

# Stuffee's Lunchbox

**Grades:** Pre-K to 4<sup>th</sup>

**Duration:** 30 minutes

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## **Program Description**

Meet Stuffee, our six-foot tall, blue haired friend who shares his digestive system with you. Students will learn basic digestive anatomy by following the path that your food takes through the digestive system. It teaches visitors about nutrition and the digestive system. Students will learn the parts of the digestive system firsthand while pulling out Stuffee's alimentary canal. Discover the new food pyramid including which foods are superior for developing a healthy body. Volunteers will also decide if Stuffee has a well-balanced lunch.

## **Louisiana GLE:**

### **Science:**

#### **Prekindergarten**

##### **Science as Inquiry**

1. Ask questions about objects and events in the environment (e.g., plants, rocks, storms) (PK-CS-I1) (SI-E-A1)
2. Pose questions that can be answered by using students' own observations and scientific knowledge (PK-CS-I1) (SI-E-A1)
3. Use the five senses to describe observations (PK-CS-P3) (SI-E-A3)

##### **Characteristics of Organisms**

19. Identify parts of the body and how they move (PK-CS-L1) (LS-E-A3)
21. Distinguish food items from nonfood items (PK-CS-L1) (LS-E-A6)

#### **Kindergarten**

1. Ask questions about objects and events in the environment (e.g., plants, rocks, storms) (SI-E-A1)
2. Pose questions that can be answered by using students' own observations and scientific knowledge (SI-E-A1)
4. Use the five senses to describe observations (SI-E-A3)
11. Identify objects by using the senses (PS-E-A1)
26. Classify various foods into the major groups (e.g., bread, meat, vegetable, fruit) (LS-E-A6)
27. Determine which foods are superior for developing a healthy body (LS-E-A6)

#### **Grade 1**

1. Ask questions about objects and events in the environment (e.g., plants, rocks, storms) (SI-E-A1)
2. Pose questions that can be answered by using students' own observations and scientific knowledge (SI-E-A1)
5. Use the five senses to describe observations (SI-E-A3)

27. Identify what animals and plants need to grow and develop (LS-E-A1)
29. Describe basic functions of parts of the body (e.g., lungs, heart, bones, muscles) (LS-E-A3)

## **Grade 2**

### **The Abilities To Do Scientific Inquiry**

1. Ask questions about objects and events in the environment (e.g., plants, rocks, storms) (SI-E-A1)
2. Pose questions that can be answered by using students' own observations, scientific knowledge, and testable scientific investigations (SI-E-A1)
5. Use a variety of methods and materials and multiple trials to investigate ideas (observe, measure, accurately record data) (SI-E-A2)
6. Use the five senses to describe observations (SI-E-A3)
31. Identify and discuss the arrangement of the food pyramid (LS-E-A6)

## **Grade 3**

### **Science as Inquiry**

#### **The Abilities To Do Scientific Inquiry**

1. Ask questions about objects and events in the environment (e.g., plants, rocks, storms) (SI-E-A1)
2. Pose questions that can be answered by using students' own observations, scientific knowledge, and testable scientific investigations (SI-E-A1)
6. Use the five senses to describe observations (SI-E-A3)
10. Combine information, data, and knowledge from one or more of the science content areas to reach a conclusion or make a prediction (SI-E-A5)
40. Explain how the organs of the digestive system function (LS-E-A5)
43. Identify a meal that includes representatives from each group of the food pyramid (LS-E-A6)

## **Grade 4**

### **Science as Inquiry**

#### **The Abilities To Do Scientific Inquiry**

1. Ask questions about objects and events in the environment (e.g., plants, rocks, storms) (SI-E-A1)
2. Pose questions that can be answered by using students' own observations, scientific knowledge, and testable scientific investigations (SI-E-A1)
7. Use the five senses to describe observations (SI-E-A3)
11. Combine information, data, and knowledge from one or more of the science content areas to reach a conclusion or make a prediction (SI-E-A5)
18. Base explanations and logical inferences on scientific knowledge, observations, and scientific evidence (SI-E-B4)
43. Explain the primary role of carbohydrates, fats, and proteins in the body (LS-E-A6)

### **English Language Arts**

#### **Pre Kindergarten**

#### **English Language Arts**

#### **Reading and Responding**

##### **Standard 1**

4. Orally respond to questions using new vocabulary introduced in conversations, activities, stories or books

#### **Speaking and Listening**

##### **Standard 4**

14. Use simple reasoning skills  
Speaking and Listening

- 21. Use words, phrases, and/or sentences to express feelings, needs, and wants
  - 22. Carry on a conversation about a topic, thought or idea from classroom, home or community
  - 23. Repeat an instruction given orally
  - 24. Follow one and two step verbal and nonverbal directions
  - 26. Speak about life experiences or topics of interest
  - 28. Listen and orally respond to questions
- Recognize and follow agreed-upon rules for discussing, such as one's hand, waiting one's turn and speaking one at a time

**Kindergarten**

**English Language Arts**

**Speaking and Listening**

**Standard 4**

- 33. Initiate and sustain normal conversation on a specific topic
- 35. Give and follow one- and two-step verbal and nonverbal directions without interrupting
- 41. Participate in designated roles within activities

**1st Grade**

**English Language Arts**

**Reading and responding**

**Standard 7**

- 25. Apply basic reasoning skill  
Speaking and Listening  
Standard 4
- 45. Speak clearly at a speed and volume appropriate for purpose and setting
- 46. Follow classroom procedures and teacher directions
- 48. Ask questions to clarify directions
- 52. Use active listening strategies
- 54. Listen and orally respond to information presented in a variety of media

**2nd Grade**

**English Language Arts**

**Reading and Responding**

**Standard 7**

- 20. Apply basic reasoning skills  
Writing

**Standard 2**

- 21. Use a greater variety of action and descriptive words  
Speaking and Listening

**Standard 4**

- 38. Adjust speaking tone and volume to suit purpose and audience
- 42. Deliver informal presentations that demonstrate an understanding of a topic
- 44. Use active listening strategies, including asking for clarification and explanations

**3rd Grade**

English Language Arts  
Reading and Responding

**Standard 7**

- 20. Apply basic reasoning skills  
Speaking and Listening

**Standard 4**

- 38. Give and follow precise directions and instructions

42. Use active listening strategies
44. Assume the role of contributor and active listener

#### **4th Grade**

#### **English Language Arts**

#### **Speaking and Listening**

#### **Standard 4**

34. Adjust pacing to suit purpose, audience, and setting when speaking
35. Interpret, follow, and give multi-step directions
37. Demonstrate active listening strategies, including asking questions, responding to cues, and making eye contact
38. Adjust speaking content according to the needs of the audience

#### **Key Terms:**

**Appendix:** a vestigial process that extends from the lower end of the cecum and that resembles a small pouch

**Alimentary Canal:** The mucous membrane-lined tube of the digestive system through which food passes, in which digestion takes place, and from which wastes are eliminated. It extends from the mouth to the anus and includes the pharynx, esophagus, stomach, and intestines. Also called the digestive tract.

**Bile:** A bitter, alkaline, brownish-yellow or greenish-yellow fluid that is secreted by the liver, stored in the gallbladder, and discharged into the duodenum and aids in the emulsification, digestion, and absorption of fats.

**Capillaries:** The tiny blood vessels throughout the body that connect arteries and veins. Capillaries form an intricate network around body tissues in order to distribute oxygen and nutrients to the cells and remove waste substances.

**Cecum:** A large pouch forming the beginning of the large intestine. The appendix and the ileum of the small intestine both connect to the cecum.

**Chyme:** The thick semi fluid mass of partly digested food that is passed from the stomach to the duodenum.

**Digestion:** The process by which food is converted into substances that can be absorbed and assimilated by the body. It is accomplished in the alimentary canal by the mechanical and enzymatic breakdown of foods into simpler chemical compounds.

**Digestive System:** The alimentary canal and digestive glands regarded as an integrated system responsible for the ingestion, digestion, and absorption of food.

**Duodenum:** The beginning part of the small intestine, starting at the lower end of the stomach and extending to the jejunum.

**Enzyme:** Any of numerous proteins or conjugated proteins produced by living organisms and functioning as biochemical catalysts.

**Esophagus:** The muscular tube in vertebrates through which food passes from the pharynx to the stomach.

**Gallbladder:** A small, pear-shaped muscular sac in most vertebrates in which bile is stored. The gallbladder is located beneath the liver and secretes bile into the duodenum of the small intestine.

**Ileum:** The lower part of the small intestine, connecting the jejunum to the cecum of the large intestine.

**Ingestion:** the process of taking food into the body through the mouth.

**Jejunum:** The middle part of the small intestine, connecting the duodenum and the ileum.

**Large Intestine:** The wide lower section of the intestine that extends from the end of the small intestine to the anus. The large intestine acts mainly to absorb water from digested materials and solidify feces. In most vertebrate animals, it includes the cecum, colon, and rectum.

**Liver:** A large, reddish-brown, glandular organ located in the upper right side of the abdominal cavity, divided by fissures into five lobes and functioning in the secretion of bile and various metabolic processes.

**Pancreas:** A long, irregularly shaped gland in vertebrate animals that is located behind the stomach and is part of the digestive system. It secretes hormones (insulin, glucagon, and somatostatin) into the bloodstream and digestive enzymes into the small intestine or gut. The pancreas also secretes sodium bicarbonate, which protects the lining of the intestine by neutralizing acids from the stomach.

**Pepsin:** Any of various digestive enzymes found in vertebrate animals that catalyze the hydrolysis of proteins to peptides.

**Peristalsis:** The wavelike muscular contractions in tubular structures, especially organs of the digestive system such as the esophagus and the intestines. Peristalsis is characterized by alternate contraction and relaxation, which pushes ingested food through the digestive tract towards its release at the anus. Worms propel themselves through peristaltic movement.

**Pharynx:** The passage that leads from the cavities of the nose and mouth to the larynx (voice box) and esophagus. Air passes through the pharynx on the way to the lungs, and food enters the esophagus from the pharynx.

**Pylorus:** The passage at the lower end of the stomach that opens into the duodenum.

**Saliva:** a viscid, watery fluid, secreted into the mouth by the salivary glands, that functions in the tasting, chewing, and swallowing of food, moistens the mouth, and starts the digestion of starches.

**Stomach:** A saclike muscular organ in vertebrate animals that stores and breaks down ingested food. Food enters the stomach from the esophagus and passes to the small intestine through the pylorus. Glands in the stomach secrete hydrochloric acid and the digestive enzyme pepsin.

**Small Intestine:** The narrow, winding, upper part of the intestine where digestion is completed and nutrients are absorbed by the blood. It extends from the pylorus to the cecum and consists of the duodenum, the jejunum, and the ileum.

**Villus:** Plural villi: A small projection on the surface of a mucous membrane, such as that of the small intestine.

## **Connections to Permanent Exhibits:**

### **Schumpert Bodyworks Gallery**

**Mr. Bones:** A human skeleton pedals on a bicycle. Watch Mr. Bones legs, what joints are involved in pedaling?

**Grip Strength:** Measure your grip strength.

**Netmania:** See how many soccer balls you can block.

**Measure Up:** How much do you weigh in kilograms? How tall are you? What is BMI?

**Jump Test:** Find your vertical leap.

**Blood Pressure:** Find your blood pressure with this exhibit.

**Beating Heart:** Grasp the two electrodes of a pulse sensor, a realistic rubber heart starts beating synchronously.

**Build a Skeleton:** Take apart a colorful layered puzzle of the human body and replace the organs, bones, and muscles one layer at a time.

**Mr. Torso:** Remove and replace the internal organs of a plastic model. Where is your liver, stomach, heart?

**Bone Junctions:** How many ways can you connect these bones? Can you describe a joint and what are some types of joints?

**X-ray Puzzle:** Use comparative skills to assemble different x-ray images of a whole person. Identify the skeletons of a variety of animals.

**Genetic Traits:** This exhibit describes nine genetic traits. What form of each of these traits do you have?

**DNA-The Language of Life:** Where is DNA found and what shape does it have?

**Images of Heat:** Look at the infrared image on the plasma television. Hold out your hand or look at your face. What part is coldest? What part is warmest?

### **Web Resources:**

**My Pyramid**

U.S. Dept of Agriculture

<http://www.mypyramid.gov/>

MyPyramid Plan offers you a personal eating plan with the foods and amounts that are right for you. MyPyramid Tracker offers a detailed assessment of your food intake and physical activity level.

### **Virtual Body**

MEDtropolis

<http://www.medtropolis.com/VBody.asp>

This site allows one to take a virtual fieldtrip throughout the human body.

### **Kids Konnect**

<http://www.kidskonnect.com/>

#### **Body Parts game**

<http://www.kidskonnect.com/content/view/464/55/>

#### **Human Body Facts with many links**

<http://www.kidskonnect.com/content/view/337/27/>

### **Human Digestive System Lesson Plan**

Instructor Web

<http://www.instructorweb.com/lesson/digestivesystem.asp>

### **Yucky: Your Gross and Cool Body: Digestive System**

Discovery Kids

<http://yucky.discovery.com/flash/body/pg000126.html>

Yucky turns science into fun by tackling the topics that elementary and middle-school kids like to laugh about: belches, farts, gurgly stomachs, poop and vomit. This page tells the stinky story of digestion. For more gross fun, visit the pages listed under Pick a Bodily Function. How does our digestion story end? "Finally, the end of the large intestine is in sight! Now the drier leftovers are various handsome shades of brown. They sit, at the end of their journey, waiting for you to expel them -- out your anus. Of course, you know the rest! A glorious, if slightly stinky, journey, don't you think? "

### **Pre-Visit Activities**

Visit My Pyramid website. Have each student complete a pyramid plan. Browse the video podcast and show them to the students.

Visit Yucky: Your Gross and Cool Body: Digestive System and read the story to the class.

### **Post-Visit Activities**

Perform experiments in the Human Digestive System Lesson Plan.

Using large sheets of bulletin board paper, trace each child's body. Have students draw ( or cut from construction paper and glue) the digestive system on "their" body.