

Tour the Digestive System

Grade Level 2

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Length of Unit: 15 Lessons/ 3 weeks

I. ABSTRACT

Students will learn the body parts and functions of the digestive system through a variety of activities. Students will build a crawl through digestive system and give tours of the digestive system explaining the body parts and functions of each to their guests as they crawl through the digestive system. Core Knowledge content taught is the digestive system of the human body.

II. OVERVIEW

A. Students will understand what happens to the food we eat by studying body parts and functions involved in the digestive process.

B. The Human Body

1. The Digestive Systems

a. salivary glands, taste buds

b. teeth (incisors, bicuspids, molars)

c. Esophagus, stomach, liver, small intestine, large intestine

C. Digestive System

1. The process of breaking down food

2. Body parts of the digestive system and their functions

III. BACKGROUND KNOWLEDGE

A. Teachers

1. *The Incredible Human Body*. Scholastic, Inc. 555 Broadway New York, NY 10012. ISBN 0-590-59928-3 (pages 64-73)

2. *Body Systems and Organs*, Carson-Dellosa Publishing Company, Inc. Greensboro, NC 27425 (pages 29-34)

3. Addison-Wesley, Addison-Wesley Publishing Company. ISBN 201-28720-X

B. Students

1. Grade 1, Body Systems

IV. RESOURCES

A. *Body Systems and Organs*, Carson-Dellosa Publishing Company, Inc. Greensboro, NC 27425 (The Digestive System p. 29-34)

B. *The Incredible Human Body*. Scholastic, Inc. 555 Broadway New York, NY 10012. ISBN 0-590-59928-3 (The Digestive System p. 64-73)

C. Addison-Wesley, Addison-Wesley Publishing Company. ISBN 201-28720-X

D. *What Happens to a Hamburger?*, Paul Showers. ISBN 0-06-445013-9 Harper Trophy Publishing

E. *The Magic School Bus Inside the Human Body*, Joanna Cole. ISBN 0-590-4127-5 Scholastic, Inc.

F. *The Magic School Bus For Lunch*, ISBN 1-56832-226-7 Scholastic, Inc. Video

G. *Digestive Connection*, The Education Center, Inc. The Mailbox Intermediate. Dec/Jan 1997-1998 Page 54.

H. <http://www.yucky.com/body/systems/digestion>

I. <http://kauai.cudenver.edu:3010/0/nutrition>

J. <http://genxtvland.simplenet.com/SchoolHouseRock/songs.hts?hit+body>

K. http://outcast.gene.com/ae/AE/AEC/AEF/1994?ward_walk.html

V. LESSONS

Lesson One: Introduction of the Digestive System

A. Objectives

1. Introduction of the digestive system
 2. What is digestion and what is a digestive system
 3. Evaluate students knowledge of topic and all students will learn definition of digestion and digestive system
- B. Science journals, wall chart and dictionaries
- C. Key Vocabulary
1. digestive system
 2. digestion
- D. Procedure/Activities
1. Teacher will write the words digestion and digestive system on the chalkboard. Using KWL, students will write in their science journals what they know about these topics. Students will also write questions they have on these topics that they would like to have answered.
 2. As whole class, we will make a wall chart listening what we think we know and what we want to learn about this topic. (As lesson continues daily, this chart is checked. We write answers to the questions asked as we learn the information or we may cross out the information that students found not to be true about the topic.)
 3. Using a dictionary, students now look up the definition of digestion and digestive system. We discuss as a class. Students record the definition in their science journals.

Lesson Two: Where Digestion Begins

- A. Objectives
1. Body parts and function of teeth, tongue, saliva glands
 2. Different teeth so different jobs in the digestion process, tongue is a muscle that helps move food around and covered with taste buds (prior knowledge/ kdg. senses), and that saliva is the first digestive juice that beings to break down the food.
 3. Students will know the function and location of their incisors, bicuspid and molars, function of their tongue and saliva glands. Students will understand the process of how digestion begins in the mouth.
- B. Slice of individual wrapped cheese for each student
- C. Vocabulary
1. Tongue
 2. Teeth Inscisors
 3. Saliva glands
- D. Review digestion and digestive system. Ask, "Where do you think digestion begins?" Get several responses. Have all students wash hands well and then have them investigate their mouth. What conclusions can they draw? (List answers on chalkboard.) Clue questions: What about your teeth? tongue? wet/dry in mouth?

Give each child a piece of cheese. Remove wrapper, put in mouth, and bite down and remove wrapper. Look at the teeth imprint. Discuss and label the different teeth and their functions. Have students feel and name their teeth in their mouth. Let students eat the cheese; before allowing them to eat, give them directions that their tongue has to stay pushed down to the bottom of their mouth. Try to eat without using/moving the tongue. Discuss as a class how this is hard-why? The tongue helps move the food around in the mouth before being swallowed and the tongue also tells us what the food tastes like. List favorite foods of kids with a lot of detail (i.e. warm, chocolate chip cookies just coming out of the oven). Is their more juice /wetness in

your mouth? Discuss where this juice is coming from and that saliva is the first digestive food that mixes with the food to begin the breaking down process.

E. Evaluation/Assessment

Students write in science journals what they learned today.

Lesson Three: Esophagus

A. Objectives

1. Listen to an esophagus work and learn the function.
2. Location of esophagus and how the esophagus works.
3. Students will be able to describe, define, and know the function of the esophagus.

B. Per 2 students: a 24" length of tubing, 2 funnels that fit into tubing ends, 2 crackers and 2 small cups of water

C. Key Vocabulary- esophagus

D. Procedure/Activities

Review previous day's lesson. Ask, "Where does the food you chewed in the mouth, now go?" Let students give answers. Write the word esophagus on the chalkboard. Ask if any know the word and what it means. Look up the definition, have students record it in their science journals. Discuss definition. Students will be in pairs to listen to their partners esophagus work. One student holds the funnel to their throat while chewing and swallowing a cracker and drinking a small cup of water; the other student holds the other funnel to his/her ear and listens to the esophagus working. Students then trade jobs of being the listener and eater.

E. Students write in their science journal about the esophagus and how it works.

Lesson Four: Stomach/Liver

A. Objectives

1. Through activity, students will learn how the digestive juices break food down in the stomach. The stomach is a muscle that is the size of a large hot dog when empty or can stretch large enough to hold two liters.
2. As part of the digestive system, students will learn the functions of the stomach and liver.
3. Students will be able to describe the stomach and the liver and their function in the digestive process

B. Bowl with tight fitting lid for each group of students or one if done as a whole class, science journal for recording

C. Key Vocabulary

1. stomach
2. liver

D. Procedure/Activities

Review of previous digestive system lessons (body part and function).

Ask students to record what size, shape, color etc. that they think their stomach looks like. Discuss as a class. Read information about the stomach from Addison-Wesley or encyclopedia. Discuss. Have students them write a description, draw a picture, and write a definition for the function of the stomach. Do activity lesson. Students observe the process of food breaking down and becoming a soupy mixture by using ground beef and meat tenderizer. Ground beef is placed in a bowl with a lid, students observe and record color, texture, size, etc. and then the meat tenderizer is added to the bowl. The lid is place on the meat and students observe over a two-three day period as the meat breaks down into a soupy mixture much as food breaks down in the stomach because of the juices from the liver, gall bladder and stomach mix with food during digestion.

Lesson Five: Small Intestine

A. Objectives

1. Discuss the function of the small intestine and actual measuring the length of the small intestine
 2. Understand function and description of the small intestine
 3. Describe the function of the small intestine in the digestive system and how it has the most important job of taking the nutrients to the cells where it is changed to energy for use by the body
- B. Yarn or string for each group of students, rulers and scissors
- C. Key Vocabulary- small intestine
- D. Procedure/Activities
- Review previous digestive system parts and their functions. Where does the broken down the food go now? Let the students give ideas: small intestine answers. Brainstorm/Discuss- “What happens in the small intestine? What does it look like? How long is it?” Read factual information, Addison Wesley text p.276-290. Students work in pairs to measure and cut a length of yarn the length of the small intestine. Homework: student takes this home and quizzes family about what part of the body is that length. He or she teaches their family about the small intestine.
- E. In science journal define and describe the small intestine and its function in the digestive system.

Lesson Six: Large Intestine

- A. Objective
1. Discuss function and description of the large intestine and measure out actual length, water absorption by the large intestine.
 2. Understand function and be able to describe the large intestine.
 3. Student will know the function of the large intestine in the digestive process.
- B. yarn, scissors, rulers, pie tins and sponge
- C. Key Vocabulary- large intestine
- D. Procedure/Activities
- The food that you ate yesterday is nearing the end of the digestive process. Review all body parts and functions previously learned. Discuss/question about the large intestine. Read the information Addison Wesley p.276-290. Students measure a piece of yarn and cut to length of the large intestine. Discuss why it is called large even though it is shorter in length than the small. That is because of diameter size, not the length. Help students remember that the large intestine is where water is absorbed by giving each group having a pie plate of water and placing a new sponge in it. Students watch the water being absorbed by the piece of large intestine (sponge). The waste undigested food/fiber then leaves the body.
- E. Students record in the journal what they learned about the large intestine.

Student Activities/Lessons

Pick and choose what works for you

- A. Crossword Puzzle with Digestive System Vocabulary (Create your own or use one created by Addison-Wesley)
- B. Students read *What Happens to a Hamburger?*
- C. Watch, *The Magic School Bus for Lunch*
- D. Study Guide-Take home to study
- E. Technology: Students take notes from their science journals and rewrite on index cards the body parts and functions of the digestive systems. Students then make a hyper-studio presentation of the digestive system.

V. Culminating Activity

- A. Write invitation to parents for a tour of the digestive system. Integration of language art skills.
- B. Begin construction of crawl through digestive system

1. Materials
 - a. Washer or dryer box from appliance store
 - b. Refrigerator box from appliance store
 - c. White tag board
 - d. ½" or 1"× 24" Foam rubber
 - e. Red tempera paint
 - f. Sponge cut into pieces
 - g. Water/Sewage Tube (I was able to borrow a new piece from the city water plant.)
 - h. Pinkish color construction paper-fiberfill-stomach and liver
 - i. 2 different sizes of plastic tubing or old garden hose
 - j. Wastepaper basket
 - k. Large hot dog
 - l. 2 liter bottle
2. Construction

Students are in groups to construct the digestive system. The dryer box is the mouth. Teeth are cut from the white tag board and glued around the top edge. Facts about the teeth are written on the teeth. The foam rubber is cut into the shape of a tongue and painted with the red tempera paint. Black dots are put on the tongue to represent taste buds. The taste buds are mapped and labeled on the tongue. The sponge is cut into pieces to represent the saliva glands. The "saliva glands" are glued to the top of the box and the tongue glued down at the back so it can be lifted to show the saliva glands and how the tongue moves up to push food around in the mouth. The large plastic pipe represents the esophagus. The dryer box has both the top and bottom cut out. The pipe is taped to the end of the dryer box and the other end taped to the refrigerator box that has both ends removed. The pinkish construction paper is shaped into a J-shaped pouch and stuffed with fiberfill and is attached at the end of the "esophagus" with the liver behind and to the side of it. The correct length of the rubber tubing is cut to be the small intestine. This is attached to the "stomach" and the side of the box by using trash bag twisties or cable ties. Large intestines are cut from the plastic tubing. These attach to the end of the small intestine and along the side of the box by using the trash bag twisties. The end of the large intestine is placed in a waste paper basket to show that the waste leaves the body. Along side of the stomach a large hot dog and a 2-liter bottle are attached to help the students remember the stomach can be as small as a hot dog and or stretch to hold 2 liters. The crawl through digestive system is complete.
- C. Time frame for construction

I have completed the cumulative in different ways: take a whole day for students to construct the digestive system, use two half days to construct the digestive system, or do an hour a day until constructed. Students also completed activities during construction time and completed their hyper-studio program on the digestive system.
- D. Tour Time

Students, drawn at random, give a tour to the principal and other school staff. The digestive system tour is then open for tours in my classroom from 3:20-6:00 to 6:30. This allows parents and guests to come with their child after work. Students also share with their family their hyper-studio program of the digestive system in the computer lab.
- E. Final Unit Assessment
 1. Test over the digestive system
 2. Students remember and know the digestive system after completing the unit

DIGESTIVE SYSTEM AND NUTRITION UNIT STUDY GUIDE

From the drawing of the digestive system, tell what that part does to help you digest food.

1. **Teeth** There are three different types of teeth. The incisors cut. The canines tear and the molars crush and grind food. The teeth break food into smaller pieces.
2. **Tongue** It moves food around to the teeth, helps you taste and swallow.
3. **Esophagus** A hollow tube made of muscle that pushes food to the stomach.
4. **Liver** It makes some digestive juices that are sent to the small intestine.
5. **Stomach** The stomach makes digestive juices and mixes the food with them until the food is like a thick soup.
6. **Small intestine** It absorbs the food through tiny villa into the bloodstream where it is taken to cells and turned into energy.
7. **Large intestine** It absorbs the water and moves the wastes out of the body.

