Anatomy Across the Grades K-5

Grade Level or Special Area: Connections, K-5

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Length of Unit: 31 lessons – 60 days

I. ABSTRACT

This unit is designed to develop a comprehensive sequence for all elementary grades from Kindergarten to 5th grade concerning the human body. Each lesson builds upon the previous lesson, creating a cohesive unit that spans the Core Knowledge anatomy topics at each grade. It begins with basic nutrition and concludes with the intricacies of the human body’s many systems and organs. Students learn about the human body’s complexity and how it adapts to its environment via engaging activities and assessments to measure student understanding, culminating in a school-wide health fair. A grade-by-grade assessment checklist and vocabulary list is provided along with a wealth of activities and activity sheets that will be used during the presentation.

II. OVERVIEW

A. Concept Objectives

1. Students will develop an awareness for scientific inquiry. (TEKS K.2)
2. Students will understand that objects and parts of objects can be observed, described, and measured. (TEKS K.4)
3. Students will know that all living things have basic needs. (TEKS K.9)
4. Students will understand oral and visual forms of communication. (TEKS SS 1.18)
5. Students will know how to use tools and models to gain understanding. (TEKS SS 1.4, Science 2.4)
6. Students will know that systems have parts and are composed of organisms and objects. (TEKS Science 2.6)
7. Students will understand the basic structures and functions of the human body. (TEKS Health 2.3, 5.2)
8. Students will understand how the skeleton and muscles work together to give us shape and movement.
9. Students will be aware of the function and types of bones and muscles.
10. Students will understand the role of the nervous system and the function of its parts.
11. Students will understand the relationship between the eye and sight.
12. Students will understand the concept of hearing sounds through the sense of hearing.
13. Students will understand how sound travels and how the ear works
14. Students will know that complex systems may not work if some parts are removed.
15. Students will know the benefits from being involved in daily physical activity and factors that affect physical performance.
16. Students will understand that critical thinking and scientific problem solving are useful to make informed decisions.
17. Students will know that a system is a collection of cycles, structures, and processes that interact. (TEKS Science 5.5)
18. Students will know that some change occurs in cycles. (TEKS Science 5.6)
19. Students will know how to utilize health information. (TEKS Health 5.3)

B. Content from the Core Knowledge Sequence
1. The five senses and associated body parts. (pg. 19)
2. Taking care of the body. (pgs. 19, 38, 60)
3. Body systems. (pgs. 38, 60, 104, 128)
4. Cells. (pg. 60)
5. Changes in human adolescence. (pg. 128)

C. Skill Objectives
1. Ask questions about organisms, objects, and events. (TEKS K.2A)
2. Plan and conduct simple descriptive investigations. (TEKS K.2B)
3. Identify and use senses as tools of observation. (TEKS K.4A)
4. Discuss meanings of words and develop vocabulary through concrete experiences. (TEKS LA 1.11A)
5. Identify appropriate systems and their parts in the human body. (TEKS Health 2.3C)
6. Identify ways to keep our bodies healthy.
7. Make decisions using information. (TEKS Science 2.3A)
8. Predict and identify parts of systems that, when separated from the whole, may result in the part or whole not working. (TEKS Science 2.6A)
9. Use writing as a tool for learning and research. (TEKS LA 2.20)
10. Connect science concepts with the history of science and contribution of scientists.
11. Observe and identify involuntary and voluntary muscles. (TEKS 3.5A).
12. Identify the major bones of our skeleton.
13. Observe and identify the nervous system.
14. Collect information by observing. (TEKS 3.2B)
15. Observe sounds in the environment.
16. Evaluate vibrating objects as causing sound.
17. Verify that vibrating an object can produce sound.
18. Represent the natural world using models and identify their limitations. (TEKS Science 5.3C)
19. Analyze and interpret information to construct reasonable explanations from direct and indirect evidence (TEKS Science 5.2C)
20. Construct simple graphs, tables, maps, and charts to organize, examine, and evaluate information. (TEKS Science 5.2E)
21. Describe some interactions that occur in a simple system. (TEKS Science 5.5B)
22. Identify and describe changes in male and female anatomy that occur during puberty. (TEKS Health 5.2B)

III. BACKGROUND KNOWLEDGE
A. For Students
   Kindergarten
   1. Body systems (The five senses)
   2. Taking care of your body: exercise, cleanliness, healthy foods, rest
   1st Grade
   1. Body systems (Skeletal, muscular, digestive, circulatory, nervous)
   2. Taking care of your body: germs, diseases, and preventing illness
   2nd Grade
1. Cells
2. Body systems (Digestive, excretory)
3. Taking care of your body: a healthy diet

3rd Grade
1. Body systems (Muscular, skeletal, nervous, vision, hearing)

4th Grade
1. Body systems (Circulatory, respiratory)

5th Grade
1. Body systems (Endocrine, reproductive)
2. Taking care of your body: changes in human adolescence

IV. RESOURCES
A. *My Five Senses* by Aliki
C. *Polar Bear, Polar Bear, What Do You Hear*? by Bill Martin, Jr.
D. *101 Science Poems and Songs* by Meish Goldish
E. *Gregory the Terrible Eater* by Mitchell Sharmat
F. *Pat the Bunny* by Dorothy Kunhardt
G. *Touch, Taste, and Smell* by Steve Parker
H. *You Can’t Make a Move Without Your Muscles* by Paul Showers
I. *What Your First Grader Needs to Know* by E.D. Hirsch, Jr.
J. *The Magic School Bus: Inside the Human Body* by Joanna Cole
K. *Eating* by John Gaskin
L. *What Your Second Grader Needs to Know* by E.D. Hirsch, Jr.
M. *I Have a Weird Brother Who Digested a Fly* by Joan Holub
N. *Cells and Tissues* by Leslie Jean LeMaster
O. *The Digestive System* by Merce Parramon
P. *Look at Teeth* by Henry Pluckrose
Q. *Body Books: Eating* by Anna Sandeman
R. *What Happens to a Hamburger?* by Paul Showers
S. *A True Book: The Digestive System* by Darlene R. Stille
U. *American Heart Association* [http://www.americanheart.org/presenter.jhtml?identifier=4578]
V. *American Lung Association* [http://www.lungusa.org/diseases/lungcanc.html#whatist]
W. *Bill Nye the Science Guy Digestion/Blood & Circulation*, Disney Educational Productions
X. *Big* (1988), Twentieth Century Fox
Y. *Kids Health* [http://www.kidshealth.org/]

V. LESSONS
Kindergarten
Length of Lessons: Two Weeks
Lesson One: The Five Senses
A. Daily Objectives
   1. Concept Objectives
      a. Students will develop an awareness for scientific inquiry. (TEKS K.2)
b. Students will understand that objects and parts of objects can be observed, described, and measured. (TEKS K.4)

2. Lesson Content
   a. The five senses and associated body parts.

3. Skill Objective(s)
   a. Ask questions about organisms, objects, and events. (TEKS K.2A)
   b. Plan and conduct simple descriptive investigations. (TEKS K.2B)
   c. Identify and use senses as tools of observation. (TEKS K.4A)

B. Materials
1. My Five Senses by Aliki
2. Chart paper
3. Senses flash cards
4. Markers
5. Crayons
6. Glue
7. Scissors
8. Plastic sandwich bags
9. Permanent marker
10. Appendix C: My Five Senses Flashcards
11. Appendix D: What Do You See?
12. Appendix E: What Do You Hear?
13. Appendix F: What Do You Smell?
15. Appendix H: What Do You Touch?
16. Appendix I: Senses Culmination Worksheet
19. Pat the Bunny by Dorothy Kunhardt
20. Blindfold
21. Tape or CD of sounds
22. Three separate bowls of water: warm, hot, cold
23. Food items (see note in procedures)
24. Touch, Taste, and Smell by Steve Parker

C. Key Vocabulary
1. Senses – the way we see, hear, taste, smell, and touch.
2. Sight – what you see with your eyes
3. Hearing – what you hear with your ears
4. Taste – what you taste with your mouth
5. Smell – what you smell with your nose
6. Touch – what you feel through your skin and fingers

D. Procedures/Activities
Note: Before teaching this lesson, prepare the tape or CD of sounds (example: phone ringing, car horn, barking dog, slamming door, police siren, coughing, running water, door bell ring, airplane, birds, bells, etc.). Purchase Scratch and Sniff stickers and blank index cards. Make pairs of matching Scratch and Sniff sticker cards and prepare a blindfold. Purchase food items of varying tastes (example: candy, salty potato chips, lemon, unsweetened chocolate, etc.). Prepare three bowls of water of varying temperatures (example: hot, cold, and warm). Using the permanent marker prepare plastic baggies with students names beforehand.

Activity 1:
1. Set purpose: Read aloud *My Five Senses* to introduce students to the five senses. Familiarize students with the vocabulary words dealing with the five senses.

2. Create as a whole group a list of the five senses and their corresponding body parts (see Appendix C). Model coloring and cutting up senses flashcards. Students complete flashcards independently and place in their personal plastic bag. Review flashcards each day during the lesson.

**Activity 2:**

3. Develop literacy: Read *Brown Bear, Brown Bear, What Do You See?* Discuss as a whole group what Brown Bear saw and how colors were distinguished.

4. Lesson development: Model how to play “I Spy” game and begin playing game together as a class. The teacher should begin by bringing up objects in the classroom as students guess the object. Eventually, students may lead the game. (Example: “I spy something green in the class…” “A chalkboard!”)

5. Give directions for the “What Do You See?” worksheet (Appendix D) and have students complete independently.

**Activity 3:**

6. Read *Polar Bear, Polar Bear, What Do You Hear?* Discuss what the polar bear heard in the story.

7. Play tape or CD of pre-recorded sounds to the class. (Introduce sounds into a listening center at a later time.)

8. Give instructions for “What Do You Hear?” worksheet (Appendix E) and have students complete independently.

**Activity 4:**


10. Using food items, perform taste testing activity as a class. Have students taste food items individually and discuss the taste. How do our mouths taste things? How do foods taste different?

11. Model Scratch and Sniff game. Scratch each sticker and guess the smell. After modeling, have students play the game twice, the second time while blindfolded. (Introduce as a center later on in order to give each student a chance to play the game.)

12. Give instructions for “What Do You Smell?” worksheet (Appendix F) and have students complete independently. When finished, give instructions for “What Do You Taste?” worksheet (Appendix G) and have students complete independently.

**Activity 5:**

13. Read *Pat the Bunny* once only showing the pages and having students predict what the page will feel like. Reread and allow each student to feel each individual page. Discuss what students discovered after second reading.

14. Place hot, cold, and warm bowls of water on display. Model how to touch the water to find out how temperature feels. Dip one finger gently into each bowl, describing how the water feels each time. Ask the students, “How does the water in each bowl feel different?” Have students perform the experiment.

15. Give instructions for “What Do You Touch?” worksheet (Appendix H) and have students complete independently.

16. Give instructions for culminating worksheet (Appendix I) and have students complete independently.

**E. Assessment/Evaluation**

1. Use worksheets (Appendices C-I) to assess students’ senses understanding.

2. Observe student participation in “I Spy” game, “Scratch and Sniff” game, and experiments.
Lesson Two: My Healthy Body

A. Daily Objectives
1. Concept Objectives
   a. Students will develop an awareness for scientific inquiry. (TEKS K.2)
   b. Students will understand that objects and parts of objects can be observed, described, and measured. (TEKS K.4)
   c. Students will know that all living things have basic needs. (TEKS K.9)

2. Lesson Content
   a. Taking care of the body.

3. Skill Objective(s)
   a. Plan and conduct simple descriptive investigations. (TEKS K.2B)
   b. Identify and use senses as tools of observation. (TEKS K.4A)

B. Materials
1. Chart paper for K-W-L chart
2. Appendix J: Healthy Body Book (5pp)
3. Appendix K: Healthy Food or Junk Food
4. Markers
5. Germ Poem in *101 Science Poems and Songs* by Meish Goldish
6. Sink
7. Soap
8. Construction paper
9. Glue
10. Scissors
11. Crayons
12. *Gregory the Terrible Eater* by Mitchell Sharmat
13. Blankets
14. Appendix L: Five Senses and My Healthy Body Checklists

C. Key Vocabulary
1. Exercise – activity for helping your body grow and stay fit
2. Cleanliness – keeping yourself clean
3. Healthy – something that is good for your body
4. Rest – giving your body time to get more energy

D. Procedures/Activities
   Note: Before teaching this lesson, staple Healthy Body Book together (Appendix J).
   Make and laminate Germ Poem. Send note home to parents asking them to provide blankets for activity 5. Write locomotor movements on a large piece of paper (ex. run, walk, hop, jump, and skip).

Activity 1:
1. Set purpose: Introduce the concept of a healthy body. Make a K-W-L chart. As a class, discuss what students know about taking care of their body and what they want to know, and list under the “K” and “W” columns. Model how to draw a picture of yourself on the first page of the Healthy Body Book (Appendix J) and have students complete independently.

Activity 2:
2. Ask, “What do you do when you cut yourself?” Be sure to stress cleaning, bandaging, and the possibility of infection. Introduce the Germ Poem and go over with class. After reading the Germ Poem, discuss how we can make our body clean.
3. Lesson development: Model washing your hands and discuss when is the right time to wash your hands. Have students practice washing their hands.
4. Add what students have learned under the "L" column in the K-W-L chart. Give directions for “I Keep My Body Clean By…” page of the Healthy Body Book and have students complete independently.

Activity 3:

5. Develop literacy: Review what students have learned using the K-W-L chart. Read Gregory the Terrible Eater. Discuss what Gregory eats and what people eat. Discuss healthy food and junk food.

6. Model Needs vs. Wants activity by folding a piece of construction paper in half. Write “needs” on one side and “wants” on the other. Color and cut out items in Appendix K. Think aloud with students which side each food item belongs to. Glue food items on appropriate sides. Pass materials out to students and have them complete independently.

7. Add what students have learned under the “L” column in the K-W-L chart. Give directions for “My Favorite Healthy Food Is…” page of the Healthy Body Book and have students complete independently.

Activity 4:

8. Review the K-W-L chart from the prior days. Discuss the importance of being healthy and the consequences when you are not (ex. obesity). Ask students what can they do to stay healthy? Lead students to the idea of exercise.

9. If possible, take class outside. Practice stretching. Set out four cones in a large square area. Place one large piece of paper beside each cone, each labeled with a locomotor movement (run, hop, skip, jump). If the cone says run, the student would run to the following cone and look to see what the next locomotor movement is. Divide students into 4 equal groups. Have a signal (bell, whistle) established to begin the activity. Complete the square at least 3 times. Bring students back together and discuss what they have learned about exercise. Give directions for “I exercise because…” page of the Healthy Body Book and have students complete independently.

Activity 5:

10. Review K-W-L chart from previous days. Discuss good sleeping habits with the class. Model effective sleeping habits and have students model habits for 5-10 minutes. What is resting? How much sleep should people get each day? Are naps good for me? Add to the K-W-L chart what class has learned about sleep. Give directions for “I cannot go to sleep without” page of the Healthy Body Book and have students complete independently.

11. Extension: Have students share and read their Healthy Body Book to the class.

E. Assessment/Evaluation

1. Observe student participation during K-W-L chart discussion.
2. Assess student completion and understanding using checklists (Appendix L).
3. Observe student participation during the completion of My Healthy Body Books.

1st Grade

Length of Lessons: Two Weeks

Lesson Three: The Skeletal System

A. Daily Objectives

1. Concept Objectives
   a. Students will understand oral and visual forms of communication. (TEKS SS 1.18)
   b. Students will know how to use tools and models to gain understanding. (TEKS SS 1.4)

2. Lesson Content
a. Body systems.

3. Skill Objective(s)
   a. Discuss meanings of words and develop vocabulary through concrete experiences. (TEKS LA 1.11C)
   b. Identify appropriate systems and their parts in the human body.

B. **Materials**
   1. Jacket and hanger
   2. Appendix M: “Shake and Rattle My Bones” and “Dem Bones” songs
   3. Appendix N: Skeleton Page
   4. Appendix O: Bone Sheet

C. **Key Vocabulary**
   1. Skeleton – the connected bones in our body that give us our shape and let us move
   2. Bones – hard parts of the body that give us shape, protect our bodies, and help us to move
   3. Skull – the bone that protects our brain and gives our head its shape

D. **Procedures/Activities**
   **Activity 1:**
   1. Set purpose: Use a jacket and hanger to demonstrate that the skeletal system gives shape to our bodies. Just like the hanger keeps the jacket up, our bones keep our bodies up! Introduce vocabulary. Discuss the consequences of not having bones. What would our bodies look like? How would we move? How would our body protect itself? If desired, allow students to flop around on the floor as if they had no bones.

   **Activity 2:**
   2. Develop literacy: Introduce “Shake and Rattle My Bones”. Model the song and then sing as a class. Use class visual (Appendix M) to enforce reading skills and reinforce vocabulary words.

   **Activity 3:**
   3. Lesson development: Review bones and their purpose to the class. Bones help us move around and give us shape. What kinds of bones are connected in our skeleton? Introduce the idea of connection, and that each bone is connected to other bones in the system. Without one bone, our body wouldn’t be the same. Go over basic bones in the body: skull, arm bones, leg bones, ribs, back (spine), hip, ankle, knees, etc. Have students show where their bones are, as a class and individually.

   4. Introduce “Dem Bones” song (Appendix M). Teach students the connections of bones in our skeleton as you point to each bone when it is mentioned during the song. Model the song first and then have students sing along. With each bone, have students point to the bone as they sing. Repeat several times throughout the week.

   5. Introduce Skeleton Page, Appendix N. Ask students to point to various bones in the skeleton. Where is the skull? Where are the arms? Where are the knees? Where is the neck?

   6. Pass out Bones Sheet, Appendix O. Have students cut out bone names and instruct them to paste them onto the Skeleton Page (Appendix N). Model one or two bones and let students complete independently, offering assistance if needed.

E. **Assessment/Evaluation**
   1. Observe participation and understanding during songs and discussion.
   2. Evaluate Skeleton Page and its appropriate labels for each bone.
Lesson Four: The Muscular System

A. Daily Objectives
   1. Concept Objectives
      a. Students will understand oral and visual forms of communication. (TEKS SS 1.18)
      b. Students will know how to use tools and models to gain understanding. (TEKS SS 1.4)
   2. Lesson Content
      a. Body systems.
   3. Skill Objective(s)
      a. Discuss meanings of words and develop vocabulary through concrete experiences. (TEKS LA 1.11C)
      b. Identify appropriate systems and their parts in the human body.

B. Materials
   1. "You Can’t Make a Move Without Your Muscles" by Paul Showers

C. Key Vocabulary
   1. Muscles – parts of our body underneath our skin that help us move

D. Procedures/Activities
   Activity 1:
   1. Set purpose: Instruct students to use specific muscles. (Ex. Make a funny face, wave your hand, wiggle your foot). Discuss what they did to follow instructions. What allowed them to move? Discuss the importance of muscles and why the body needs muscles. Introduce vocabulary.
   Activity 2:
   2. Develop literacy: Read "You Can’t Make a Move Without Muscles" to reiterate the purpose and necessity of muscles.
   Activity 3:
   3. Lesson development: Have students relax. While they are relaxing, tell them that even while they are sitting, they are still using muscles to keep their bodies up straight and their heads up. Muscles work all the time to help us move. Ask class if they can name muscles they might be using as they sit. What about muscles when you are sleeping or eating?
   4. Have students point to certain muscles as you call them out. (Ex. Arm muscle, leg muscle, face muscles, neck muscle, finger muscles, feet muscles)

E. Assessment/Evaluation
   1. Observe student participation during discussion of muscles.

Lesson Five: The Circulatory System

A. Daily Objectives
   1. Concept Objectives
      a. Students will understand oral and visual forms of communication. (TEKS SS 1.18)
      b. Students will know how to use tools and models to gain understanding. (TEKS SS 1.4)
   2. Lesson Content
      a. Body systems.
   3. Skill Objective(s)
      a. Discuss meanings of words and develop vocabulary through concrete experiences. (TEKS LA 1.11C)
      b. Identify appropriate systems and their parts in the human body.

B. Materials
1. Stethoscope

C. **Key Vocabulary**
1. Heart - the organ in our body that pumps blood and keeps it flowing
2. Blood – the liquid that flows through our entire body and keeps us alive

D. **Procedures/Activities**

Activity 1:
1. Set purpose: Introduce vocabulary. What is the heart? What is blood? See if students know where their heart is: Where do we put our hand when we say the pledge of allegiance? That is where our heart is. Using a stethoscope, model how to check your heartbeat. Have students use the stethoscope.
2. Discuss how the sound in the stethoscope is the sound of the heart pumping blood through the body. Have students run in place for one minute and check heartbeats again. How did they change? Discuss the difference in the heart rates before and after exercise. Why does the heart beat faster now?
3. Lesson development: Begin class discussion with questions. What’s so important about our heart? What does it do? Why do we need it? Point to where the heart is in the body. Point out that the heart is about the size of your fist. Have students make a fist and put it where their heart would be.
4. Use Skeleton page, Appendix N. Where is the heart on the skeleton? The heart goes inside the rib cage. Why might the heart go inside the rib cage? Why is it surrounded by all those bones?

E. **Assessment/Evaluation**
1. Observe student participation during stethoscope exercise.

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**Lesson Six: The Digestive System**

A. **Daily Objectives**

1. **Concept Objectives**
   a. Students will understand oral and visual forms of communication. (TEKS SS 1.18)
   b. Students will know how to use tools and models to gain understanding. (TEKS SS 1.4)

2. **Lesson Content**
   a. Body systems.

3. **Skill Objective(s)**
   a. Discuss meanings of words and develop vocabulary through concrete experiences. (TEKS LA 1.11C)
   b. Identify appropriate systems and their parts in the human body.

B. **Materials**

C. **Key Vocabulary**
1. Mouth – the part of our body where food goes in and we chew it
2. Stomach – the organ in our body that digests food
3. Digest – making food into energy for our body to use

D. **Procedures/Activities**

Activity 1:
1. Set purpose: Ask the students what the last meal they ate was. How does the body use that food to give them energy? Do they have chunks of food flowing around in their blood? What happens to all that food? Introduce the digestive system and vocabulary.
2. Develop literacy: Read *The Magic School Bus: Inside the Human Body*. Discuss how food is moved from your mouth to your stomach to your blood, through your digestive system. What is the purpose of eating food?

**Activity 2:**

3. Lesson development: Where are our stomachs? Have students point to their stomachs and look where they are in their body.

4. Review: Using an overhead projector and a transparency, have the students give feedback about what they now know about the digestive system. Write their responses down. What are its parts? What does it do? How does it work? Why do we need it?

**E. Assessment/Evaluation**

1. Observe participation during class discussion.

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**Lesson Seven: The Nervous System**

**A. Daily Objectives**

1. Concept Objectives
   a. Students will understand oral and visual forms of communication. (TEKS SS 1.18)
   b. Students will know how to use tools and models to gain understanding. (TEKS SS 1.4)

2. Lesson Content
   a. Body systems.

3. Skill Objective(s)
   a. Discuss meanings of words and develop vocabulary through concrete experiences. (TEKS LA 1.11C)
   b. Identify appropriate systems and their parts in the human body.

**B. Materials**

1. Brain model
2. Appendix P: We Have Organs

**C. Key Vocabulary**

1. Brain – the part of our body in our skull that lets us think and make decisions
2. Nerves – the parts of our body that let us feel and send messages to other parts

**D. Procedures/Activities**

**Activity 1:**

1. Set purpose: Show the brain model and discuss the brain’s purpose. Introduce vocabulary. The brain is the part of our body that lets us think, feel, and make decisions. Any messages that our body tells us go to our brain. That way, we can see, talk, hear, smell, feel, taste, and move. If we didn’t have a brain, we couldn’t do any of those things! Discuss how the skull protects our brain because our brain is soft and fragile. Also discuss how nerves work with the brain to send messages to other parts of our body and to help us feel things.

**Activity 2:**

2. Lesson development: Review the brain and what it does for our body. Using the brain model, point out different areas of the brain that control different parts of our body. (Example: the brain stem controls our breathing and heartbeat).

3. Introduce We Have Organs worksheet (Appendix P). Discuss how the brain controls the organs in our body and helps them to work by giving them instructions and receiving messages from them. Give directions for worksheet and have students complete independently.

**E. Assessment/Evaluation**

1. Observe participation and completion of Appendix P.
Lesson Eight: Germs, Diseases, and Preventing Illness

A. Daily Objectives
   1. Concept Objectives
      a. Students will understand oral and visual forms of communication. 
         (TEKS SS 1.18)
      b. Students will know how to use tools and models to gain understanding. 
         (TEKS SS 1.4)
   2. Lesson Content
      a. Taking care of the body.
   3. Skill Objective(s)
      a. Discuss meanings of words and develop vocabulary through concrete 
         experiences. (TEKS LA 1.11C)
      b. Identify ways to keep our bodies healthy.

B. Materials
   1. Milk cartons
   2. Thermometers
   3. Appendix Q: Good For You Sort Sheets (2 pp)
   4. Sentence strip and marker

C. Key Vocabulary
   1. Vaccination – injecting our bodies with small amounts of disease so our bodies 
      will know how to fight disease better
   2. Louis Pasteur – a French scientist who found a way to kill germs and prevent 
      disease and used vaccinations to fight illnesses
   3. Edward Jenner – an English scientist who invented vaccinations

D. Procedures/Activities
   Activity 1:
      1. Set purpose: Use a thermometer to take students’ temperature. What happens 
         when people get fevers? Why do their temperatures go up? Introduce the idea of 
         germs and how our body fights them when we get sick. When our immune 
         system fights germs, it takes a lot of energy to kill them, and that makes us very 
         hot! That’s why we get fevers.
   Activity 2:
      2. Lesson development: Ask how we can help our bodies fight germs. How do we 
         keep from getting sick? Ask students if they get shots before they go to school. 
         Introduce vaccinations and Edward Jenner.
      3. Develop literacy: Read from What Your First Grader Needs to Know, the 
         biography of Edward Jenner. Ask students why Edward Jenner was so 
         important. How does his invention help us today?
   Activity 3:
      4. Make a class list of things we can do to stay healthy and prevent illness. Connect 
         with the proverb, “An apple a day keeps the doctor away.” How does a healthy 
         diet help us stay healthy? Copy proverb onto sentence strip and display.
      5. Introduce Good For You sort sheet (Appendix Q). What foods are good for 
         you? Which aren’t? Separate foods and activities that are good for you from 
         those that aren’t. Put the good for you pictures on the sheet. Have students 
         complete independently.
   Activity 4:
      6. Show students a milk carton and discuss how milk goes bad sometimes. What is 
         it in the milk that goes bad? Introduce the idea of germs in the milk making it 
         spoil. How do we keep it from spoiling so quickly? Ask class for ideas.
7. Read from *What Your First Grader Needs to Know*, the biography of Louis Pasteur. Discuss how Pasteur helped find a way to kill germs and how he helped fight disease also using vaccinations.

Activity 5:
8. Review: Ask the students to draw some ideas of how they can stay healthy on a separate sheet of paper. Use questions to help students come up with ideas: What about sleeping? What you eat? Going to the doctor? What did Louis Pasteur and Edward Jenner teach us? Have students explain their drawings when completed.

E. Assessment/Evaluation
   1. Observe participation and completion of Appendix Q.
   2. Assess written products of how students stay healthy, using rubric below:
      - 4 – Uses creative and vivid drawing to relay health information
      - 3 – Uses vivid drawing with some connection to health
      - 2 – Uses rough drawing with slight connection to health
      - 1 – Makes an attempt to draw

2nd Grade
Length of Lessons: Two Weeks
Lesson Nine: Introduction to Cells

A. Daily Objectives
   1. Concept Objectives
      a. Students will know that systems have parts and are composed of organisms and objects. (TEKS Science 2.6)
      b. Students will understand the basic structures and functions of the human body. (TEKS Health 2.3)

   2. Lesson Content
      a. Cells

   3. Skill Objective(s)
      a. Students will predict and identify parts of the cell that, when separated from the whole, may result in the part or the whole not working. (TEKS Science 2.6A)

B. Materials
   1. *Cells and Tissues* by Leslie Jean LeMaster
   2. Appendix R: The Cell
   3. Chart paper
   4. Microscope
   5. Slides of different types of cells

C. Key Vocabulary
   1. Cell - the basic building block of all living things
   2. Nucleus - controls cell activities - the making, using, and storing of food
   3. Cell Wall - supports and gives shape to the cell
   4. Cytoplasm - jelly like substance inside cell wall and cell membrane
   5. Cell Membrane - thin structure that regulates passage of materials in and out of the cell
   6. Mitochondria - produces energy for the cell
   7. Chloroplasts - chlorophyll absorbs light and combines it with carbon dioxide and water to make food

D. Procedures/Activities

   Activity 1:
1. Set purpose: Tell students cells are the basic building block of all things. Using Appendix R, the teacher will point out the different parts of the cell. Discuss how cells make up tissues; tissues make up organs; organs make up systems.

Activity 2:
2. Develop literacy: Read *Cells and Tissues* by Leslie Jean LeMaster and discuss the book as you read.

Activity 3:
3. Lesson development: Using Appendix R, review the different parts of the cell and discuss the function of each part of the cell. Using chart paper, list the different parts of the cell and its function.
4. Set up a slide under the microscope and have students look and see if they can identify the nucleus.
5. Closing: Give each student a copy of Appendix R and have them label it.

E. Assessment/Evaluation

The following rubric will be used to assess Appendix R.

3 Cell labeled correctly
2 Most parts labeled correctly
1 Attempt at labeling

Lesson Ten: Model of a Cell

A. Daily Objectives

1. Concept Objectives
   a. Students will know that systems have parts and are composed of organisms and objects. (TEKS Science 2.6)
   b. Students will understand the basic structures and functions of the human body. (TEKS Health 2.3)
   c. Students will know how to use tools and models to gain understanding. (TEKS Science 2.4)

2. Lesson Content
   a. Cells

3. Skill Objectives
   a. Use writing as a tool for learning. (TEKS LA 2.20)

B. Materials

1. Appendix R: The Cell
2. Appendix S: Cell Model
3. Ziploc bags
4. Translucent shampoo
5. Foil
6. Lima beans
7. Birdseed

C. Key Vocabulary

See Lesson One for review.

D. Procedures/Activities

Activity 1:
1. Set purpose: Using Appendix R from the day before, review each part of the cell and its function.

Activity 2:
2. Lesson development: Make a cell model following the directions on Appendix S.

Activity 3:
3. Closing: Students will write in a journal about the cells they created and the function of each part.
E. **Assessment/Evaluation**

1. Observe students’ knowledge of the function of each part of the cell through their journal writing.

**Lesson Eleven: Take a Bite**

**A. Daily Objectives**

1. **Concept Objectives**
   a. Students know that systems have parts that are composed of organisms and objects (TEKS 2.6)

2. **Lesson Content**
   a. Body systems

3. **Skill Objectives**
   a. Predict and identify parts of the digestive system that, when separated from the whole, may result in the part or the whole not working. (TEKS Science 2.6A)
   b. Identify appropriate systems and their parts in the human body. (TEKS 2.3C)

**B. Materials**

1. Appendix T: Teeth
2. Transparency of appendix T
3. Overhead projector
4. *Look At Teeth* by Henry Pluckrose.
5. chart paper
6. permanent marker

**C. Key Vocabulary**

1. Incisors- these are the teeth in the very front. They are the sharpest teeth and are shaped like a shovel. They are used to cut food and shovel food further in your mouth.
2. Canine- these are the pointy teeth are in the corner of your mouth. They are used for grasping and tearing your food. You have four canine teeth two on the top jaw and two on the lower jaw.
3. Bicuspid- these are the teeth are located right next to your canine teeth. These teeth have two points and are used for crushing food. Adults have eight premolars, four in the top jaw and four in the lower jaw.
4. Molars- these teeth are more flat and are generally used for grinding food into smaller pieces. They are located towards the back of your mouth. Molars are much larger than premolars. Adults have twelve molars six in the top jaw and six in the lower jaw.
5. Salivary glands- areas in the face and neck where saliva is produced.

**D. Procedures/Activities**

**Activity 1:**

1. Set purpose: Promote students’ prior knowledge of teeth by asking questions related to the process of eating.
2. Ask students to predict why we have different types of teeth and analyze what they may be used for.

**Activity 2:**

3. Develop literacy: Read *Look At Teeth* by Henry Pluckrose, to help students become familiar with the vocabulary words.

**Activity 3:**
4. Lesson development: After reading, create student-generated definitions of vocabulary words. Compile the definitions on chart paper that is easily visible and assessable to all students.

5. Using a transparency of Appendix T ask students to help identify and label the teeth, using the vocabulary definitions as clues.

Activity 4:

6. Closing: Ask students to predict what they think may happen if we lacked a certain type of tooth. Tell students that the teeth are part of a system called the digestive system, which will continue to learn more about.

E. Assessment/Evaluation

1. Observe and evaluate students as they completely identify and label the handout of Appendix T.

Lesson Twelve: Where does your food go?

A. Daily Objectives

1. Concept Objectives
   a. Students know that systems have parts are composed of organisms and objects. (TEKS 2.6)
   b. Students understand the basic structures and functions of the human body and how they relate to personal health. (TEKS Health 2.3)

2. Lesson Content
   a. Body systems

3. Skill Objectives
   a. Predict and identify parts of the digestive system that, when separated from the whole, may result in the part or the whole not working. (TEKS Science 2.6A)
   b. Identify the major systems of the body. (TEKS Health 2.3C)

B. Materials

1. pastry bag
2. decorating tip
3. frosting
4. What Happens To A Hamburger? by Paul Showers
5. two apple slices for each child
6. paper plates

C. Key Vocabulary

1. Esophagus- the muscular tube that is connected to the stomach
2. Stomach- a pouch like part that is connected between the esophagus and the small intestine; the part of the digestive system where food is churned from a solid into a liquid.
3. Liver- the body’s largest internal organ; used to store vitamins and create bile which is used to digest fat in the small intestine
4. Small intestine- the part of the digestive system between the stomach and the large intestine; where most of the digestion occurs
5. Large intestine- large ‘U’ shaped tube between the small intestine and the rectum, where feces are formed.
6. Bladder- a place where liquid waste is stored
7. Appendix- small organ attached to the large intestine
8. Urine- liquid body waste
9. Anus- the end of the rectum that exits the body, through which solid wastes leaves the body
10. Kidneys- organs that filter liquid waste from your blood to form urine
D. Procedures/Activities

Activity 1:
1. Set purpose: Review previous day’s lesson by conducting an experiment. Pass out two apple slices to each student. Ask students to take a bite of the first apple slice and chew it three times. Next they will spit out the apple on to a paper plate and discuss what they observe. Also ask students what teeth they used in the process. The students will then chew the remaining half of the first slice ten times and spit it out. Ask the students to compare what they see between the two samples. With the final slice ask the students to eat it and swallow it. Ask the students to predict what happens to the apple slice after they swallow it.

Activity 2:
2. Develop literacy: Read What Happens To A Hamburger? by Paul Showers

Activity 3:
3. Lesson development: After reading the book ask the students again what happens to the apple after they have swallowed it. Review the digestive process from the point of consumption to the point of exit using the diagram on page 30-31.
4. To further students’ understanding of how food moves from the stomach to the small intestine perform a small demonstration with frosting, a pastry bag, a decorating tip, and a paper plate.
5. Fill the pastry bag with frosting. With the decorating tip in place at the end of the bag gently squeeze the frosting through the bag onto the plate. Explain to the students that the squeezing actions caused by your fingers acts like the muscles in your stomach that mash the food and mix it with the digestive juices. The stomach muscles then squeeze the soupy food into the small intestine.
6. Explain to the student that now that they know all about the digestive system, that tomorrow they will create a diagram that portrays the digestive system.
7. Closing: Ask students to sequence the digestive process in the form of a paragraph. (must include teeth, esophagus, stomach, small intestine, large intestine, and anus)

E. Assessment/Evaluation

1. The following rubric will be used to assess
3 Digestive process is written in sequential order
2 Most of the digestive process is written in sequential order
1 Attempt at writing the digestive process in sequential order

Lesson Thirteen: What does the digestive system look like?

A. Daily Objectives
1. Concept Objectives
   a. Students know that systems have parts are composed of organisms and objects (TEKS Science 2.6)
2. Lesson Content
   a. Body systems
3. Skill Objectives
   a. Manipulate, predict, and identify parts of the digestive system that, when separated from the whole, may result in the part or the whole not working (TEKS Science 2.6A)

B. Materials
1. I Have A Weird Brother Who Digested A Fly by Joan Holub
2. butcher paper for each student
3. permanent markers
4. straws
Appendix U: Stomach
Appendix V: Liver
Appendix W: Small Intestine
Appendix X: Large Intestine
Appendix Y: Pancreas, Bladder, and Kidneys
10. color pencils or markers or crayons

C. **Key Vocabulary**
   See lesson four for review.

D. **Procedures/Activities**
2. Lesson development: Have each student create a diagram of the digestive system. Ask the students to find a partner. Give each group two pieces of butcher pair and a permanent marker. Have the students trace each other’s bodies.
3. Closing: Pass out Appendices U-Y. Have the students label, color, cut, and paste the organs in the appropriate places. Use straws for the esophagus.

E. **Assessment/Evaluation**
1. The following rubric will be used to assess
   3 Organs are placed in correct location
   2 Most of the organs are placed in correct location
   1 Attempt at placing organs in the correct location

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**Lesson Fourteen: Food Pyramid**

A. **Daily Objectives**
   1. Concept Objectives
      a. Students will know how to use tools and models to gain understanding. (TEKS Science 2.4)
   2. Lesson Content
      a. Taking care of the body
   3. Skill Objectives
      a. Make decisions using information (TEKS Science 2.3A)
      b. Identify ways to keep our body healthy.

B. **Materials**
   1. Pictures of different foods
   2. Appendix Z: Food pyramid

C. **Key Vocabulary**
   1. Nutrients—materials in food that your body needs to grow, have energy, and stay healthy
   2. Food pyramid—chart that shows the five basic food groups and how much you should eat each day.

D. **Procedures/Activities**

   **Activity 1:**
   1. Set purpose: The teacher will ask the class if they ever think about what they eat. The teacher will emphasize the fact that in order for our bodies to be healthy, we need to eat a variety of foods from the different food groups. Discuss how the food pyramid can be used to determine the amounts of food needed each day.

   **Activity 2:**
   2. Lesson development: The teacher will hold up a picture of a cookie and an apple. Ask: Which one is healthier?
   3. The teacher will explain that our bodies need a variety of foods to be healthy and there is a chart that tells us how much we should eat each day.
4. The teacher will go over the food pyramid (Appendix Z) and how many servings of each group we need to eat each day.

Activity 3:
5. Closing: Students will make their own food pyramid using Appendix Z and illustrate the foods in that group.

E. Assessment/Evaluation
1. The following rubric will be used to assess
   3 Food pyramid labeled and illustrated correctly
   2 Most parts labeled correctly
   1 Attempt at labeling

Lesson Fifteen: Vitamins and Minerals
A. Daily Objectives
1. Concept Objectives
   a. Students will how to use tools and models to gain understanding. (TEKS Science 2.4)
2. Lesson Content
   a. Taking care of your body
3. Skill Objectives
   a. Use writing as a tool for learning and research (TEKS LA 2.20)
   b. Identify ways to keep our bodies healthy.

B. Materials
1. Appendix AA: Sliced Apples
2. sliced apples
3. lemon juice

C. Key Vocabulary
1. Vitamin—organic substances that your body needs to grow
2. Mineral—inorganic substances that your body needs to function

D. Procedures/Activities
Activity 1:
1. Set purpose: The teacher will introduce the key vocabulary and explain that vitamins and minerals are needed for them to grow and be healthy.
2. Lesson development: The teacher will explain vitamins are named after the letters of the alphabet and they have different functions.
3. The teacher will explain minerals are also needed for our body to function and where we find minerals.

Activity 2:
4. Lesson development: The class will divide into groups of four to conduct the sliced apple experiment (Appendix AA).
5. Closing: Students will write about their observations from the experiment and why it happened.

E. Assessment/Evaluation
1. The teacher will observe students’ knowledge of the function of each part of the cell through their writing.

3rd Grade
Length of Lessons: Two Weeks
Lesson Sixteen: Muscles and Bones
A. Daily Objectives
1. Concept Objectives
a. Students will understand how the skeleton and muscles work together to give us shape and movement.
b. Students will be aware of the function and types of bones and muscles.

2. Lesson Content

a. Body systems

3. Skill Objectives

a. Observe and identify involuntary and voluntary muscles. (TEKS 3.5A).
b. Identify the major bones of our skeleton.

B. Materials

1. Chart Paper
2. T-Chart Handout
3. Appendix BB: Skeleton Page with blank labels
4. Appendix CC: Skeleton Page with labels
5. Markers
6. Bulletin board background paper or butcher paper

C. Key Vocabulary

1. Muscles- tissue connected to our bones that helps and allows us to move.
2. Involuntary muscles- muscles that move automatically; you don’t have to think about them to make them move.
3. Voluntary muscles- muscles that move when you want them to; they are controlled by your thoughts.
4. Bones—strong cartilage that provides protection for organs, a place for muscles to attach and for cell production.
5. Joints—a connecting point.
6. Cartilage—connects bones and joints.
7. Tendons—connects the muscles to the bones. (Point out the Achilles tendon on the heel of the foot)

D. Procedures/Activities

Activity 1:

1. For all of the following activities, student will need to make a body map of themselves.
2. Get washable magic markers and rolls of bulletin board background paper. Tear off long sheets that are as long as the students are tall and one for each student.
3. Pair off the students and give each student a long sheet of the paper.
4. Model the following steps for all students and then allow them to trace each other.
5. Have one student lay down on the long bulletin board paper. Using the marker, show students how to trace around the body of the student. When done there will be an outline of the student. Put students name on the outline. Then allow the pairs to trace each other.
6. For most of the activities that follow the students will label the parts of the body, systems and organs studied in this unit. After each major topic (muscles and bones, nervous system and brain, vision and eyes, sound and ears) have students draw and label the various topics on the body map. Make a body map of you or an extra one of a student in order to have a complete and correct classroom model. Allow students to work in pairs or groups when they label the parts on their body maps.

Activity 2:

7. Use the handout in Appendix BB to show students the human skeleton. Explain that bones allow a place for muscles to attach. Explain that bones give your body form and structure while providing support and protection for vital organs. Ask
students to name several organs. Show the rib cage, ribs, skull, cranium, backbone, spinal column, joints, vertebrae, sternum, scapula, pelvis, tibia and fibula. These are listed on Appendix CC. Review the vocabulary words and be certain that all students say, write and locate muscles and bones. An excellent resource for you and the students can be found at www.kidshealth.org to extend study.

8. Explain that the bones are alive and also provide a place where red blood cells and some white blood cells are produced in the center of the bone called the marrow.

9. Have the students locate select parts of the skeleton on their body maps while you mark and label the classroom body map.

Activity 3:

10. After study of the vocabulary words and location of the muscles and bones, play the game “Simon Says”. For example, “Simon Says stomp your feet, Simon says clap your hands, Simon says jump once”(and other voluntary activities), after playing for awhile tell students, “Simon says make your heart beat”(or any other involuntary activity). Then explain the difference between voluntary and involuntary muscles.

11. Give examples of voluntary actions vs. involuntary actions.

12. Show them examples by moving your muscles and having them mirror your movements.

13. Brainstorm with students and make a list of movements that their body has to do everyday (my eyes blink, my hand writes, my heart pumps, my lungs breathe, my feet walk). Help students categorize their brainstorm items into the T-Chart with the columns labeled: Voluntary, Involuntary. Repeat this “Simon Says” activity but this time use the bones studied. Example, Simon says, “touch your fibula.”

F. Assessment/Evaluation

1. Allow students to copy the T-Chart and check it for correct listing of involuntary vs. voluntary muscle types.

2. Assess correct location of parts on the body map.

Lesson Seventeen: The Nervous System and Brain

A. Daily Objectives

1. Concept Objective
   a. Students will understand the role of the nervous system and the function of its parts.

2. Content Objective
   a. Body systems

3. Skill Objective
   a. Observe and identify the nervous system.

B. Materials

1. Note cards with different body parts on each. (right hand, my left foot, etc.)

2. Butcher paper for each group of 4 students

3. Yarn

4. Crayons or markers

5. Glue

6. Scissors

7. Appendix DD: Mind Map

C. Key Vocabulary

1. Brain- an organ in your head that controls your body and its movements.
2. Spinal cord- a thick bundle of nerves that relays information from your brain to other parts of your body.
3. Nerves- cells that carry messages around the body.
4. Cerebrum-largest part of the brain and has two parts.
5. Cerebellum-smaller part in the back of the brain that controls movement and balance.
6. Brain stem area at lower part of the brain that connects to the spinal cord.

D. Procedures/activities

Activity 1:
1. Show students pictures of the brain and the nervous system. [www.kidshealth.org]
2. Introduce vocabulary while looking at the pictures.
3. Give analogies of the brain to help the students better understand its function. (A policeman directing traffic, a remote control changing the channels, etc.) Explain that the brain sends messages to nerves throughout the body. A nerve cell has three main parts: a cell body, short branch looking lines to receive information from the brain and long lines that carry the information away from the nerves. Information is sent from the brain through the spinal chord to the nerves. Here is a good time to make the connection to the voluntary and involuntary movements of the muscles in the previous lesson.
4. Divide class into groups of 4. You will need to one student to help you.
5. Tell students that you are the brain and your helper is a nerve cell. The brain will whisper a message to the nerve and the student will “move” that body part. On note cards, write a specific body part (right hand, left foot, etc.). Pass out one card to each group to act out the appropriate movement. (This represents the way messages travel through the body to show how messages are sent through the nervous system).
6. After activity review the function and importance of the nervous system in making our body and mind work together.

Activity 2:
7. Explain that the brain, located in your head, controls just about everything you do. There are several parts to the brain. Use the worksheet in Appendix DD as you discuss the vocabulary and parts of the brain. Ask students to point to the area of the brain that you discuss it. The cerebrum is the largest part of the brain and it controls thinking. Scientists believe that the right side of the brain controls the left side of our body and that the left side of the brain controls the right side of the body. Some scientists believe that the right side of the brain controls our creative thinking, for example, drawing and that the left side of the brain controls the way we think logically, for example solving math problems.
8. Have students locate the cerebrum, cerebellum and the brain stem on the worksheet. Have the students make a color key and then color in the areas of the brain with the corresponding color.
9. Have the students write a story about how they use their brain and brain parts.

E. Assessment

1. Observe students during their groups as they discuss nervous systems. Check for understanding by bringing class together and reviewing the nervous system’s function and key vocabulary.
2. Completion of the brain worksheet in Appendix DD.
3. Add the brain, spinal column and a few nerve centers to the body map. Use the class map as a model to help student groups and assess correct location of parts on the body map. Yarn can be used to show the nerves and spinal column.
Lesson Eighteen: Vision and the Eye

A. Daily Objectives
   1. Concept Objective
      a. Students will understand the relationship between the eye and sight.
   2. Lesson Content
      a. Body systems
   3. Skill Objective
      a. Collect information by observing. (TEKS 3.2B)

B. Materials
   1. Picture of the eye
   2. Flashlight
   3. Appendix EE: The Eye
   4. Appendix FF: The Eye with blank labels

C. Key Vocabulary
   1. Eye- the sense organ that allows us to see.
   2. Cornea- transparent layer that protects the eye and focuses on light.
   3. Pupil- the part of the eye that opens and closes to allow different amounts of light in.
   4. Iris- a muscle in the eye that changes the size of the pupil to protect the retina.
   5. Retina- the light sensitivity layer at the back of the eyeball that interprets colors.

D. Procedure/Activities
   Activity 1:
   1. Discuss the sense of sight and its importance. When awake the eyes are constantly sending information to your brain about shapes, color, movement and everything you see. In addition to www.kidshealth.org another good source for teachers and students is www.thinkquest.org and click on library then type in eyes in the search box. You will access many interesting topics at variety of reading levels.
   2. To get started with the study of the eyes, partner off students to look at but not touch each other’s eyes. Look at the eyelid, eyelashes and the eyeball. Ask students to look at the white part of the eye and write the word sclera on the write-board. Tell students that sclera is the name for the white area. Then locate the iris, the colored part of the eye. Make a class chart of the color of eyes in your classroom. Explain that the cornea is a transparent layer that protects and helps the eye focus. The pupil is the part of the eye that opens and closes to adjust for light. To observe the pupil, turn off lights and using a flashlight look at each other’s eyes as the eyes adjust to the affect of the flashlight on the eyes. It is better to have the students look towards the flash light rather than holding it in each other’s eyes. Have students observe the dilation (opening and closing of the pupil) of their partner’s eye.

   Activity 2:
   3. Using Appendix EE ask students label the parts of the eye on this worksheet while you label them on the overhead projector.
   4. Refer to Activity One as you complete this worksheet. Be certain to emphasize the parts of the eye we could not see in our pairs. The terms are on the worksheet and the students will match the term to the correct part of the eye.

E. Assessment
   1. Have students draw the observations they made from watching their partner’s eye dilate.
   2. Add the eye and parts of the eye to the body map and assess correct location of parts on the body map and or the worksheet.
3. (Optional) Use Appendix FF to assess students' understanding of parts of the eye.

Lesson Nineteen: Sound and Ears

A. Daily Objectives
   1. Concept Objectives
      a. Students will understand the concept of hearing sounds through the sense of hearing.
      b. Students will understand how sound travels and how the ear works
      c. Students will understand the concept of hearing sounds through the sense of hearing.
   2. Lesson Content
      a. Body systems
   3. Skill Objectives
      a. Observe sounds in the environment.
      b. Evaluate vibrating objects as causing sound.
      c. Verify that vibrating an object can produce sound.

B. Materials
   1. Bill Nye the Science Guy Sound Video
   2. Tuning forks
   3. Cups of water

C. Key Vocabulary
   1. Outer ear-the part on the side of your head that captures sound vibrations.
   2. Ear canal-the tunnel where the sound passes.
   3. Eardrum-a thin skin that vibrates to sound.
   4. Auditory nerve-carries the sound from the ear to the brain.
   5. Hammer, anvil and stirrup-small bones in the ear that transmits sound from the eardrum to the inner part of the ear.
   6. Sound waves-invisible vibrations that travel through the air.

D. Procedures/Activities
   Activity 1:
   1. Review the senses. Let students know that for the next few classes we will be learning about the sense of hearing. Introduce the words sound waves and vibration by placing a ruler over the edge of a desk and pulling up on the end of the ruler. The ruler will make a vibrating sound. You can also use a tightly stretched rubber band pulled between your fingers.
   2. Explain the relationship between the sound vibrations and how the ear allows us to translate the vibration into a familiar sound.
   3. To further demonstrate this concept, have students close eyes for 15 seconds while you make sounds with a variety of objects in the room, such as a book closing, the moving of a chair or other sounds that you select. Then have the students record the sounds that they heard, giving them time to write down the sounds. Continue the procedure for a variety of objects. (close a book, bounce a basketball, etc.)
   4. Make a KWL chart for sound. (What we Know about sound, what we Want to know about sound, what we Learned about sound)

   Activity 2:
   1. Go to the Bill Nye link http://dep.disney.go.com product id=68A99VL00
   2. Review how our body works with our brain so we can make sense of our world. Explain that sounds also are sent to our brain and this video will show how sound is translated by our ears to our brain.
   3. Discuss the vocabulary to help students comprehend the video...
7. Have students watch the video.
8. Regroup and discuss video with the students

Activity 3:
9. Review with students that sounds are caused by vibrations and that those vibrations produce invisible sound waves that travel through the air and to our ears.
10. Have students get in groups and place a cup of water ¾ full on each table. Give a tuning fork to each group and a mouse pad.
11. Have one student at each table bang the tuning fork on the mouse pad and then hold the tuning fork over the water but not touching it. This will produce a ripple in the water. (substitute a table knife if you cannot locate a tuning fork)
12. Have students write down observations.
13. Let students take turns doing the experiment and observing the vibrations on the top of the water.

E. Assessment/Evaluation
1. Have students list three facts about the ear from the video.
2. Have students write or draw conclusions from the tuning fork experiment.
3. Assess correct location of the ear and parts on the body map.

4th Grade
Length of Lessons: Two Weeks
Lesson Twenty: Vocabulary for the Circulatory System

A. Daily Objectives
1. Concept Objective
   a. The students understand that critical thinking and scientific problem solving are useful to make informed decisions.
2. Lesson Content
   a. Body systems
3. Skill Objective
   a. Connect science concepts with the history of science and contributions of scientists.

B. Materials
1. Paper strips with one vocabulary name on one strip and the definition on another
2. Appendix GG: Circulatory System Vocabulary
3. Scissors
4. Pencils
5. Glue
6. Construction Paper

C. Key Vocabulary
1. Circulatory system—delivers blood to and from all parts of the body
2. Heart—an involuntary muscular organ made of four chambers that controls the circulation of blood
3. Aorta—the largest artery in the body
4. Blood—fluid that circulates throughout the body carrying nutrients and oxygen to all parts of the body and bring away waste products
5. Liver—a filtering organ that processes and temporarily stores nutrients and other materials coming from the intestines
6. Spleen—a filtering organ that destroys red blood cells and stores blood
7. Heart attack—an acute episode of heart disease where the heart does not receive enough of a blood supply
8. Blood types—each person has one of these four blood groups: A, B, AB, or O
9. William Harvey (1578-1657) learned how the circulatory system really works. His work included: blood does not come from food; arteries pass blood to the veins in the outer parts of the body; veins carry blood toward the heart.

10. Transfusion—blood given from one person to another

11. Blood vessels—tubes that transport blood to and from all body parts. They include arteries, veins and capillaries

D. Procedures/Activities

Activity 1
1. Set purpose: Tell students that we are now studying the circulatory system. To begin this study, we will test our knowledge on a set of words that are important to understand.

2. Pass out Appendix GG. Students will cut out all words and definitions. They will try to match the correct word with its meaning. This will also serve as a pre-assessment tool.

Activity 2
3. Lesson development: Using the large paper strips with individual vocabulary terms and definitions the students and teacher will clarify the correct answers. These can then be placed on display on a bulletin board.

Activity 3
4. A game played in pairs: students can turn over vocabulary terms and leave definitions up. They can then take turns matching the term to the correct definition. Check the board display to see if you get the correct answers. If so, the match is yours. Whoever has the most matches wins.

5. Glue the correct matches to a piece of construction paper for future reference.

Activity 4
6. Developing literacy: Read *The Magic School Bus: Inside the Human Body* which will serve as a review of body parts and systems covered in previous years. After reading the book ask students if they recall when the bus hit the circulatory system. (The page describing food being transferred from the small intestines to the blood stream). Ask, what is the major organ involved in the circulatory system that pumps blood throughout the body? (heart)

7. Science in history: Read about William Harvey in the encyclopedia. Ask questions such as what was his contribution to science? What time period did he live in? Infer why do you think that some people thought that blood came from food? Important: William Harvey’s discoveries about the circulatory system were significant to the whole field of science, not simply medicine. He was a pioneer in modern heart medicine.

Lesson Twenty-one: Researching Blood

A. Daily Objectives

1. Concept Objective
   a. Students will understand that critical thinking and scientific problem solving are useful to making informed decisions.

2. Lesson Content
   a. Body systems

3. Skill Objectives
   a. Represent the natural world using models and identify their limitations

B. Materials

1. Resource books (encyclopedias, dictionaries)
2. Access to the internet
3. Paper
4. Pencil
5. Chart paper
6. Markers
7. Microscope
8. Prepared slides of human blood
10. Appendix HH: Circulatory System Research Checklist

C. **Key Vocabulary**
1. Platelets—blood cells that control clotting
2. Hemoglobin—an iron compound in red blood cells that carries oxygen from the lungs to the body’s tissues
3. Plasma—the liquid part of blood
4. Antibodies—a protein produced by the body to fight bacteria, viruses, and other foreign substances
5. Coagulation—clotting

D. **Procedures/Activities**

**Activity 1**
1. Set purpose and develop literacy: Explain to students that they will be divided into groups of three (or four). Each group will be given a topic to research. They will have two class days and homework time to research their topic and complete the checklist that follows.
   - Group 1: the heart and aorta
   - Group 2: the blood including red blood cells, white blood cells, hemoglobin
   - Group 3: platelets, plasma, antibodies
   - Group 4: filtering functions of liver and spleen
   - Group 5: blood types (four basic types), transfusion, coagulation
   - Group 6: blood vessels: arteries, veins, capillaries

   Each group will have a written response on the following and provide a diagram from a book and also a drawing from the students. Use the following checklist.

   ___1. What is its function?
   ___2. Show us a diagram and draw one as best you can.
   ___3. Where is it located in the body? Label the drawn diagram from step two.
   ___4. Share several interesting facts that you learned

2. Developing the lesson: Groups will now present their findings to the class. Use guidelines to see if all participated. Collect and display group work.
3. Have students look at a prepared slide of human blood under a low powered microscope. Identify the groups of red blood cells. Identify the plasma. Tell students that under a high-powered microscope, we could see one or two white blood cells with a blue or purple color due to the strain. Fact: For every 1 thousand red blood cells there is one white blood cell. Use this opportunity to discuss in more detail red blood cells, white blood cells, hemoglobin, platelets, plasma, and antibodies.

   Use the index in *How Our Blood Circulates* to quickly source definitions and illustrations.

4. Watch *Bill Nye the Science Guy: Blood & Circulation*. Tell students to write down Bill’s interpretation of arteries (highways), blood vessels (streets),

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capillaries (driveways), and cells (houses). Fact: it takes the blood 35 to 40 seconds to make one complete trip in the circulatory system. Also, what is the wound that the heart makes when giving a strong push of blood outward? (Lub). What is the sound when it is reloading? (Dub).

5. Experiment. Get rolls of toilet paper. (Full rolls act as good insulation against outside noise!) Place the open cardboard cylinder over a partner’s heart. The class must be completely quiet. Can you hear the lub, dub, of their hearts? Fact: our heart will beat over two billion times in a lifetime. Ask students to predict what we will learn in the next lesson on keeping our circulatory system healthy.

E. Assessment/Evaluation
1. Use Appendix HH as a checklist to assess student participation and understanding of the research.

Lesson Twenty-two: Checking Our Pulse and Health

A. Daily Objectives
1. Concept Objectives
   a. Students will know that complex systems may not work if some parts are removed.
   b. Students will know the benefits from being involved in daily physical activity and factors that affect physical performance.

2. Lesson Content
   a. Taking care of your body

3. Skill Objectives
   a. Predict and draw conclusions about what might happen when part of a system is removed.
   b. Construct simple graphs, tables, maps, and charts to organize, examine, and evaluate information.

B. Materials
1. American Heart Association website
   <http://www.americanheart.org/presenter.jhtml?identifier=4578>
2. Paper
3. Pencil
4. Overhead
5. Transparency
6. Appendix II: Circulatory Test
7. Appendix JJ: Circulatory Test Key

C. Key Vocabulary
1. Blood pressure—a force of blood (from the heart contracting) against an artery wall
2. Pulse—the regular beating of the heart

D. Procedure/Activities

Activity 1
1. Set purpose: Introduce the terms blood pressure and pulse. Define their meaning.
2. Lesson development: Have students take their pulse for 1 minute while maintaining a resting state. This can be done by placing two fingers over the main artery on the side of the neck (the carotid). Tell students to count how many pulses they feel over one-minute time. Start and finish this experiment at the same time for the whole class. (Their pulse should be around 70 beats per minute.) Record your name and your results.
Next, have the students jump in place for 1 minute. Now test your pulse rate again. (It will be approximately 130 or more beats per minute.) Record your results.

3. Ask students, how can we best represent this data form the whole class? What kind of graph or table would display this information in a readable manner? Collecting data: record each pulse rate of individuals on an overhead transparency for easy reference.
Have students figure out a way to make a graph or chart, one design displaying the resting rate of the class. Another chart will display the active pulse rate.
(Bar graphs would work for this exercise.)

4. Have students share their graphs and charts. Choose which designs work the best for this type of data.

Activity 2

5. Go to the American Heart Association website at <http://www.americanheart.org/presenter.jhtml?identifier=4578> to investigate heart attacks and to learn about healthy living habits. Ask students if they know why fatty deposits can clog blood vessels? (Fat in food can harden and stick to the walls of blood vessels. Over time, if the diet is rich in fatty foods, a blood vessel can become partially or completely blocked.) Investigate at the following <http://www.americanheart.org/presenter.jhtml?identifier=3003754> Facts to read together:
• The lack of activity is a major cause for coronary artery disease. List some fatty foods that should not be eaten often: fried chicken, fried hamburgers that are heavy in fat content, French fries, butter, and sauces
• A healthy diet should contain a wide variety of foods. This includes healthy snacks.
• Increasing exercise can increase life expectancy and lower the risk of heart disease.
• Physical activity can reduce high blood pressure. Note: the walls of blood vessels can become thin and break if blood pressure is too high for a period of time. If a blood vessel breaks in the brain, it can lead to a stroke.

Discuss: People can survive with some body parts missing. What body parts do you know that we can survive without? Do we need our hearts to survive? Why?

6. Closing: Make a healthy snack in class recommended by Women’s and Children’s Hospital in Lafayette, Louisiana.

<table>
<thead>
<tr>
<th>MIX’N MUNCH SNACK MIX</th>
</tr>
</thead>
<tbody>
<tr>
<td>¼ cup reduced-calorie margarine</td>
</tr>
<tr>
<td>½ teaspoon seasoned salt</td>
</tr>
<tr>
<td>½ teaspoon garlic powder</td>
</tr>
<tr>
<td>1 tablespoon Worcestershire sauce</td>
</tr>
<tr>
<td>1 ½ quarts (6 cups) air-popped popcorn</td>
</tr>
<tr>
<td>2 cups bite-sized shredded wheat cereal</td>
</tr>
<tr>
<td>2 cups toasted oat cereal</td>
</tr>
<tr>
<td>1 ½ cups pretzel sticks</td>
</tr>
</tbody>
</table>

E. Assessment/Evaluation
1. Use Appendix II for test. Choose the correct vocabulary word and fill in the blank next to the appropriate definition.
2. On page 2, write at least four sentences sharing how the circulatory system works. Use at least four vocabulary words while writing your sentences.
3. Evaluate student understanding through performance on test, Appendix II. See Appendix JJ for test key.

Lesson Twenty-Three: The Respiratory System

A. Daily Objectives
   1. Concepts Objectives
      a. Students will know that critical thinking and scientific problem solving are useful to making informed decisions.
   2. Lesson Content
      a. Body systems
   3. Skill Objectives
      a. Analyze and interpret information to construct reasonable explanations from direct and indirect evidence
      b. Communicate valid conclusions

B. Materials
   1. Appendix KK: Respiratory Diagram
   2. Appendix LL: Respiratory Diagram Key
   3. Appendix MM: Respiratory System Vocabulary
   4. Pencil
   5. Transparency of Worksheet
   6. Overhead
   8. Roll of bulletin board paper
   9. Markers
   10. American Lung Association website
       <http://www.lungusa.org/resp_fl/lungsfinal.html>

C. Key Vocabulary
   1. Respiratory System—the group of organs and body parts that allows gases to be exchanged between the air and the body
   2. Respiration—the process of breathing
   3. Nose—one way the body receives air (oxygen) from the outside and removes unwanted air (carbon-dioxide) from the inside
   4. Throat—funnels air coming from the nose and mouth to the windpipe (trachea)
   5. Voice box—it is the place where air passing back up out of the body turns into voice sounds. It contains the vocal chords.
   6. Trachea (windpipe)—the tube leading from the throat to the lungs. At the lungs, it divides into two branches.
   7. Lungs—two large organs where oxygen and carbon dioxide is exchanged
   8. Bronchi—the two lower branches of the trachea that lead into the lungs
   9. Diaphragm—a flat sheet of muscle that moves air into the lungs when down and pushes air out of the lungs when up
   10. Ribs—a series of bones that protect the chest. They expand and contract along with the lungs in order to help in the respiratory process.
   11. Alveoli—small sacks at the end of the bronchial tubes. This is where blood picks up oxygen and drops off carbon dioxide

D. Procedure/Activities
   Activity 1
1. Set purpose: Tell the class we will be learning about the respiratory system for the next few days. We will reread The Magic School Bus: Inside the Human Body. (Read only the black and white print areas.) After I read, tell me where does the respiratory system fit into the story? (The key concept can be found in the line, “In the lungs, the red cells picked up fresh oxygen.”)

2. Developing the Lesson: Pass out the Respiratory System Worksheets Appendix KK and Appendix MM. Tell students we will read through the vocabulary and label the respiratory diagram when appropriate. Use a transparency of Appendix MM on the overhead or use the visual on the American Lung Association website <http://www.lungusa.org/resp_fl/lungsfinal.html>. Go through each term and label the following: nose, bronchi, throat, voice box, trachea (windpipe), lung, alveoli, diaphragm.

Activity 2
3. Students will work in groups of four. Have them trace one of their team members on bulletin board paper. Draw the parts of the respiratory system on this life-sized diagram. Label each part. Students can use their Respiratory worksheet as a reference guide.

E. Assessment/Evaluation
1. Use Appendix LL to evaluate students’ understanding of the respiratory system and its functioning components.

Lesson Twenty-four: Air Capacity and Health
A. Daily Objectives
1. Concept Objectives
   a. Students will know that complex systems may not work if some parts are removed.
2. Lesson Content
   a. Taking care of your body
3. Skill Objectives
   a. Analyze and interpret information to construct reasonable explanations from direct and indirect evidence
   b. Predict and draw some conclusions about what happens when part of a system is removed.

B. Materials
2. Two liter plastic soda bottle
3. Measuring cup
4. Bendable straws
5. Black permanent marker
6. Water
7. Funnel
8. Pencil
9. Paper
10. Chalk

C. Key Vocabulary
1. Smoking—breathing in smoke containing harmful chemicals from cigarettes and other tobacco products
2. Lung cancer—a harmful growth that can destroy the lungs, mostly due to smoking tobacco

D. Procedures/Activities

Activity 1

1. Setting the lesson: The class will participate in a chalk talk exercise. In this activity, a message is written on the board or a piece of chart paper. Students will all stand in a semi-circle around the message. (The group can be split into two if your class is large.) Students have five minutes to respond to the question that you have written on the board. Response is only through writing on the board. You can communicate with other responses by connecting that thought with a line to your thought. NO TALKING IS ALLOWED. The question is, “What do you know about smoking and lung cancer?” When five minutes are up, review the responses. Discuss what lung cancer and smoking are. Turn to two sites on the American Lung Association Website for explanations and a diagram of healthy lungs and cancerous lungs:
   - <http://www.lungusa.org/diseases/lungcanc.html#whatis> (What is lung cancer?)

Activity 2

2. Experiment: The class will measure air capacity of several students’ lungs. Ask students if they can figure out a way to do this before the experiment is shared.

Materials: we will need a 3 liter soda bottle with the cap, access to water, a large bowl, a measuring cup, and bendable straws.

Measuring Our Lung Capacity

Procedure:

- First mark off the soda bottle by repeatedly filling the 1 cup measuring cup with water and pouring it into the soda bottle through the funnel. Mark each cup measured. (Note, forth grade students will need about 3 to 5 cups marked off. Adults will need about 7 cups marked off.)
- Next, fill the container completely with water. Screw the cap back on the soda bottle.
- Fill the pan with approximately four inches of water. Turn the bottle upside down and place the neck into the bowl of water. Unscrew the cap.
- Place a straw into the mouth of the bottle and bed it at the bendable section. Have a student take a large breath and blow as much air into the bottle as possible. Measure and record the air/lung capacity. Continue this procedure with a clean straw each time. Measure the lung capacity of several girls and boys. Take an average of the lung capacity.

Predict, will this capacity increase or decrease as you become an adult? How can we test this hypothesis? Teacher will then take a turn measuring his or her lung capacity.

Infer, would a smoker have the same lung capacity as she would if she were not smoking? Why? (No, because many of the alveoli become blackened and dysfunctional after repeated smoking.)

E. Assessment/Evaluation

1. On a blank piece of paper, briefly explain how the respiratory system works. Also explain what smoking does to your lungs. Students will be assessed based on completion and understanding:
3 – Student understands respiratory process and can communicate well
2 – Student understands certain components of the respiratory process
1 – Student makes an effort to communicate respiratory process

5th Grade
Length of Lessons: Two Weeks
Lesson Twenty-five: What’s Going On With Me?

A. Daily Objectives
1. Concept Objectives
   a. Students will understand that a system is a collection of cycles, structures, and processes that interact. (TEKS 5.5)
   b. Students will know that some change occurs in cycles. (TEKS 5.6)

2. Lesson Content
   a. Changes in human adolescence

3. Skill Objectives
   a. Students will construct simple graphs, tables, maps, and charts to organize, examine, and evaluate information. (TEKS 5.2E)
   b. Students will identify and describe changes in male and female anatomy that occur during puberty. (TEKS 5.2B)

B. Materials
1. Appendix NN: Puberty! K-W-L Chart
2. Journal for each student

C. Key Vocabulary
1. Puberty: a stage during which boys’ and girls’ bodies begin to change as they take on adult characteristics and become physically able to reproduce.
2. Glands: body parts that make and release a product, usually a fluid, that is useful to the body in some way.
3. Hormones: chemicals (released by glands) that help to control and regulate the body’s activities.
4. Growth spurt: a sudden increase in the growth rate.
5. Hair growth: the increase of body hair during puberty. As humans enter puberty, they will grow hair under their arms, on their legs, and in the genital areas. Men will also grow hair on their face and chest.
6. Breasts: a pair of organs on the chest. Women’s breasts are larger and rounder than men’s breasts, and women’s breasts produce milk for feeding newborn babies.
7. Voice change: the lowering in pitch of a male’s voice as he goes through puberty.
8. Adolescence: The time of life when a person is more grown-up than a child but is not yet an adult.

D. Procedures/Activities
   Note: While the following activities shouldn’t replace a typical school’s sex education program for adolescents, it might be in the class’s best interests that a disclaimer is made before going into this unit. Notes should be sent to parents letting them know about the subject matter that will be covered in the coming weeks. Students should be aware that, although the subject might be embarrassing for them, it is a part of life and something everyone needs to learn about. Students should be as mature and responsible with the information as they can, and high expectations should be set for how the class acts and communicates during this unit. To fully introduce the activities, most schools will have a
program already in place to teach students about puberty. Any programs or videos should precede this unit. For suggestions on helpful videos and materials, see resources.

Activity 1:
1. Set purpose: Show Puberty! K-W-L chart (Appendix NN), either as a transparency on the overhead or modeled on a chalkboard or paper, or as an individual worksheet for students to complete. Introduce the coming lessons: “For the next few weeks, we will be talking about the human body, and how it changes. As you continue to grow, you might notice that your body will be going through a lot of changes before you become an adult. These changes are called puberty. Boys and girls both go through puberty around the same time. Many of the changes their bodies make are similar. However, many changes their bodies make are different. What do you know about puberty? What sorts of changes do human bodies make before they grow into adults?”
2. Make a list to fill out the “K” column of the chart as students give responses.
3. Hand out strips of paper to each student. Tell them that for the “W” part of the chart, they can write questions on the strips of paper. That way, they can ask their questions privately to avoid embarrassment. After students write what they want to know on the strips of paper, collect them in a basket or bucket and pull them out, writing down each one in the “W” column. Make sure each question is anonymous.
4. Tell the class that, throughout the course of the unit, all questions will be answered as the students investigate the human body, puberty, and the endocrine and reproductive systems. Keep the list as a reminder of questions that need to be answered.

Activity 2:
5. Lesson development: Introduce vocabulary to students. Discuss changes that take place in both males and females: hair, growth, voices, etc.
   • How are the changes in males and females different?
   • What causes these changes?
6. Closing: Hand out journals to students. Tell the class that this journal will be their personal resource to use throughout the unit and for the coming years as they go through puberty. It is especially important to tell them that, although you will be looking at the journals periodically to make sure they are using them as designed, that they can keep parts of their journal confidential. (They can fold pages over or bind some together with a paper clip to assure that you won’t see them.)
7. Allow time for students to make their first entry in their journal, along with writing down definitions or any questions they might have wanted to remember. (Prompt suggestions: 1) My feelings about growing up... 2) Some questions that were answered, some more questions I have...)

E. Assessment/Evaluation
1. Teacher will observe student participation in class discussion.
2. Teacher will observe student participation and progress during journal writing.

Lesson Twenty-six: Taking Care of Your Changing Self
A. Daily Objectives
1. Concept Objectives
   a. Students will understand the basic structures and functions of the human body and how they relate to personal health throughout the life span. (TEKS 5.2)
b. Students will know how to utilize health information. (TEKS 5.3)

2. Lesson Content
   a. Puberty
   b. Taking care of your body

3. Skill Objectives
   a. Identify and describe changes in male and female anatomy that occur during puberty. (TEKS 5.2B)
   b. Demonstrate ways to communicate health information. (TEKS 5.3B)

B. Materials
   1. Appendix NN: Puberty! K-W-L Chart
   2. Journal for each student
   3. Big
   4. Appendix OO: Paper packet (4 sheets for each student: Separate “And the Private Stuff…” sheets are designated for boys and girls, along with one sheet of 8.5”X11” construction paper (color optional))
   5. Appendix PP: Station Information Sheets (7 pp)

C. Key Vocabulary
   1. Acne: the clogging and infection of skin pores from extra oil being produced by oil glands

D. Procedures/Activities

Activity 1:
   1. Set purpose: Show students clip from Big where Tom Hanks first wakes up as an adult, until the time he meets with his friend.
   2. Talk about the coming changes their bodies will experience. “While you won’t grow up quite as quickly as the character in Big, there might be mornings where you’ll wake up and wonder what happened to your body overnight! As your body goes through all these changes, it is extremely important to take care of yourself as much as you can.”
   3. Refer back to the Puberty! K-W-L chart (Appendix NN). Mention any questions asked that have to do with healthy living and hygiene.
   4. Tie these questions in by introducing today’s activity: “Today we are going to learn about healthy living habits that we can follow in the coming years as you go through puberty. We will be making brochures that we can use in the coming years as we go through changes into becoming adults. That way, we’ll be ready for the changes when they come, unlike Tom Hanks!”

Activity 2:
   5. Lesson development: Hand out paper packet to each student (Appendix OO), with girls receiving separate packets from boys. Set up separate stations throughout the classroom for the following content areas (as seen in the appendices): Skin, Body Odor, Hair, Diet, My Mouth, Private Parts (separate for boys and girls). Each station should be prepared with the proper information packets (Appendix PP).
   6. Split class up into seven groups (groups should be same-sex). Have groups rotate around stations, completing the appropriate sections of their brochure at each station. Each station should take 5-10 minutes.
   7. Closing: After students have finished station rotation, bring the class together and make sure all questions from the K-W-L chart concerning healthy living and hygiene have been answered. Talk about what the students have learned from the stations, and list these under the “L” column in the chart.
8. Allow time for students to make their second and third entries in their journal, along with writing down definitions or any questions they might have wanted to remember. (Prompt suggestions: 1) Ways I can stay healthy while I am growing up... 2) What if I grew up suddenly “big”? 3) Some questions that were answered, some more questions I have...)

E. Assessment/Evaluation
1. Teacher will observe student participation in health stations.
2. Teacher will observe student participation in class discussion.
3. Teacher will observe student participation and progress during journal writing.
4. Teacher will assess brochures (using checklist at the end of Appendix OO).

Lesson Twenty-seven: The Chemical Express
A. Daily Objectives
1. Concept Objectives
   a. Students will understand the basic structures and functions of the human body and how they relate to personal health throughout the life span. (TEKS 5.2)
   b. Students will learn that a system is a collection of cycles, structures, and processes that interact. (TEKS 5.5)
   c. Students will learn that some change occurs in cycles. (TEKS 5.6)
2. Lesson Content
   a. Body systems
3. Skill Objectives
   a. Describe some cycles, structures, and processes that are found in a simple system. (TEKS 5.3B)
   b. Describe some interactions that occur in a simple system. (TEKS 5.5B)
   c. Describe the structure, functions, and interdependence of major body systems. (TEKS 5.2A)
   d. Represent the natural world using models and identify their limitations. (TEKS 5.3C)

B. Materials
1. Appendix QQ: Endocrine System K-W-L Chart
2. Journal for each student
3. Map or chart of the human body
4. Appendix RR: Exocrine vs. Endocrine
5. Appendix SS: The Endocrine System Is Like…

C. Key Vocabulary
1. Gland: a group of cells that release a product.
2. Duct gland: a gland with ducts that secretes something through the ducts to body parts (also called exocrine gland).
3. Endocrine gland: a ductless gland that secretes something directly into the bloodstream to affect the function of other organs.
4. Endocrine system: a system of glands that release and send chemicals to target organs to regulate, coordinate, and control body functions.
5. Hormone: a chemical produced by an endocrine gland that regulates the function of a target organ.

D. Procedures/Activities
Activity 1:
1. Set purpose: Begin the lesson by asking students what the similarities between sweat, tears, and saliva. After a few suggestions, introduce the idea of ducts to
the class. (Ducts are tubes that carry material from one place to another.) Raise
the question: How do chemicals travel through our body?

2. Show class Endocrine System K-W-L chart (Appendix QQ). Fill out the “K”
column as students give responses. Then fill out the “W” column as students ask
questions concerning information they want to know.

3. Introduce vocabulary. Begin with glands and duct glands. Explain that sweat,
tears, and saliva all come from duct glands in the body, which release chemicals
onto some body surface. Ask the class, what would our bodies be like if we
didn’t have tears?...if we couldn’t sweat?...if we didn’t have saliva? Iterate the
importance of duct glands and the chemicals they produce.

Activity 2:

4. Lesson development: Introduce the idea of endocrine glands and the endocrine
system. Use the map or chart of the human body to point out various places
where glands exist. Endocrine glands are different from duct glands because
they release their chemicals either near an organ they control, or into the
circulatory system, inside the body. Another name for duct glands is also
exocrine glands. Pass out worksheet, Appendix RR, to demonstrate to students
the difference between endocrine and exocrine glands.

5. Introduce the idea of hormones. Hormones are the goods that the endocrine
glands release through the blood stream to affect the function of a target organ.

6. Connecting: Use Appendix SS to demonstrate to students how the endocrine
system is like things in the world around them.

7. Closing: After students have finished the worksheets, talk about what the
students have learned about the endocrine system, and list the information under
the “L” column in the chart.

8. Allow time for students to make an entry in their journal, along with writing
down definitions or any questions they might have wanted to remember.
(Prompt suggestions: 1) What life would be like without glands!... 2) What else
is the endocrine system like?...3) Some questions that were answered, some more
questions I have...)

E. Assessment/Evaluation

1. Teacher will observe student participation in class discussion.
2. Teacher will observe student participation and progress during journal writing.
3. Teacher will assess worksheets using checklists (Appendices RR and SS).

Lesson Twenty-eight: Visiting Our Very Vital Glands!

A. Daily Objectives

1. Concept Objectives
   a. Students will understand the basic structures and functions of the human
      body and how they relate to personal health throughout the life span.  
      (TEKS 5.2)
   b. Students will know how to utilize health information. (TEKS 5.3)
   c. Students will know that a system is a collection of cycles, structures, and
      processes that interact. (TEKS 5.5)
   d. Students will know that some change occurs in cycles. (TEKS 5.6)

2. Lesson Content
   a. Body systems

3. Skill Objectives
   a. Analyze and interpret information to construct reasonable explanations
      from direct and indirect evidence. (TEKS 5.2C)
   b. Communicate valid conclusions. (TEKS 5.2D)
c. Construct simple graphs, tables, maps, and charts to organize, examine, and evaluate information. (TEKS 5.2E)

d. Connect science concepts with the history of science and contributions of scientists. (TEKS 5.3E)

e. Describe some cycles, structures, and processes that are found in a simple system. (TEKS 5.5A)

B. Materials
1. Reference books (encyclopedias, dictionaries)
2. Appendix QQ: Endocrine System K-W-L Chart
3. Journal for each student
4. Appendix TT: Endocrine Gland Wonderland
6. Strips of paper

C. Key Vocabulary
1. Adrenal glands: small glands located just above the kidneys that produce steroid hormones and adrenaline.
2. Adrenaline: a hormone released by the adrenal glands, especially when a person is frightened or angry, that causes rapid heartbeat and breathing.
3. Cortisol: a steroid hormone, secreted by the adrenal glands, that elevates blood levels of glucose and which reduces inflammation in damaged tissues or in arthritis.
4. Insulin: a hormone secreted by the pancreas that lowers blood sugar.
5. Pancreas: a gland located beneath the stomach that produces digestive juices and hormones.
7. Somatotropin: another term for the pituitary hormone, growth hormone.
8. Thyroid gland: endocrine gland wrapped around the trachea that produces thyroxine and calcitonin.
9. Thyroxine: thyroid hormone that stimulates metabolic rate.
10. Diabetes: a disease that creates high levels of sugar in the blood. Diabetes is caused when the pancreas does not make enough insulin.

D. Procedures/Activities
Activity 1:
1. Before class, write words for students to look up on 4 separate strips of paper. These strips will be handed out to four different groups during the lesson’s activity. On one strip, write adrenal glands, adrenaline, cortisol, and Percy Lavon Julian. On the second strip, write pancreas, insulin, and diabetes. On the third strip, write pituitary gland and somatotropin. On the fourth strip, write thyroid gland and thyroxine.
2. Set purpose: Review the Endocrine System K-W-L chart (Appendix QQ). Mention any questions asked that have to do with glands. Set up lesson: “The endocrine system relies on many different glands to function properly. If one of those glands doesn’t work, the whole body is affected. Today we’re going to learn about some important glands and health issues that are connected with them.”
3. Lesson development: Divide the class into four separate groups. Each group is given a gland to investigate: adrenal glands, pancreas, pituitary gland, or thyroid gland. Pass out Appendix TT, Endocrine Gland Wonderland, along with the separate strips of paper to each group.

4. Instruct students to research the words on their strips of paper and fill out their corresponding row in Appendix TT. They may use encyclopedias, dictionaries, any other reference material, or if Internet access is available, http://www.kidshealth.org/teen/your_body/body_basics/endocrine.html.

5. Monitor student participation among all groups, answering any questions and providing guidance for students.

6. Closing: When students finish researching their gland, allow time for sharing. Have groups present their findings to the rest of the class, and model notetaking using a transparency of Appendix TT on the overhead.

7. Allow time for students to make another entry in their journal, along with writing down definitions or any questions they might have wanted to remember. (Prompt suggestions are listed on each station’s worksheet, or students can use the following prompt: Some questions that were answered, some more questions I have...)

8. After activity, bring the class together and make sure all questions from the K-W-L chart concerning glands and the endocrine system have been answered. Talk about what the students have learned from the research groups, and list these under the “L” column in the chart.

E. Assessment/Evaluation
1. Teacher will observe student participation in gland research groups and presentations.
2. Teacher will observe student participation in class discussion.
3. Teacher will observe student participation and progress during journal writing.
4. Teacher will assess completion of Appendix TT:
   - 4 – Entire worksheet completed and accurate.
   - 3 – Worksheet completed and paraphrased or abbreviated
   - 2 – Worksheet partially completed
   - 1 – Worksheet shows little attempt to complete

Lesson Twenty-nine: How Babies Are Made, Part I: Girls’ Reproductive System

A. Daily Objectives
1. Concept Objectives
   a. Students will understand the basic structures and functions of the human body and how they relate to personal health throughout the life span. (TEKS 5.2)
   b. Students will know that a system is a collection of cycles, structures, and processes that interact. (TEKS 5.5)
   c. Students will know that some change occurs in cycles. (TEKS 5.6)

2. Lesson Content
   a. Body systems

3. Skill Objectives
   a. Describe some cycles, structures, and processes that are found in a simple system. (TEKS 5.3B)
   b. Describe some interactions that occur in a simple system. (TEKS 5.5B)
   c. Describe the structure, functions, and interdependence of major body systems. (TEKS 5.2A)
d. Construct simple graphs, tables, maps, and charts to organize, examine, and evaluate information. (TEKS 5.2E)

e. Identify events and describe changes that occur on a regular basis such as in daily, weekly, lunar, and seasonal cycles. (TEKS 5.6A)

B. Materials
1. Appendix UU: Reproductive System K-W-L Chart
2. Journal for each student
3. Map or chart of the human body
4. Appendix VV: The Female Reproductive System
5. Appendix WW: The Menstruation Cycle

C. Key Vocabulary
1. Genitals: the organs or body parts that are different in males and females. The genitals are the organs used in sexual intercourse and sexual reproduction.
2. Estrogen: a female sex hormone, produced by the ovaries.
3. Ovaries: a pair of female genital organs that contain a woman’s eggs.
4. Fallopian tubes: two long, thin tubes that connect a woman’s ovaries to her uterus. An egg travels from an ovary to the uterus through a fallopian tube.
5. Uterus: a stretchy sac inside a woman’s body where a baby develops and grows until it is ready to be born.
6. Vagina: part of the female genitals, a tube that goes from the uterus to the outside of the body.
7. Menstruation: a period in a woman’s monthly reproductive cycle in which cells and blood are shed from the lining of the uterus.
8. Eggs: stored in a woman’s ovaries, an egg is needed, along with a sperm from a man, to create a baby. Although a woman’s ovaries contain thousands of eggs from birth, the ovaries normally release only one egg per month. This is why women usually have one baby at a time.

D. Procedures/Activities
Activity 1:
1. Set purpose: Begin the lesson by telling students that over the next few days, the class will be learning about sexual reproduction. This will include talking about boys’ and girls’ private parts. Establish firm rules with the class on appropriate/inappropriate behavior and comments during this time. Emphasize the need for respect and understanding, and that although the subject might be embarrassing or “gross”, laughing is not appropriate, and neither are any other form of verbal outbursts. Also provide students who are uncomfortable talking about this in a classroom setting an option of doing independent work or meeting with a nurse, counselor, or other staff to discuss the lesson material.

2. Show class Reproductive System K-W-L chart (Appendix UU). Fill out the “K” column as students give responses. Then fill out the “W” column as students ask questions concerning information they want to know.

3. Introduce the reproductive system. “Of all the systems in the human body, only one system is different among males and females. That system is the reproductive system. Although the male and female systems are quite different, they interact with each other to produce new life. Male and female reproductive systems rely on each other to make offspring, or babies.”

4. Introduce genitals. “Genitals are the parts of the reproductive systems in women and men that are different. These body parts are used in sexual reproduction and sexual intercourse.”
Lesson development: Pass out Appendix VV to students, and explain today’s topic: “Today we are going to learn about female genitals and how the female reproductive system works.”

6. Introduce vocabulary as you go through the worksheet (Appendix VV) with the class. Use the map or chart of the human body to locate organs in the reproductive system. Make sure the class understands that the female’s reproductive organs are inside her body, not on the outside (like males).

7. Connect: Introduce the menstruation cycle of the female reproductive system. Use Appendix WW to explain the cycle to students. Use estrogen and ovaries to make a connection between the endocrine and reproductive systems.

8. Closing: After students have finished the worksheets, talk about what the students have learned about the female reproductive system. Make sure any questions pertaining to the female reproductive system in the “W” column have been answered, and list the information under the “L” column in the chart.

9. Allow time for students to make an entry in their journal, along with writing down definitions or any questions they might have wanted to remember. (Prompt suggestion: 1) Some questions that were answered, some more questions I have...)

E. Assessment/Evaluation
1. Observe student participation in class discussion.
2. Observe student participation and progress during journal writing.
3. Assess through observation of student participation and completion in the worksheet activities.

Lesson Thirty: How Babies Are Made, Part II: Boys’ Reproductive System

A. Daily Objectives
1. Concept Objectives
   a. Students will understand the basic structures and functions of the human body and how they relate to personal health throughout the life span. (TEKS 5.2)
   b. Students will know that a system is a collection of cycles, structures, and processes that interact. (TEKS 5.5)
   c. Students will know that some change occurs in cycles. (TEKS 5.6)

2. Lesson Content
   a. Body systems

3. Skill Objectives
   a. Describe some cycles, structures, and processes that are found in a simple system. (TEKS 5.3B)
   b. Describe some interactions that occur in a simple system. (TEKS 5.5B)
   c. Describe the structure, functions, and interdependence of major body systems. (TEKS 5.2A)
   d. Construct simple graphs, tables, maps, and charts to organize, examine, and evaluate information. (TEKS 5.2E)
   e. Identify events and describe changes that occur on a regular basis such as in daily, weekly, lunar, and seasonal cycles. (TEKS 5.6A)

B. Materials
1. Appendix UU: Reproductive System K-W-L Chart
2. Journal for each student
3. Map or chart of the human body
4. Appendix XX: The Male Reproductive System

C. Key Vocabulary
1. **Genitals**: the organs or body parts that are different in males and females. The genitals are the organs used in sexual intercourse and sexual reproduction.

2. **Penis**: the long, tube-like organ on the outside of the body that is part of the male genitals.

3. **Scrotum**: a sac of skin that hangs under the penis and contains the testicles.

4. **Semen**: a thick fluid that comes out of a man’s penis during ejaculation. A few drops of semen may contain many millions of sperm.

5. **Testes**: the pair of male genital organs, located under the penis in the scrotum, that produce sperm.

6. **Urethra**: a long, thin tube in both males and females that urine passes through when traveling out of the body. In males, the urethra runs through the penis and is part of the genitals, because semen and sperm travel through it to exit the body.

7. **Sperm**: produced by a man’s testicles, a sperm is needed, along with an egg from a woman, to create a baby.

D. **Procedures/Activities**

1. **Activity 1**: Review: Begin the lesson by reviewing the female reproductive system. Point out the organs in the system that have been discussed and restate the presence of genitals in both males and females, and the purpose of genitals for sexual reproduction.

2. **Set purpose**: Introduce the male reproductive system. “Today we will be talking about the male reproductive system. Unlike the female reproductive system, the male reproductive system is visible from outside the male’s body. While females have eggs to have babies, males fertilize the eggs. Today we will be talking about the organs males have that make this possible.”

3. **Lesson development**: Pass out Appendix XX to students, and introduce vocabulary as you go through the worksheet with the class. Use the map or chart of the human body to locate organs in the reproductive system.

4. **Closing**: After students have finished the worksheets, talk about what the students have learned about the male reproductive system. Make sure any questions pertaining to the male reproductive system in the “W” column have been answered, and list the information under the “L” column in the chart.

5. **Allow time for students to make an entry in their journal, along with writing down definitions or any questions they might have wanted to remember.**

(E. **Assessment/Evaluation**

1. Observe student participation in class discussion.
2. Observe student participation and progress during journal writing.
3. Assess through observation of student participation and completion in the worksheet activity.

Lesson Thirty-one: How Babies Are Made, Part III: Reproduction!

A. **Daily Objectives**

1. **Concept Objectives**
   
   a. Students will understand the basic structures and functions of the human body and how they relate to personal health throughout the life span. (TEKS 5.2)
   
   b. Students will know that a system is a collection of cycles, structures, and processes that interact. (TEKS 5.5)
   
   c. Students will know that some change occurs in cycles. (TEKS 5.6)
d. Students will develop an awareness that likenesses between offspring and parents can be inherited or learned. (TEKS 5.10)

2. Lesson Content
   a. Body systems

3. Skill Objectives
   a. Describe some cycles, structures, and processes that are found in a simple system. (TEKS 5.3B)
   b. Describe some interactions that occur in a simple system. (TEKS 5.5B)
   c. Describe the structure, functions, and interdependence of major body systems. (TEKS 5.2A)

B. Materials
   1. Appendix UU: Reproductive System K-W-L Chart
   2. Journal for each student
   3. Map or chart of the human body
   4. One strip of paper for each student (at least 2 ft long, 1 inch wide.)
   5. Appendix YY: Human Development Timeline

C. Key Vocabulary
   1. Intercourse: a special form of touching, involving the genitals, when a male’s penis is inserted into a female’s vagina. Intercourse causes fertilization.
   2. Fertilization: the action of a sperm joining with an egg. The sperm is said to fertilize the egg (also conception).
   4. Pregnancy: the time it takes for an embryo to become a fetus and for a fetus to be born; a female human’s pregnancy usually lasts about nine months.
   5. Embryo: the early growing and developing stage of a human being when the new cells start to grow within a woman’s uterus.
   6. Fetus: the later stages in growth of a human being, from three months until birth.
   7. Newborn: when a fetus finally is born and is no longer inside its mother’s body.
   8. Sexual reproduction: the process of reproducing, or creating a new person (a baby), that is made possible by joining an egg from a woman with a sperm from a man.

D. Procedures/Activities
   Activity 1:
   1. Review: Begin the lesson by reviewing both the male and female reproductive systems. Point out the organs in the systems that have been discussed and the purpose of genitals for sexual reproduction.
   2. Set purpose: Introduce sexual reproduction. “Today we will be talking about how new lives are formed. When a male and female’s reproductive systems interact, they create a new human being. It takes a lot of interaction and coordination between systems to make a human being, and even if one little thing doesn’t happen, then a baby can’t be born! Let’s find out how humans are made.”
   3. Lesson development: Introduce vocabulary as you go through the fertilization process. Use the map or chart of the human body to locate organs in the reproductive system and places where development takes place. See Appendix YY for a timeline suggestion of how to present human development.

   Activity 2:
   4. Lesson development: Pass out strips of paper to students. Explain the activity: “We are going to make a timeline of a human, from the time it is a sperm and egg until it is born.” Have students fold their strip into eight sections (fold the strip in half three times). Use the timeline suggestion in Appendix YY as a guide for each section.
5. As students write their timeline and illustrate, monitor student progress and be available to answer any questions.

6. Closing: After students have finished the timelines, talk about what the students have learned about sexual reproduction. Make sure any questions pertaining to the sexual reproduction in the “W” column have been answered, and list the information under the “L” column in the chart.

7. Allow time for students to make an entry in their journal, along with writing down definitions or any questions they might have wanted to remember.

(Prompt suggestion: 1) Some questions that were answered, some more questions I have...)

E. **Assessment/Evaluation**

1. Observe student participation in class discussion.
2. Observe student participation and progress during journal writing.
3. Assess through observation of student participation and completion in the timeline activity:
   4 Timeline is colored and completed in order with full detail
   3 Timeline has full information, partial detail and color
   2 Timeline has partial information, detail and color
   1 Timeline shows signs of little attempt

VI. **CULMINATING ACTIVITY**

The culminating activity for this unit is a school-wide health fair in which students display their work and inform other students of the information they have acquired. Classrooms should set up stations outside their classrooms or in the cafeteria, gym, or auditorium. Stations can be set up simply by using a folding table and chairs. Each table should represent one classroom. At these tables, students may display their work. For instance, a 3rd grade table may display maps of the human body, or 5th grade tables may display health brochures. Students may be assigned the task of presenting information to visitors at their tables.

To ease the process of presentation, administrators and educators have the options of either creating an assembly where classes give short 2-3 minute presentations on information they have learned, or designing a rotating system of classrooms to observe the tables in a designated time period during the day. The rotation should occur towards the end of the day, allowing classes time to assemble their tables effectively. During the rotation, classes should go separately to observe the many stations and tables (this would provide several times where students from each class could present information at their tables.) Designing a schedule for each class's visit to the tables will assist in managing student flow. For instance, Kindergarten might go for 20 minutes at 1:00, followed by 1st Grade at 1:20, then 2nd at 1:40, and so on.

Educators might want to consider bringing in a guest speaker at the end of the day to give a presentation to the entire school. Nutritionists, nurses, doctors, or dentists can give presentations on their areas of expertise, and give information and advice to students on how to take care of their bodies and maintain health.

The culminating experience will provide students the opportunity to not only display what they have learned, but also to gain perspective on how body systems are connected and how humans can take care of their bodies in several ways. As grade levels build on each other, students will be able to observe how knowledge of the body expands throughout the grades. A guest speaker will also provide all students throughout the school with a common experience to close the unit.

VII. **HANDOUTS/WORKSHEETS**

1. Appendix A: Anatomy Across the Grades Checklist Grades K-5
2. Appendix B: Building a Better Vocabulary Grades K-5
3. Appendix C: My Five Senses Flashcards
4. Appendix D: What Do You See?
5. Appendix E: What Do You Hear?
6. Appendix F: What Do You Smell?
7. Appendix G: What Do You Taste?
8. Appendix H: What Do You Touch?
9. Appendix I: Senses Culmination Worksheet
10. Appendix J: My Healthy Body Book (5 pp)
11. Appendix K: Healthy Food or Junk Food
12. Appendix L: Five Senses and Healthy Body Checklists
13. Appendix M: “Shake and Rattle My Bones” and “Dem Bones” songs
14. Appendix N: Skeleton Page
15. Appendix O: Bone Sheet
16. Appendix P: We Have Organs
17. Appendix Q: Good for You Sort Sheets (2 pp)
18. Appendix R: The Cell
19. Appendix S: Cell Model
20. Appendix T: Teeth
21. Appendix U: Stomach
22. Appendix V: Liver
23. Appendix W: Small Intestine
24. Appendix X: Large Intestine
26. Appendix Z: Food Pyramid
27. Appendix AA: Sliced Apples
28. Appendix BB: Skeleton Page with Blank Labels
29. Appendix CC: Skeleton Page with Labels
30. Appendix DD: Mind Map
31. Appendix EE: The Eye
32. Appendix FF: The Eye with Blank Labels
33. Appendix GG: Circulatory System Vocabulary
34. Appendix HH: Circulatory System Research Checklist
35. Appendix II: Circulatory System Test (2 pp)
36. Appendix JJ: Circulatory System Answer Key (2 pp)
37. Appendix KK: Respiratory System Diagram
38. Appendix LL: Respiratory System Answer Key
39. Appendix MM: Respiratory System Vocabulary
40. Appendix NN: Puberty! K-W-L Chart
41. Appendix OO: Paper Packet (4 pp)
42. Appendix PP: Station Information Sheets (7 pp)
43. Appendix QQ: The Endocrine System K-W-L Chart
44. Appendix RR: Exocrine vs. Endocrine
45. Appendix SS: The Endocrine System Is Like…
46. Appendix TT: Endocrine Gland Wonderland
47. Appendix UU: The Reproductive System K-W-L Chart
48. Appendix VV: The Female Reproductive System
49. Appendix WW: The Menstruation Cycle
50. Appendix XX: The Male Reproductive System
51. Appendix YY: Human Development Timeline

VIII. BIBLIOGRAPHY
## Appendix A: Anatomy Across the Grades Checklist, Grades K-5

### Anatomy Across the Grades Checklist

<table>
<thead>
<tr>
<th>Grade</th>
<th>Task Description</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Kindergarten</strong></td>
<td>Student can name the five senses.</td>
<td>Yes</td>
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</tr>
<tr>
<td></td>
<td>Student can point to body parts with corresponding senses.</td>
<td>Yes</td>
<td>No</td>
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<tr>
<td></td>
<td>Student can identify methods of exercise.</td>
<td>Yes</td>
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<tr>
<td></td>
<td>Student can explain how to keep his/herself clean.</td>
<td>Yes</td>
<td>No</td>
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<tr>
<td></td>
<td>Student can identify healthy and non-healthy foods.</td>
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<td>No</td>
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<tr>
<td></td>
<td>Student can name healthy sleeping habits.</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Student can explain importance of taking care of the body.</td>
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<td>No</td>
</tr>
<tr>
<td><strong>1st Grade</strong></td>
<td>Student can identify the skeletal system.</td>
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<td>No</td>
</tr>
<tr>
<td></td>
<td>Student can point to bones and skull.</td>
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<td>No</td>
</tr>
<tr>
<td></td>
<td>Student can identify the muscular system.</td>
<td>Yes</td>
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<tr>
<td></td>
<td>Student can point to muscles.</td>
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<td>No</td>
</tr>
<tr>
<td></td>
<td>Student can identify the digestive system.</td>
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<td>No</td>
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<tr>
<td></td>
<td>Student can point to mouth and stomach.</td>
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<td>No</td>
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<tr>
<td></td>
<td>Student can identify the circulatory system.</td>
<td>Yes</td>
<td>No</td>
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<tr>
<td></td>
<td>Student can point to heart.</td>
<td>Yes</td>
<td>No</td>
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<tr>
<td></td>
<td>Student can explain the purpose of blood.</td>
<td>Yes</td>
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<tr>
<td></td>
<td>Student can identify the nervous system.</td>
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<tr>
<td></td>
<td>Student can point to brain.</td>
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<td>No</td>
</tr>
<tr>
<td></td>
<td>Student can explain the purpose of nerves.</td>
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<td>No</td>
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<tr>
<td></td>
<td>Student can explain the importance of vaccinations.</td>
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<td>No</td>
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<tr>
<td><strong>2nd Grade</strong></td>
<td>Student can label parts of a cell.</td>
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<tr>
<td></td>
<td>Student can identify cells and cell structures.</td>
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<tr>
<td></td>
<td>Student can identify different teeth.</td>
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<tr>
<td></td>
<td>Student can label organs in the digestive system.</td>
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<td>No</td>
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<tr>
<td></td>
<td>Student can identify the excretory system.</td>
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</tr>
<tr>
<td></td>
<td>Student can label organs in the excretory system.</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Student can label a food pyramid.</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Student can explain the importance of vitamins and minerals.</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>3rd Grade</strong></td>
<td>Student can distinguish voluntary and involuntary muscles.</td>
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<td>No</td>
</tr>
<tr>
<td></td>
<td>Student can label parts of the skeletal system.</td>
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<td>No</td>
</tr>
<tr>
<td></td>
<td>Student can label parts of the human brain.</td>
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<td>No</td>
</tr>
<tr>
<td></td>
<td>Student can explain nerves and reflexes.</td>
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<td>Student can label parts of the eye.</td>
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<tr>
<td></td>
<td>Student can explain the cause of vision impairment.</td>
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</tr>
<tr>
<td></td>
<td>Student can label parts of the ear.</td>
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<td>No</td>
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<tr>
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<td>Student can explain how hearing works.</td>
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<td><strong>4th Grade</strong></td>
<td>Student can label parts of the circulatory system.</td>
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<tr>
<td></td>
<td>Student can explain the makeup of blood.</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Student can label parts of the respiratory system.</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Student can explain the hazards of smoking.</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>5th Grade</strong></td>
<td>Student can identify changes in human adolescence.</td>
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<td>No</td>
</tr>
<tr>
<td></td>
<td>Student can identify the endocrine system.</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Student can label parts of the endocrine system.</td>
<td>Yes</td>
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</tr>
<tr>
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<td>Student can identify the reproductive system.</td>
<td>Yes</td>
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</tr>
<tr>
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<td>Student can label parts of the reproductive system.</td>
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</tr>
<tr>
<td></td>
<td>Student can explain sexual reproduction.</td>
<td>Yes</td>
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</tr>
</tbody>
</table>
### Kindergarten
- **senses**: sight, hearing, taste
- **smell**: touch, healthy, cleanliness
- **exercise**
- **skeleton**: bones, skull, muscles
- **mouth**: stomach, digest, heart
- **blood**: brain, nerves, vaccination
- **Edward Jenner**: Louis Pasteur

### 1st Grade
- **cell**: nucleus, cell wall, cytoplasm
- **cell membrane**: mitochondria, chloroplasts, incisors
- **canine**: bicuspids, molars, salivary glands
- **esophagus**: stomach, liver, small intestine
- **large intestine**: bladder, appendix, urine
- **anus**: kidneys, nutrients, food pyramid

### 2nd Grade
- **involuntary muscles**: voluntary muscles, marrow, ligaments
- **tendons**: Achilles tendon, cartilage, cranium
- **spinal column**: vertebrae, joints, sternum
- **scapula**: pelvis, tibia, fibula
- **x-rays**: medulla, cerebellum, cerebrum
- **cerebral cortex**: spinal cord, reflexes, cornea
- **iris**: pupil, lens, retina
- **optic nerve**: farsighted, nearsighted, ear canal
- **eardrum**: hammer, anvil, stirrup

### 3rd Grade
- **heart**: aorta, William Harvey, spleen
- **heart attack**: blood type, transfusion, plasma
- **blood vessels**: platelets, hemoglobin, pulse
- **antibodies**: coagulation, blood pressure, bronchi
- **respiration**: trachea, bronchi
- **alveoli**: lung cancer, diaphragm

### 4th Grade
- **puberty**: glands, hormones, breasts
- **adolescence**: acme, duct (exocrine) gland, endocrine gland
- **hormone**: adrenal glands, adrenaline, cortisol
- **insulin**: pancreas, pituitary gland, thyroid gland
- **diabetes**: Percy Lavon Julian, genitals, estrogen
- **ovaries**: Fallopian tubes, uterus, vagina
- **menstruation**: eggs, penis, scrotum
- **semen**: testes, urethra, sperm
- **intercourse**: fertilization, zygote, pregnancy
- **embryo**: fetus, sexual reproduction
# Appendix C: My Five Senses Flashcards

<table>
<thead>
<tr>
<th>My Five Senses Flashcards</th>
<th>Sight</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hear</td>
</tr>
<tr>
<td></td>
<td>Taste</td>
</tr>
<tr>
<td></td>
<td>Smell</td>
</tr>
<tr>
<td></td>
<td>Touch</td>
</tr>
</tbody>
</table>
Appendix D: What Do You See?

Name___________________________________________________________

What do you see?

Directions: Draw pictures of what you see in the classroom.
Appendix E: What Do You Hear?

Name ______________________________________________

What do you hear?

Directions: Circle the things you can hear.
Appendix F: What Do You Smell?

Name ________________________________

What do you smell?

Directions: Circle the things you like to smell.
Appendix G: What Do You Taste?

Name ________________________________

What do you taste?

Directions: Underline the things you can taste.
Appendix H: What Do You Touch?

Name ____________________________________________

What do you touch?

Directions: Put an X on the things you should not touch.
Appendix I: Senses Culmination Worksheet

Name ____________________________________________

Senses Culmination Worksheet

Directions: Mark each of the senses that are used with the picture. For example, popcorn could use sight, taste, hearing, smell, and touch.
Appendix J: My Healthy Body Book (5 pages)

My Healthy Body Book

By:

________________________
I keep my body clean by ___________

________________________________________________________________________.
My favorite healthy food is __________

________________________________________.
I exercise because ______________________

__________________________________________________________________.
I cannot go to sleep without ________
__________________________________________.
Appendix K: Healthy Food or Junk Food

Name

Healthy Food or Junk Food

Directions: Color & cut out the pictures. Separate the pictures into two groups healthy foods and junk foods. Paste pictures onto the appropriate side for Activity 3.
### Lesson One: The Five Senses Checklist

<table>
<thead>
<tr>
<th>Questions to Answer</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is the student able to identify the five senses with the use of the flashcards?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is the student able to point to the corresponding body part for the five senses?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does the student have a grasp of each sense after completing each individual worksheet?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Did the student participate in discussions?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Did the student follow directions during each activity?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Lesson Two: My Healthy Body Checklist

<table>
<thead>
<tr>
<th>Questions to Answer</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did the student participate in whole group discussions?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Was the student able to identify the differences between healthy food and junk food?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Was the student able to replicate exercise movements properly?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Did the student follow directions during each activity?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Did the student complete the <em>My Healthy Body</em> book?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix M: “Shake and Rattle My Bones” and “Dem Bones” Songs

Dem Bones-

The foot bone’s connected to the ankle bone.
The ankle bone’s connected to the leg bone.
The leg bone’s connected to the thigh bone.
The thigh bone’s connected to the hip bone.
The hip bone’s connected to the back bone.
The back bone’s connected to the shoulder bone.
The shoulder bone’s connected to the neck bone.
The neck bone’s connected to the head bone.

Them bones, Them bones, them dry bones.
Them bones, Them bones, them dry bones.
Them bones, Them bones, them dry bones.
Hear the word of the Lord.

Shake and Rattle my Bones- “skip to my lou”

Bones bones sack full of bones.
Bones, bones, sack full of bones.
Bones bones sack full of bones,
Shake and rattle my bones now.

Keeping me strong
Keeping me safe
Skull for my brain
Ribs for my lungs
How many bones?
206
Shake and Rattle my Bones now.

Bones bones sack full of bones.
Bones, bones, sack full of bones.
Bones bones sack full of bones,
Shake and rattle my bones now.
Appendix O: Bone Sheet

**Bones**
(Cut out names of bones below.)

- Skull
- Arm
- Fingers
- Hand
- Ribs
- Neck

- Shoulder
- Leg
- Toes
- Foot
- Back
- Knee
Appendix P: We Have Organs

Name___________________________________________________________________

We Have Organs

Directions: Label each organ with the first letter of the word.

B – Brain
H- Heart
S – Stomach
L - Lungs
Good For You!

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

Appendix Q: Good For You Sort Sheets Cont’d. (2 pages)
Appendix R: The Cell

Name

A
B
C
D
E
F

The Cell

F E D C B A
Appendix S: Cell Model

Activity: Cell Model

Materials:
2 Ziploc bags per student
Translucent shampoo
Foil
Lima beans
Birdseed

Directions:
1. Give each student 2 Ziploc bags and have them put one inside the other. These represent the cell wall and cell membrane.
2. Give each student a small piece of foil and have them make it into a ball. This will be the nucleus of the cell.
3. Students will add some birdseed and lima beans to their cell. These represent organelle in cytoplasm.
4. The teacher will go around the room and add shampoo to their cell. This represents cytoplasm.
5. Upon completion, the students will identify the different parts of the cell and its function through classroom discussion.
1. **Incisors** - these are the teeth in the very front. They are the sharpest teeth and are shaped like a shovel. They are used to cut food and shovel food further in your mouth.

2. **Canine** - these are the pointy teeth are in the corner of your mouth. They are used for grasping and tearing your food. You have four canine teeth two on the top jaw and two on the bottom jaw.

3. **Bicuspids** - these are the teeth are located right next to your canine teeth. These teeth have two points and are used for crushing food. Adults have eight premolars, four in the top jaw and four in the bottom jaw.

4. **Molars** - these teeth are more flat and are generally used for grinding food into smaller pieces. They are located towards the back of your mouth. Molars are much larger than premolars. Adults have twelve molars six in the top jaw and six in the lower jaw.
Appendix U: Stomach

Name ____________________________________________

Stomach

Don’t forget: The stomach should connect to the small intestine!

Connects to the esophagus

Connects to the small intestine

DIRECTIONS:
1. Color the stomach orange.
2. Cut the stomach out.
3. Place appropriately on the body.
Appendix V: Liver

DIRECTIONS:
1. Color the liver DARK RED
2. Cut our the liver.
3. Glue the liver on the body.
Appendix W: Small Intestine

Name_________________________________________________________  

DIRECTIONS:
1. Color the small intestine LIGHT BROWN
2. Cut out the small intestine
3. Glue the small intestine on the body.

This part connects to the stomach
This part connects to the large intestine

Small Intestine
Appendix X: Large Intestine

1. Color the large intestine DARK BROWN
2. Cut out the large intestine
3. Glue the large intestine on body

The small intestine connects here
Appendix Y: Pancreas, Bladder, and Kidneys

DIRECTIONS:
1. Color the pancreas yellow, color the bladder green, and color the kidneys purple.
2. Cut out the organs.
3. Glue organs on the body.
Activity: Sliced Apples

Materials:
2 plates for each group
2 slices of apples per student
Lemon juice

Directions:
1. Divide the class into groups of 4.
2. Give each group 2 plates. Have them label one plate Lemon and the other No Lemon.
3. Give each student 2 slices of apples.
4. Students will place one apple slice on the No Lemon plate. Have them sprinkle some lemon juice on the other slice and put it in the Lemon plate.
5. After 30 minutes, have students observe the apples and write what they see and why some apples turned brown, while the others didn’t.
Appendix BB: Skeleton (Un-labeled)

Name ____________________________
Appendix DD: Mind Map

Name

Mind Map

Cerebellum

Pyramidal Tract

Cerebrum

Movement

Speech

Hearing

Taste

Sight

Smell

Touch
Appendix FF: The Eye (Unlabeled)

Name__________________________________________
Appendix GG: Circulatory System Vocabulary

Name __________________________

Directions: Cut out vocabulary words, cut out definitions. Can you match them?

<table>
<thead>
<tr>
<th>Circulatory System</th>
<th>Tubes that transport blood to and from all body parts. They include arteries, veins, and capillaries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart</td>
<td>Learned how the circulatory system really works. His work included: blood does not come from food; arteries pass blood to the veins in the outer parts of the body; veins carry blood toward the heart.</td>
</tr>
<tr>
<td>Aorta</td>
<td></td>
</tr>
<tr>
<td>Blood</td>
<td>Delivers blood to and from all parts of the body</td>
</tr>
<tr>
<td>Spleen</td>
<td>Each person has one of these four blood groups - A, B, AB, or O</td>
</tr>
<tr>
<td>Heart attack</td>
<td>A filtering organ that processes and temporarily stores nutrients and other materials coming from the intestines</td>
</tr>
<tr>
<td>Blood types</td>
<td></td>
</tr>
<tr>
<td>William Harvey</td>
<td>A filtering organ that destroys red blood cells and stores blood</td>
</tr>
<tr>
<td>Transfusion</td>
<td></td>
</tr>
<tr>
<td>Blood vessels</td>
<td>Blood given from one person to another</td>
</tr>
<tr>
<td></td>
<td>The largest artery in the body</td>
</tr>
<tr>
<td></td>
<td>An involuntary muscular organ made of four chambers that controls the circulation of blood</td>
</tr>
<tr>
<td></td>
<td>An acute episode of heart disease where the heart does not receive enough of a blood supply</td>
</tr>
<tr>
<td></td>
<td>Fluid that circulates throughout the body carrying nutrients and oxygen to all parts of the body, and brings away waste products</td>
</tr>
</tbody>
</table>
Appendix HH: Circulatory System Research Checklist

Name __________________________________________

Group # ______

Group 1: the heart and aorta

Group 2: the blood including red blood cells, white blood cells, Hemoglobin

Group 3: platelets, plasma, antibodies

Group 4: filtering function of liver and spleen

Group 5: Blood types (four basic types), transfusion, coagulation

Group 6: Blood vessels: arteries, veins, capillaries

Each group will have a written response on the following and provide a diagram from a book and also a drawing from the students. Use the following checklist.

___ 1. What is its function?

___ 2. Show us a diagram and draw one as best you can.

___ 3. Where is it located in the body? Label the drawn diagram from step 2.

___ 4. Share several interesting facts that you learned.
Appendix II: Circulatory System Test (2 pages)

Name ____________________________

Circulatory System Test

1. _______________ Delivers blood to and from all parts of the body
2. _______________ An involuntary muscular organ made of four chambers that controls the circulation of blood
3. _______________ The largest artery in the body
4. _______________ Tubes that transport blood to and from all body parts. They include arteries, veins, and capillaries.
5. _______________ Fluid that circulates throughout the body carrying nutrients and oxygen to all parts of the body and bringing away waste products.
6. _______________ Learned how the circulatory system really works. This work included arteries passing blood to the veins in the outer parts of the body.
7. _______________ Each person has one of these four blood groups A, B, AB, or O
8. _______________ Blood given from one person to another
9. _______________ A filtering organ that destroys red blood cells and stores blood
10. _______________ An acute episode of heart disease where the heart does not receive enough of a blood supply
11. _______________ A filtering organ that processes and temporarily stores nutrients and other materials coming from the intestines

Vocabulary Words:
- blood vessels
- transfusion
- William Harvey
- blood types
- heart attack
- spleen
- liver
- blood
- aorta
- circulatory system
- heart
Write at least four sentences stating how the circulatory system works. Use at least four vocabulary words.
Appendix JJ: Circulatory System Answer Key (2 pages)

Name__________________________________________________________

Circulatory System Test Answer Key

1. circulatory system ______ Delivers blood to and from all parts of the body

2. heart __________ An involuntary muscular organ made of four chambers that controls the circulation of blood

3. aorta __________ The largest artery in the body

4. blood vessels ______ Tubes that transport blood to and from all body parts. They include arteries, veins, and capillaries.

5. blood __________ Fluid that circulates throughout the body carrying nutrients and oxygen to all parts of the body and bringing away waste products.

6. William Harvey ______ Learned how the circulatory system really works. This work included arteries passing blood to the veins in the outer parts of the body.

7. blood types ______ Each person has one of these four blood groups A, B, AB, or O

8. transfusion ______ Blood given from one person to another

9. spleen __________ A filtering organ that destroys red blood cells and stores blood

10. heart attack ______ An acute episode of heart disease where the heart does not receive enough of a blood supply

11. liver ____________ A filtering organ that processes and temporarily stores nutrients and other materials coming from the intestines

Vocabulary Words:
blood vessels transfusion William Harvey blood types heart attack spleen liver blood aorta circulatory system heart
Write at least four sentences stating how the circulatory system works. Use at least four vocabulary words.

(Answers will vary.) The heart pumps blood through the body. Blood vessels carry the blood to all body parts. The spleen and liver filter blood. The blood carries supplies to the body parts and brings back waste.
RESPIRATORY SYSTEM
Appendix MM: Respiratory System Vocabulary

Name

Respiratory System Vocabulary

Key Vocabulary

1. **Respiratory System**: the group of organs and body parts that allows gases to be exchanged between the air and the body.

2. **Respiration**: the process of breathing.

3. **Nose**: one way the body receives air (oxygen) from the outside and removes unwanted air (carbon-dioxide) from the inside.

4. **Throat**: funnels air coming from the nose and mouth to the windpipe (trachea).

5. **Voice box**: it is the place where air passing back up out of the body turns into voice sounds. It contains the vocal chords.

6. **Trachea** (windpipe): the tube leading from the throat to the lungs. At the lungs, it divides into two branches.

7. **Lungs**: two large organs where oxygen and carbon dioxide is exchanged.

8. **Bronchi**: the two lower branches of the trachea that lead into the lungs.

9. **Diaphragm**: a flat sheet of muscle that moves air into the lungs when down and pushes air out of the lungs when up.

10. **Ribs**: a series of bones that protects the chest. They move, expand and contract along with the lungs in order to help in the respiratory process.

11. **Alveoli**: small sacks at the end of the bronchial tubes. This is where blood picks up oxygen and drops off carbon dioxide.
Appendix NN: Puberty! KWL Chart

Name___________________________________________________________________

**PUBERTY**!

We already know that...

We want to know...

We have learned that...
Appendix OO: Paper Packet (4pages)

Giving B.O. the K.O.!

WAIT A MINUTE!! Why is sweat actually good for me??

And in this context...

When it comes to fighting body odor, my three most important punches are:
1. 
2. 
3. 

Separating Fact from Fiction

Taking Care of My Skin

(I should wash my face times a day!)

Use the true-false table below to separate acne myths from good hygiene rules to take care of your face.

1. The more I wash my face, the less acne I will have.
   - True

2. Oil-free skin products are safer on my skin.
   - False

3. Eating chocolate and French fries will give me lots of zits!!!
   - False

4. Acne happens to plenty of people, whether they're dirty or not.
   - True

5. Too much sunlight may cause more acne problems.
   - False

6. Exercise is a great way to help fight acne.
   - True

7. When I get pimples, I should squeeze or pop them.
   - False

8. Drinking lots of water will help fight acne.
   - True

9. The harder I scrub my skin, the better!
   - False

I AM NOW READY TO COMBAT PIMPLES AND CLOGGED PORES!
...And the Private Stuff
(for boys)

WHAT'S GOING ON?!
In the coming years, you might notice your body changing in a few ways - but DON'T BE SURPRISED! This happens to everyone. What are some of those changes? See if you can write 5 below.

1. 
2. 
3. 
4. 
5. 

BEING PREPARED...
You probably can't avoid a few embarrassing moments, but here are some ways to help along the way!

1. Wear ____________ to use as a "shield" if you get an erection.
2. Wear ______ whenever you go to play sports!
3. Wash your ____________ regularly (to keep from stinking)
4. Watch what you ________!

Brochure Assessment Rubric (not a part of the brochure)

TEACHER USE ONLY

Answer key to brochure pages:

Taking Care of My Skin:
I should wash my face twice a day. 
TF Answer: F T T T F

Giving B.O. the K.O.:
Sweat is the body's own cooling system, and it helps to regulate our temperatures.
The three most important punches are: 1) Washing regularly (either shower or bath), 2) wearing deodorant or antiperspirant, 3) wearing fresh clothes.

Becoming Hair-Aware:
Any personal prescription that is reasonable will suffice. Students should not wash their hair more than once each day.
The hair enemies to look out for are: 1) head-lice and 2) dandruff.

The Right Stuff:

Do's and Don'ts, according to each number:
1) Do Be proud of who I am and accept my body for what it is. Don't Worry about whether I measure up to friends or others.
2) Do Eat lots of fruits and vegetables and other healthy foods. Don't Eat lots of fried or greasy foods.
3) Do Try to be strong and fit. Don't Try to drastically cut calories.
4) Do Exercise every day and build strength and muscles. Don't Spend all day being a couch potato
5) Do Guard my body against drugs and alcohol. Don't Start smoking, drinking, or doing drugs.

Managing My Mouth:
Four ways to help save my teeth:
1) Brush and floss at least twice a day, or after every meal and snack.
2) Only eat sweets when I can brush my teeth afterward.
3) Use a straw to drink sweet drinks so they won't touch my teeth as much.
4) Stay away from tobacco and limit drinks that stain my teeth.

The Private Stuff (girls):
5 Changes 1) Hips get wider 2) Pubic hair appears 3) Breasts get larger 4) Vagina and ovaries become larger 5) Menstruation starts

Being prepared: 1) underwear and pads or tampons, 2) dark clothes and panty liners (if I'd like) 3) pads or tampons 4) pain relievers or PMS medicine 5) cudd

The Private Stuff (boys):
5 Changes 1) Testicles and scrotum get bigger 2) Pubic hair appears 3) Penis grows
4) Voice changes and becomes lower 5) First ejaculation occurs

Being prepared: 1) long shirts 2) cup or jockstrap 3) clothes and body 4) eat
Becoming Hair-Aware!

Frizzy, curly, or just plain straight, every type of hair is great!

A SELF-PRESCRIPTION FOR MY OWN BEAUTIFUL HAIR

Shampoo & Conditioning: ________________
( ___ times a day)

**CHEAP SHAMPOO STILL WORKS GREAT TOO!!!**

Hair styling products: ________________

**Always keep your hair products clean!!!**

REMEMBER: At this age, it's O.K. for me to experiment with my hair—as long as I take care of it!

TWO HAIR ENEMIES TO LOOK OUT FOR:

1) 

2) 

The Right Stuff...

Making sure we're feeding our bodies well!

TOP 5 DO'S AND DON'TS TO REMEMBER ABOUT MY BODY:

<table>
<thead>
<tr>
<th>DO</th>
<th>DON'T</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I am who I am!</td>
<td></td>
</tr>
<tr>
<td>2. Eat the right stuff</td>
<td></td>
</tr>
<tr>
<td>3. Diet – a four-letter word!</td>
<td></td>
</tr>
<tr>
<td>4. Move it or lose it!</td>
<td></td>
</tr>
<tr>
<td>5. Don't pick up the habit...</td>
<td></td>
</tr>
</tbody>
</table>
Managing My Mouth

OK, so you HAVE to have a soda....
What are some ways to help save your teeth, even when you eat or drink sweets?

1. 
2. 
3. 
4. 

FOOD FIGHT!
In the war on tooth decay, foods can belong to two sides: those that HURT your teeth, and those that HELP!
See how many types of food you can think of that go in these categories:

HELPERS

HURTERS

...And the Private Stuff (for girls)

WHAT'S GOING ON!!!
In the coming years, you might notice your body changing in a few ways - but DON'T BE SURPRISED! This happens to everyone. What are some of those changes? See if you can write 5 below.

1. 
2. 
3. 
4. 
5. 

BEING PREPARED FOR YOUR PERIOD

Some extra tips to help you out in the years ahead...

1. Keep extra ___________________________ in your locker.
2. Wear ________________________________
3. Carry ______________________________ with you!
4. Ask your mom or dad about ___________________________
5. Watch what you __________________!
How To Take Care of Your Skin

**THE BAD NEWS**

About 8 in 10 preteens and teens have acne...so chances are, you will probably experience it soon, if not already!

**THE GOOD NEWS**

You can learn TODAY about ways to prevent acne and to keep clean and clear skin!

**What is acne?**

Acne is a skin condition that shows up as different types of bumps. Sometimes your skin pores (where oil and sweat come out) get clogged up and make a whitehead. Sometimes the walls of the pore are broken, which lets bacteria and germs live under the skin. This turns the skin red, which makes a **Pimple**.

**What do I do when I get a pimple?**

Well, whatever you do, DON’T POP IT!! This can make your face bleed and swell even more, eventually leading to big, nasty scars. Instead, you should wash your face gently and in the meantime, be patient. (It’s hard!)

**But why do people get pimples in the first place?**

Pimples are caused from clogged pores, mainly because skin is producing too much oil, or sebum. When people go through puberty, EVERYONE gets pimples because their bodies are working extra hard to grow up. This means extra oil, unfortunately. However, just because you have pimples doesn’t mean you are dirty. In fact, washing your face TOO much can cause pimples too! You should only wash your face twice a day, and very gently—scrubbing too hard will leave scars and infections.

**What can I do to help keep my skin clear?**

The best things you can do for your body at this time are pretty easy: 1) Get plenty of sleep, 2) Stay out of too much sun, 3) Exercise, 4) Drink lots of water, and 5) Don’t stress out! If you want to use face products to clean your skin, use oil-free products (your face already has plenty of oil on it!)
And although you should eat healthy, don’t worry about the donut you had this morning – it WON’T give you a pimple tonight! 😊
How To Keep from Stinking!

*Face it. Things are starting to smell a little funny in class...and you’re wondering if it might be you!*

Ever had this thought before? Don’t worry, plenty of people have! That’s why deodorant companies make so much money. Maybe you considered buying deodorant...well, now’s a great time to start! Below are some helpful hints on ways to keep you from P.U.!

**So ever wondered why on earth people sweat?**

I HAVE! And boy, am I glad I found out! Sweat is actually a very important part of our body’s natural air conditioning system, so to speak. Ever notice how dogs and other animals pant when it’s hot? That’s their body’s way of cooling down—they can’t sweat! (Wouldn’t it be strange if people panted?) So if sweat is so good for our bodies, why is it so gross?

Basically, the yucky thing about sweat isn’t the sweat itself. It’s when the sweat mixes with bacteria on your body...and that bacteria sure stinks up a storm! Places like your armpits, nipples, and groin area actually have a lot of bacteria—which makes it a great place to stink!

**So WHAT DO I DO NOW?!?!?!**

Whoa, easy! If you stay on top of things, it’s pretty easy to keep your body odor under control. All you have to do is to remember: 1) Wash *every* day, whether in the bathtub or shower. Just get the stink off you! 2) Use deodorant or antiperspirant. Deodorants will kill the odor; antiperspirants keep you dry. 3) Make sure you always wear clean clothes—the cleaner, the fresher, the less stinky!

With those tips in mind, you are well on your way to a sweet-smelling future as a teenager! Congratulations!
How To Keep My Hair Healthy

Everyone has different hair. So how do you make sure you love the hair you have? No matter what you do to it, whether it’s curling it, straightening it, dying it, or leaving it alone, there are some important things you can do to make sure your hair stays nice and healthy!

If you:

- Have oily hair, then wash daily with a cleansing shampoo and light conditioner every other day.
- Have normal hair, then choose a shampoo designed for your hair type.
- Play lots of sports, feel free to wash your hair more than once a day (although sometimes just a rinse is fine too!)
- Have dry, frizzy, or coarse hair, try a moisturizing or conditioning shampoo (or low Ph shampoos).
- Don’t have much money, don’t worry! Cheap shampoos work great too.

*Remember, expensive doesn’t always mean better!*

Some nifty hair-styling products you might try:

- Balms: tame frizzies in curly hair and add shine.
- Gels: give shape and shine to all hair types.
- Hairspray: holds hair in a certain style.
- Molding mud: holds curls or spikes in hair and looks wet.
- Mousse: adds volume to thin, fine hair
- Pomades: smooth out curly hair.
- Volumizers: make thin hair look thicker.

Other tips to remember about hair care:

- Keep your hairbrush clean! That will keep your HAIR clean!
- Don’t use blowdryers too much. They will dry out your hair and make it brittle if overused. Use a medium heat if you must, and dry your hair until it is only a little damp.
- If you’re going to dye your hair, choose a hair color close to your original color.

What about dandruff, or LICE!?! Dandruff is actually bacteria on your head (yick!) So what if you have it? Simple! Buy a dandruff shampoo at any store to fix it.

Lice passes from person to person...and if you have it, you can buy some lice-killing shampoo. Once you treat the hair, you have to comb out all the baby lice with a special nit comb. (Not fun.) Make sure you wash all
your clothing and bedding if you or your friends have lice, to make sure it doesn’t spread!
How To Know What to Eat

Be proud of who you are!  No matter what size or shape you are, remember that everyone grows up differently, and that we all mature at different rates.  Don’t worry about everyone else around you and how they’re growing—you’re doing just fine.  Your body is the only one you’ve got, so take good care of it, and it will take good care of you!

Feed your body well!  Following the food pyramid is a great way to make sure you are eating healthy.  If you’re eating fried foods every day, that might be a little too much…but that doesn’t mean you can’t ever eat good food!  Just remember to eat your fruits and vegetables.

Don’t starve yourself!  Lots of people think they need to go on strict diets to look the way they want to look…when actually, all they need is a little exercise!  Many times, people who go on “diets” end up doing more harm than good…your body needs lots of nutrients to keep growing and building!  And especially at your age, your body needs all the energy it can get.  Don’t look at TV or magazines to figure out who you should look like; and if you’re worried about your weight or appearance, ALWAYS check with your doctor before changing the way you eat.

Keep it running!  What’s one of the most important things you can do for your body right now?  EXERCISE!  Your body needs to move around a lot.  As your muscles and bones grow, they need all the practice they can get so they can become big and strong.  Sitting on the couch all afternoon watching TV or playing video games will make your muscles weaker…but a little activity will work WONDERS on your growing body!  Exercise also has positive effects on your attitude, immunity system, and most of all, IT’S FUN!!!  So get outdoors and enjoy the sunshine!

Don’t even THINK about it!  …And what’s one of the WORST things you could do for your body right now?  SMOKING, ALCOHOL, OR DRUGS.  If you want stained teeth, bad breath, and a hacker’s cough, then smoking is the best way to get it.  As your body grows, tobacco, alcohol, and drugs will have even bigger effects on your body—which means more brain cells will die and your body will never become what it could be if you stayed away from that nasty stuff in the first place!
How To Make a Marvelous Mouth

**So, you’ve heard about plaque...**

Your doctor might have already told you about plaque and its harmful effects on your teeth! How do you fight plaque? Below are the top 10 simple steps will ensure great-looking teeth and a beautiful smile (which EVERYONE loves!)

1. Brush your teeth every day, twice a day AT LEAST! If you can, brush your teeth after every meal.

2. Floss at least once a day. This will get any leftover pepperoni chunks or corn cobs out of the gaps between your teeth. (And if they stay there, their next-door neighbor, bacteria, is sure to drop by for a visit!)

3. Use a circular motion when you brush, so that you don’t wear grooves in your enamel.

4. Be sure to brush your tongue – THOUSANDS of bacteria live there alone!

5. Rinse your mouth or brush your teeth directly after eating sweets. That way, the acids and sugars from the sweets won’t eat away at your teeth.

6. Use a straw if you are drinking sweet liquids so they won’t get all over your teeth.

7. Stay away from tongue or lip piercings – they are a SURE way to get infections!!!

8. No smoking, either. Coffee, tea, and tobacco are famous for staining teeth a lovely shade of BROWN.

9. Eat high-fiber foods, like fruits and vegetables, that kick your saliva in gear and get the juices flowing in your mouth! (Your natural teeth-cleaners.)

And finally,….

10. Visit your friendly dentist twice a year to make sure your teeth are A-OK!
How To Deal With Growing Up (girls)

Your body is going through many changes! How are you supposed to keep up with it?

The next few years may be very exciting, or very embarrassing. You might love them or you might wish that they would just fly by. But no matter what, the best way to get a head start on being a teenager is to be prepared for the changes ahead. What are some things to expect in your body? Here are a few:

- **Body Shape** – it will get curvier (hips will grow, breasts will develop, and your privates will get larger too!)
- **Body Hair** – you will get more hair on your legs and in your private areas
- **More Girl Stuff...** - you will get your first period, when menstruation starts.

**About your first period...**

As you become an adult woman, your body will naturally gain more weight as it stores more body fat. Don’t worry, this is completely normal. Most girls have their first period between the ages of 10-12, with some as early as 8 and others as late as 14. You will learn more about menstruation soon, but when you do have your period, you will notice blood coming out of your vagina. Don’t worry, it usually isn’t more than about half a cup. When this happens, it means your body has matured and is going through puberty!

Don’t worry when it happens, it’s a natural thing. It might be scary or exciting at first as well, but there are plenty of ways to be prepared for your period, just like being prepared for puberty!

Most girls will keep extra underwear, pads, or tampons in their locker. You could also wear dark clothes or panty liners. Many women carry tampons or pads with them wherever they go. Also, be sure to ask your mom or dad about pain relievers or medicine—periods can be quite uncomfortable! And as always, watch what you eat – healthy foods will always give your body a better experience.
How To Deal With Growing Up (boys)

Your body is going through many changes! How are you supposed to keep up with it?

The next few years may be very exciting, or very embarrassing. You might love them or you might wish that they would just fly by. But no matter what, the best way to get a head start on being a teenager is to be prepared for the changes ahead. What are some things to expect in your body? Here are a few:

- **Body Shape** – your shoulders will get wider, you will grow taller, and your private parts will start to grow
- **Body Hair** – you will get more hair on your legs and in your private areas, and eventually on your face and chest
- **More Boy Stuff…** - you will have your first ejaculation and wet dream, and your voice will start to crack

As you grow up and develop into being a young man, your body parts are growing a lot too! While everyone's grows at different times, you must remember that not everyone is on the same schedule. Some boys start puberty as early as 10, and others as late as 15 or 16. Eventually, everyone ends up in the same place…but in between, it can be a pretty unsure time. Just remember that you're going through the same changes as everyone else, and be patient with your body as it grows! You might feel awkward at times, but that's all going to be natural.

About your penis…As it grows, you might experience a lot of unnatural things going on down there. Often, boys get sudden erections, for seemingly no reason at all! You can be prepared for when those happen if you wear long shirts to try and shield it. Pretty soon, you will experience your first wet dream and ejaculation. This is when semen exits the penis. In a wet dream, men ejaculate in their sleep. Don't worry if you find your sheets wet in the middle of the night…just make sure you wash them!

Also, be sure to wear a cup if you play sports to protect your privates. And as you become more active, be sure to wash regularly as well—men stink a lot more than boys! And as always, watch what you eat—your eating habits will make all the difference as your body grows and needs good food to be all it can be!
THE ENDOCRINE SYSTEM

We already know that...

We want to know...

We have learned that...
Appendix RR: Exocrine vs. Endocrine

Name

Exocrine vs. Endocrine...
(Whatever that means!)

*REMEMBER!
[exo = outside]
[endo = inside]

Using the clues above, write a brief definition of exocrine glands and endocrine glands below.

Exocrine glands: __________________________

Endocrine glands: __________________________

In the pictures of glands below, label each as either exocrine or endocrine.

[Diagram of glands]
Appendix SS: The Endocrine System is Like...

The Endocrine System Is Like...

When we try to make connections, we find out that the endocrine system can be compared to LOTS of things around us! For instance,

The endocrine system is like the U.S. Postal Service, because it delivers messages to the places they need to go, come sunshine, rain, hail, or snow!

The endocrine system is also like a television station, or satellite TV. How are these two things similar?

In the space below, see if you can compare the endocrine system to something else in the world around us. Explain your comparison and make an illustration to go along with it on the back.
<table>
<thead>
<tr>
<th>Name:</th>
<th>Disease or Disorder</th>
<th>Location</th>
<th>Function</th>
<th>Interesting Fact</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENDOCRINE GLAND WONDERLAND!</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gland Name</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix UU: The Reproductive System KWL Chart

Name

THE REPRODUCTIVE SYSTEM

We already know that...

We want to know...

We have learned that...
Appendix VV: The Female Reproductive System

Name

The Female Reproductive System
Appendix WW: The Menstruation Cycle

The Menstruation Cycle

1) The ____ releases the egg
   (This happens when the ovarian follicle bursts.)

2) The ovarian follicle changes into the corpus luteum, which helps to make the lining of the thicker.

3) If the ovum (or ____) finds a sperm, they stick to the uterus lining. But if NOT, the egg cell breaks down and the ____ shrivels.
Appendix XX: The Male Reproductive System

Name ____________________________________________

*The Male Reproductive System*

(bladder) (rectum)
Human Development Timeline

In the timeline activity, students can separate the human development process into eight categories. They are:

1. When a man and a woman have sexual intercourse, millions of sperm in a man’s semen swim into the woman’s vagina, where they all race through the uterus and Fallopian tubes to try to find an egg.

2. An egg and one single sperm join together in either the ovaries or the Fallopian tube, making a zygote.

3. The united cell, or zygote, travels through the Fallopian tube as it divides over and over again to become a ball of cells.

4. After a few days, the ball of cells reaches the uterus. By this time, it is now hundreds of cells.

5. The ball of cells, or embryo, starts to grow in the lining of the uterus.

6. After three months of development, the embryo is called a fetus.

7. Between the third and ninth month, the fetus grows from about the size of a peach to the size of a watermelon! By nine months, the fetus is ready to be born.

8. When the time is right to be born, the fetus is squeezed out of the mother’s uterus and into the vagina, where it then exits the mother’s body and is finally born!