10 Easy Steps to Teaching THE HUMAN BODY

The Human Body

The step-by-step teacher's guide

INCLUDES 56 READY-TO-USE VOCABULARY CARDS
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This Book Was Designed for You —
a talented, yet busy teacher. We know that you want to provide students with the most interesting and comprehensive units of study possible. We also know how much time it takes to fully prepare to teach a topic. That’s why we developed the Ten Easy Steps series. From planning to implementation — it’s all here:

**Step 1** Using This Book
This section contains background information on how to use this book and a peek into what you’ll be teaching during the 10 lessons.

**Step 2** Gather Great Resources
In this section, you’ll find a list of books to use when teaching yourself and others about the body, a list of web sites that help explain the topics you’ll be teaching, and a list of field trip and guest speaker ideas. There’s even a letter for parents to help you find a great speaker!

**Step 3** Speak the Lingo
This is where you’ll find all the vocabulary words and definitions specific to the topics covered in this book as well as worksheets and pocket chart ideas designed to reinforce the vocabulary.

**Step 4** Set the Scene
It’s important to set the tone for the unit of study. This means transforming your classroom environment to reflect the concepts being taught. In this section, you’ll find great ideas for interactive learning areas and classroom decoration.

**Step 5** Plan a Project
In this section, you’ll find plans for an ongoing project students will be working on throughout the unit of study. It’s a great way to apply what they’re learning each day.

**Step 6** Teach Ten Terrific Lessons
Ten complete lessons can be found within this section. Each lesson includes essential concept information, experiments, hands-on activities to reinforce the concepts, journal prompts, homework ideas, and teaching notes on each experiment.

**Step 7** Cross the Curriculum
Take one great concept, teach it in multiple curriculum areas, and you’re sure to reinforce learning. In this section you’ll find ways to extend the learning across all areas of the curriculum, including social studies, reading, writing, math, and art.

**Step 8** Tie in Technology
In this section, we provide you with ideas and project planning pages for a multimedia presentation and web site creation.

**Step 9** Assess Learning
This section provides a variety of assessment options. But don’t wait until the end of the book to assess your students. This book is filled with journal and homework ideas to assess your students from the start.

**Step 10** Celebrate!
Once you’ve completed a unit study as compelling as this, you’ll want to celebrate. In this section, we’ve provided an idea for a great end-of-unit celebration.

A Note About the Internet
The Internet is a constantly changing environment. The sites listed as additional references were current at the time this book went to press.
INTRODUCTION TO THE HUMAN BODY

The human body is the ultimate machine. It is a group of finely tuned systems that must work together in order for the whole machine to function at peak performance. Although the machine has all the necessary parts, it’s up to the owner to keep it working at its best.

In this unit of study, students will learn about the body and the major systems that keep the body working the way it should. In addition, they’ll learn the importance of proper nutrition.

Each of the following lessons features a quick informative mini-lesson, fascinating facts, easy-to-accomplish experiments and activities, a journal prompt, and a homework idea.

1. Overview of the Human Body
   Objective: To gain an overview of the human body and the idea that a group of systems work together in the body.

2. The Skeletal System
   Objective: To understand that the skeleton supports the body, protects the organs, and allows movement.

3. The Muscular System
   Objective: To understand muscle function and recognize voluntary and involuntary muscles.

4. The Heart
   Objective: To learn that the heart plays an important role in the Circulatory System, serving as a pump for the entire body's blood supply.

5. The Circulatory System
   Objective: To learn how blood circulates through the entire body, providing nutrition and oxygen while removing carbon dioxide.

6. The Respiratory System
   Objective: To investigate how the body obtains and then makes use of oxygen.

7. The Digestive System
   Objective: To understand the importance of the Digestive System.

8. The Nervous System
   Objective: To learn how the Central Nervous System receives, sorts, and sends messages to all parts of the body.

9. The Five Senses
   Objective: To recognize how the five senses are connected to our brain and the Nervous System and how they serve to keep us in touch with the world around us.

10. The Food Pyramid
    Objective: To understand the importance of proper nutrition.

In addition to the lessons and experiments, this book contains many other tools to help you make this unit more complete, including:

- A list of books and web sites for you and your students. (Step 2)
- A vocabulary list of body and body system words and definitions along with vocabulary worksheets, puzzles, and pocket chart activities. The back of the book contains a pocket chart card for each vocabulary word. You can use the pocket on the inside back cover to store the cards once they’re torn out from the book. (Step 3)
- Learning center ideas filled with information to help you set up human body activity centers. (Step 4)
- An ongoing project in which students create human body maps and step books that explain step-by-step what happens within each system of the body. (Step 5)
- Cross-curricular learning ideas to carry the study of the human body into other areas of your curriculum. This includes checking heart rates, writing a menu for three healthy meals, and writing poems or creating posters about the importance of physical fitness. (Step 7)
- Connections to technology via a healthy habits web page project and a multimedia presentation on the systems of the human body. (Step 8)
- Assessment tools including rubrics, journals, and tests. You’ll find plenty of tools and ideas for alternative or traditional assessment of student learning. (Step 9)
- A celebratory end-of-the-unit Health Fair, which allows students to “show what they know” while reinforcing the content covered. (Step 10)
Great Resources for You

It's impossible to be an expert on every subject you teach, yet that's exactly how your students see you. Before you begin teaching this human body unit, spend a few nights reviewing the following web sites and books, and you'll be up to speed in no time!

Web Sites

The Living Gadget
http://www.jfkhealthworld.org/LivingGad/livgad.htm
The human body is the most amazing living gadget you'll ever encounter. Go to this site to learn more about this amazing gadget. Simply click on each topic to get a description, colorful diagrams, and labels of each!

This site is great for teachers. There's not a lot of animation or flashy graphics but you will find in-depth information on each of the body systems and organs. The interactive human model makes it easy to pinpoint the area of the body you’d like to learn more about. Upon arriving at the system or organ you’d like to study, there are additional links to more detailed information.

This is truly one-stop shopping — all seven body systems at one great site! The facts are presented in easy to comprehend bulleted lists, and the graphics are clear and uncluttered.

Learning Resources http://www.learningresources.com
Seek out this site for a list of 10 Steps—recommended web sites or great products for your classroom. You’ll want to head to Activities & Resources for the list.

Books That Help Prepare

This inquiry driven book is full of all the questions kids are bound to ask during a study of the body and its systems. The answers are straightforward and to the point, and the pages are filled with informative illustrations and photos.

This book is full of great projects to reinforce the learning you and your students will be doing during this unit of study. The chapters align nicely with the 10 lessons within this book. A favorite activity is the model of a pumping heart.

This book teaches anatomical concepts with a coloring book-style. There are more than 150 detailed illustrations, all organized according to body system. An innovative color-key system links terminology to illustrations — a great way to ensure comprehension.

This book has the most incredible illustrations! You’ll find a lot of great close-ups and cross sections with just enough text to explain, yet not overwhelm.
GATHER GREAT RESOURCES

Great Resources for Your Students

Surrounding your students with great resources is a sure way to stimulate learning. The first step is to encourage your students to take a look at a few of the great web sites and books listed on this page and on page 7. The field trip ideas in this section will also get your students in gear for a great study of the human body. You’ll have a captive audience before you even begin teaching!

Web Sites

How the Body Works
http://kidshealth.org/kid/body/mybody.html
How does the body work? This site provides a wealth of information for teachers and students. Choose from the Circulatory and Respiratory Systems, muscles, the ear, the eye, or the digestive tract to learn some really neat facts. The index at the top of the page provides a list of interesting topics.

Your Gross and Cool Body
http://yucky.kids.discovery.com/body/
Dubbed one of the “Yuckiest Sites on the Internet,” this site definitely earns its name. But that’s not to say that it has little merit. Kids love this stuff, and believe it or not, it is educational. Get information on pimples, burps, gas, and funny bones. Your students will be smiling for the rest of the day.

Science Connections Human Body Adventure
http://www.vilenski.com/science/humanbody
This site truly has a futuristic feel to its opening pages, yet once you get past the hype, it’s full of solid content. The premise is a journey through the body. You visit each of the major body systems and learn interesting details.

A Look Inside the Human Body
Each page of this site features short, to-the-point bits of information that are perfect for the classroom. There’s always an illustration to accompany the information, with plenty of labels that further explain the text. Be sure to click on the fact sheet link for a worksheet students can complete as they visit the site. There’s also an answer sheet link.

BrainPop: Your Body
http://www.brainpop.com/health/basicsandcells/body/index.weml
There’s more on this site than you’d have time to cover in a single lesson period. It includes information, online games, a timeline, an “Ask the Experts” area, and of course, links to detailed (and fun) information on each of the major body systems.

Hillandale Health Index
http://hes.ucf.k12.pa.us/gclaypo/health_index.html
This great site features all the major body systems and even includes quizzes, games, and crossword puzzles to check your level of knowledge. Be sure to check out the “Fun Facts” link when you visit this site.

Virtual Body
http://www.medtropolis.com/VBody.asp
This site includes animated tours of each of the major body systems and tons of great information. The illustrations feature “mouse-over” text (i.e., roll the mouse over an area and informative text pops into view telling about the area you’ve just rolled over).
Great Resources for Your Students

Books

This book contains clear information that’s delivered in an easy-to-understand manner. There are even a few good activities and experiments you may want to try with the class.

This is one of the earlier “Ms. Frizzle” tales, but it’s also one of the best. In this installment, the school bus goes on a journey of the human body.

This book not only teaches about each of the body’s systems and organs, but it also discusses what happens when we don’t take care of our bodies. Information on exercise, fresh air, healthy eating habits, and much more provide a great follow-up to a unit of study on the body.

This book teaches anatomical concepts with a coloring book style. There are more than 150 detailed illustrations, all organized according to body system. An innovative color-key system links terminology to illustrations — a great way to ensure comprehension.

This comprehensive book avoids being overwhelming by presenting the information in an almost article-like format. Like all the other Eyewitness books, this book is full of great photos and illustrations.

This book teaches sometimes hard to understand concepts in ways that make it easy for kids to comprehend. The plentiful use of comic strips, enhanced photos, and bulleted lists of fun facts make this a great book for kids of all ages.

This book is full of great experiments and opportunities for creative thinking. The extensive glossary is sure to be used by all students.

This is truly an “up close and personal” look at the human body. Computer-enhanced 3-D style photographs and incredible facts make this a book that’s hard to put down. The “Body Data” tables include tons of great information, and there’s even a list of web sites for further research.

Guest Speaker Ideas

1. A doctor, such as a pediatrician, to share his or her experiences in working with children.
2. A nurse to share experiences about treating patients with injuries to their various body systems.
3. An Emergency Medical Technician (EMT) to share experiences about handling life-threatening injuries to the body.
4. A nutritionist to encourage children to eat well and explain the negative effects of poor nutrition.
5. Someone who has experienced a medical emergency.
6. An ex-smoker to tell students what a horrible habit smoking can be.

Field Trip Ideas

1. Visit a hospital.
2. Tour a fitness center and have personnel discuss the importance of a healthy lifestyle.
3. Visit a health museum.
Dear Parents,

Over the next few weeks our class will be studying the human body. Our topics of interest will include:

1. Overview of the Human Body
2. The Skeletal System
3. The Muscular System
4. The Heart
5. The Circulatory System
6. The Respiratory System
7. The Digestive System
8. The Nervous System
9. The Five Senses
10. The Food Pyramid

If you have personal stories or insights to share on any of the above listed topics, we would love to have you come in and talk to the class. We would also appreciate any materials (books, videos, and posters) that you’d be willing to share for the next few weeks.

Reinforcing learning at home will help your child retain the information learned in school. Try to find time to discuss the topics, ask questions, and stay involved with homework and projects. If possible, explore the following web sites with your child.

The Living Gadget
http://www.jfkhealthworld.org/LivingGad/livgad.htm

A Look Inside the Human Body

BrainPop: Your Body
http://www.brainpop.com/health/basicsandcells/body/index.weml

Thank you for all your help and support.
### Step 3

**SPEAK THE LINGO**

### Human Body Vocabulary

Understanding the meanings of key words before delving into the topic will help students grasp the concepts later on. The pages in Step 3 provide the practice to help students retain the words and their definitions. The worksheets are based on the following list of vocabulary words, which are from the lessons in Step 6. Each word is also printed on the pocket chart cards located at the end of this book.

<table>
<thead>
<tr>
<th>Lesson 1</th>
<th>Lesson 2</th>
<th>Lesson 3</th>
<th>Lesson 4</th>
<th>Lesson 5</th>
<th>Lesson 6</th>
<th>Lesson 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>cells</td>
<td>ball-and-socket joint</td>
<td>involuntary muscles</td>
<td>heart</td>
<td>artery</td>
<td>carbon dioxide</td>
<td>digestion</td>
</tr>
<tr>
<td>small living parts; different types of cells make up different tissues and organs in your body</td>
<td>allows movement in all directions (e.g., shoulder and hip)</td>
<td>work automatically to keep the body systems operating muscles</td>
<td>organ made of muscle that pumps blood to all parts of the body</td>
<td>vessel that carries clean, oxygenated blood away from the heart</td>
<td>odorless and colorless gas that humans exhale</td>
<td>breakdown of food into tiny bits that your body can then use as fuel</td>
</tr>
<tr>
<td>Circulatory System</td>
<td>bone</td>
<td>special tissue that works with bones and joints to move your body’s many parts</td>
<td>circulation process in which blood is moved around the body by the heart so that cells and organs can receive oxygen and nutrients</td>
<td>food pipe that allows food to pass from the mouth to the stomach</td>
<td>that humans exhale</td>
<td>esophagus</td>
</tr>
<tr>
<td>organs and processes that let blood flow throughout your body</td>
<td>hard structures that give shape to, help move, and protect your body</td>
<td>organs that work together</td>
<td></td>
<td>that allows food to pass from the mouth to the stomach</td>
<td>to take in air</td>
<td>just after the stomach, where nutrients from food are absorbed into the blood stream</td>
</tr>
<tr>
<td>Digestive System</td>
<td>cartilage</td>
<td></td>
<td></td>
<td></td>
<td>to exhale</td>
<td></td>
</tr>
<tr>
<td>organs and processes involved with the digestion of food</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>to let out air and remove carbon dioxide from the body</td>
<td></td>
</tr>
<tr>
<td>Muscular System</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>lungs</td>
<td></td>
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<tr>
<td>specialized tissues that let your body move</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>organs that take oxygen from the air you breathe for respiration</td>
<td></td>
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<tr>
<td>Nervous System</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>oxygen</td>
<td></td>
</tr>
<tr>
<td>organs and processes that allow your body to receive, sort, and send information to all its parts</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>gas that nearly all organisms need to survive</td>
<td></td>
</tr>
<tr>
<td>Respiratory System</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ribs</td>
<td></td>
</tr>
<tr>
<td>organs and processes that let oxygen enter your body and carbon dioxide be removed from your body</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>bones that surround and protect the lungs</td>
<td></td>
</tr>
<tr>
<td>Skeletal System</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>trachea</td>
<td></td>
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<tr>
<td>bones that support your body, protect internal organs, and allow you to move</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>air pipe or windpipe</td>
<td></td>
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<tr>
<td>system</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>group of organs that work together</td>
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</table>

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### Teaching Notes on Pocket Chart Vocabulary

Using your pocket chart cards and a pocket chart, try a few of the activities listed below to introduce and develop human body vocabulary words.

**Begin Each Lesson**
Begin each lesson by showing the new vocabulary words that apply for that lesson. At the end of each lesson, review the words with your students together.

**Quiz Show**
Play “Human Body Quiz Show.” Divide the class into teams. Pull one vocabulary card, and give its definition without showing the face of the card. The first team to “buzz in” with the correct answer receives a point. Continue until all the cards have been revealed.

**Joint Demonstrations**
Use the vocabulary cards listing the types of joints for this fun game. Place a card with a joint type listed on it (pivot, ball-and-socket, hinge) in the pocket chart. Challenge students to show a movement with the type of joint listed on the card shown.

**Definition, Please**
Play “What’s the Definition, Please?” Place all the cards in the pocket chart. Divide the students into four teams. Teams take turns sending a player up to the chart to retrieve a card to take back to their group. The group then has 30 seconds to come up with a definition for the word they choose to receive a point. If they don’t come up with the definition, the other teams have the opportunity to answer. Play resumes with the next team going up to draw a card. Continue until all the words have been defined.

**Digestion on Down**
Ask students to take the cards associated with the digestive system and place them on the chart in the order that they actually work in the digestive system (starting with the mouth, teeth and saliva, and continuing on through the intestines). Afterwards, check the order and discuss what happens during each step in the process.

**System Word Matching**
Place the name card for each system along the top row of the pocket chart. Challenge students to name all the vocabulary that goes along with each system.
Fill in the blanks with the correct word from your human body vocabulary. Use the Word Bank if you need help.

1. _____________________________ is the process of breaking down food into tiny bits that your body can use as fuel.

2. The _____________________________ is a guideline for healthy eating habits.

3. _____________________________ is a fluid in the mouth.

4. The _____________________________ pumps blood to all parts of the body.

5. In order to take in air, we _____________________________.

6. The bones that protect the lungs are called _____________________________.

7. A group of organs that work together is called a _____________________________.

8. The hip is an example of a _____________________________ joint.

9. The _____________________________ is the main organ required for the sense of sight.

10. The _____________________________ is also called the windpipe.

Word Bank:
- eye
- ribs
- heart
- system
- trachea
- ball-and-socket
- digestion
- food pyramid
- inhale
- saliva
Human Body Vocabulary Crossword

Fill in the crossword puzzle using these clues. Use the Word Bank if you need help.

Across
1. area of the brain that controls balance
2. main organ required for the sense of smell
3. process of breaking down food into tiny bits that your body can use as fuel
4. used in the process of chewing to help break down food into smaller pieces
5. organs that take oxygen from the air you breathe
6. covers the body and is considered a sense organ

Down
7. bones that surround and protect the brain
8. sometimes called the food pipe
9. a group of organs working together
10. allows bones to move freely

Word Bank:
- joint
- cerebellum
- lungs
- digestion
- system
- esophagus
- nose
- teeth
- skull
- skin

Name ______________________________________________
Classroom Learning Centers

Just as the backdrops and costumes are important to a play, a welcoming classroom environment is important to foster learning. The room should be fun, inviting, and interactive. With that in mind, this section features learning center activities and bulletin board ideas to help you set up the room for learning about the human body.

1. Bubbles! Learning Center

Provide students a chance to use their lungs and experience the force of their exhaling. Have students blow bubbles, then try to keep them afloat by blowing on them with air from their lungs. Discuss their observations. Here are just a few materials they’ll need to get started at the Bubbles Learning Center:

- small bottles of bubbles
- pencils
- paper towels and sink access for clean up
- photocopies of page 14

2. Thump! Thump! Thump! Learning Center

Give students a chance to listen to a resting heartbeat and a more rapid one. Students will need to work in pairs at this learning center. What you’ll want to do is set up the center for students using: two funnels, 1- to 2-foot (.3 - .6 m) piece of plastic tubing, and a timer. Place one funnel on each end of the plastic tubing. This will create a “stethoscope” for the students to use. Have one partner listen to the other’s heartbeat by placing an ear next to one funnel and the other funnel at the partner’s chest. Tell students that they’ll need to sit or stand quietly so the heartbeat can be heard. The listening partner should then record observations on a sheet of paper. Next, have a partner set the timer for about 30 seconds to one minute. During that time, the partner who was the subject in the last activity will do some type of exercise like jumping jacks or running in place. When the timer goes off, the partner using the timer should listen to and record observations about the rapid heartbeat of his or her partner on a photocopy of page 15. Direct partners to switch places and repeat the activity. Discuss results as a class.

3. You Will Never Believe What I Just Read! Learning Center

Provide copies of several books about the human body in a basket or other type of container at one learning center. Allow the students time to read them and to find an interesting fact about the body that no one else has shared with the class yet. A large piece of paper posted in an area accessible to all students makes a super spot for them to record facts they have discovered and would like to share!

4. Experiment Learning Center

This center will help you organize all of the experiments in this book for your students. Be sure to keep the following materials at this station:

- supplies for the experiments in Step 6
- experiment Science Logs

You may also want to include directions for other experiments you’ve come across during your research at this center.
Record Sheet: Bubbles

What I did in this activity:
_______________________________________________________________________________
_______________________________________________________________________________
_______________________________________________________________________________
_______________________________________________________________________________
_______________________________________________________________________________

What it was like to keep the bubbles up in the air:
_______________________________________________________________________________
_______________________________________________________________________________
_______________________________________________________________________________
_______________________________________________________________________________
_______________________________________________________________________________

The part of my body I used the most to keep the bubbles up in the air:
_______________________________________________________________________________
_______________________________________________________________________________
_______________________________________________________________________________
_______________________________________________________________________________
_______________________________________________________________________________

Name ______________________________________________
Record Sheet: Thump! Thump! Thump!

What a resting heart sounded like to me:
________________________________________
________________________________________
________________________________________
________________________________________
________________________________________

What my partner did next:
________________________________________
________________________________________
________________________________________
________________________________________
________________________________________

What a working heart sounded like to me:
________________________________________
________________________________________
________________________________________
________________________________________
________________________________________

How were the resting and working heartbeats different or the same?
________________________________________
________________________________________
Learning Centers Checklist: Teacher

Use this checklist to record which students have completed each activity. In the activity columns, record a grade or symbol to reflect the level of completion. You could use the wider column beneath each learning center to jot a note about the student’s performance and the date completed.

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</tbody>
</table>
Learning Centers Checklist: Students

Photocopy this page for each student and cut it in half. Have your students use this sheet to get sign-off by you or a peer each time they successfully complete a center. Remind students that completing more than one center a day or repeating a center during the week is permitted.

<table>
<thead>
<tr>
<th>Week</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
</tr>
</thead>
<tbody>
<tr>
<td>_____ – _____</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Bubbles</td>
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<td>3. You’ll Never Believe ...</td>
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<td>4. Body Experiments</td>
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Name ______________________________________ Date ____________________________
SET THE SCENE

Classroom Bulletin Boards

The bulletin board ideas will help you and your students set up the room. Be sure to go back to them throughout the lessons.

Nutrition Mission

Create a bulletin of a food pyramid that resembles a rocket ship. Have flames coming out of the bottom and the tip colored in to resemble the end of the rocket. As you study the food pyramid, have students bring in pictures to place in the appropriate area of the rocket. You can also divide the students into small groups and have each group create “flight menus” that contain well-balanced meals for their mission. Post the menus on the bulletin board. Or, challenge students to create “flight logs” that track their nutritional intake and activities for a specific period of time. Post the logs around the edge of the board.

Amazing Systems

This is an interactive learning bulletin board that will continue to grow as you study the body and its systems. Post the name of each system you’ll study on the bulletin: Skeletal, Muscular, Circulatory, Respiratory, Digestive, and Nervous. As you study each system, allow small groups of students to create flow charts that describe the actions within each system. Allow other students to explain the charts. Post the charts under their appropriate headings. This board will serve as a visual reminder of the steps involved in order for each system to function properly.
Here’s How I Work

Requiring students to put their knowledge and skills to work is ideal to help in long-term retention of content. The “Here’s How I Work” project is designed to take place over the course of this study of the human body. Students will create body maps and guide books that explain just how each system of the body works. The end results will be a great addition to the Health Fair Celebration in Step 10: Celebrate!

1. Create a Blank Body Map

Divide the class into partners. Have students take turns lying on a flat piece of bulletin board paper while the other person traces the outline of his or her partner’s body. Then, have partners switch places. When they are done, instruct students to cut out the body outline, and color it in for fun. Encourage students to color their faces and clothes on one side of the body map, and then glue organs and systems to the other side after each lesson. When the unit is over and the body maps are finished, prop the maps against a chair back with the face side showing. Tape a 12-inch ruler to the back of the chair to help hold the head up. Then, have the creator of the map sit in a chair next to it and photograph them together. They’ll need the following materials for this activity:

- large piece of bulletin board paper cut to match the length of the students’ bodies
- copies, stencils, or patterns for the organs or systems (e.g., brain, esophagus, stomach, intestines, lungs, heart, bones, muscles)
- crayons
- scissors
- glue

2. Create a Body Guidebook

Model this activity for students by stacking three sheets of paper and holding them vertically. Slide the top sheet upward about one inch and the bottom one downward about one inch. Add the fourth sheet at the bottom of the stack so that it protrudes an inch lower than the other sheets. Next, fold the paper forward to create graduated layers. Staple across the fold line along the top to create the step book. Decorate the top layer as a title layer. Then have students create their book layout, and direct students to include a title, their name, and some other type of illustration to the title page. Then, label the other pages with these titles, beginning at the top of the book:
1. Skeletal System
2. Muscular System
3. Circulatory System
4. Respiratory System
5. Digestive System
6. Nervous System
7. The Five Senses

After each lesson has been taught from Step 6, students should write what they learned on the appropriate step in their step books. Illustrations in the books would be a nice addition to each step. After the books are done, divide the class into small groups. Arrange with other teachers for the groups to visit the teachers’ classrooms and share what they have learned using their step books. Students will need the following materials for this project:

- 4 sheets of white paper per student
- crayons, markers, pencils
- stapler

3. Decorate the Room

Consider creating a door display with the students’ projects or a bulletin board with the photographs and the step books. They can also be used as decorations for the Health Fair Celebration at the end of the unit.
# Weekly Project Goals

## Project Checklist

Place a check mark in each box as you complete the step for your project.

<table>
<thead>
<tr>
<th>Body Map &amp; Guide Book Project</th>
<th>Organs Colored</th>
<th>Organs Glued on Body &amp; Labeled</th>
<th>Entry Made in Guidebook</th>
<th>Illustration Added to Guidebook</th>
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<tbody>
<tr>
<td>Skeletal System</td>
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<td>Muscular System</td>
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<td>The Five Senses</td>
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Introduction

The 10 lessons presented on the pages that follow provide a comprehensive study of the human body. Work through the steps in order, or pick and choose the activities that will enhance what you’re already teaching — the choice is yours!

Each lesson contains 3 parts:

1. Teacher Note Page(s)
   Provides a general overview of the lesson’s topic.
   These pages include:
   • They’ll Need to Know ... for a general overview of the lesson’s topic
   • Prove It! for points to bring up as students are working through the experiments
   • Journal Prompt to assess student learning and to give students the opportunity to put the science concept into their own words and/or expand their thinking beyond the topic
   • Homework Idea to follow up on the concept at home

2. Experiments and Activities
   Provides hands-on experiences designed to reinforce the day’s lesson. The teaching notes page provides background information for each experiment.

3. Science Log
   Provides a space for students to record the concepts learned and their observations from the experiments.
TEACH TEN TERRIFIC LESSONS

Overview
The following explains the objective of each lesson as well as the experiments, activities, and supplies needed in each lesson. Be sure to collect these supplies in advance.

<table>
<thead>
<tr>
<th>Lesson</th>
<th>Supplies</th>
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| 1. The Human Body: Students gain an understanding of the human body and how systems work together in the human body. | Experiment 1: Here Comes the Train: small toy train set with engine, track, and cars that attach to one another, a table  
Activity 1: A Body Full of Systems: page 27, scissors, tape |
| 2. The Skeletal System: Students learn about the three roles of the human skeleton: support, organ protection, and mobility. | Experiment 1: What's Holding This Thing Up?: small pup tent or teepee  
Activity 1: Show What You Know: The Human Skeletal System: page 31, scissors, glue |
| 3. The Muscular System: Students learn how muscles enable the body to move and that there are two major muscle types: voluntary and involuntary. | Experiment 1: Show Me Your Muscles: no materials  
Experiment 2: Involuntary Muscles: stopwatch or a clock with a second hand |
| 4. The Heart: Students learn that the heart is a small pump with an important job. | Experiment 1: Let's Get Pumping: music and a large open area  
Activity 1: A Pumping We Will Go: page 41 |
| 5. The Circulatory System: Students learn that the heart circulates blood through the entire body to deliver oxygen and nutrients while removing carbon dioxide from the body. | Experiment 1: Let's Circulate: two red pieces of paper with the word HEART written on each piece, one piece of blue paper with the word LUNGS written on it, note cards with the following words written on them: ARM (2 of these), LEG (two of these), CHEST, and any other body parts in order to have a label for each person in the group, tape, music, large open floor area  
Activity 1: The Human Circulatory System Crossword Puzzle: page 45 |
<table>
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| 6. The Respiratory System: Students learn the important role our lungs play in supplying our bodies with oxygen. | Experiment 1: In and Out, Up and Down: tape measure, large piece of paper  
Experiment 2: Jump to It!: music, stop watch or clock with a second hand  
Activity 1: Show What You Know: The Respiratory System: page 51 |
| 7. The Digestive System: Students learn the parts of the digestive system and the important role it has in keeping our bodies running. | Experiment 1: What’s for Lunch?: blender, milk, honey, bananas, strawberries, vanilla, ice, napkins, paper towels, small paper cups  
Experiment 2: Crackers, Sweet Crackers! crackers with salt  
Activity 1: Show What You Know: Digestive System Diagramming: page 57 |
| 8. The Nervous System: Students learn how the central nervous system receives, sorts, and sends messages to all parts of the body. | Experiment 1: Test Those Reflexes: chairs  
Activity 1: Show What You Know: The Nervous System: page 61 |
| 9. The Five Senses: Students learn how sight, taste, touch, smell, and hearing are connected to the brain and the central nervous system. | Experiment 1: Do You See What I See?: various objects with similar attributes, cards with written clues about each object, table or other flat area to display the objects, basket  
Experiment 2: Does This One Sound Like That One?: 10 empty long canisters, 5 objects that are the same, 5 other kinds of objects.  
Experiment 3: That Tastes Great!: pretzels, sugar cookies, orange slices, a variety of other foods, cardboard “wall”  
Experiment 4: What’s That Scent?: several empty canisters, items with distinct smells (suntan lotion, piece of lemon, cinnamon, cedar wood, pineapple, etc.), colored dot stickers  
Experiment 5: Did You Feel That?: grapes, cold cooked spaghetti noodles, bread, orange peel, other foods that have distinct textures, plates or bowls, cardboard “wall” with a hole cut in the middle for reaching through  
Activity 1: Show What You Know: Your Senses: page 68 |
| 10. The Food Pyramid: Students learn the importance of proper nutrition. | Experiment 1: Climbing the Pyramid: easy-to-prepare snack recipes, children’s cook books  
Activity 1: Fuel for the Road: page 72, glue, scissors |
Lesson 1: The Human Body

Use this page when you introduce The Human Body and Body Systems to your students. The fun facts can be used to draw your students into the topic.

They’ll Need to Know ...

Your body is a wonderful machine! It does many amazing things all the time without you ever having to think about it. No two bodies are exactly the same, but they all do the same things to keep you alive and playing. For example, your heart beats and you breathe all the time. Your body replaces dead cells with new ones. It also breaks down food into tiny bits so that the food can be used by the body for fuel.

Every part of your body is made of tiny living parts called cells. These cells work hard, die, and are replaced by your body on a regular basis. Different parts of your body are made of different types of cells. The cells in your heart are different than the cells in your skin.

On top of that, your body has dozens of different organs all working together to keep you going. The organs work in groups called systems. Each group, or system, has a special job it does for the body. You will learn about these systems within the next few days:

1. Skeletal System
2. Muscular System
3. Circulatory System
4. Respiratory System
5. Digestive System
6. Nervous System

By working together, these systems allow you to run, play, jump, read, skip, sing, and do all the other things you do.

Prove It!

Use a toy train to demonstrate how the systems of the human body are interdependent. Then have students move onto the puzzle to link together an outline of a human body. Ask students during these activities to explain why it’s important for all of the systems to be connected. The train activity will help students make the connection of how interdependent the systems in the body are.

Experiment 1: Here Comes the Train Teaching Notes:
In this experiment, the students saw how the train (or group of systems) failed to work when the cars are not correctly linked. Students also saw how a group of systems that are connected and in line work together. Be sure to point out that the human body is the same way — that is, all of its different parts work together to keep it working as a whole.

Journal Prompt

Make a list of all the things you know about how your body works. Try to include some exciting facts that you believe no one else in your class knows!

Homework Idea

Have students take a poll at home and see who can name the different systems in the human body. Encourage students to amaze their family with what they have learned, and write down all of the systems their family comes up with. Have students share their lists in class the following day.

• The human body is about two-thirds water!
• Cells are very tiny. More than 200 of them could fit on the period at the end of this sentence.
Experiment 1: Here Comes the Train

Try This!
This activity will probably work best in small groups affording students a better view of what is going on at the table. Have students record their findings on the Here Comes the Train Science Log.

Procedure:
1. Set up the train for students and tell them that a train is very similar to the human body. All the parts must be connected and working correctly for the train to be able to go down the track.
2. Leave some of the cars disconnected and loose on the track.
3. Now have the students predict how they think the train will run and why.
4. Try it out! Did the train run the way it should? Why or why not?
5. Now, ask the kids how they can fix the problem. Hopefully, they will tell you to connect all the cars on the train to the engine.
6. Connect everything correctly and give it another try. This time the train should move around the track the way it is supposed to.
7. Solicit reasons for why you were more successful this time.

What Happened?
What allows the human body to work so well? How is the train like a human body? How was the train unlike a human body when the cars weren’t linked together?
THE HUMAN BODY

Use this sheet to record what you observed during the Here Comes the Train experiment.

Question: How are the systems of the human body like the cars on a train?

___________________________________________________________________
___________________________________________________________________

What we did first:
___________________________________________________________________
___________________________________________________________________

What happened:
___________________________________________________________________
___________________________________________________________________

Why it happened:
___________________________________________________________________
___________________________________________________________________

What we did next:
___________________________________________________________________
___________________________________________________________________

What happened:
___________________________________________________________________
___________________________________________________________________

Why it happened:
___________________________________________________________________
___________________________________________________________________
Activity 1: A Body Full of Systems

Cut out the puzzle pieces below. After you have correctly placed them together, you may tape them together.

**MATERIALS NEEDED**
- scissors
- tape
- sheet of paper
Lesson 2: The Skeletal System

Use this page when you introduce the Skeletal System to your students. The fun facts can be used to draw your students into the topic.

They’ll Need to Know …

Just like poles in a tent, our skeleton holds the human body upright. It provides support, protection for internal organs, and the opportunity for movement. Without a skeleton, we would all look like a blob of clay, unable to move.

Bones come in three main sizes/shapes — flat, long, and short. A newborn’s bones contain more cartilage, a strong rubbery material, than an adult’s bones. As you grow older, many of your bones fuse, or grow together, to form the 206 bones in an adult skeleton.

Bones in the human skeleton are joined at places called joints. A joint is the place where two bones are connected by a ligament and movement can occur. There are three types of joints:

2. Ball-and-socket joint: Examples — shoulder and hip. Movement: in all directions
3. Pivot joint: Example — head-to-neck. Movement: one part turns, the other part remains stationary.

Prove It!

Demonstrate how the human body is supported by the skeletal system using a tent as a model. NOTE: Express the importance of safety when using the poles to set up the tent.

Experiment 1: What’s Holding This Thing Up?

Teaching Notes:

In this experiment, the students were unable to assemble the tent without the poles because there was nothing to support it as they tried to stand it up. Once they had the poles, they were able to make the tent stand upright — just like the skeleton does for the human body!

Journal Prompt

Write a letter to someone that lives far away and tell him or her how the human skeleton is like a tent.

Homework Idea

Encourage students to draw themselves playing their favorite sport. Challenge them to draw in the bones that help them play the sport and answer these questions:

1. How many bones did you use?
2. Did you use any joints to play that sport?
3. What kinds of joints did you use?

Fun Facts!

• You have more than 300 bones at birth.
• By adulthood, you have 206 bones; about half of those are in your hands and feet!
• The thighbone is the longest bone in the body.
• The inner ear bones are the smallest bones in the body.
• There are more than 200 joints in the human skeleton.
Experiment 1: What’s Holding This Thing Up?

Try This!
Work in small groups to complete this activity. Have students record their observations on the What’s Holding This Thing Up? Science Log.

Procedure:
1. Provide a small group of students with the tent, without giving them the poles, and ask them to try and put up the tent as you explain what to do. Obviously, they will not be able to set it up.
2. Solicit reasons from the class as to why the group was unable to set up the tent.
3. Now provide the group with the poles, and again explain what to do in order to set up the tent.
4. When the students are successful, solicit reasons that explain why they were able to assemble the tent this time.
5. As a class, compare the tent to the human skeleton in function and structure.

What Happened?
Why weren’t you able to put up the tent the first time? How did things change when you were given the poles to put up the tent? How are the poles like a human’s Skeletal System?
THE SKELETAL SYSTEM

Use this sheet to record what happened when your group completed the What’s Holding This Thing Up? experiment.

Question: What does the skeleton do for the human body?

___________________________________________________________________
___________________________________________________________________

What we did first:

___________________________________________________________________
___________________________________________________________________

What happened:

___________________________________________________________________
___________________________________________________________________

Why it happened:

___________________________________________________________________
___________________________________________________________________

What we did next:

___________________________________________________________________
___________________________________________________________________

What happened:

___________________________________________________________________
___________________________________________________________________

Why it happened:

___________________________________________________________________
___________________________________________________________________

Name ______________________________________________
Activity 1: Show What You Know: 
The Human Skeletal System
Cut out the bone sections below and tape them onto the correct spot on the 
human body outline.
Lesson 3: The Muscular System

Use this page when you introduce the Muscular System to your students. The fun facts can be used to draw your students into the topic.

They’ll Need to Know ...

The human body contains more than 650 muscles. Muscles connect bones to other bones or other muscles. Your heart, stomach, and intestines are organs, which are partly made of specialized muscle tissue. Muscles can pull but cannot push. That is why muscles most often work in pairs. As one muscle contracts, or shortens, the other muscle relaxes to allow the movement.

There are two main types of muscles:
1. Voluntary – muscles controlled by you. Examples include your leg muscles when walking, arm muscles when playing baseball, and jaw muscles when chewing your lunch.
2. Involuntary – muscles that work on their own. (Although you can control some involuntary muscles for a short time.) Examples include your beating heart, your dilating pupil, and your stomach digesting lunch.

Prove It!

Demonstrate how the human body is able to move by using student pairs to mimic the action of a muscle. (See page 33. Note: Express the importance of safety when working with a partner to complete this experiment. Students should gently pull one another to avoid injuring their partner.)

Teaching Notes:

In this experiment, the students will realize that the only way they could still hold hands and sit back up is to allow their partner to help them up. Be sure to explain to students that through this experiment, they have experienced how muscles work together to make a movement or motion occur!

Experiment 2: Involuntary Muscles Teaching Notes:

In these experiments, students will see that it can be quite difficult to stop the involuntary muscles from completing their jobs. Be sure to point out that while the students can keep from swallowing and blinking for a short while, they can’t control these jobs for a very long time.

Journal Prompt

Pretend you are the strongest person in the world. Write a letter to other people who want to be strong and explain to them what they need to know about how their muscles work.

Homework Idea

Encourage students to draw a picture of a person doing some type of work that requires great strength. Have them color in some of the muscles that the person would need to carry out this work.

Fun Facts!

- You use around 200 different muscles each time you take a step.
- Your largest muscles are in your buttocks and thighs.
- It takes about 12 muscles to frown and 10 muscles to smile!
Experiment 1: Show Me Your Muscles

Try This!
Have students work with a partner to complete this activity. After, encourage students to record their observations on their Show Me Your Muscles Science Log.

Procedure:
1. Divide the class into groups of two.
2. Have each pair sit on the floor with their legs crossed and knees bent, facing one another and holding hands.
3. Remind students that muscles work in pairs, or groups of two, and that they are going to pretend to be muscles and work together.
4. Instruct one of the students to gently lean backward. The other student will have to lean forward in order to keep his or her hands clasped with the first student’s hands. Partners should keep their arms extended fully with the elbows slightly bent.
5. Ask the student who leaned backwards to sit back up without letting go of the other student’s hands and without any help from the other student. The student will find this very hard if not impossible.
6. Ask the student who leaned backwards to slowly rise to a sitting position as his or her partner gently pulls on his or her arms. The students should discover that it is much easier to sit up this way because they are working as a pair.
7. See if the students can lean backward, come back up, lean forward and then start over again, without letting go of their partner’s hands, in a smooth motion. As they smoothly do this, have them sing “Row, Row, Row Your Boat.”

What Happened?
When was it most hard to sit back up? When was it easiest? How is this work like what muscles do to create motion?
Try This!

Two examples of involuntary muscles at work are shown when blinking or swallowing. Encourage students to try to stop these involuntary muscles. Encourage students to record their findings on the Involuntary Muscles Science Log.

Procedure:

1. Blinking
   Eyes blink to keep Eyes moist, or wet. Have students see how long they think they can keep from blinking by timing each other.

2. Swallowing
   We swallow to allow excess saliva to leave our mouths and keep our esophagus moist. Have students:
   1. Time each other to see how long they can sit without swallowing
   2. Open their mouth and repeat the activity

What Happened?

Were you able to keep from blinking? How about swallowing? How long were you able to delay these activities? When did things become tough for you to control?
Use this sheet to record what happened when you and your partner completed the Show Me Your Muscles experiment.

Question: How do muscles work to help the human body move?

___________________________________________________________________
___________________________________________________________________

What we did first:
___________________________________________________________________
___________________________________________________________________

What happened:
___________________________________________________________________
___________________________________________________________________

Why it happened:
___________________________________________________________________
___________________________________________________________________

What we did next:
___________________________________________________________________
___________________________________________________________________

What happened:
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___________________________________________________________________

Why it happened:
___________________________________________________________________
___________________________________________________________________
Use this sheet to record what happened when you and your partner completed the Involuntary Muscles experiments.

I can hold my eyes open for __________ seconds.

Why do you think you had to blink?
___________________________________________________________________
___________________________________________________________________
___________________________________________________________________

I can keep from swallowing for __________ seconds.

I opened my mouth and kept from swallowing for __________ seconds.

Why do you think you had to swallow?
___________________________________________________________________
___________________________________________________________________
___________________________________________________________________

Why do you think your results were different when your mouth was closed, then open?
___________________________________________________________________
___________________________________________________________________
___________________________________________________________________
___________________________________________________________________

Name ______________________________________________
Lesson 4: The Heart

Use this page when you introduce the Heart to your students. The fun facts can be used to draw your students into the topic.

They’ll Need to Know ...

Place your fingers in your ears and listen very carefully. The lub-dub sound you hear is your beating heart! Your heart is an organ made up of specialized muscle tissue, which pumps blood to all the parts of your body every minute of your life! The heart is made up of four chambers, or sections. The two chambers on the right side send blood to your lungs to pick up oxygen, which your muscles need when they are working. The two chambers on the left side send the oxygen-rich blood out to the rest of your body.

If you place your first two fingers on the inside of your wrist, you may feel the pulse of your heart. Your pulse is the beating of your heart, which you can feel through blood vessels called arteries. Your heart rate is the number of times your heart beats in one minute. Your pulse and heart rate speed up or slow down depending on what you are doing. If you are asleep, your muscles are not working very hard and do not need a great deal of oxygen. Your heart rate is slower than if you were awake and active. When you are very active, your muscles need a lot of oxygen to work well, so your heart pumps faster to help get the oxygen to those muscles that need it. Your heart rate goes up. Once you stop your activity, your muscles no longer need that extra oxygen and your heart can slow back down.

Prove It!

Explain to the children how the heart “pumps” all the time — during rest or play. Have them feel their pulse or place their hand to their chests to feel the heartbeat at rest. Then have them stand up, do a few jumping jacks, and then feel for their pulse or heartbeat again.

Experiment 1: Let’s Get Pumping
After students feel their own heartbeats, provide this experiment to mimic a heartbeat. In this experiment, students will be able to kinesthetically experience the “beating” of an imaginary heart at rest and at play.

Journal Prompt
Create a list of 10 actions you can perform while your heart rate remains low. Now create a list of 10 actions that will speed up your heart rate. Why is it important to let your heart rate speed up sometimes? What does that kind of exercise do for your heart muscle?

• Your heart is about the size of your clenched fist.

• Average heart rates:
  - Elephant: 25 beats/minute
  - Mouse: 600 beats/minute
  - Human baby: 130 beats/minute
  - Human adult: 70 beats/minute
Lesson 4: The Heart Teaching Notes (continued)

Homework Idea

Have students check out the heart rates of the people living in their house! Photocopy the chart below, cut it apart from the teaching notes, and encourage students to use the chart to help keep track of what they learn. Before students do this activity, be sure they know how to find a person’s pulse, and the shortcuts for finding the resting heart rate per minute (i.e., count the number of pulse beats for 15 seconds and multiply that number by 4; younger students can take that number and add it together four times).

<table>
<thead>
<tr>
<th>Name</th>
<th>Resting Heart Rate</th>
<th>Heart Rate After Exercising for 3-4 Minutes</th>
<th>Heart Rate After Exercising for 10 Minutes</th>
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<tbody>
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1. When was the heart rate the fastest? ______________________________

2. When was the heart rate the slowest? ______________________________

3. What does your heart do about 10 to 15 minutes after you stop exercising? ____________________________________________________________

4. Why do you think this happens? ____________________________________________
Experiment 1: Let’s Get Pumping

Try This!
Work in a large group to conduct this activity. Once the children have caught on to the idea, you can speed up the “pumping” like a real heart speeds up during exercise. Have students record their findings on the Let’s Get Pumping Science Log.

Procedure:
1. Have the students stand holding hands in a large circle.
2. Turn on the music and allow the students a few minutes to pick up the beat.
3. Remind students that their hearts squeeze blood to a beat that is very similar to the beat of the music.
4. Tell the class they are going to pretend to be circulating blood all around a circle today.
5. Choose one student to be the heart and start the pumping action. This person will gently squeeze the hand of the person to his or her left. That person will then gently squeeze the hand of the person to his or her left. As students squeeze hands, have them do so in time with the beat.
6. The hand squeezing should continue all the way around the circle to the beat of the music until it returns to the first person.
7. For a bit of fun, use some faster music and tell the children that sometimes their heart beats much faster because their muscles need more oxygen. Repeat the activity using the faster tempo music.

What Happened?
What happened in this experiment? Did you feel a hand squeeze on a music beat? How is this like a heart at rest? What happened when the circle went faster? How is this like a heart during play?
THE HEART

Use this sheet to record what happened when you were part of a beating heart during the Let’s Get Pumping experiment.

Question: What does your heart do to move the blood all around your body?
___________________________________________________________________
___________________________________________________________________
___________________________________________________________________

What I did:
___________________________________________________________________
___________________________________________________________________
___________________________________________________________________

What happened:
___________________________________________________________________
___________________________________________________________________

Why it happened: ____________________________
______________________________
______________________________
______________________________

Science Log

Draw a picture of yourself doing an activity that would speed up your heart rate:

Why it happened:
___________________________________________________________________
___________________________________________________________________
___________________________________________________________________

Name ______________________________________________
Activity 1: A Pumping We Will Go

Try This!

Unscramble the underlined words in each sentence. Write the correct word in the boxes on the right. Use the Word Bank for help. Next, fill in the shaded letters below to answer the riddle.

Word Bank:
active  resting  vessels  heart
human  stomach  rate  head

1. You are a munah being.  
   □□□□□□□

2. Blood travels through small tubes called blood sessvel.  
   □□□□□□□□□

3. Your heart tare goes up when you play soccer.  
   □□□□

4. When you are ginster, your pulse feels slow.  
   □□□□□□□□□

5. When you are very tacvie, your heart rate increases.  
   □□□□□□□□□
Lesson 5: The Circulatory System

Use this page when you introduce the Circulatory System to your students. The fun facts can be used to draw your students into the topic.

They’ll Need to Know …

Your blood circulates, or circles, around your entire body in less than one minute. The blood circulates due to the pumping action of your heart. The blood travels through narrow tubes called blood vessels. Blood vessels are all over your body. If you look in the bend of your elbow, you may be able to see some blue-looking lines just under your skin. Those are blood vessels! Arteries are blood vessels that carry clean, oxygenated blood to your body. Veins are blood vessels that carry blood containing carbon dioxide back to your heart to receive more oxygen.

During its one-minute round trip, your blood will travel:

J From the left side of your heart, where the blood is full of rich oxygen, to all the parts of your body.
J Back to the right side of your heart after delivering oxygen and nutrition to all the parts of your body.
J To the lungs to get more oxygen and to drop off the carbon dioxide.
J To the left side of the heart to be pumped out to all the parts of your body. The cycle starts over again!

All of that happens in your body all day and all night, over and over again.

Prove It!

Demonstrate how the blood travels all around the body by having students act out the process of circulation.

Experiment 1: Let’s Circulate Teaching Notes:
In this experiment, the students were able to kinesthetically experience the “circulation” of blood in a body at rest and a body at play. Be sure to point out to students the point at which the blood is full of oxygen and when it is depleted of oxygen.

Journal Prompt

Write a story about the journey of a drop of blood as it travels through your entire body. Be sure to tell about all the places it goes and what happens along the way.

Homework Idea

Have students draw a map of their body and use a red crayon to show the path their blood takes as it travels throughout their body.

• If all of your blood vessels were stretched out end-to-end, they would circle the world twice!
• Some insects have green blood, and a lobster has blue blood!
• While people may say they love you with all of their heart, feelings do not come from your heart. Feelings come from your brain!
Experiment 1: Let’s Circulate

Try This!
You will need to work in a large group to conduct this “circulation” of the blood.

Procedure:
1. Tape the tags to the front of each student’s shirt. You, the teacher, should wear one of the heart tags, and start the blood’s circulation.
2. Arrange students according to the illustration shown.
3. Explain to students that blood travels to the heart twice on each trip around the body.
4. Use the music to help the children find and maintain a beat for their “circulating blood.” Be sure to use the slower tempo and the quicker tempo music.
5. Start the circulation by squeezing the hand of the student to your left. Direct students to squeeze hands in sequence around the circle, in time to the beat.
6. Make sure the students make the connection between their muscles’ need for more oxygen during high activity periods and a faster heart rate.

What Happened?
Where was the “blood” traveling when your hand was being squeezed? Where did you pass the “blood” on to? Was the blood full of oxygen or full of carbon dioxide?

MATERIALS NEEDED
- two red pieces of paper with the word HEART on them
- one piece of blue paper with the word LUNGS on it
- note cards with the following labels: arm (two), leg (two), chest (one)
- tape
- music
- large open floor area

Blood returns here depleted of oxygen and full of carbon dioxide.
Teacher stands here to begin circulation.
THE CIRCULATORY SYSTEM

Science Log

Use this sheet to record what happened during the Let’s Circulate experiment.

Question: How does the blood travel through your body?
___________________________________________________________________
___________________________________________________________________
___________________________________________________________________

What I did:
___________________________________________________________________
___________________________________________________________________
___________________________________________________________________

What happened:
___________________________________________________________________
___________________________________________________________________
___________________________________________________________________

Why it happened:
___________________________________________________________________
___________________________________________________________________
___________________________________________________________________

Name _________________________________________________________________

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Activity 2: The Human Circulatory System
Crossword Puzzle

Use the Word Bank words and the clues below to complete the crossword puzzle.

Word Bank:
chambers  heart rate  lungs  circulation
oxygen  blood vessels  red

Across
1. what your blood travels through all over your body
2. name for the round trip that blood makes through your body
3. the color of oxygen-full blood

Down
4. number of times your heart beats per minute is called your ______________________
5. where your blood goes to get more oxygen
6. what working muscles need a lot of
7. the name for the four parts of your heart
Lesson 6: The Respiratory System

Use this page when you introduce the Respiratory System to your students. The fun facts can be used to draw your students into the topic.

They’ll Need to Know ...

Your body has two very special organs called lungs that obtain oxygen for your body. Your lungs also get rid of a gas called carbon dioxide, which is a waste product — something your body does not need. Your lungs are like two bags or balloons inside your chest. Your rib cage protects them. A large flat muscle called the diaphragm is found at the bottom of the rib cage under your lungs. The diaphragm helps the air move into and out of your lungs.

When you take in air, or inhale, air enters your lungs through a tube called the trachea. The trachea connects your mouth and nose to your lungs. The muscles around your ribs force the ribs to move up and out; and your diaphragm flattens out. This movement makes more room in the chest cavity for the lungs to fill up with air. Your lungs then fill with air — just like a balloon fills with air. Your chest gets a little larger as the lungs fill with air and the rib cage is forced outward.

When you exhale, or breathe out, your chest muscles and diaphragm relax, which allows your ribs to move back down and the diaphragm to rise into the chest cavity. These movements make the chest cavity smaller, thus forcing the air back out of the lungs. As your heart beats faster, you begin to breathe faster. As a result, the lungs bring in more oxygen, which will be picked up by the blood and delivered by your quickly beating heart to your muscles.

Prove It!

Demonstrate how the chest cavity expands and contracts when you inhale and exhale. Then demonstrate how breathing rates increase when oxygen needs increase by completing the In and Out, Up and Down experiment and the Jump to It! experiment.

Experiment 1: In and Out, Up and Down Teaching Notes:
In this experiment, students were able to feel what happened to their rib cage when they breathed by keeping their hands on their rib cage. They may explain to you that they were able to feel the outward, then inward movement of the rib cage as it expanded, then contracted with the filling up and emptying out of their lungs.

Experiment 2: Jump to It! Teaching Notes:
Students will notice in this activity that as their activity levels increased, so did their muscles’ need for more oxygen. Therefore, their breathing rates increased and so did their heart rates. If students haven’t already voiced it, be sure to point out the relationship between the heart rate and breathing rate.

Journal Prompt

Pretend you are a diver out in the ocean. You must wear an air tank on your back when you dive. Explain why you need an air tank when you are diving under the water.

Homework Idea

Have students complete the following activity at home: Fold a piece of paper in half after turning it on its side. Draw a picture of yourself when you are breathing slowly. On the other half, draw a picture of yourself doing something that would cause you to breathe more rapidly. Write a sentence on each side to describe what you are doing in each picture and what your lungs are doing.

- Carbon dioxide is needed by green plants to live. In return, they make the oxygen that you need to live!
- A resting adult takes about 13 to 17 breaths each minute. A newborn baby takes about 40 breaths each minute.
- Every day, you breathe about 3,500 gallons of air!
- An adult’s lungs can hold up to five quarts of air at a time!
Experiment 1: In and Out, Up and Down

Try This!
This experiment can be done with a large group or small group if you wish to have more time to speak with and question individual students. Have students record their findings on the In and Out, Up and Down Science Log.

Procedure:
1. Remind the students that the ribs move up and out when they inhale, and down and in when they exhale.
2. Tell students they are going to feel how their chest cavity expands, or gets larger, when they inhale.
3. Have students place their hands so they’re flat on their sides and on top of their rib cage.
4. Now have students inhale deeply and slowly.
5. Next, have students slowly exhale, continuing to keep their hands on their sides.
6. If you have time, you can measure around the chest of each child as he or she inhales and exhales and record results on the large sheet of paper. This will allow students to “see” evidence of lungs’ expansion/contraction in another way.
7. Ask for oral explanations as to what students felt when they inhaled and exhaled.

What Happened?
What happened to your rib cage when you inhaled? What happened to your rib cage when you exhaled? What was going on inside the rib cage when you inhaled and exhaled?
Experiment 2: Jump to it!

Try This!
Complete this activity in a large, open area, and remind students to watch out for each other as they move around. Then, have students record their observations on the corresponding Jump to It! Science Log.

Procedure:
1. Remind the children that they breathe faster and harder as their muscles need more oxygen.
2. Have the children sit quietly and count the number of times they breathe in one minute.
3. When the timer rings, have students record how many breaths they took during that one minute. (Note: one breath equals one inhalation and one exhalation.)
4. Next, have students listen to the music and dance around, do jumping jacks, run in place, or perform any other activity that will increase their breathing rates. Continue the active period for about one minute.
5. At the end of one minute, have the students sit down and count how many times they breathe during a one-minute period. Have them record the new number in the appropriate place on their Science Log when the timer rings.
6. Ask for oral explanations about what students just experienced.

What Happened?
Did you breathe more or less after your activity? What was your heart doing when you were breathing? Did that change after the activity? How?
THE RESPIRATORY SYSTEM

Science Log

Use this sheet to record what happened during the In and Out, Up and Down! experiment.

Question: What happens to your chest cavity when you inhale and exhale?

___________________________________________________________________

___________________________________________________________________

What we did first:

___________________________________________________________________

___________________________________________________________________

What happened:

___________________________________________________________________

___________________________________________________________________

Why it happened:

___________________________________________________________________

___________________________________________________________________

What we did next:

___________________________________________________________________

___________________________________________________________________

What happened:

___________________________________________________________________

___________________________________________________________________

Why it happened:

___________________________________________________________________

___________________________________________________________________

Name ______________________________________________
THE RESPIRATORY SYSTEM

Science Log

Use this sheet to record what happened to your breathing rate during the Jump to It! experiment.

Question: What happened to your breathing rate as your level of activity increased?

___________________________________________________________________
___________________________________________________________________

What I did:

___________________________________________________________________
___________________________________________________________________

What happened:

___________________________________________________________________
___________________________________________________________________
___________________________________________________________________

Why it happened:

___________________________________________________________________
___________________________________________________________________

Name an activity that takes lots of "lung power."

___________________________________________________________________
___________________________________________________________________
___________________________________________________________________
Activity 1: Show What You Know: The Respiratory System

Choose the correct word from the Word Bank to complete each sentence.

<table>
<thead>
<tr>
<th>Word Bank:</th>
<th>carbon dioxide</th>
<th>diaphragm</th>
<th>exhale</th>
<th>in</th>
<th>inhalе</th>
<th>larger</th>
<th>lungs</th>
<th>ribs</th>
<th>smaller</th>
<th>trachea</th>
</tr>
</thead>
</table>

1. The organs in your body that supply oxygen to your blood are your __________________________.
2. The bones that help to protect your lungs are called ____________________________.
3. To breathe in is to ____________________________.
4. The large flat muscle at the bottom of the chest cavity is called the ____________________________.
5. ____________________________ is a waste product that leaves the body when you exhale.
6. To breathe out is to ____________________________.
7. The ____________________________ is the tube that connects your nose and mouth to your lungs.
8. Your chest gets ____________________________
   when you breathe in, or inhale.
9. Your ribs move up and ____________________________
   out when you breathe
Lesson 7: The Digestive System

Use this page when you introduce the Digestive System to your students. The fun facts can be used to draw your students into the topic.

They’ll Need to Know ...

In order for a car to run, it needs fuel in its tank. The same thing is true of your body — you need fuel for your tank. Fuel for a car would be gasoline. Your fuel is healthy, nutritious food. Food keeps your body running by providing all the chemicals your body needs every day.

Food travels through your digestive system, or tract, so your body can use what it needs to run. The digestive system, or tract, has several parts:

- mouth and teeth
- esophagus
- stomach
- intestines — small and large

Digestion happens when your body breaks down and uses the food you eat. Digestion begins as soon as a bite of food goes into your mouth. Saliva, the liquid in your mouth, contains chemicals that begin breaking food down into smaller bits your body can use. Your teeth help chop up and mix your food with your saliva. Then you swallow. This action comes from tiny muscles that line your esophagus, the tube leading from your mouth to your stomach. These muscles squeeze to push the chewed food down the tube and into your stomach.

Your stomach is lined with several layers of strong muscles. These muscles are a lot like a blender. They mash, grind, and mix the chewed food you swallow. The stomach also has special liquids in it to help break down food into even smaller bits. As the food leaves your stomach, it is a thick, soupy mixture. Next, it is squirted into the intestines.

Inside your intestines, more chemicals are added to the soupy mixture coming from your stomach. Excess liquids are absorbed into the blood and carried to your kidneys and bladder, then exit the body as urine. Nutrition passes into the blood vessels and is delivered to all parts of the body. Whatever remains in the intestines passes out of the body as waste.

Prove It!

Before going on to the experiments, be sure that students understand what happens to food as it passes through the digestive system. It may be helpful to show students the process at work with a picture of the digestive tract.

Experiment 1: What’s for Lunch? Teaching Notes: In this experiment, the blender modeled the action of the stomach as it mixed and mashed the smoothie ingredients to create a thick soupy texture. Elicit from the students the next step in the digestive process (i.e., excess goes through the blood to the kidneys and intestines and the nutrition gets passed to the rest of the body by the blood).

Experiment 2: Crackers, Sweet Crackers! Teaching Notes: In this experiment, students’ saliva began changing the cracker’s chemical composition into sugar — the body’s fuel. That is why the crackers tasted sweet to the students! Ask students whether they think this will happen to other kinds of foods and to test it out.

Journal Prompt

Pretend you are a hamburger or hot dog. Describe your trip through the digestive tract. Explain what happens to you and how you look different than you did before being eaten.

Homework Idea

Have students draw a map of the digestive tract, and include all the parts and label them: mouth, esophagus, stomach, and intestines. Invite them to color each part a different color.
Experiment 1: What’s for Lunch?

**Fruit Smoothie Ingredients**

- 2 cups whole milk
- 1 tablespoon honey
- 1 banana, peeled and cut into 2-inch pieces
- 1 pint fresh strawberries
- 1 teaspoon vanilla
- 1 to 2 cups crushed ice
- blender

**Try This!**

This experiment can be done with a large group or with smaller groups if you wish to have more time to speak with and question individual students. Have students record their findings on the What’s For Lunch? Science Log.

**Procedure:**

1. Review how food is broken down into smaller and smaller bits as it travels through the digestive tract.

2. Ask the students if they know what a blender does. Compare the action of the blender to that of a human stomach.

3. Assemble the ingredients for the fruit smoothie. As you begin to add ingredients to the blender, discuss how each one is in its whole form (do not run the blender yet). You may want to let students complete the first section of their Science Log as you continue to measure and add ingredients to the blender.

4. Have students predict what all the ingredients will look like after you turn the blender on.

5. Completely blend the ingredients until they are smooth.

6. As you pour a small cup for each student, solicit oral explanations for how the blender is like the stomach.

**What Happened?**

What happened to the ingredients? Why do they get smaller and smaller? How is this like our digestive tract?
THE DIGESTIVE SYSTEM

Experiment 2: Crackers, Sweet Crackers!

Try This!
Students will be amazed as a salty snack turns into a sweet one! Have students record their observations on the Crackers, Sweet Crackers! Science Log.

Procedure:
1. Remind students that as food travels through their digestive tracts, it is changed a great deal. These changes begin as soon as the food enters the mouth.
2. Give each child a cracker. Tell children to put it into their mouths and chew it up, but DO NOT swallow it.
3. Have students hold the chewed cracker on their tongues for 10 to 30 seconds. As they do, the saliva will turn the cracker into a sweet-tasting bite in their mouths.
4. Have students move the chewed cracker around and see if it tastes any different. It should taste sweet!
5. Allow students to finish eating the crackers.

What Happened?
What happened to the cracker as you chewed it? Why do you think it tasted that way?

MATERIALS NEEDED
• crackers with salt — one per student
Use this sheet to record your observations during the What’s for Lunch? experiment.

Question: How is your stomach like a blender?

___________________________________________________________________

___________________________________________________________________

What did the food look like before it went into the blender?

___________________________________________________________________

___________________________________________________________________

Draw it here:

What happened next:

___________________________________________________________________

___________________________________________________________________

___________________________________________________________________

Why it happened:
THE DIGESTIVE SYSTEM

Name ______________________________________________

Use this sheet to record your observations during the Crackers, Sweet Crackers! experiment.

Question: What happens to food as it is mixed with saliva in your mouth?

___________________________________________________________________
___________________________________________________________________
___________________________________________________________________

What I did:
___________________________________________________________________
___________________________________________________________________
___________________________________________________________________
___________________________________________________________________

What happened:
___________________________________________________________________
___________________________________________________________________
___________________________________________________________________
___________________________________________________________________

Why it happened:
___________________________________________________________________
___________________________________________________________________
___________________________________________________________________
___________________________________________________________________
Activity 3: Digestive System Diagramming

Label the parts of the digestive system shown in the picture below. Use the words in the Word Bank for help.

Word Bank:
large intestine  stomach  mouth and teeth  esophagus

1. ______________________
2. ______________________
3. ______________________
4. ______________________
Lesson 8: The Nervous System

Use this page when you introduce the Nervous System to your students. The fun facts can be used to draw your students into the topic.

They'll Need to Know ...

Which part of your body:
• is divided into two halves?
• controls your breathing and heartbeat?
• controls how you feel?
• thinks for you?
• controls your muscles and balance?
• receives and sends thousands of messages from all over your body day and night?

Answer: Your brain! And it does all of this without being told! The brain is a bumpy, folded-up, grayish mass of tissue. It fits very nicely inside your skull. Three important parts of your brain are the brain stem or medulla, the cerebellum, and the cerebral cortex.

The brain stem controls automatic actions like breathing and heartbeat. The cerebellum controls the muscles and balance. The cerebral cortex is the thinking part of your brain. Different areas of the cerebral cortex are in charge of different things. Some areas send messages to your muscles; other areas receive messages from your senses. The messages travel in the form of tiny electrical signals.

How does your brain receive and send messages? They travel through the nerves that run from your brain to all parts of your body. Nerves run in a large bundle through your spinal cord, located in your back. Your nervous system is like a big telephone system with calls going back and forth all the time.

When something touches your skin, which has many nerves close to its surface, the nerves send a message to the brain that says, “Something is touching the skin.” Your brain then sends a signal back saying, “Oh, that is a piece of fabric touching your skin.” It all happens faster than you can read this sentence. The same thing happens when you see, smell, taste, or hear something.

Sometimes, nerve signals skip your brain and go directly to your muscles. This automatic response is called a reflex. One example is when you jerk your hand back as you touch something that is hot.

Prove It!

List on the chalkboard a variety of body functions with your students, like breathing, heart beating, balance, and the ability to touch. Then, ask students to tell you which part of the brain is in control of these functions: the brain stem, the cerebellum, or the cerebral cortex. When students seem ready, ask them to model the way a nerve lets the brain know what is happening.

Experiment 1: Test Those Reflexes Teaching Notes: Students demonstrate reflexes with a partner in this experiment. NOTE: Caution the students to tap each other’s knees gently. It is not necessary to hurt one another. Also, caution the tapping partner to sit or squat to the side of their partner so they will not be kicked. In this experiment, the students’ crossed leg should have jerked outward and upward a little. This is an excellent example of a reflex. If the reflex test does not work, encourage students to try it again, tapping in another spot below the kneecap.

Journal Prompt

Write a paragraph that explains what happens when someone tickles your foot with a feather and you giggle.

Homework Idea

Have students draw a picture of themselves hearing, smelling, tasting, touching, or seeing something. Then, challenge students to write a few sentences to explain what is going on in the picture.

FUN FACTS!

• If you unfolded the two halves of your brain completely, they would cover an ironing board.
• Your brain never shuts down completely, but it does rest when you are asleep. You spend about one-third of your life sleeping!
• About 50 miles of nerves are found in your body!
Experimental 1: Test Those Reflexes

Try This!

Divide students into pairs for this activity. Have them record their observations on their Test Those Reflexes Science Log.

Procedure:

1. As a class, review how a reflex is different from the usual way the nervous system receives and sends messages.

2. Tell students they are about to recreate a simple test doctors do with a special little rubber hammer during an exam. It is a test of a person’s reflexes.

3. Have one partner in each student pair sit in a small chair and cross his or her legs in front.

4. Have the other student tap the sitting student’s crossed leg just below the kneecap, using the flat side of one hand.

5. Have pairs switch places and repeat the activity.

What Happened?

What happened to your partner’s knee after you tapped it? Is this an example of a reflex? Did the nerves signal the brain or your muscles first in this example?
Use this sheet to record your observations during the Test Those Reflexes experiment.

Question: What happens when the doctor taps your crossed leg just below your knee?

___________________________________________________________________
___________________________________________________________________

What I did:
___________________________________________________________________
___________________________________________________________________
___________________________________________________________________

What happened:
___________________________________________________________________
___________________________________________________________________
___________________________________________________________________

Why it happened:
___________________________________________________________________
___________________________________________________________________
___________________________________________________________________
___________________________________________________________________
___________________________________________________________________
___________________________________________________________________
___________________________________________________________________

Activity 2: Show What You Know:
The Nervous System

Complete each sentence below by unscrambling the word in the parentheses at the end of the sentence. Write the correct word in each blank. Use the Word Bank if you need help.

1. Your nervous system receives and sends ________________ all day and night.  
(gassemes)

2. Your nerves form a large bundle in the ________________ _____________.  
(linasp rodc)

3. Your ____________ receives the messages from the nerves. (nairb)

4. The messages sent throughout your body travel as ________________ signals.  
(callictree)

5. If the nerve signal skips your brain and goes directly to a muscle through your spinal cord, this is called a ________________. (feelxr)

In the space provided below, draw an outline of your body. Draw a red line
Lesson 9: The Five Senses

Use this page when you introduce the Five Senses to your students. The fun facts can be used to draw your students into the topic.

They’ll Need to Know ...

Your senses let you know what is going on in the world around you. Your five senses are:

1. hearing (through ears)
2. seeing (through eyes)
3. smelling (through nose)
4. tasting (through taste buds)
5. touching (through skin)

1. Hearing. You hear through your ears, which have three main parts. You have an outer ear — the part you can see; a middle ear — where the eardrum and three tiny bones are located; and the inner ear — where the cochlea and auditory nerve are located. When sound waves move through the air, they are caught in your outer ear and vibrate through the middle ear, causing the eardrum to vibrate, which causes the three tiny bones in the inner ear to vibrate. This vibration is turned into electrical signals by the cochlea. The signals travel to the brain along the auditory nerve.

2. Seeing. You see through your eyes, which are about one inch in diameter. A bony socket in your skull protects each one. The eye is connected to your brain by a nerve called the optic nerve. When you look at something, an image of it is passed through your cornea and lens — the two parts of your eyeball. The image is then turned upside down and focused on your retina. Your retina is located on the back wall of your eyeball. Rods and cones in the retina figure out what shapes and colors you are seeing. They send electrical signals to the brain, which uses all that information to help you decode what you are seeing.

3. Smelling. You smell though your nose, which is one of the main entrances into your respiratory system. It is like a twisting passageway rather than the straight tube you see from the outside. Inside your nose, tiny hair-like endings stick out from the olfactory nerve. The endings detect odors and send that information as electrical signals to the brain. That is how you know what you are smelling!

4. Tasting. You taste with your taste buds. Have you ever put something in your mouth and then spit it out because you did not like the way it tasted? How did you know it tasted badly? You have some very special “bumps” on your tongue called taste buds. It is their job to send electrical signals to the brain telling it what you are tasting. Your taste buds can distinguish four main tastes: sweet, salty, sour, and bitter. Not only do they let you know when something tastes great, they also let you know when something has spoiled or was not fully cooked.

5. Touching. You touch with your skin, which is your largest sense organ. It covers your whole body! Skin helps to hold in moisture and heat for your body. It also contains millions of tiny nerve endings called receptors. They sense temperature, touch, pressure, and pain. When something touches you, burns you, or hurts you, the receptors send electrical signals up the spinal cord to the brain so you know what is happening.
Lesson 9: The Five Senses (continued)

Prove It!

Provide the students a chance to experiment and focus on all five of their senses with the five activities found on the pages that follow. These can be done in rotating centers or they can be done one at a time with a large group. Before conducting Experiment 3, be sure that no one has any food allergies to the foods you will be having them taste.

Experiment 1: Do You See What I See? Teaching Notes:
In this experiment, students had to look carefully to distinguish between similar attributes so they could identify which object you were describing with the clue card.

Experiment 2: Does This One Sound Like That One? Teaching Notes:
In this experiment, students focused on their sense of hearing to distinguish between various sounds made by objects in canisters.

Experiment 3: That Tastes Great! Teaching Notes:
In this experiment, students used their sense of taste to discover the mystery foods they were being fed. Ask students for the foods that were the tastiest and those that weren't as tasty.

Experiment 4: What's That Scent? Teaching Notes:
In this experiment, students used their sense of smell to discover what was hidden in a canister.

Experiment 5: Did You Feel That? Teaching Notes:
In this experiment, students used their sense of touch to determine what is in each bowl or plate.

Journal Prompt

Write a paragraph about the best thing you ever smelled, saw, tasted, felt, or heard. Explain why it was the best. Use descriptive words to help your reader understand exactly what you experienced.

Homework Idea

Invite students to bring in one item in a small brown bag to share with the rest of the class. Have someone close his or her eyes and feel inside the bag. Ask him or her to try and guess what the bag contains.

• Your fingertips have more touch receptors than any other place on the body!
• Taste buds work best when they are wet.
• One human tongue contains about 3,000 taste buds!
• A human nose has 5 million smell cells and a dog's nose has 200 million smell cells!
• The human eyeball is about the size of a Ping-Pong ball and can only see colors well in lit conditions.
• Most of the human ear is inside the head!
Experiment 1: Do You See What I See?

Try This!
The five experiments listed in the next few pages can be done all in one day or one per day for an entire week of experiments! Have students record their observations along the way.

Procedure:
1. Display all the objects on the table.

2. Explain to the children that you are going to draw one clue card out of the basket and read the clues to them.

3. Ask students to listen carefully and use their eyes to identify the object you are describing.

4. When someone correctly guesses an object, set aside that object and its clue card.

5. Continue with the remaining objects and clue cards.

What Happened?
Were you able to find the object right away? What do you think stopped you from finding the object right away?

MATERIALS NEEDED
- various objects that have some of the same attributes
- cards listing clues about each object
- basket to hold clue cards
- table or other flat area to display the objects
THE FIVE SENSES

Experiment 2: Does This One Sound Like That One?

Procedure:
1. You will be making 10 sound canisters. Place five of one type of object in five canisters. Fill the remaining canisters with the other objects. Mark the canisters on the bottom with some type of code so that you know which ones have the same contents.
2. Tell the students they are going to be Sound Detectives!
3. Have students shake the canisters and listen carefully to the sounds they hear. Challenge them to sort the canisters according to which ones make the same kinds of sounds.

What Happened?
What sense were you using in this experiment? Were you able to tell which canister contained what? Why or why not?

Experiment 3: That Tastes Great!

Procedure:
1. Hide the food items behind a cardboard wall so that the students cannot see what they will be tasting.
2. Have the students choose a partner.
3. Have one partner close his or her eyes while the other partner feeds him or her a small piece of one of the food items.
4. The student being fed should try to guess what he or she just ate. Ask the student to record how it tasted on the Science Log.
5. Have partners switch places and repeat the process.

What Happened?
Did you guess all the mystery foods correctly? What sense helps you do this?
Experiment 4: What’s That Scent?

Procedure:
1. Place a colored dot with a number on it on top of each canister lid.
2. Poke several holes in the top of the canister so that the smell is noticeable.
3. Have students choose one canister at a time and sniff the holes at the top.
   They should try to figure out what is inside each one.
4. Tell students to record guesses and observations on their Science Logs.
5. Share the correct answers with the class when everyone has had a chance
to “sniff the smells.”

What Happened?
Did you know what was in each canister? What sense helped you figure that out?

Materials Needed:
- several empty canisters
- colored dot stickers
- items with distinct smells (lemon, cinnamon, cedar wood, pineapple, etc.)

Experiment 5: Did You Feel That?

Procedure:
1. Place the foods on plates or in bowls under holes in the cardboard wall. Do not allow students to see the food.
2. Divide students into pairs. Have one partner reach through one hole in the cardboard wall and feel what is in the bowl or on the plate.
3. Have the student describe to his or her partner what he or she feels. Encourage the use of specific, descriptive words. Have the student guess the food.
4. Have partners switch places, and let the other partner reach through a different hole.

What Happened?
What was in each bowl? What sense did you use in this experiment? Were you surprised by the way some things felt?

Materials Needed:
- washed grapes pulled from the vine
- cold cooked spaghetti noodles
- bread
- plates or bowls
- orange peel
- other foods with a distinct texture
- cardboard wall with holes cut in it (large enough for a student’s hand)
Use this sheet to record your observations during two of the Five Senses experiments.

Experiment 3: That Tastes Great!
Question: How did the different foods taste?

___________________________________________________________________

___________________________________________________________________

My first food tasted like:

___________________________________________________________________

I guessed it was:

___________________________________________________________________

It turned out to be:

___________________________________________________________________

___________________________________________________________________

My second food tasted like:

___________________________________________________________________

I guessed it was:

___________________________________________________________________

It turned out to be:

___________________________________________________________________
Activity 1: Show What You Know: Your Senses

Follow the coloring code below to draw in the parts of your body that help you use these five senses.

- smelling – red
- hearing – green
- tasting – purple
- touching – yellow
- seeing – blue

Which part of your body helps you:

1. see? ______________________________________________________
2. hear? _____________________________________________________
3. smell? _____________________________________________________
4. taste? _____________________________________________________
Lesson 10: The Food Pyramid and Nutrition

Use this page when you introduce the Food Pyramid and Nutrition to your students.

They’ll Need to Know ...

In order for your body to work correctly, you need to provide all the right types of food for it every day. The U.S. government has developed a pyramid to help you know what to eat and how much to eat each day. Just like a pyramid is larger at the bottom than the top, you should eat more, or larger portions, of the food groups at the bottom of the pyramid. You should eat the smallest amounts of the group listed at the top of the pyramid, which is also the smallest part of the pyramid.

The bread, cereal, rice and pasta group is listed at the bottom of the pyramid. You should eat 6 to 11 servings from this group each day. Foods such as crackers, bread, rice, spaghetti noodles, and cereal are in this group. These foods provide carbohydrates, which your body converts to sugar and uses for fuel.

The vegetable group and the fruit group share the next level on the pyramid. You should have 3 to 5 servings of vegetables every day and 2 to 4 servings of fruit every day. Fruits and vegetables contain many vitamins and minerals, which your body needs to grow and be strong.

The milk, yogurt, and cheese group shares the next level with the meat, poultry, fish, dry beans, eggs, and nuts group. You should have 2 to 3 servings from each of these two groups each day for a healthy diet. Foods in these groups provide your body with many vitamins and minerals, including calcium for strong bones and teeth and protein for strong muscles.

The very top, and the smallest part, of the pyramid, contains the fats, oils, and sweets group. This includes foods such as cake, cookies, chips, mayonnaise, and butter to name a few. You should eat very few of these every day for a healthy diet. These foods do not provide many vitamins and minerals for your body.

Prove It!

This can be a creative and fun lesson for students. As they are working through the activities, allow them to use their creativity. You may want to bring in some magazines and encourage students to leaf through them for pictures to place on the Nutrition Mission bulletin board. Encourage students to stick a post-it to the picture explaining which category of the pyramid that item falls under.

Experiment 1: Climbing the Pyramid

Teaching Notes:

Provide the students a chance to use their new knowledge of the food pyramid by allowing them to create the menu for the Health Fair’s snack, conducted at the end of the unit (Notes on the Health Fair are located in Step 10: Celebrate.) You will see that students utilize their new knowledge of the food pyramid to create a healthy snack menu.

Journal Prompt

Create a menu for a healthy day of eating.

Homework Idea

Have students keep a food journal for one day (or one week). Invite students to focus on the food group servings they eat or the number of healthy snacks they choose.
Experiment 1: Climbing the Pyramid

Try This!

Divide students into groups or committees to complete this experiment. Encourage students to use the Climbing the Pyramid Science Log to organize their thoughts.

Procedure:

1. Explain to students that at the end of this unit on the human body your class will be hosting a Health Fair for parents. Part of the Health Fair will be a snack table for the parents to enjoy after visiting all the other tables and exhibits.

2. Allow the students to group themselves into food group committees. You may want to assign a food group for them to focus on or allow them to draw the name of their focus food group from a hat.

3. Provide the students an opportunity to look through the recipe books and select two recipes they want to prepare for the Health Fair. Remind them to choose recipes that highlight their food groups.

4. Have groups complete the Science Log to ensure they have thought through their selections completely.

What Happened?

What kinds of ingredients are in your healthy snack? What part of the food group does each ingredient fall under?

Materials Needed:

• easy to prepare snack recipes
• children’s cook books
Use this sheet to record your choices about your focus food group from the Climbing the Pyramid experiment.

Question: Which food groups are included in the food pyramid?
___________________________________________________________________
___________________________________________________________________
___________________________________________________________________
___________________________________________________________________

Our Focus Food Group is:
___________________________________________________________________
___________________________________________________________________
___________________________________________________________________
___________________________________________________________________

Some foods found in that group include:
___________________________________________________________________
___________________________________________________________________
___________________________________________________________________
___________________________________________________________________

We would like to make these two recipes:
1. ________________________________________________________________
2. ________________________________________________________________
Activity 2: Fuel for the Road

Complete the food pyramid below by cutting out the food cards and gluing them into the correct spaces on the food pyramid.
Math and the Human Body

There’s no better way to enhance learning and make it relevant to students than to tie it with all areas of the curriculum. In this step, you’ll find a few fun curriculum-extending activities you might want to try!

These two pages are filled with ways you can extend the learning to Math.

1. Tracking Heart Rates

Teach students how to take their own pulse — the wrist or neck works best. Once they are comfortable finding and recording their pulse, distribute a form with a graph like the one below.

Have students take a resting heart rate (15 second reading), then take that rate again one minute later. This establishes a baseline and ensures that they are actually feeling each pulse.

Have students walk around the room for two minutes, then take a 15-second reading. Tell them to rest for one minute and take another reading. Allow students to rest for five minutes before beginning the final challenge.

Have students jog in place for two minutes, then take a reading. They should then rest for one minute and take a final reading. Discuss their findings.

2. My Intestines are How Long?

Use construction paper to create life–size models of different organs within the body. When you create the intestines, stretch them out in a line to show their entire length. This would make a great hallway display. Have students write facts about each organ on note cards and place the note cards on the wall beside the image.

<table>
<thead>
<tr>
<th>Activity</th>
<th>First Count</th>
<th>1 minute later</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Walking 2 min.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jogging 2 min.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Math and the Human Body
This page is filled with ways you can extend the learning to Math.

3. Counting Calories
Have each student keep track of his or her caloric intake for an entire week. They can record their calorie consumption on a chart similar to the one shown below. Then, use the data to calculate average calories consumed each day, as well as what day the students had the highest caloric intake. Ask students to identify any trends, such as days or meals that involve more calorie consumption. Note: If you are working with kindergarten or first grade students you will need to do the calculations yourself and share the information with your students. Or, you could simply keep track of a week’s worth of school lunch calories.

<table>
<thead>
<tr>
<th>STUDENT</th>
<th>MON</th>
<th>TUES</th>
<th>WED</th>
<th>THURS</th>
<th>FRI</th>
<th>SAT</th>
<th>SUN</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. Classroom Statistics
Spend a class period taking the following measurements of each student. Then, teach a lesson in finding the mean, median, and mode. If your students aren’t ready for this type of mathematical calculating, simply post the names as described below:

- Smallest Feet
- Smallest Hands
- Largest Feet
- Largest Hands
CROSS THE CURRICULUM

Language Arts, Physical Education, & and the Human Body

This page is filled with ways you can extend the learning to Language Arts and Physical Education.

1. Menu Creation

Have students create a menu for a restaurant that strictly adheres to the food pyramid, and name the restaurant and each of the dishes. Encourage them to include caloric information, fat count, sugars, salts, and all other information that’s important for a healthy diet.

2. A System Trip

Challenge students to write a travel brochure describing a trip through the Circulatory or Nervous System.

3. Writing for a Famous Medical Journal

Invite students to write a nonfiction article for a medical journal, and describe in detail how a particular organ of the body functions or how a body system works. Younger students may just want to include detailed illustrations.

4. Write a Body Poem

Have students create a word poem in the shape of the human body, and work in a small group to create one life-size person. Instead of actually drawing the head, have students write the word head over and over again in the shape of a head, write the word eye over and over again in the shape of an eye. They should do the same with the each part of the body ... right down to the toes!

5. Simon Says Gets Physical

One of the best ways to practice bone names is to play a lively game of “Skeletal Simon Says.” Instead of asking players to touch general well-known body parts, ask them to touch specific bones within the body. For example, “Simon says touch your mandible,” or “Simon says touch your vertebrae.”

6. Jump to a Fit Heart Rate

Have jump roping tournaments. Jumping rope is a great exercise no matter what the age! Be sure to have students count their heart rate before and after they jump rope.

7. Jog Along

Start a classroom jogging club. Students that sign up can jog during recess. Clock their times and distances. Celebrate the group’s accomplishments.
CROSS THE CURRICULUM

Social Studies, Art & the Human Body

This page is filled with ways you can extend the learning to Social Studies and Art.

1. Timeline of Medical Practices

Visit web sites as a class to read about medical advances through the ages. Use the information on the site to create a classroom timeline.

2. Famous Medical Pioneers

Invite students to research one of the medical pioneers listed below, and write a report about that person. Then, compile all the reports to create a class book of medical pioneers.

- Edward Jenner
- Elizabeth Blackwell
- Marie Curie
- Hippocrates
- Jonas Salk

3. Unique Fingerprint Art

Discuss how each person’s fingerprints are unique. Make fingerprint pictures! Ed Emberley’s fingerprint idea books offer a great place to start. Let your creativity be your guide!

4. Creating Model Organs

Invite students to use clay to create models of the different human organs. They can use toothpicks and small note card labels to point out important parts or functions of each organ.

5. Can You Make a Skeleton Picture?

Invite students to create skeleton pictures. Give students black construction paper and a piece of white chalk. Have each student draw a large skeleton on the paper and label specific bones or joints they studied in class.
Two Great Projects

Technology offers wonderful opportunities for reinforcing learning of all types. In this section you’ll find two great projects that will allow you to take full advantage of all technology has to offer while at the same time strengthen the knowledge gained during the unit of study. Depending on the age group, these activities may be rather advanced. They can be simplified by not using technology or by working through the activities as a whole group. The options are limitless!

1. Create a Multimedia Presentation: Body Systems

This unit of study concentrates not only on understanding the body, but also on understanding how all the systems work together to run this incredible machine we call the human body. A multimedia presentation provides a great way for students to explain how each system functions independently and the important role each system has in maintaining life.

Divide students into groups of three or four. Each group might be responsible for a different system of the body: Circulatory, Skeletal, Respiratory, Digestive, Muscular, or Nervous System. Next, discuss what you expect as far as content, such as which organs are part of each system, the overall job each system completes, why the system is important to our bodies, and how resources should be cited in a bibliography.

Give groups time to brainstorm their portion of the presentation and then distribute the Storyboard worksheet on page 79. (The groups will more than likely need multiple copies.) If possible, allow the students to spend some time at the computer searching for photos, links, or other elements they’d like to include in their presentation. Encourage the use of original artwork and sounds.

Distribute the Multimedia Presentation Checklist on page 78. Allow multiple work sessions for planning and the actual creation of the presentation. Then, plan a class “showing” of each group’s presentation.

The computer tools you use will depend on what is made available to your school. Some programs that may enhance the project include the word processing and desktopping software available on the market. Other tools include a digital camera and even an audiocassette tape. Yet, another way to go is to create a poster board per storyboard and use the posters in the presentation. The choices are limitless. However, be sure that students are comfortable using the tools before they start. Also, when students present the project to the class, allow them to use the computer during the presentation to enhance it.
MULTIMEDIA PRESENTATION CHECKLIST

Name ______________________________________________

Planning
® Have I researched the topic and decided how to show it in a presentation?
® Have I developed a Storyboard?
® Have I selected which tools I need to complete the task?
® Has each slide or card been designed and numbered?

Content
® Does my presentation clearly explain something or answer a question?
® Does my information support the content: not too silly if the subject is serious and vice versa?
® Did I include a table of contents?
® Are all my references properly cited on a bibliography or reference card?
® Did I include an “about the author(s)” card?

Design
® Is it easy to work through the presentation?
® Are font choices okay? (Try to use 3 font types or fewer.)
® Is the text free of spelling, grammar, and punctuation errors?
® Are the graphics clear?
® Is the presentation interesting?

Presentation
® Have I rehearsed the presentation?
® Have I completed a “dry run” in front of others to make sure the presentation will run smoothly?
Name ______________________________________________

Use these boxes as you’re designing each screen for your presentation on body systems.

1.  

2.  

3.  

4.  

5.  

6.  

© Learning Resources, Inc.
2. Create a Web Site: Staying Healthy

This second project will allow you to take full advantage of all technology has to offer while at the same time strengthen the knowledge gained during the unit of study. The next few pages explain what items to include on a web page, but they do not explain how to set up a web site. Learning Resources, Inc. offers a wonderful book to explain how to do this. It’s called LER 2282 Technology in the Classroom: Web Page Creation.

If your students have already experimented or are ready to learn about web page development, creating a web page is another great way to “show what they know.” The steps in this book explain how to create a compelling web site on the workings of the human body. They do not provide directions on how to build the actual web site.

First, spend time viewing web sites. Discuss what makes an effective web site as well as what makes a poor web site. (Use the checklist on page 81 as a guide here.) Then, introduce the topic for your students’ web development project, and divide them into groups of two or three.

Next, discuss what you expect in terms of content. Suggest covering the following points, but allow students the opportunity to provide their own input:

- Why it’s important to eat right
- Importance of exercise
- List of healthy snacks
- Bibliography information

Give students time to brainstorm their web site and then distribute the Web Site Flow Chart worksheet on page 82. If possible, allow the students to spend some time at the computer experimenting with design elements and searching for movies, photos, links or other elements they’d like to include as part of their web site. Encourage the use of original artwork and sounds.

Distribute the Web Design Checklist on page 81. Allow multiple work sessions for planning and for the actual creation of the web pages. If possible, post the sites to the school server to allow other classes within the school to view the pages. Give students ample time to view each group’s site.
WEB DESIGN CHECKLIST

Name ______________________________________________

® Did I create a flow chart?

® Is my site’s goal clear?

® Is the site divided with different subject matter on different pages?

® Is the text easy to read?

® Have spelling and punctuation been checked on each page?

® Are there links at the bottom of each page so the user can navigate back to the top of the page, the home page, the table of contents, or related information on the subject?

® Is there a balance between graphics and text?

® Are font and point size similar?

® Do all links work correctly?
Use this flow chart to help you think through the design and structure of your web site.
Introduction on Assessment

You’ve done your job. The content was incredible, the “hands-on” learning opportunities were abundant, and the delivery was no doubt sublime! Now let’s see how much actual “learning” took place. There are a number of great ways to assess student learning. We’ve included some of these methods within the next few pages, complete with rubrics and actual assessments you can photocopy and have students take.

Tests
A well-written test is the granddaddy of all assessment tools. If you’ve included everything you want the students to know, a test can be a very reliable measure. We’ve included two types of tests for this unit: 1.) a Q&A test, and 2.) a multiple choice, matching, and true/false test.

Rubrics
Rubrics allow students and teachers to record their perceptions and opinions. Whenever using rubrics, it’s important to encourage honest reporting on the students’ part. We’ve included two rubrics in this section — one for the student and one for the teacher.

Journals
Requiring students to keep a journal as you study a topic serves two purposes. First, it causes the student to recall the information they’ve just studied. Second, it helps you determine just how much information they took away from the lesson and to identify concepts that need further discussion.

The sample journal page included in this book outlines the following areas:

1. What we studied today. This encourages students to recap the day’s learning.
2. My experience with this topic. Students use this space to share their own experiences with the topic, such as their own health history, thoughts on nutrition, or the fact they have done the same activity before in another class. If students discuss the latter in this section, encourage them to write about what the activity demonstrates.
3. Questions I still have. This is an excellent area for you to identify what students do not understand or to take the learning to the next level. This space allows students to ask any questions they still have surrounding the subject.

Science Logs
Reading through a student’s Science Logs will give you clear feedback on whether he or she understood the scientific concept associated with the experiment. Throughout the lessons in Step 6, we’ve included Science Logs for students to fill out when they conduct an experiment. Even though you might provide students with directions for completing each experiment, it’s important for them to write down exactly what they did, what materials they used, what the results were, and what they feel the reasons were for the outcome. If what they write is correct and scientifically true, great! If not, you’ll know what to review in your upcoming lessons.

A Note About Assessing Projects
While the projects in Step 5: Plan a Project provide a great way to reinforce learning, they can be tricky to assess. Always monitor each group’s performance. Make sure each person is doing a fair amount of the work. If possible, include a peer assessment as part of the overall grade. Be aware that projects don’t always cover a complete topic, but rather portions of a topic. Therefore, never base a student’s grade for the unit of study solely on a project. We have included some sample project assessment pages throughout this chapter on pages 85-86 for Step Five: Plan a Project.
MY BODY JOURNAL

Name ______________________________________  Date _____________

What we studied today:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

My experiences with this topic:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Questions I still have:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
# Student-to-Student Assessment

<table>
<thead>
<tr>
<th>Expectations</th>
<th>Actual Performance</th>
<th>Never</th>
<th>Sometimes</th>
<th>Frequently</th>
<th>Always</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>My teammate was helpful.</td>
<td>1 point</td>
<td>2 points</td>
<td>3 points</td>
<td>4 points</td>
<td></td>
<td></td>
</tr>
<tr>
<td>My teammate listened to the ideas presented and participated in group</td>
<td>1 point</td>
<td>2 points</td>
<td>3 points</td>
<td>4 points</td>
<td></td>
<td></td>
</tr>
<tr>
<td>decisions.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My teammate contributed a fair amount of work toward the final outcome.</td>
<td>1 point</td>
<td>2 points</td>
<td>3 points</td>
<td>4 points</td>
<td></td>
<td></td>
</tr>
<tr>
<td>My teammate accepted criticism and redirection in a positive manner.</td>
<td>1 point</td>
<td>2 points</td>
<td>3 points</td>
<td>4 points</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>1 point</td>
<td>2 points</td>
<td>3 points</td>
<td>4 points</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Points

Evaluator’s Name: ______________________________________________________________

Comments: _____________________________________________________________________

_____________________________________________________________________________

_____________________________________________________________________________

_____________________________________________________________________________

Subject’s Name: ______________________________________________________________

Comments: _____________________________________________________________________

_____________________________________________________________________________
# Teacher Assessment

<table>
<thead>
<tr>
<th>Expectations</th>
<th>Actual Performance &amp; Point Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Poor</td>
</tr>
<tr>
<td>Organization</td>
<td>1 point</td>
</tr>
<tr>
<td>Content</td>
<td>1 point</td>
</tr>
<tr>
<td>Mechanics</td>
<td>1 point</td>
</tr>
<tr>
<td>Design</td>
<td>1 point</td>
</tr>
<tr>
<td>Presentation</td>
<td>1 point</td>
</tr>
<tr>
<td>Other</td>
<td>1 point</td>
</tr>
</tbody>
</table>

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Points</td>
</tr>
</tbody>
</table>

Group Members: ________________________________________________________________

Subject’s Name: __________________________________________________________________

Teacher’s Comments: _____________________________________________________________

_______________________________________________________________________________

Organization: ___________________________________________________________________

_______________________________________________________________________________

Content: _______________________________________________________________________

_______________________________________________________________________________

Mechanics: ________________________________________________________________

_______________________________________________________________________________
True or False

Read each sentence below. Write a T on the line if it is true or an F on the line if it is false.

1. The nervous system helps you digest your food.  ________
2. Your ribs protect your lungs.  ________
3. A human heart has five chambers.  ________
4. You can check your heart rate by taking your temperature.  ________

Fill in the Blank

Fill in the blank to complete each sentence.

5. You should eat 6 to 11 servings from the ______________________ group each day.
6. Milk, yogurt, and cheese are all part of the __________________________ group.

Multiple Choice

Circle the correct answer that finishes the sentence.

7. When you exercise your heart rate:
   A. increases      B. decreases     C. stays the same

8. Air enters your body through your:
   A. nose   B. mouth    C. both A & B.

9. Your sense of __________ can feel something that’s hot:
   A. sight       B. touch  C. taste

10. Fats and oils are found at the:
    A. top of the food pyramid    B. bottom of the food pyramid   C. department store

11. When food leaves your mouth, it travels down this tube to reach your stomach:
    A. teeth    B. small intestine  C. esophagus

12. This is the digestive liquid found in your mouth:
    A. sweat    B. water        C. saliva
1. List four systems within your body.
   1. ________________ 2. ________________ 3. ________________ 4. ________________

2. What are the two types of muscles? Where can each type of muscle be found in your body?
   1.) ____________________________________________________________________
   2.) ____________________________________________________________________

3. Why is the heart sometimes compared to a pump?
   ____________________________________________________________________

4. Describe the path your blood takes as it travels through your body.
   ____________________________________________________________________

5. List three parts of your body that help break down food during digestion.
   1. ________________ 2. ________________ 3. ________________

6. List 3 things your brain and nervous system do for you.
   1.) ____________________________________________________________________
   2.) ____________________________________________________________________
   3.) ____________________________________________________________________

7. What body system is most closely involved with your five senses?
   ____________________________________________________________________

8. Write a menu for a dinner that adheres to the rules of the food pyramid.
   ____________________________________________________________________
Classroom & Community Health Fair

It’s been an interesting few weeks. You’ve worked hard to ensure student learning. You’ve required a lot of your students. It’s time to celebrate your success! What better way to wrap up the unit than with a fun and informative Health Fair.

1. You’ll Need Committees
   Divide the class into groups, and let them sign up or pull assignments from a hat. Some suggested topics might include: the Skeletal System, the Muscular System, the Circulatory System, the Respiratory System, the Digestive System, the Nervous System, the Five Senses, the Food Pyramid.

   Provide each committee a Booth Planning Form on page 90 to help guide them in making some necessary decisions.

2. You’ll Need “Booths”
   Decide where your Health Fair can take place — in your classroom, along a hallway, in the lunchroom, or perhaps in the media center. The displays will look great set up on desks or tables. Then, have the students include the props from Step 5: Plan a Project or from their experiments.

3. You’ll Need Visitors
   Included in this section is a sample invitation. Just fill in the blanks, make multiple copies, and send them to parents, other classes, administrators, and friends of the school.

4. Time for the Fair!
   Set up the booths and have students act as the “tour guides,” leading their parents or other guests from booth to booth. Student-led tours should end at the food pyramid booth where healthy snacks await your guests.

TIPS & IDEAS

1. Be sure the students conduct trial tours and read the information in each booth before the big day. They are responsible for answering their guests’ questions.
2. Ask for help from your room parent in getting snacks, drinks, and paper products for the food pyramid booth.
3. Make sure to display the body maps and step books the students made during the unit.
4. Sit back, relax, and let the kids run the show! You’ve worked hard — now let them show off how much they’ve learned from you!
CELEBRATE!

Booth Planning Form

Group Members: __________________________________________________________

..............................................................................................................

Topic: __________________________________________________________________________

..............................................................................................................

We need the following supplies:
- Crayons
- Markers
- Glue
- Stapler
- Ruler
- Tape
- Construction Paper Color(s) ____________________ How many sheets? _____
- Bulletin Board Paper Color ____________
- White copy paper How many sheets? _____
- Tri-fold display board
- Mini-books about our topics
- Our Step Books
- Our Body Maps
- Other __________________________

Facts we will include in our display:
1. _________________________________________________________________________
2. _________________________________________________________________________
3. _________________________________________________________________________
4. _________________________________________________________________________
5. _________________________________________________________________________
6. _________________________________________________________________________
7. _________________________________________________________________________
8. _________________________________________________________________________

Illustrations we will include in our display:
1. _________________________________________________________________________
2. _________________________________________________________________________
3. _________________________________________________________________________
Our class has just completed an incredible unit on the human body, and now we'd like to share our new knowledge with you.

What? Classroom & Community Health Fair

When?

Where?

What Time?

We plan to serve a variety of healthy snacks, so come hungry!
Page 11: Human Body Vocabulary Practice
1. digestion
2. food pyramid
3. saliva
4. heart
5. inhale
6. ribs
7. system
8. ball-and-socket
9. eye
10. trachea

Page 12: Human Body Vocabulary Crossword Puzzle
Across
1. cerebellum
2. nose
4. teeth
3. digestion
5. lungs
6. skin
8. esophagus
9. system
10. pivot

Down
7. skull
8. eye
9. skin
10. teeth

Page 40: Lesson Four: A Pumping We Will Go!
1. human
2. vessels
3. rate
4. resting
5. active

Which part of the circulatory system is a little pump? The heart
ANSWER KEY

Page 44: The Human Circulatory System Crossword Puzzle

Across
1. blood vessels
2. circulation
3. red

Down
4. heart rate
5. lungs
6. oxygen
7. chambers

Page 51: Show What You Know: The Respiratory System
1. lungs
2. ribs
3. inhale
4. diaphragm
5. carbon dioxide
6. exhale
7. trachea
8. larger
9. in
10. smaller

Page 57: Show What You Know: Digestive System Diagramming
1. mouth and teeth
2. esophagus
3. stomach
4. large intestine

Page 61: Show What You Know: The Nervous System
1. messages
2. spinal cord
3. brain
4. electrical
5. reflex

Page 68: Show What You Know: Your Senses
1. see: eyes
2. hear: ears
3. smell: nose
4. taste: tongue
5. touch: skin

Page 87: Test 1
1. F
2. T
3. F
4. F
5. bread or grain
6. dairy
7. A - increases
8. C - both A & B
9. B - touch
10. A - top
11. C - esophagus
12. C - saliva

Page 88: Test 2
1. Digestive, Respiratory, Nervous, Muscular, Skeletal, Circulatory
2. involuntary and voluntary
3. answers may vary
4. answers may vary
5. teeth, saliva, stomach
6. balance, think, feelings
7. nervous system processes information from the senses
8. answers may vary
bone, cartilage

hinge joint, joint

ligament, pivot joint

involuntary muscles, muscles
<table>
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</thead>
<tbody>
<tr>
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<tr>
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<td>mouth</td>
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</tr>
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eye  five senses
nose  skin
taste buds  ear
food pyramid

nutrition

food group

minerals and vitamins

skull
daily servings