A Journey Through the Human Body

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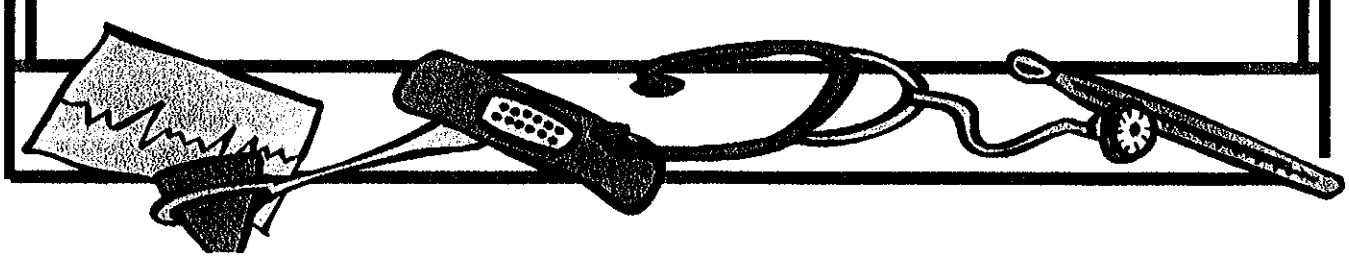

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Goals

The human body is a fascinating unit of study. Children as well as adults are becoming aware of good health habits to maintain healthy bodies. **A Journey Through the Human Body**, provides an opportunity for students to learn the importance of how body parts function by using research, technology, experiments and hands-on activities. The knowledge students gain is measured with a Pre-Test and Post-Test questionnaire.

Students will benefit from this project as they learn about the human body and the knowledge gained about proper health care will have a lasting effect on these students as they develop into their adult years.

A Journey Through the Human Body helps accomplish these goals:

1. Promotes interdisciplinary learning for skills with hands-on activities in reading, writing, science, technology and music.

2. Helps students become aware of careers in the medical field.

3. Lets students explore the intricacies and mysteries of the human body so they can maintain healthy lifestyles throughout their life.

4. Gives students the opportunity to disseminate knowledge acquired to their families and friends.

Timeline

Week 1 Study of Blood and Muscular System
Week 2 Skeletal System
Week 3 Circulatory System
Week 4 Nervous System
Week 5 Respiratory System
Week 6 Digestive System
Week 7 Endocrine System
Week 8 Excretory System

Course Outline

A Journey Through the Human Body is an eight-week interdisciplinary unit using reading, writing, science, and technology to learn about the human body. Students use a CD-Rom for a 3D virtual browse into the body systems.

Students research the body systems using the Internet, media materials and the computer program. Information will be gathered about blood, the skeletal system, muscular system, circulatory system, respiratory system, nervous system, digestive system, endocrine system and excretory system. The information is shared in oral class presentations. Each student uses their class notes to produce their own mini-book or book box about the human body.

Other hands-on activities help students become aware of the mysteries and workings of the human body. Children trace their body outline, stuff the life-size figure and draw veins and arteries on their paper body. Science activities give students a first hand look at the mysteries of the body. A pumping heart model lets students see the flow of liquid through valves, arteries and veins.

Cooperative teams create paper human organs that are displayed around the classroom to have the effect of a journey within the human body.

A field trip to a hospital or medical facility reinforces scientific research. The children can take their own blood pressure with a blood pressure gauge. Speakers and parents can tell about medical careers.

Upon completion of **A Journey Through the Human Body**, students will be aware of the body systems and how to maintain healthy bodies.

The project was used with twenty-seven gifted students from grades two through four, who met two times per week for the eight-week interdisciplinary unit. The project can be adapted for other ages, grades and ability levels.

Human Body Pre/Post Test

Name_____ Date_____

1. Five body systems are _____
_____
_____

2. Compare the large and small intestine. _____
_____

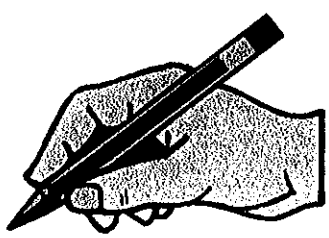
3. Describe some differences between the abdomen and the stomach.
_____
_____

4. What would happen if someone's blood did not contain platelets?
_____
_____

5. Starting at the heart, give the path of a blood cell through types of blood vessels. _____
_____
_____

6. _____ protect organs of the body.
7. _____ gives form and support to the body.
8. The _____removes carbon dioxide and water from blood.
9. Describe the kinds of blood vessels and their jobs. _____
_____
_____

10. Explain how messages travel in your body. _____
_____
_____
_____



Human Body Pre/Post Test
(Answer Key)

Name_____ Date_____

1. Five body systems are **Respiratory, Digestive, Nervous, Circulatory, Muscular, Skeletal, Endocrine, Excretory**

2. Compare the large and small intestine. **Small intestine is long, digestion takes place here, nutrients are absorbed. Large intestine is the wider of the two, removes liquid, stores solid waste until it leaves the body.**

3. Describe some differences between the abdomen and the stomach. **The abdomen is the lower part of the body and contains most organs for digestion and excretion. The stomach is one organ in the digestive system, located at the top of the abdomen.**

4. What would happen if someone's blood did not contain platelets? **Without platelets, a person's blood would not clot.**

5. Starting at the heart, give the path of a blood cell through types of blood vessels. **A blood cell goes from heart to arteries, capillaries, veins and back to the heart.**

6. **Ribs** protect organs of the body.

7. **Muscle** gives form and support to the body.

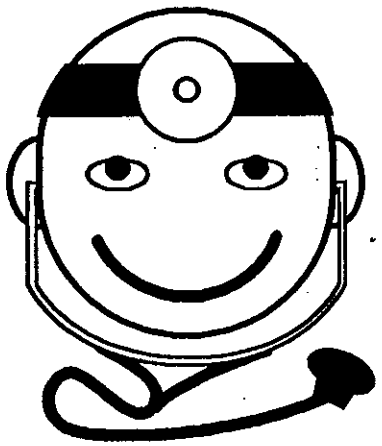
8. The **lung** removes carbon dioxide and water from blood.

9. Describe the kinds of blood vessels and their jobs. **Arteries carry blood away from the heart. Veins carry blood back to the heart. Capillaries deliver oxygen and nutrients to cells and carry waste away.**

10. Explain how messages travel in your body. **A message travels from nerve cell to nerve cell, the spinal cord and then the brain.**

Suggested Activities

Research with the Internet, reference materials, videos
Oral reports
Research Rubric
Self Evaluation
Pre-Test / Post-Test
Paper skeleton, label parts, create songs about body parts
Science experiments
Student created charts and visuals
Book Box
Paper body outline, stuffed with veins drawn on it
Classroom paper organs exhibited around the classroom
Students use interactive software
Speakers about careers
Research medical contributors
Venn diagrams
Field trips to a hospital or laboratory facility
Students take blood pressure
Students chart pulse rates
Create songs about body parts
Field trip to a grocery store to see calories on food labels



Lesson 1
Language Arts: Composition

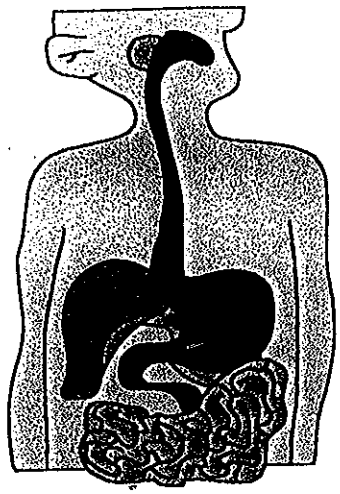
Component: 3.II 1, 2, 3 B

Objectives:

1. Students write daily for a variety of purposes: record research using the Internet, reference materials and note taking from class discussion and videos.
2. Have students choose a body system topic (e.g., blood, muscles, respiratory system and other body systems).
3. Using the Internet, reference materials and videos, have students collect data about their chosen topic. Students will use this data to create their book box.
4. Book box directions:
   a. Obtain cereal boxes or similar container.
   b. Draw a vertical line on the front center of the box. Cut along the line. Cut along the top and bottom edges to create opening flaps.
   c. Measure writing paper to fit flaps on the inside and outside of the box.
   d. Students will write information about their body system and add additional pages by stapling them at the top.

Competency:
The student will demonstrate growth in literacy by producing a book box on a body system.

Materials:
Cereal boxes
Writing paper



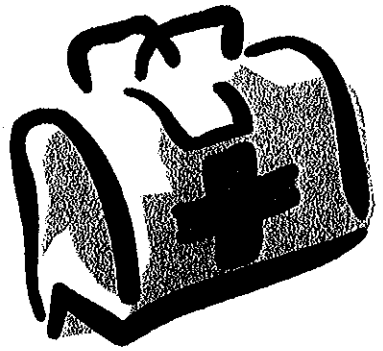
Lesson 2
Language Arts: Listening/Speaking/Viewing

Component 3.IV 2 B

Objectives:
1. The student participates in oral language activity and presents the circulatory system.
2. Discuss the process and flow of arteries, veins, capillaries and the heart.
3. Look at a drawing of the circulatory system (locate the heart).
4. Create circulatory system body outline.
   a. Place drawing paper on the floor.
   b. Students work with partners and trace their body outline.
   c. Students trace a double pattern and cut them out.
   d. Label parts of the circulatory system and demonstrate the flow of blood with colored markers.
   e. Stuff the double pattern with newspaper and staple the sides together.
5. Students explain the flow of blood with an oral presentation.

Competency:
The student will demonstrate effective speaking, viewing and listening skills by delivering an oral presentation of the circulatory system.

Materials:
Circulatory system picture or poster
A roll of large white paper or butcher block paper
Markers, scissors, stapler



Lesson 3
Language Arts: Composition

Component: 3.II 1,2,3,4,5,6 B

Objectives:
1. The student writes daily for a variety of purposes including a research paper.
2. Brainstorm ideas for topics.
3. After choosing topics, the students will begin research using the Internet, reference materials, and videos.
4. Write first draft.
5. Edit with a buddy.
6. Rewrite.
7. Publish research paper, either handwritten with illustrations or computer generated with graphics.
8. Share reports with class.

Competency:
The student will demonstrate growth in literacy using a rubric for self evaluation of a research paper.

Materials:
Research report rubric

RESEARCH REPORT RUBRIC

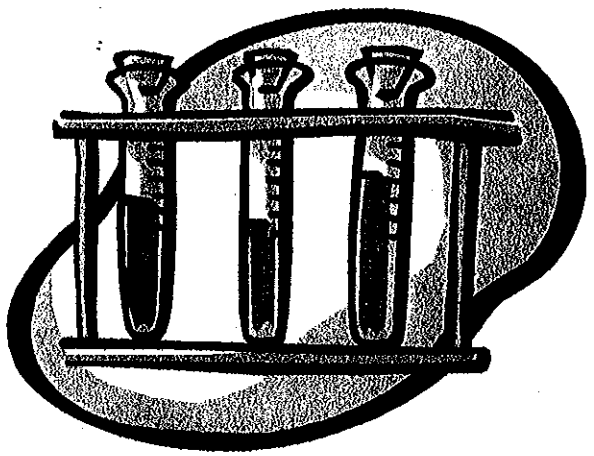
Name _____ Date _____

Topic _____

Directions: Circle one box for each row and total the score.

	4	3	2	1
Content And Details	Content is informative and accurate with supporting details and is interesting to read.	Content is informative and mostly accurate. Report has adequate details.	Content is not always related to the topic. Few supporting details.	Content is not relevant or accurate with few details.
Organization	Report is well organized with a strong beginning, middle, and ending.	Report shows adequate organization. It has a beginning, middle, and ending.	Report is poorly organized and confusing at times.	Report has no organization.
Writing Mechanics & Readability	Report has few or no errors in spelling, punctuation, or grammar and is easy to read.	Report has few to several errors in spelling, punctuation or grammar and is readable.	Report has errors in spelling, punctuation, or or grammar and is difficult to read.	Report is not readable.
Notecards	Notes are completed and labeled correctly.	Most notes are completed and labeled correctly.	Some notes are completed and labeled correctly.	Very few notes.
Bibliography	Bibliography is completed and written in correct form.	Bibliography is done, but not complete in parts.	Bibliography is incomplete.	Very little bibliography.

Total _____



Lesson 4
Language Arts: Vocabulary

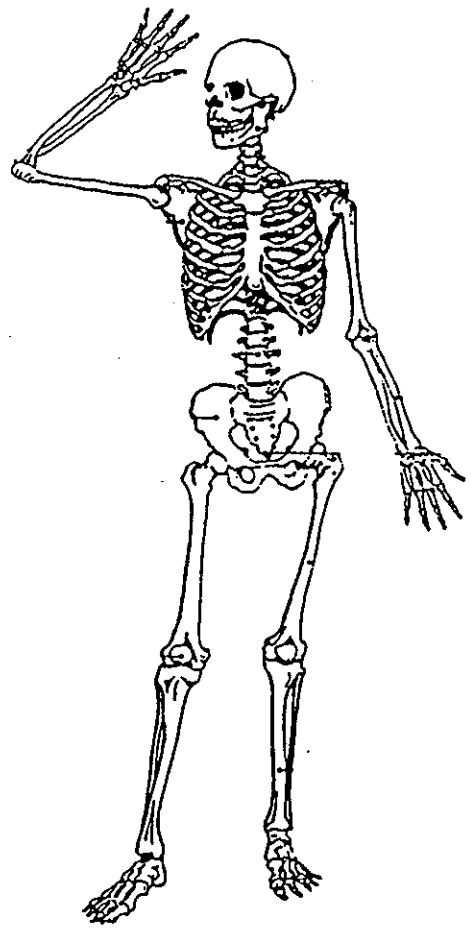
Component: 3.III 1,2 A

Objectives:
1. Students continue to expand science vocabulary through Internet research, reference materials, videos and class notes.
2. Create a word wall of skeletal vocabulary.
3. Students identify vocabulary on a given model.
4. Write a poem about the bones in the body.
5. Edit and publish the poem.
6. Add melody to the poem. See the following song example.
7. Sing songs in class.

Competency:
The student will demonstrate acquisition and use of expanded vocabulary through writing a poem.

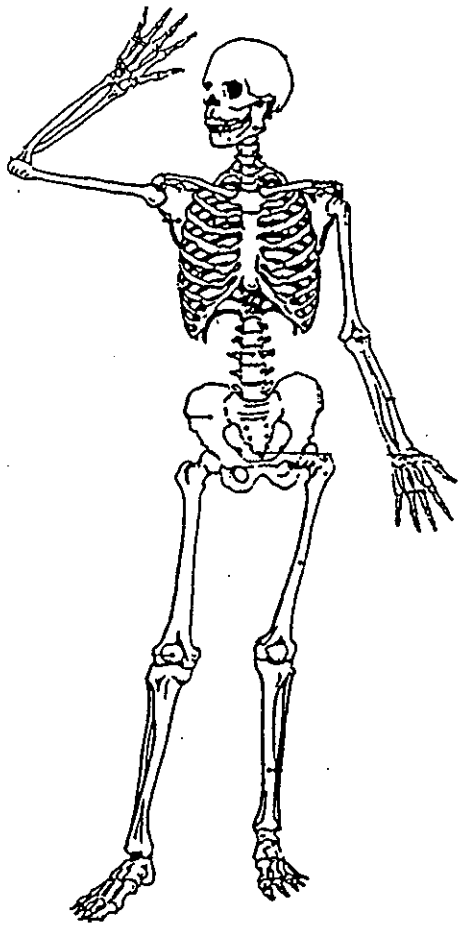
Materials:
Skeletal chart

Bones, Bones, Bones



mandible -
clavicle –
humerus –
ilium -
carpals –
femur –
patella –
fibula –
tibia -

Bones, Bones, Bones



mandible -	jaw
clavicle -	collarbone
humerus -	upper arm bone
ilium -	hip bone
carpals -	wrist bones
femur -	upper leg bone
patella -	kneecap
fibula -	lower leg, outer bone
tibia -	lower leg, inner bone

Bones, Bones

Bones, bones, bones, bones

Bones are in my body

Cranium, mandible

Clavicle, humerus, ilium

Patella, fibula and tibia

Bones, bones, bones, bones

Bones are in my body.

Composed by Mrs. Newport's Gifted Class
Tune of Jingle Bells

Be Healthy

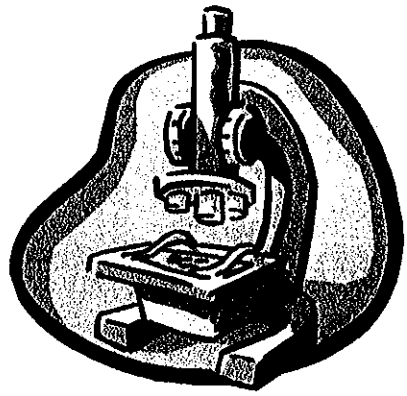
Junk food, junk food
Bad for your body
Healthy good food
Only for me.

There are potato chips, French Fries
Cookies, cake and candy
Junk food, junk food
Bad for your body.

There are carrots, apples
Granola, raisins and celery
Healthy good food
Only for me.

Basic food pyramids
Junk food rids
Healthy food and exercise
That's for me.

Composed by Mrs. Newport's Gifted Class
Tune of Davy Crockett



Lesson 5
Science: Process Skills

Component 3.I 1,3 A

Objectives:
1. Report orally and in writing, collaborative group investigations of the human body pulse rate.
2. Create and interpret graphs of human pulse rates.
3. Participate in pulse rate activities.
4. Have students practice taking their pulse rate.
   a. Use the **My Pulse Chart**
   b. Complete the first activity for one minute.
   c. Take your pulse for 15 seconds. Multiply by four to get the number of beats per minute.
   d. Rest for three minutes. Follow the same procedure for each remaining activity.
5. Review components of the scientific method.
6. Graph the results.

Competency:
After using the science process skills in hands-on group investigations, the student will identify orally and in writing the scientific method and graph the results.

Materials:
Pulse Rate Chart
Stop watch or timer

My Pulse

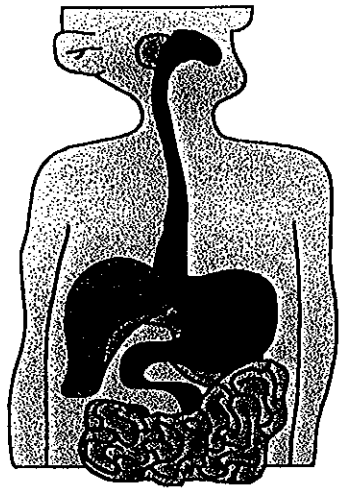
Name_____ Date_____

Discover the effects of different actions on your circulatory system.

Directions:

1. To take your heart rate, lay your arm on a table with the palm of your hand up.
2. Place the fingertips of your other hand below the thumb on your upturned wrist.
3. Gently press until you can feel your heartbeat.
4. Complete an activity for one minute.
5. Take your pulse for 15 seconds. Multiply by four to get the number of beats per minute.
6. Rest for three minutes. Follow the same procedure for each remaining activity.

Activity #1 Sit very still in your chair. ___ beats per minute.	Activity #2 Carefully swing your arms back and forth. ___ beats per minute.	Activity #3 March in place. ___ beats per minute.	Activity #4 Jog in place at a slow pace. ___ beats per minute.
Activity # 5 Jog in place at a moderate pace. ___ beats per minute.	Activity # 6 Jog in place at a fast pace. ___ beats per minute.	Activity # 7 Walk slowly around the room. ___ beats per minute.	Activity # 8 Sit very still in your chair. ___ beats per minute.



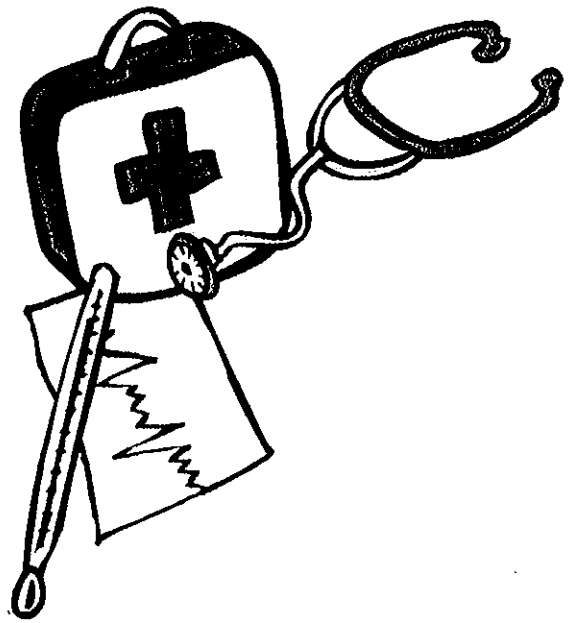
Lesson 6
Science: Process Skills

Component 3.I 5 A

Objectives:
1. Utilize the scientific method to conduct comparative and single manipulated variable group investigations.
2. Participate in **It Starts in Your Mouth** activity.
3. Ask students for a problem statement such as "How does food get digested in your mouth and stomach?"
4. Procedure
   a. Have students look at the drawing of the digestive system.
   b. Students take a bite of a cracker and chew slowly and count to 20.
   c. Discuss what happened to the starch in the cracker.
   d. Break a cracker into small pieces. Put the pieces in a plastic bag with ¼ cup water.
   e. Have students squeeze the bag, watch and report results of the churning effect.
   f. Complete the science experiment sheet.

Competency:
After using the science process skills in hands-on group investigations, the student will complete the **It Starts in Your Mouth** science experiment sheet.

Materials:
Drawing of the digestive system
Unsalted saltines
Plastic bag
9 oz. Cup
Water



Lesson 7
Science: Comprehensive Health

Component 3.VI 1 A

Objectives:
1. Demonstrate an understanding of the function of body parts.
2. Participate in **No Bones About It**
3. Have the students feel the tip of their ears and noses and describe what they feel.
4. Ask students to compare noses and ears to fingers and arms. How are they the same, how are they different?
5. The teacher holds a flashlight behind the top part of a students ear. Ask another student to observe.
6. Record observations. Discuss the function of cartilage in the body and how cartilage protects the ear.
7. Write the scientific method.

Competency:
After participating in the **No Bones About It** activity, students will discuss how cartilage protects the outer ear.

Materials:
Flashlight
Paper and pencil

Lesson 8
Science: Process Skills

Component 3.I 1 A

Objectives:
1. Report orally group investigations of the respiratory system.
2. Discuss breathing and define inhaling, exhaling and water vapor.
3. Chill a mirror. Hold it under cold water and count to 30. Dry the mirror.
4. Hold the cold mirror close to your mouth. Breathe out. Answer, **What did you see and where did it come from?**
5. Fill a cup with one-third of water. Add twenty drops of bromthymol blue. Stir.
6. Observe results. **What is the color of the water? Is carbon dioxide present? How can you tell?**
7. Using a straw blow into the water. Continue until you see a change. **What is in the water? Where did it come from?**
8. Share results with class.
9. Students write the scientific method.

Competency:
After using science process skills in a group investigation, students will explain the process of breathing.

Materials:
1 bottle bromthymol blue (BTB)
1 9 oz. Cup
1 mirror
1 straw
water, paper towels

Famous Scientists Research Topics

Dr. William Beaumont-researcher with the digestive system

Dr. Soloman R. Berson- medical researcher

Dr. Santiago Ramon y Cajal-investigated the nervous system

Dr. William DeVries-placed first artificial heart into a human being

Dr. Charles Drew-pioneered blood banks and the use of plasma

Dr. Carlos Finlay- researched the tropical disease, yellow fever

Herophilus-Greek anatomist

Perry L. Julian-research chemist

Barbara McClintock-geneticist

Gregor Mendel-botanist, Mendel's Law of Genes

Louis Pasteur-bacteriologist

Dr. Jonas Salk-discovered polio vaccine

Dr. Daniel Hale Williams- surgeon

Dr. Rosalyn Yalow-medical researcher

Suggested Materials

Delta Education	800-442-5444
Mini- Science Kits	
A Peek Inside You	$ 32.98
Body Basics	$ 32.98
Smell, Taste, Touch	$ 32.98
The Human Machine	$ 32.98
Vision and Hearing	$ 32.98
One and Only You	$ 32.98
Taste Kit	$ 23.98
Scent	$ 23.98
Materials	
Skeleton	$ 39.98
Pop Up Body Book	$ 19.98
Mini Torso	$ 99.98
Blood Pressure Guage	$ 25.00
Stethoscope	$ 10.00
Heart Model	$ 50.00
Pumping Heart Model	$ 26.00
Education Resources Software	800- 624-2926
How Your Body Works	$ 74.95
The Human Body	$ 59.95
My Amazing Human Body	$ 19.95

Resource List

Reproducible Worksheets:
Get Smart
Body Systems, Milliken Publishing Co., St. Louis, Missouri, 1984

Lessons on the Human Body, McDonald Publishing Co. St. Louis, Missouri 800-722-8080

The Human Body, Instructional Fair, Inc. Grand Rapids, MI 1991

Blood Pressure Gauge and Stethoscope

Delta Education, Hands-On Science, P.O. Box 3000, Nashua, NH 03061, 800 442-5444

Educational Resources, 1550 Executive Dr., Elgin, IL 60121, 800 624-2926
Software

Large paper rolls for students to trace body outlines.

Materials to make mini books or cereal boxes for book boxes

Miami-Dade County Schools Video Library

Internet Sites:

www.teachnet.com
www.infoseek.com
www.bess.net
www.sfscience.com
www.discovery.com
www.lycos.com
www.dogpile.com
www.webcrawler.com

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VanCleave, Janice, The Human Body for Every Kid, John Wiley & Sons, Inc., New York, Toronto. 1995.