy gum tissue and the bones that hold your teeth in place. The best way to prevent gum disease is—you guessed it—our old friends brush and floss!
Activity: Fabulous Floss and Brilliant Brush

Guaranteed to tickle their funny bones along with their “teeth,” this activity puts the fun into the fundamentals of why it’s critical to both brush and floss your teeth. **Warning:** This activity can get messy!

**Main Concepts:** Students will learn that proper brushing and flossing habits are both important to good dental health, and that brushing and flossing clean the teeth in different ways.

**Materials:**

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medium-weight yarn (cut into 14-inch lengths)</td>
<td>1 per student pair</td>
</tr>
<tr>
<td>Chocolate frosting with small chocolate chips or sprinkles mixed into it (Pillsbury Funfetti® works well)</td>
<td>1 container for one class of 25 students</td>
</tr>
<tr>
<td>Safety Note: If you have peanut allergy issues in your classroom, be sure to check the ingredients list of the frosting you choose.</td>
<td></td>
</tr>
<tr>
<td>Toothbrushes</td>
<td>1 per student pair</td>
</tr>
<tr>
<td>Latex-free disposable gloves; light-colored</td>
<td>2 gloves per student pair</td>
</tr>
<tr>
<td>Paper towels</td>
<td>Several sheets per student pair</td>
</tr>
<tr>
<td>Paper</td>
<td>4 sheets per student pair</td>
</tr>
<tr>
<td>Pencils</td>
<td>1 per student</td>
</tr>
<tr>
<td>Art smocks (optional)</td>
<td>1 per student</td>
</tr>
<tr>
<td>Baby wipes (optional for cleanup)</td>
<td>2–3 per student</td>
</tr>
</tbody>
</table>

**Adaptation:** To save money on toothbrushes, do this activity in groups of four and have children share their brushes. Or have one half of the class complete the exercise, then switch and have the second half do it, washing the brushes in between.

**Note:** This activity goes more smoothly with at least two adult helpers.

**Time:** 45 minutes

**Do This!**

1. Use the Germsium Hygiene Science Information: From the Notebook of Dustin McLean, to teach students about germs and oral hygiene. You may wish to engage students in a class discussion using the following questions:

   • What are some things that you do to stay healthy?
   • What is a germ?
   • What do you do to keep your mouth healthy?
   • What can happen if you don’t take care of your mouth and teeth?
2. Explain to the students that today they are going to practice their tooth brushing and flossing skills while investigating why it is important to both brush and floss. Tell students that although they will be working with frosting, they are not going to eat it because it’s going to be used for their science experiment. Plus, it’s not so great for their teeth!

3. First ask the students to share their predictions about why dentists recommend that people brush and floss their teeth.

4. Divide the class into pairs (see note above for possible adaptation) and pass out one toothbrush and a few paper towels to each pair of students.

5. Have each student make an outline of his or her hand (with fingers spread out) by tracing around his fingers with a pencil on a piece of paper. Young children might need assistance from an adult helper.

6. Ask students to mark one piece of paper “brush” (or draw a toothbrush at the top of the page) and mark the other piece of paper “floss” (or draw a squiggly line to represent dental floss).

7. Explain to students that one partner will be the “teeth” and the other will be the “brusher/flosser.”

8. Hand out one glove per pair. Ask the “teeth” to put a glove on the hand she normally does not write with. Next have the teacher or another adult spread a thin layer of frosting (with candy sprinkles) on top of and between the fingers of the glove. Note: Don’t use too much frosting because it gets gloppy and is too hard to brush off.

9. Next have the student who is being the “teeth” hold his fingers tightly together while his partner tries to brush away the frosting with the toothbrush. Have her wipe excess frosting off the toothbrush onto a paper towel and then continue to brush. When she has brushed as much frosting off as she can with the toothbrush, she can set the toothbrush down on a paper towel. Then, the student playing the “teeth” can open his fingers.

10. While the “teeth” keeps his or her gloves on and waits to be flossed, have the partner who is not the “teeth” draw on her toothbrush hand outline how much frosting is left between the teeth (fingers) after her brushing efforts.

11. Pass out one piece of yarn and paper towels as needed to each student pair.

12. Next, have the partner who is the “teeth” bring his fingers together again while his partner gently “flosses” between the teeth (fingers) with the yarn to try to remove more frosting. Have her wipe the yarn on the paper towel as she removes frosting.

13. Once she has finished flossing, she can set the yarn down on a paper towel. Next, have the “teeth” open his hand and have his partner draw on the floss hand outline how much frosting is left after flossing the hand teeth.

14. In closing, ask students if they noticed a difference between how a toothbrush and floss remove food from teeth. Ask for student volunteers to share their drawings. After the investigation, do they think differently about brushing or flossing? How and why? Why is it so important to keep your teeth clean? What impact does brushing and flossing have on the bacteria in your mouth?

15. Engage the whole class in a group cleanup effort. Allow time for students to wash their hands, or use baby wipes to clean up hands and desks.

16. Health extension: Study diagrams (http://mybabytooth.com/services.html) of the human mouth
at different ages. Explain to students that healthy “baby teeth” are the foundation for a healthy mouth in the future. Even though they eventually become loose and fall out, baby teeth aren’t disposable! These teeth are doing important work by setting the stage for a healthy dental future because the permanent teeth are growing in just beneath them. (These illustrations show how decay in a baby tooth can affect a permanent tooth: http://www.deardoctor.com/articles/root-canal-treatment-for-children/page2.php.) Have students count the teeth on the different diagrams and then ask them to try to count their own teeth with their fingers (have them wash their hands before and after doing this). What diagram do their teeth match most closely? Ask students to share what actions they can take to have a healthier dental future.

17. **Hygiene pledge:** Wellbody Academy is committed to helping us change behavior to improve our health and wellness. To help kids focus on tangible changes they can make in their own lives, we’ve provided pledge certificates after each activity for you to use with your students. You can choose to make a pledge as a class, or allow each student to come up with his or her own. Younger students can draw a picture to symbolize their pledges. After the Fabulous Floss and Brilliant Brush activity, ask students to pledge to improve their hygiene in one way.

**Credit:** Adapted from “Floss is the Boss” from the Illinois State Dental Society kids’ activities.
Hygiene Pledge

This certificate hereby proclaims

I pledge to help stop the spread of disease and support my own (and others') health every day!

Signed,

Wellbody Academy of Health & Wellness

Professor Arden Wellbody

(Name)

(Your signature)
**Resources**

**Glossary:**

**Bacteria:** Microscopic organisms that, depending on their type, can help you survive or can make you sick.

**Cavity:** A hole in your tooth.

**Epidemiologist:** A doctor who studies the causes, distribution and control of diseases.

**Germs:** Microscopic organisms including bacteria, viruses, fungi and protozoa.

**Gum disease (periodontal disease):** When plaque builds up and infects the gums and the bones that hold your teeth in place.

**Immune System:** A system of biological structures and processes within the body that protects against disease.

**Influenza/Flu:** A viral infection that attacks your respiratory system – your nose, throat and lungs. Influenza, commonly called the flu, is not the same as the stomach “flu” viruses that cause diarrhea and vomiting.

**Oral Hygiene:** The actions you take to keep your mouth clean. Good oral hygiene includes regular brushing and flossing.

**Plaque:** A slimy coat of bacteria that forms on teeth.

**Simulation:** Acting out or imitating a real-life experience in an experiment.

**Tooth Decay:** When a tooth is eroded by the bacteria in plaque.

**Tooth Enamel:** The outermost layer of a tooth.

**Clean Careers:**

This list can be used as a resource for a class activity focused on careers related to hygiene. Ask students to research one of the careers and make a poster of someone doing that job. Have them share what they learned with the class. Or invite someone who works in one of these careers to come talk to your class.

- **Cytotechnologists** study human cells to identify abnormal or diseased cells in samples taken from a person.

- **Dentists** are doctors who treat problems with teeth, gums and other parts of the mouth. They provide information and instruction on oral health.

- **Dental hygienists** clean teeth and examine teeth and gums. They educate people on ways to maintain oral health.
Diagnostic medical sonographers produce images of the inside of the body using sound waves in a manner similar to X-rays. These images can help doctors diagnose a variety of physical problems.

Epidemiologists are doctors who study the causes of diseases and how to prevent their spread. They also analyze ways to prevent the spread of disease.

Health educators teach people about ways to stay healthy. They create materials, teach classes and oversee health education programs.

Immunologists are doctors who focus on the immune system, including allergies.

Medical illustrators are artists who create visual representations of anatomy, disease processes and other medically-related information.

Microbiologists are doctors who study microscopic organisms such as bacteria. They perform experiments involving microorganisms and analyze the results.

Suggested Websites for Teachers:

KidsHealth
http://kidshealth.org/kid/

American Dental Association for Kids
http://www.ada.org/353.aspx

Centers for Disease Control and Prevention “Handwashing: Clean Hands Save Lives”
http://www.cdc.gov/handwashing/

Books to Read with Students (K–3):

Why Do I Wash My Hands?
Angela Royston (QEB Publishing, Inc., 2009)

Teeth (Looking After Me)
Liz Gogerly and Mike Gordon (Crabtree Publishing Company, 2009)

Keeping Clean (Looking After Me)
Liz Gogerly and Mike Gordon (Crabtree Publishing Company, 2009)

Splish! Splosh! Why Do We Wash?
Janice Lobb (Kingfisher, 2000)

How Do Animals Keep Clean?
Faith Hickman Brynie (Enslow Elementary, 2010)

Throw Your Tooth on the Roof: Tooth Traditions from Around the World
Selby Beeler (Sandpiper, 2001)
Bibliography:

KidsHealth
http://kidshealth.org

Colgate Oral and Dental Health Resource Center: Oral and Dental Health Basics


Overview of Post-Visit Activities

General Exhibit Activity: Health Behavior Poll: Post-Visit

In this follow-up to the pre-visit Health Behavior Poll, students join in a statewide science project by completing this simple post-visit classroom survey, ideally to be completed at least one week following the visit to Wellbody Academy. They can compare the results for their class with data from other kids in classes across Washington state.

Post-Visit Activity Ideas

Three ideas are provided to help you design meaningful post-visit activities for students to encourage them to reflect on what they have learned from visiting Wellbody Academy. These activities include: Shining Stars, Get Better Now Machines and Dear Professor Wellbody.

Life-Changing Careers

A list of careers related to The Loft exhibit area in the exhibit can complement a variety of career-focused classroom activities.

Take-Home Letter to Parents/Guardians

This take-home letter can be photocopied and distributed to students for them to share with their parents/guardians within a day or two of visiting Wellbody Academy. The letter provides conversation starters to help parents talk to their children about their field trip experience, as well as how to learn more about health and wellness.
General Exhibit Activity
Health Behavior Poll: Part 2

Following up on the pre-visit health behavior poll, students can join a statewide science activity by completing this simple pre-visit questionnaire! By providing answers about his or her health behaviors, each student will be able to compare his or her personal results with those for his or her class both before and after visiting Wellbody Academy as well as with data from other students across Washington state who have visited Wellbody Academy.

Main Concepts:
Students will assess changes to their health behaviors after visiting Wellbody Academy by comparing their responses to their pre-visit poll responses.

Materials:

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student responses from initial Health Behavior Poll Handout</td>
<td>1 per student who took the pre-visit poll</td>
</tr>
<tr>
<td>Health Behavior Poll Handout</td>
<td>1 per student</td>
</tr>
<tr>
<td>Pencils</td>
<td>1 per student</td>
</tr>
<tr>
<td>Optional: Computer with internet access</td>
<td>1</td>
</tr>
</tbody>
</table>

Time: 15 minutes
This should be conducted at least one week from the class’s visit to Wellbody Academy to do this activity!

Do This!
1. Tell students that they will be answering the same questions they answered before they visited Wellbody Academy at Pacific Science Center, plus three new ones to see if what they learned on the field trip helped them make any changes to their health habits.
2. Pass out one copy of the Health Behavior Poll Handout to each student.
3. Ask students to write their name at the top and the letter B (to signify post-visit poll.)
4. Depending on students’ reading level, either ask students to answer the questions on their own or go through the questions one by one, helping the students mark their answers.
5. Collect students’ handouts.
6. Later on, after compiling the students’ results, you can show the students how they answered as a class so they can compare their personal answers with those of the class overall (e.g., half of the class had breakfast this morning).
7. Pass out students’ pre-visit and post-visit polls.
8. Challenge students to look for changes in their answers. Did their behaviors change? How? Why?
9. Compare the class’s results on the board. Were there changes? What was the biggest change? What does this tell them? Are there other changes they’d like to make?
10. Compare the class’ results to those found on Wellbody Academy website. How does your class compare to other classes from around the state? Have students look at the responses from students in other grades. Does the grade the student is in make a difference?
11. Submit the data online from both the pre-visit and post-visit surveys. You will also have access to the aggregate data that you can share with your class for comparison. The data entry is straightforward and should take no more than 15 minutes to complete, if you have the surveys consolidated (e.g., number of students that answered most days for question 1 on the pre-visit and then on the post-visit). It will be particularly valuable if most of the students completed both the pre- and post-visit surveys.
12. As an incentive and to thank you for taking the time to enter your class’s data we will send you a thank you in the form of four exhibit passes to Pacific Science Center that you can use with your family or friends. The data entry can be done here: https://www.surveymonkey.com/s/Wellbody_HealthPoll
13. If the students would like to have a “healthy competition” with their own scores (trying to make healthy changes), ask if they would like to take on a health challenge as a class. Choose one area where your class could improve. You can take the post-visit survey again in a month to see if the class met their challenge.
14. **Take home idea:** Students can create a health challenge at home with their family. What health habit would they like to change/improve? Have them report the results back to the class.
Health Behavior Poll

1. What grade are you in?
2. How often do you eat breakfast?
   a. Every day
   b. Most days (4 to 6 times a week)
   c. Some days (1 to 3 times a week)
   d. Rarely
3. How often do you eat fresh fruit?
   a. Every day
   b. Most days (4 to 6 times a week)
   c. Some days (1 to 3 times a week)
   d. Rarely
4. How often do you eat fresh vegetables?
   a. Every day
   b. Most days (4 to 6 times a week)
   c. Some days (1 to 3 times a week)
   d. Rarely
5. Do you brush your teeth in the morning?
   a. Always
   b. Sometimes
   c. Rarely
6. Do you floss your teeth once a day?
   a. Always
   b. Sometimes
   c. Rarely
7. In the morning, how do you usually feel?
   a. Rested
   b. A little sleepy
   c. Very tired
8. How often do you wash your hands before meals?
   a. Always
   b. Sometimes
   c. Rarely
9. How often do you wash your hands after using the bathroom?
   a. Always
   b. Sometimes
   c. Rarely
10. How many times during the week are you physically active for 30 minutes or longer (such as playing a sport, taking a walk, riding your bike)?
    a. Every day
    b. Most days (4 to 6 times a week)
    c. Some days (1 to 3 times a week)
    d. Rarely
11. How important do you feel it is to:
    A. Eat Healthy Foods
        a. Very Important
        b. Kind of important
        c. Not important
    B. Exercise Regularly
        a. Very Important
        b. Kind of important
        c. Not important
    C. Get a good night’s sleep
        a. Very Important
        b. Kind of important
        c. Not important
12. What was your favorite activity at Professor Wellbody’s Academy?

13. How much new information did you learn about your health at Professor Wellbody’s Academy?
   a. A lot
   b. Some
   c. Not much
   d. None/nothing new

14. Name 2 things you can do to be healthier.

   1. ________________________________
   2. ________________________________
Activity Ideas

Activity Idea: Shining Stars
Lead a discussion about people and/or pets that are “shining stars” in the students’ lives—those who create a reliable, loving support system for the students. Studies have shown that people with close support networks are healthier than those without. Strong support networks are connected to people having lower blood pressure, less stress and stronger immune systems.

Ask what qualities someone needs to be a shining star. How does that person help you? Be specific. For example, “when I visit my grandma she cooks my favorite meal” or “my soccer coach helps me be a better athlete.” Students draw or trace large star shapes on their paper, then draw pictures inside the stars of the people/animals that are their own shining stars.

Activity Idea: Get Better Now Machines
Ask students to draw a fantastical health machine (the crazier the better!) that addresses one of the main themes of Wellbody Academy. Does their machine help people eat better? Does it provide ways for them to be physically active? Maybe it washes their hands for them, or makes sure they get to bed on time. Or all of these! Let the students’ imaginations run wild. Post their pictures around the room and have them try to “sell” their idea to their classmates. Which machine do the students think would have the biggest positive influence on people if they used it and why?

Activity Idea: Dear Professor Wellbody
Invite students to write letters or postcards or to draw pictures that tell Professor Arden Wellbody about one thing they learned at Wellbody Academy that really stuck with them. Have they changed any of their health behaviors since visiting the Academy? If so, what and how? If not, why not? Do they plan to make changes in the future? What do they need to start? Wellbody Academy will post representative letters and drawings on its website. Please scan and send us copies of your “Dear Professor Wellbody” responses to ProfessorWellbody@pacsci.org.

Life-Changing Careers
This list can be used as a resource for a class activity focused on careers in behavior change and aging. Ask students to research one of the careers and make a poster of someone doing that job. Have them share what they learned with the class. Or invite someone who works in one of these careers to come talk to your class.

- **Art therapists** use the process of making art to assess and treat people with mental and emotional disorders.
- **Counseling psychologists** help people understand and manage challenges in their lives.
- **Gerontological counselors** help older adults cope with declines in their health and address problems such as dementia and depression, as well as changes in ability, lifestyle or family issues.
- **Gerontologists** are doctors or scientists who study the process of aging and the living environments of older people.
Mental health and substance abuse social workers work with people with mental illnesses or addictions. They provide information on resources to help people cope with these illnesses.

Occupational therapists treat people with injuries, illnesses or disabilities by helping them improve skills needed for daily life, such as eating and writing.

Program directors for nursing or retirement facilities develop and manage activities and events to support the residents’ physical, mental and social well-being of the elderly people who live in the facilities.

Social and behavioral science researchers are scientists who study the process of behavior change.

Bibliography:
Dear Parents and Guardians,

Your child recently visited Professor Wellbody’s Academy of Health & Wellness during a recent class field trip to Pacific Science Center. The goal of the exhibit is to inspire people to be more knowledgeable about their own health and wellness—and to have fun while they’re doing it! The choices each of us makes every day has a profound effect on our health and well-being. Concerned by the rise in preventable health challenges such as type 2 diabetes and obesity, Pacific Science Center has chosen an inspiring and interactive environment to help children and families in the Pacific Northwest better understand how to make healthier choices in their everyday life in day-to-day life.

Through a variety of playful, hands-on activities, visitors discover and participate in four main theme areas: fitness, nutrition, sleep and hygiene. In between bouncing and jumping to shoot balls at targets, learning about fast-food options by role-playing at a drive-through and getting sprayed by a “sneeze wall”—children begin to view wellness as an approach to living each day in a way that creates a better place to grow and learn.

When you talk to your child about his or her visit to Wellbody Academy, you might want to ask:

• What kind of physical movement did you do in an Academy game?
• What is a calorie budget? Do you know yours?
• What’s one new food that you would like to try? Why?
• How can you make your room a better place to get the sleep you need?
• What are two things that are good to do and two things that are best to avoid if you want a healthy mouth and teeth?
• What is one new thing you can do to improve your health? How can I help you do it?

If you would like to learn more about how to begin making health and wellness changes at home, please visit our website at pacificsciencecenter.org/wellbodyacademy. For additional background on some of the science behind the exhibit, as well as resources and book recommendations, please check out Wellbody Academy Educator’s Handbook for your child’s grade level (K–3 or 4–6), also available on the website.

There is so much to see and do at Wellbody Academy that your child may well want to come back for more. We hope to welcome your whole family here soon.

To your good health!

R. Bryce Seidl
President and CEO
Pacific Science Center