The Digestive System
Grade 4
Unit: The Digestive System

Grade: 4th

Class: Content-based ESL class

You might be particularly interested in how this teacher:

- How the teacher makes talk comprehensible with graphic organizers to assist understanding of a video (45-47).
Introduction
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FLA 518- Content-based Instruction for English Language Learners
Patricia M. Sebest-Morales
July 3, 2003
Unit Selection

Title: The Digestive System
Grade Level: 4th Grade
Target Group: Content-based ESL class

Sources:
http://www.iit.edu/~smile/bi9602.html
http://www.iit.edu/~smile/bi9705.html
http://www.iit.edu/~smile/bi9807.html
http://www.cecasun.utc.edu/~tpa/mcallistar/students/su98cherylgiddens.html
http://www.cecasun.utc.edu/~tpa/mcallistar/students/su98karenduke.html
http://www.nos.org/sc10/s3h14.1.htm
http://www.wgbh.org/edu/lessonplans/ntii/archive/digestion.html


Magic School Bus For Lunch. (Scholastic/South Carolina Educational T.V.

Transparencies in Lesson 1 adapted from: Grolier Interactive, Inc.

Transparencies and worksheets; graphic organizers for Lesson 3 adapted From: http://townschool.com/NTP/student/digestive/diagrams.html

Goals:

I want my students to review and recognize the 5 senses. Later I want them to expand on the sense of “taste”, and learn what happens to the food that they take into their mouths as it is swallowed. I want my students to become familiar with the names, shapes, positions and functions of the body organs
associated with the digestive system. I want my students to know how food is either used as a nutrient or disposed of as a waste. In continuation, I want my students to recognize the value of fiber in their diets, and perhaps in later, or more complicated lessons for more advanced students, become familiar with diseases of the digestive system.
<table>
<thead>
<tr>
<th><strong>ESL LANGUAGE</strong></th>
<th><strong>LANGUAGE</strong></th>
<th><strong>CONTENT</strong></th>
<th><strong>LEARNING STRATEGIES</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge</td>
<td>1. Recognize the tongue and the sense of taste and the location of the tastebuds.</td>
<td>1. Name the tastebuds and their location on tongue.</td>
<td>Association of different foods with the different tastes. (Visual)</td>
</tr>
<tr>
<td></td>
<td>2. Know the names of the organs in the digestive system.</td>
<td>2. Name the different organs in the digestive system.</td>
<td>Visual association of shapes with each organ, i.e., the stomach looks like a squash.</td>
</tr>
<tr>
<td></td>
<td>3. Know the position of the organs in the digestive system.</td>
<td>3. Name the location of the organs in the digestive system.</td>
<td>Mnemonic names to remember the organs, i.e., Stephanie Stomach.</td>
</tr>
<tr>
<td></td>
<td>4. Know the functions of each of the organs in the digestive system.</td>
<td>4. Discuss the functions of the digestive system.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. Know the value of fiber in the diet.</td>
<td>5. Create a play about the digestive system.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>6. Define and discuss &quot;fiber&quot;, its sources and value.</td>
<td>Be aware of the &quot;cooperation&quot; of different body systems and organs of each.</td>
</tr>
<tr>
<td>Skills</td>
<td>1. Group descriptions of tongue and tastebuds.</td>
<td>1. Name the tastebuds and their location on tongue.</td>
<td>Appreciate their election of proper foods to ensure a healthy digestion and all around well-being.</td>
</tr>
<tr>
<td></td>
<td>2. Discuss descriptions and locations of organs in digestive system.</td>
<td>2. Name the different organs in the digestive system.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Write a paragraph about the digestive organs and their functions.</td>
<td>3. Name the location of the organs in the digestive system.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Create and present a play about the digestive system.</td>
<td>4. Discuss the functions of the digestive system.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. Discuss group definition of &quot;fiber&quot;, and brainstorm sources of fiber.</td>
<td>5. Create a play about the digestive system.</td>
<td></td>
</tr>
<tr>
<td>Attitudes and Awareness</td>
<td></td>
<td>6. Define and discuss &quot;fiber&quot;, its sources and value.</td>
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<tr>
<td></td>
<td>Paraphrase writing: Introduction, scaffolds, conclusion, descriptive words,</td>
<td></td>
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<tr>
<td></td>
<td>comparison, structures, prepositions.</td>
<td></td>
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<tr>
<td></td>
<td>Role play and/or skit vocabulary i.e., cues, narrator, etc.</td>
<td></td>
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</tbody>
</table>
1. Aware of "cooperation" of different bodily systems and organs in each.

2. Appreciate their election of proper foods to ensure a healthy digestion and well-being.
Lesson 1
Lesson Plan: Lesson 1 “Name that Taste:

Overview: This lesson is planned as a brief review of the five senses with particular emphasis on the sense of taste, and will lead into a study of the digestive system. There are two parts to this lesson; the first will review the different body parts associated with the sense of taste and the other body parts associated with this sense. The second part is a hands on experiment where the students will personally experience which taste buds are related to each of the four tastes: sweet, sour, salty and bitter.

Objective 1: All students will:
- name most of the senses
- recognize that foods have different tastes
- identify the tongue as the organ of taste

Most students will:
- identify and name the 5 senses
- name the 4 tastes
- recognize the tastebuds’ role in taste

Some students will:
- identify the 5 senses and the organs which are related to them
- match certain foods to certain tastes
- identify the location of the taste buds on the tongue.

Objective 2: All students will:
- understand that the sense of taste is dependent upon outside factors

Most students will:
- describe how the senses of smell and sight affect the sense of taste

Some students will:
- identify and explain the brain’s role in the sense of taste in the form of nerve messages it receives from the tastebuds.
<table>
<thead>
<tr>
<th>Function</th>
<th>Situation</th>
<th>Formulae</th>
<th>Vocabulary</th>
<th>Grammatical Structures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Describe Name</td>
<td>5 senses</td>
<td>The 5 senses are....</td>
<td>Nouns: taste, tongue, eye, ear, nose skin, cell, molecule, brain, nerve, food, lemon juice, vinegar, granulated sugar, shock tarts, materials, Q-tips, paper towels, cups, blindfolds</td>
<td>Simple present tense</td>
</tr>
<tr>
<td></td>
<td>Body parts involved in the senses</td>
<td>The sense of .... uses the .... We ... through the sense of ....</td>
<td>Adjectives: sweet, sour, salty, bitter</td>
<td>Modal verb “be” + adjective</td>
</tr>
<tr>
<td></td>
<td>The parts of the tongue which involve taste and their location on the tongue</td>
<td>The parts of the tongue which let us taste are called the taste buds. The taste buds for sweet/sour/salty bitter are located .... of the tongue.</td>
<td>Prepositional phrases: At the back of, on the tip of, in the middle of, at the upper right side of, at the upper left side of</td>
<td>Affirmative/ Negative use of auxiliary “can”</td>
</tr>
<tr>
<td></td>
<td>The path of the food in the mouth and how we taste, i.e., involvement with the brain and the sense of smell.</td>
<td>Saliva helps the food move into the tastebuds. Taste and smell work together.</td>
<td>Adverbial phrases: When I am blindfolded,..... When I can’t see... When I am not blindfolded..... When I can see... When I hold my nose..... When I can’t smell...</td>
<td>Contraction of “can” + “not”= “can’t” or full negative, “cannot”</td>
</tr>
<tr>
<td>Compare and contrast</td>
<td>The “taste” of foods with a blindfold on, with a blindfold off, and hold one’s nose.</td>
<td>The cells inside the taste bud change the tastes into nerve messages. The nerve messages travel to the taste center of the brain.</td>
<td>Adverbs</td>
<td>Prepositions</td>
</tr>
</tbody>
</table>
Strategy:
(Any material taken directly from original lesson will be indicated by (OL)
Approx. duration of lesson: 90 min.

First, the teacher will re-read the part of the story "The Magic School Bus
dealing with taste. The teacher will show a visual of the tongue and point out the
bumps" on the diagram. (see "transparencies, worksheets and graphic organizers
Random House, Inc., pp, 12-13. The teacher will modify speech with gestures
and body language:
"Mr. Wilde gunned (hand expression to show they went very fast) the engine, or
motor, and lurched (jumped, hand motion, motion shown with toy model bus) and
jumped out of the cheese (show a plastic piece of pizza and have bus jump off
pizza onto model of tongue) and onto Ms. Frizzle’s tongue. (point to tongue in
mouth). It was covered with bumps, (make hand motion to show bumps). "It
wasn’t smooth (hand motion), it was bumpy. Feel your tongue- is it smooth or
bumpy? It was covered with bumps.” Between the bumps (show between on
fingers and also on picture in text), were deep gaps or spaces. Looking down
into one, we saw food molecules (little tiny pieces of food) being washed down
into the taste buds (show picture in text) by saliva. (What’s saliva? Do you
know another word for saliva?)...

Next, the teacher will show overheads (see “transparencies, worksheets and
graphic organizers of Lesson 1”, p. 14) of the path taken by the pizza as it enters
Ms. Frizzle’s mouth and the students will follow on their own copies (see
“transparencies, worksheets and graphic organizers of Lesson 1, p.14) of the
chart; labeling as the teacher labels.

Next, the teacher will say, “Now, we’re going to do an experiment on the
different tastes. Who knows how many tastes we can experience from the
foods we eat?… (If no answer, teacher will use examples of food to elicit
answers). Teacher explains that certain taste buds determine the 4 different
tastes and explains the experiment. (OL) First, she will go through the vocabulary
with realia or pictures to make sure the students understand the materials.

Materials needed:

Q-tips Granulated sugar
Lemon juice Shock tarts
Vinegar Cups (4 per group)
Paper towels Blindfolds

Tongue map (This is the shape of the tongue. Students have already been
shown a design of the tongue with the specific taste areas illustrated. Teacher
will begin by asking students about the 4 tastes. She will use examples to get
across the meaning of each taste, for example, she would say, “What is ‘sweet’?
She will wait for answers, and for all sweet tastes, she would affirm. Then she
may ask, “Is a lemon sweet?” And answer with a puckered face (gesture, body
may ask, “Is a lemon sweet?” And answer with a puckered face (gesture, body language, “NO, a lemon is not (shake head) sweet. A lemon is SOUR. As each taste came up, she could scaffold by writing the tastes on the overhead. She would do the same for all 4 tastes. Students will later fill in their own maps (see “transparencies, worksheets and graphic organizers of Lesson 1”, p.18) from this design and label after the experiment. This will allow students to act as subject, experimenter, recorder and observer. They will need 3 maps each.(pp. 15-17)

Strategy: (To modify this experiment, teacher should model each step using all of the ingredients, and paraphrase the language, using gestures throughout to check for comprehension.)

Place the lemon juice, vinegar, sugar and shock tarts in separate cups. Label the bottom of each cup to indicate the contents. On the sides of the cups, write A, B, C or D and place on a table facing the recorder. The subject (or taster) should be blindfolded. Using a clean Q-tip each time, the experimenter will dip the end into one of the cups with the liquid content and place on different areas of the student’s tongue. The shock tarts should be placed in the subject’s hand and they will place it on different areas of their tongues. Each time the tongue is touched, the students should be asked to identify the taste sensation that they experienced. Each response should be noted by the recorder on the tongue map. Once all students within the group have completed the task, allow students to conduct the experiment again, this time without the blindfold. The experiment should be conducted a third time, with the student subjects holding their noses. When the experiment is completed, students should review their individual responses and then compare them with the other students in their group. Each group will write their overall results and compare with the rest of the class.

Performance Assessment:

- In a small group, beginning ESL students will be able to fill in a tongue chart (see “transparencies, worksheets and graphic organizers of Lesson 1”, p.19) and label the different taste buds, which they will later present to the class.

- In small groups, or pairs, intermediate ESL students will be able to fill in the taste charts (see “transparencies, worksheets and graphic organizers of Lesson 1”, pp .22-24)with the foods, taste and location of the taste buds on the tongue and form one simple sentence for each taste. Later, the students will present their findings to the class, and the teacher may develop a discussion asking, “What can you say about the results you got when you were blindfolded?, when you weren’t blindfolded, and when you held your nose? What does this tell us about the sense of taste when used with the sense of sight and the sense of smell?
Advanced ESL and mainstream students will be able to write a descriptive paragraph explaining structure of the tongue, the location of the taste buds and their corresponding tastes, and certain foods which provide this taste, and how the sense of taste is related to the sense of sight and the sense of smell. (see "transparencies, worksheets and graphic organizers of Lesson 1", p. 25)
We'd been chewed out by teachers before, but this was ridiculous.
We had to escape — fast!
Mr. Wilde gunned the engine, and the bus lurched out of the cheese and onto Ms. Frizzle's tongue.
It was covered with bumps.
Between the bumps were deep gaps.
Looking down into one, we saw food molecules being washed into the taste buds by saliva.
Then a wave of it swept us down, too.

**FRIZZLE FACT**
Some of your taste buds are on your throat, cheek, and the roof of your mouth.
But most are on your tongue.
Descriptive Narrative

Many of my students, while apparently fluent on the conversational level, experience a lack of understanding when it comes to academic concepts. This unit on the senses and digestion may prove to be quite challenging to them. For this reason, I have tried to modify my speech, by speaking naturally, but enunciating, paraphrasing, pauses and simplifying the syntax. I have tried to make sentences shorter and explain key vocabulary with many gestures and visuals, such as overhead transparencies and book illustrations. In some cases, I have used realia such as plastic food and a model bus. I have varied my delivery of explanations, repeating as often as necessary and using questioning techniques for clarification to assure myself of the students' comprehension. I have taken into account the varying levels of fluency, and have assigned activities accordingly. In both intermediate and advanced levels, I have used techniques to obtain higher level thinking and language. In all levels, I have used small group or pair activities to make the students comfortable to share their thoughts. Hands-on experiences often give the student more insight and understanding than mere words, and the experiment we have used is an excellent example to let the students personally experience the difference among the tastes.
You are today's Winner!

Click Here to claim

Tongue (Taste Areas)

See Also

Tongue (Taste Areas)

Mouth and Throat

Mouth and Throat

Motor/Sensory Brain Cortices

Taste...

Did you know?

"I thought the redness, bumps, and genital irritation were from shaving. But now I'm not so sure."

The largest internal connection in the brain is the corpus callosum. It links the two sides of the brain and keeps them working in unison.

The busiest relay station in the brain is the thalamus. It is the gateway to the cerebral cortex. Through it travel nearly all the messages that the brain receives. (One exception is the sense of smell.)

The brain's most alert lookout is an area about the size of your little finger at the back of the medulla. It's called the reticular formation, or RF. It monitors the 100 million sensations arriving at the brain every second. RF lets in the hundred or so important sensations and sends them on to the cortex.
Without blindfold

Diagram of the tongue with regions labeled:

- Bitter
- Sweet
- Sour
- Sweet and Salt
holding nose

B Bitter

Sweet

Sour

Sweet and Salt

Sour
1. Fill in foods from experiment.
2. Fill in tastes from experiment.
3. Color each taste a different color.
1. Fill in foods from experiment.

2. Fill in tastes from experiment.

3. Color each taste a different color.
1. Fill in foods from experiment.

2. Fill in tastes from experiment.

3. Color each taste a different color.
Name That Taste Chart 1. (Blindfolded)

<table>
<thead>
<tr>
<th>Food</th>
<th>Taste</th>
<th>Location on Tongue</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

Directions:
1.) Fill in the chart with the foods from the experiment.
2.) Fill in the chart with the tastes from the experiment.
3.) Fill in the location of the tastebuds on the tongue.
4.) Create 4 original sentences about the results of the experiment.

1.)
2.)
3.)
4.)
Name That Taste Chart 2. (Not Blindfolded)

<table>
<thead>
<tr>
<th>Food</th>
<th>Taste</th>
<th>Location on Tongue</th>
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</thead>
<tbody>
<tr>
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</tbody>
</table>

Directions:
1.) Fill in the chart with the foods from the experiment.
2.) Fill in the chart with the tastes from the experiment.
3.) Fill in the location of the tastebuds on the tongue.
4.) Create 4 original sentences about the results of the experiment.

1.) _______________________________________
2.) _______________________________________
3.) _______________________________________
4.) _______________________________________

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Name That Taste Chart 3. (Holding Nose)

<table>
<thead>
<tr>
<th>Food</th>
<th>Taste</th>
<th>Location on Tongue</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

Directions:
1.) Fill in the chart with the foods from the experiment.
2.) Fill in the chart with the tastes from the experiment.
3.) Fill in the location of the tastebuds on the tongue.
4.) Create 4 original sentences about the results of the experiment.

1.) ____________________________________________
2.) ____________________________________________
3.) ____________________________________________
4.) ____________________________________________
Advanced ESL
Directions: Write a descriptive paragraph explaining the results of the experiment done in class. Include the foods tasted, the resulting tastes and the location of the tastebud on the tongue. Explain also the difference of the tastes when you were blindfolded, when you were not blindfolded and when you held your nose. What can you say about the relationship between the sense of sight and the sense of smell with the sense of taste after this experiment?
Lesson 2
Lesson Plan: Lesson 2  "We Are What We Eat"

(Any material taken directly from the original lesson will be indicated as OL)

Overview: This lesson is used as a follow – up to the 5 senses. In lesson 1, we revisited the sense of taste and learned more in depth about the process in which food meets the tastebuds, which in turn, send nerve impulses to the brain. We also saw how the sense of taste was affected by the senses of sight and smell. In this lesson we will identify and be introduced to the function of the five main organs involved in digestion.

Objective 1 -  All students will name some organs in the digestive system.

Most students will be able to name most of the organs in the digestive system.

Some students will be able to name all 5 organs in the digestive system.

Objective 2 -  After listening to the story “The Magic School Bus Inside the Human Body”, All students will be able to identify the mouth as the beginning organ of the digestive system.

Most students will be able to identify the mouth as the beginning organ of the digestive system, and the stomach as one of the main organs thereafter.

Some of the students will be able to trace the entire path of the digestive system, beginning with the mouth and ending with the large intestine.

Objective 3 -  All students will be able to label the organs of the digestive system.

Most students will form simple sentences in the present tense to talk about the path of the digestive system.

Some students will be able to write a sequenced paragraph describing the order of the digestive organs in the present tense to express sequencing.
<table>
<thead>
<tr>
<th>Function</th>
<th>Situation</th>
<th>Formulae</th>
<th>Vocabulary</th>
<th>Grammar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>5 organs in the digestive system.</td>
<td>The mouth is the beginning of the digestive system.</td>
<td>First Second Next Last Digestion Esophagus Stomach Small Intestine Villi Large Intestine Churn Mash Liquid Muscle Blood Vessels Disease Germs</td>
<td>Sequencing Simple Present Tense</td>
</tr>
<tr>
<td>Describe</td>
<td>5 organs in the digestive system.</td>
<td>The food travels from the ____ to the ____.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The path of food from the mouth to the large intestine.</td>
<td>The stomach growls.</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>The stomach churns and mashes the food.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>First/second/next the food passes to the ____</td>
<td></td>
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</tbody>
</table>
Strategy Lesson 2:

(Any material taken directly from the original lesson plan will be indicated by (OL)

Approx. duration of lesson: 90 min.

Teacher has decorated bulletin board with previous tongue/tastebud charts to aid students' recollection of previous lesson. For purpose of checking background knowledge, teacher will brainstorm with students as to what they think or know happens after one takes food into the mouth. Teacher will initiate by saying, "who knows what happens to the food after you put it into your mouth?" (teacher accepts any answers she gets( OL). Suggestions are written on an overhead where all students can see. Teacher then says, "Today, we are going to learn what happens after we taste something. We are going to talk about the process of digestion. Some of the words we will use are very important, so I put them on a poster for you to see in your own language.(see "transparencies, worksheet and graphic organizers of Lesson 2", p.33) We'll add any others that we find, that are important in other lessons. We're going to start with another story about Ms. Frizzle, Arnold and all the children in the Magic School Bus. This story is called "The Magic School Bus Inside the Human Body." While I'm reading you the story, I would like you to do an activity; on this paper,(see "transparencies, worksheets and graphic organizers of Lesson 2", p.31) I have pictures of the organs, or parts of the digestive system. The digestive system is the process that our body uses (gestures to the body) to take the food we eat and send it (gesture) to different parts of our body to keep us healthy. (Big Smiley face). At the bottom of the paper (point to bottom of paper), you have the words you can choose from- they're also here in your vocabulary on the poster (point to poster). Also, as we see each important part, we'll put the name of the organ under its picture here on the wall (point to the pictures on timeline). (The same graphic organizer was given to ELL's the previous day to prepare them for today's lesson). Teacher reads story, paraphrasing and repeating, using gestures and body language to aid comprehension when needed.

(Excerpt, p. 9): "We are now passing into( going into) the stomach." (teacher pats stomach). Pointing to picture on wall, teacher says, "which picture is the stomach? And the stomach comes after...? Providing wait time, she prompts the correct answer, The esophagus, good, the long (gestures) tube that comes from the mouth, (She could have a piece of rubber tubing to show the concept) down the esophagus and into the stomach(gesturing with own body and repeating and pointing to pictures on the wall)- said Ms. Frizzle. It wasn't (shakes finger) exactly quiet (puts finger in front of closed lips to indicate silence) in there. The walls (point to walls of classroom and then to walls of stomach on picture) moved in and out. (hand gestures, repeat "in and out") churning (hand motion) and mashing (hand motion) the food." (Mashing- you know, like mashed potatoes), "- into a thick liquid." (What's a thick liquid?...Water?...(pauses, providing wait time. No, something more like a milk shake, or honey. Teacher accepts and evaluates answers from class, looking for appropriate ones. ) -"The bus was turning round and round (teacher spins finger and turns body round and
round) and digestive juice (the liquid from the stomach that breaks up (hand gesture) the food) — "splashed the windows (like the rain or a wave at the beach, gesturing a splashing motion.) Now we knew how it felt to be a hamburger.” (Teacher uses higher level thinking as she asks, “Why do you think they said they felt like hamburger?” pulling for the recognition by the student that hamburger is beef ground into little pieces.

After the story is read, teacher will review whole process, pointing again to own body and to chart on wall. “Tomorrow we are going to look at each organ more closely. Who can tell me what an organ is?”

Descriptive Narrative:

In this lesson, the teacher has made use of many techniques to contextualize the lesson. She has utilized sheltered strategies such as the graphic organizer, which was first made into a poster for all to see on the wall, was given to ELL’s the previous day to introduce them to what would be presented the next day in class, and to the class as a worksheet to follow during the story to give a purpose to listening. The teacher used brainstorming to activate background knowledge. On the overhead, the teacher put student generated answers for the class to view. Also, the teacher made use of the students’ L1 in the vocabulary list posted on the wall. Teacher speech was seen in simple sentences, paraphrasing, reduction of syntax, gestures and body language. Other visual strategies included a timeline illustrated with the different organs of the digestive system in their natural order. The teacher also made connections for the students to everyday life with her indirect questioning and mention of “mashed potatoes” when confronted with the verb “mash”.

As each individual lesson takes shape, I can see the strategies coming more and more naturally. These are strategies that I use daily in my classes and even in my life outside the classroom, as I am married to a native Spaniard, whose command of the English language is minimal. Many of these strategies, I do without even thinking about them.
taste buds
esophagus
stomach
small intestine
large intestine


tongue

mouth

brain
The Digestive System

adapted from diagram:
The Digestive System

adapted from:

Sent home w/ Ell's the night before class
**Word Wall: “Taste and the Digestive System”**

<table>
<thead>
<tr>
<th>Picture</th>
<th>English</th>
<th>Spanish</th>
<th>Greek</th>
<th>Pakistani</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sweet</td>
<td>dulce</td>
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<td>Sour</td>
<td>agrio</td>
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<td>Salty</td>
<td>salado</td>
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<td>Bitter</td>
<td>amargo</td>
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<td>Tongue</td>
<td>lengua</td>
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<td>Ear</td>
<td>oreja</td>
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<td>Nose</td>
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<td>Cell</td>
<td>celula</td>
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<td>Molecule</td>
<td>molecula</td>
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<td>Brain</td>
<td>cerebro</td>
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<td>Nerve</td>
<td>nervio</td>
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<td>Food</td>
<td>comida</td>
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<td>Lemon juice</td>
<td>jugo de limon</td>
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<td>vinagre</td>
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<td>Sugar</td>
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<td>bastoncillos</td>
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<td>toallas de papel</td>
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<td>Cups</td>
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<td>Blindfolds</td>
<td>vendajas</td>
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<td>English</td>
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<td>Digestion</td>
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<td>Stomach</td>
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<td>Gurgles</td>
<td>burbujea</td>
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<tr>
<td>Liquid</td>
<td>liquido</td>
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<tr>
<td>Small intestine</td>
<td>intestino pequeno</td>
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<tr>
<td>Large intestine</td>
<td>vientre</td>
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<td>Coiled up</td>
<td>enredado</td>
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<td>Hollow</td>
<td>hueco</td>
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<td>Villi</td>
<td>vello</td>
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<tr>
<td>Blood</td>
<td>sangre</td>
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<td>Blood vessel</td>
<td>vaso sanguineo</td>
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<tr>
<td>Waste</td>
<td>basura</td>
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<td>Plasma</td>
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<td>From</td>
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<td>Heart</td>
<td>corazon</td>
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<td>Chamber</td>
<td>compartimento</td>
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<td>English</td>
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<tr>
<td>Pump</td>
<td>bomba</td>
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<td>Carbon dioxide</td>
<td>bioxido de carbono</td>
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<td>First</td>
<td>primero</td>
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<td>Second</td>
<td>segundo</td>
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<tr>
<td>Next</td>
<td>siguiente; proximo</td>
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<tr>
<td>Last</td>
<td>ultimo; pasado</td>
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<tr>
<td>Esophagus</td>
<td>esofago</td>
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<tr>
<td>Mashed</td>
<td>hecho pure</td>
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<td>Muscle</td>
<td>musculo</td>
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<td>Disease</td>
<td>enfermedad</td>
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<tr>
<td>Germs</td>
<td>germenes</td>
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Lesson 3
Lesson Plan: Lesson 3 "What Happens to the Food You Eat?- The Digestive System.

Overview: This lesson is intended to be an extension of the previous lesson. Today we will look closer at the organs of the digestive system to learn their respective functions. This lesson is in 2 parts; first, students will view a video called "The Magic School Bus For Lunch". The animation of the video will aid the students in envisioning the movement of the organs in the process of digestion. The second part of the lesson will have the children following the path of food on digestive tract maps.

**All of the students will name:**
- the 5 organs of the digestive system
- the different jobs of each organ

**Most of the students will explain:**
- how the food that is digested is sent to other parts of the body.

**Some of the students will write:**
- a paragraph about how some digested food is carried to the blood cells to other parts of the body for energy and what isn't used is disposed of through the large intestine as waste.
<table>
<thead>
<tr>
<th>Function</th>
<th>Situation</th>
<th>Formulae</th>
<th>Vocabulary</th>
<th>Grammar</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Name</strong></td>
<td>The 5 main organs of the digestive system.</td>
<td>The tongue tastes the food. The teeth grind the food. The saliva washes the food down into the esophagus. The muscles move the food down the esophagus. When we swallow, the esophagus contracts. The food passes into the stomach. The stomach grinds/mashes/churns the food. The acid in the stomach dissolves the food. The food passes into the small intestine. The villi soak up the food like a sponge. The bloodstream carries the nutrients to all parts of the body. The large intestine removes the water out of the leftovers. The large intestine carries</td>
<td>Words already given in previous lessons not included in this list from OL. Grind Contract Swallow Tear Crush Acid Dissolve Fuel Nutrients bloodstream Waste</td>
<td>Simple present tense Sequencing Words that sound like what they mean</td>
</tr>
<tr>
<td><strong>Name in sequence</strong></td>
<td>The function of each of the 5 organs in the digestive system.</td>
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<tr>
<td><strong>Describe</strong></td>
<td>The action/sound each organ makes as it does its job.</td>
<td></td>
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</tbody>
</table>
the waste out of the body.
Strategy for Lesson 3:

(All material taken from the original lesson plan will be indicated by OL)

Approx. duration of lesson: 90 min.

The teacher will still be referring to the previous visuals created by the students to aid in comprehension of the video. Additions to the vocab list (see “transparencies, worksheets and graphic organizers of Lesson 3”, p.43) posted in the previous lessons will also add to contextualize the lesson. As another aid in comprehension, the teacher hands out a T-chart graphic organizer (see “transparencies, worksheets and graphic organizers of Lesson 3”, p.45) on organs and functions for students to fill in during viewing of video. Teacher first goes over new vocab, and begins video- pausing for questioning and using teacher talk, paraphrasing, gestures and body language to make syntax simpler. Excerpts of points to pause and question have been taken from the original lesson plan. All viewing activities should be modified following the example of the first excerpt which follows:

Begin the video immediately following the introductory credits. Begin on the title screen showing Magic School Bus For Lunch.

Pause after Dorothy Ann says, “Your mouth is the first step in digestion.” Ask, “Why do you think (make gesture of someone thinking, or use a lightbulb or visual) it is important for you to chew (make chewing motion with mouth) your food thoroughly (or completely)? Accept all answers, i.e. so you don’t choke, so that you don’t swallow too much.

Resume video and pause after Ms. Frizzle says, “Now, that’s more like it.” Ask, “What did the rope that the skeleton swallowed represent?” Point out the parts of the digestive system to the students.

Resume the video and pause after, “So the first thing that happens to food when it gets digested is that you cut and grind it into smaller pieces.” Ask, “Where does digestion first start to take place?”

Resume video and pause after, “The esophagus is where your food goes after you swallow.” Ask, “What does the esophagus look like? And how does the food travel down this tube?” Remind students that this tube is lined with muscles that are constantly contracting, forcing the food down from the mouth. It takes an average of 10 seconds to swallow the mouthful of food to your stomach.

Resume video and pause after, “The stomach is the next step in digestion.” Ask, “Do you think that the rest of digestion will take place in the stomach?”

Resume video and pause after, “And that is only half of what we do here at United Digestion.” Ask, “What jobs do the teeth do? Accept all answers, i.e. the teeth tear, grind and crush the food. Ask “What would be a reason for having
acid in your stomach?" Remind students that stomach acids break down foods and dissolve them into a liquid.

Resume the video and pause after, “The doorway to his small intestine.” Ask, “Why do you suppose the opening to the small intestine is not always open?”

Resume the video and pause after, “Some things are too tough to be broken up and dissolved.” Ask, “Has anyone ever swallowed something that they shouldn’t have? i.e. penny or seeds.” Ask, “Did you have to go to the doctor’s office?”

Resume video and pause after, “They are soaking up the food like a sponge.” Ask, “what do the villi do?”

Resume the video and pause after, “We believe in turning foods into fuel.” Ask, “If the villi soak up the food like a sponge, how are the nutrients delivered?” Remind the students that the bloodstream carries the nutrients to all parts of the body.

Resume the video and pause after, “Removes the water from the leftovers.” Ask, “What are the functions of the large intestine?” Accept answers similar to the fact that the large intestine carries the remainder of the waste out of the body and removes all the water from the leftovers.

Distribute map of digestive tract. Have the children recreate the trip that the children on the Magic School Bus have taken through the body stopping again near the large intestine.

Restart Magic School Bus For Lunch from the point where you left off. Pause the tape to have students think of a solution to Wanda’s question, “What are we gonna do, gonna do, gonna do?”

Resume the video and pause after Arnold asks, “How come it’s alright to drink Wanda’s seltzer?” Ask the students, “Why do you think seltzer and not some other liquid will help?”

Resume the video and pause after the Magic School Bus flies out of Arnold’s mouth. Ask, “What do we know happens when you drink a carbonated beverage?” Resume video and play to the end.

Performance Assessment Activities:

Beginning ESL students: will fill in a digestive chart tract in cooperative groups. (see “transparencies, worksheets and graphic organizers of Lesson 3”, p.43)
Intermediate ESL students: will do same and form sentences to read to class. (see "transparencies, worksheets and graphic organizers of Lesson 3", p. 44)

Advanced ESL students: will role play the parts of the digestive system.

Descriptive Narrative:

Following along with the procedures of the previous lessons, the teacher has used various sheltered strategies. In this lesson, however, she has used a different type of graphic organizer, a T-Chart. It's purpose, however, is similar to those used in other lessons, that is, to give purpose to watching the video. As in all classes, she will use any teachable moment for clarification, and will always try to challenge those intermediate learners to high level thinking with open-ended questions, such as the one at the end of the video asking the students to come up with a solution to Wanda's question, "what are we gonna do, gonna do, gonna do?" This should be the question every teacher should ask of himself/herself, "What am I gonna do, gonna do, gonna do, to make this lesson comprehensible to my ELL's, or to anyone in my class who has special needs?"
Descriptive Narrative:

As in previous lessons, the teacher will be referring to the visuals already made; the word wall will be added to, and as the students view the video, she will give them a graphic organizer to aid in their comprehension and give them a reason for learning. The organizers are created for the various levels of ELL’s. I think I have found a great tool to aid my students, and I enjoy trying to be creative in making them. The video is a great way for my visual learners to be engaged, and the subject matter is made enjoyable for them. The visuals in the video, as well as the CD Rom in the next lesson are awesome. It makes the student feel as if he were really inside the body, going through the digestive process.
Beginning ESL Digestive Tract Worksheet

Fill in the names of the organs. Use the word bank at the bottom of the page.

The Digestive System

Mouth   tongue   teeth   esophagus
Small intestine   large intestine   tastebuds   stomach

adapted from:
My favorite food is ____________. I like it because it tastes ______________.

When I eat it, it first goes ______________. There, ______________.

After it is in small pieces, my saliva washes it against my ______________.

My ______________ swallows the food and takes it into my ______________. Where acids break it into very tiny molecules. These molecules are called ______________, because they will be sent to all parts of my body so I can be healthy. When my food passes into my small ______________, the ______________ soak up the nutrients and the blood stream takes them to the different cells. After, the leftovers pass to the ______________ ______________, which removes the water and carries the ______________ out of my body.
Beginning E.S.L.

Listening Guide for Video: "The Magic School Bus For Lunch"

Fill in the chart as you watch the video.

<table>
<thead>
<tr>
<th>Picture</th>
<th>Digestive Organ</th>
<th>Job / What it looks like</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Mouth" /></td>
<td>Mouth</td>
<td>Takes in food</td>
</tr>
<tr>
<td><img src="image" alt="Tongue" /></td>
<td>tongue</td>
<td></td>
</tr>
<tr>
<td><img src="image" alt="Tastebuds" /></td>
<td>Tastebuds</td>
<td>&quot;taste&quot; food; sweet, sour, salty, bitter</td>
</tr>
<tr>
<td><img src="image" alt="Swallows" /></td>
<td>Swallows</td>
<td>Swallows broken down food.</td>
</tr>
<tr>
<td><img src="image" alt="Stomach" /></td>
<td>Stomach</td>
<td></td>
</tr>
<tr>
<td><img src="image" alt="Small intestine" /></td>
<td>Small intestine</td>
<td>Absorb the nutrients.</td>
</tr>
<tr>
<td><img src="image" alt="Dissolving" /></td>
<td></td>
<td>Removes water from leftovers and carries waste out of body.</td>
</tr>
</tbody>
</table>

Fill in the chart as you watch the video.

<table>
<thead>
<tr>
<th>Illustration</th>
<th>Digestive Organ</th>
<th>Function/What it looks like</th>
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</thead>
<tbody>
<tr>
<td><img src="image1" alt="Lips illustration" /></td>
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<tr>
<td><img src="image2" alt="Lips and tongue illustration" /></td>
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<td><img src="image3" alt="Lips illustration" /></td>
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<td><img src="image4" alt="Face illustration" /></td>
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<td><img src="image9" alt="Digestive system illustration" /></td>
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Fill in the chart as you watch the video.

<table>
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<tr>
<th>Illustration (draw a picture)</th>
<th>Digestive Organ</th>
<th>Function/description</th>
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</tbody>
</table>
Lesson 4
Lesson Plan: Lesson 4 "What Happens to the Food You Eat, cont."

(All material taken from the original lesson will be indicated by OL)

Overview: This lesson is the 3rd part of the study of the digestive organs. The first part of the lesson itself, is an interactive experience where students follow the Magic School Bus on a tour of the human digestive system. Here they can see the virtual movement of the organs as if the students were inside the human body. This enables the student to perform the second component of the lesson, which is to create a full-body chart or a doll model - "a workable machine with which they can see and feel the different textures of materials used for the body parts. Those different feelings will aid them in the placement of the body organs." (OL)

All Students will: - experience the function of the digestive organs interactively.
- sequence the order of digestive organs and processes by constructing either a full body chart or a doll model by following a series of commands.

Most students will: - show by illustration their understanding that the organs need to follow a certain order so that they can function properly.

Some students will: - elaborate in discussions and questions after the manipulation of the interactive activity the fact that the proper functioning of ALL of the organs of the digestive system is essential for the maintenance of a healthy body.
<table>
<thead>
<tr>
<th><strong>Function</strong></th>
<th><strong>Situation</strong></th>
<th><strong>Formulae</strong></th>
<th><strong>Vocabulary</strong></th>
<th><strong>Grammar</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Create</strong></td>
<td>Diagram/ doll</td>
<td>Lie down on the paper. Trace <em><strong>'s body. Put the _____ here/there. This/that is the _____ These/those are</strong></em>__.</td>
<td>Color Cut Trace Draw Lie down Put Here There This/these That/those</td>
<td>Commands Demonstrative adjectives, pronouns Adverbs of place.</td>
</tr>
<tr>
<td><strong>Interact</strong></td>
<td>On the CD-Rom</td>
<td>Click on the _____</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Discuss</strong></td>
<td>How proper functioning of organs in digestive system contributes to health.</td>
<td></td>
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</tr>
</tbody>
</table>
Strategy for Lesson 4:

(All material taken from the original lesson will be indicated by OL)

Approx. duration of lesson: 90 min.

Teacher will take students to computer lab and explain that they will be using a CD Rom; “The Magic School Bus Explores the Human Body”. Students will work in cooperative groups or pairs to follow teacher’s directions to explore a tour through the digestive system. Visuals and working in groups promote active engagement and interaction. Teacher is available to all for clarification- paraphrasing, enunciating, pausing when needed. Teacher will ask direct questions as students follow interactive tour, similar to those asked of students during previous lesson’s video. Depending on level of ELL’s, teacher will use gestures for comprehension and questioning will become increasingly open-ended or higher order as level gets higher. After interactive tour, students will follow commands by teacher and peers to create either a full body chart or a doll. Commands will be modeled by teacher as students work in cooperative groups to construct models. Also, by pairing students with ELL’s sharing the same L1, they can look to each other for clarification when needed.

Performance Assessment:

Full Body Drawing
Using large rolls of white paper, have each child trace the outline of another student’s body while lying down on the white paper. Once the outline has been completed each child could begin to add features and the internal organs that are used in the digestive system.

Doll Model adapted from (OL)
Using food items, and/or “fun” materials, the instructor will construct a doll, and introduce, identify, and explain function of body parts. For example: yellow squash is shaped like the stomach, pasta shells will be the small intestine; trident gum could represent the teeth; a sponge could represent the tongue, etc. Students will construct their own doll using fabrics, sponges, etc. to make up the body parts. This will be a permanent reminder of how some of their inside body parts are placed inside of them to perform the activity they are responsible for doing.

Descriptive Narrative: Modeling is increasingly important as we get into technology. Interactive videos are excellent visuals, but they still need a teacher present for clarification. Cooperative groups are an excellent sheltered strategy. Peers always seek reinforcement, and in an activity like this, if students are paired appropriately, communication will be a natural result of the activity. As in all lessons with ELL’s the teacher needs to be mindful of her teacher talk, along with body language, gesturing and modeling. This is especially true with the beginning ELL’s, but in some
Lesson 5
Lesson Plan: Lesson 5- "The Human Digestive System" (OL)

(All material taken from the original lesson will be indicated by OL)

Overview: This lesson is intended to be the final lesson in the unit about the make-up of the human digestive system. It may be extended to include some lessons on fiber and food appropriate to ensure good health, and some digestive diseases, depending on ELL's level and curriculum restraints. Possibly other lessons on the digestive systems of certain animals could provide interesting lessons on comparisons and contrasts. Also, time permitting, the organs which help the digestive system such as the liver, pancreas and spleen could be added.

In this particular culminating lesson, students will bring in their favorite food to eat and be able to explain the entire digestive process from the point where food enters the mouth and exits the large intestine as waste. Discussion can follow about what students feel like as the food in their stomachs is digesting, depending on what they've eaten.

All Students will:
- explain that food enters the mouth and passes through all organs of the digestive System.
- relate that as food is digested, gas is formed.

Most Students will explain:
- that some foods are more easily digested

Some Students will identify:
- certain foods which are more difficult to digest are those with seeds or hard skin like apples, cucumbers and peppers.
<table>
<thead>
<tr>
<th>Function</th>
<th>Situation</th>
<th>Formulae</th>
<th>Vocabulary</th>
<th>Grammar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dialogue</td>
<td>Role play</td>
<td>My name is ___.</td>
<td>All vocabulary in this lesson is recycled from the previous lessons, except, perhaps for the names of the foods the students bring in, and the different ways to express the formation and expulsion of gases from the system.</td>
<td>Punctuation</td>
</tr>
<tr>
<td></td>
<td>Skit</td>
<td>I am ___. My job is to ___.</td>
<td>Present Simple tense in the 1st person.</td>
<td>Modal verb “be”</td>
</tr>
<tr>
<td></td>
<td>Monologue</td>
<td>The food comes to me after it passes through the ___.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explain</td>
<td>Entire digestive process</td>
<td>I come in line after the ___.</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Sensation one</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Feels as food</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Digests.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Gas formation</td>
<td></td>
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</tbody>
</table>
Strategy For Lesson 5

(All material taken from the original lesson will be indicated by OL)

Approx. duration of lesson: 90 min.

The students will eat the foods they have brought in. Prior to eating, the teacher will have reminded students of all the vocab used so far, adding some of the new foods they have brought in, perhaps in an original dialogue about what she had for breakfast, (see “transparencies, worksheets and graphic organizers of Lesson 5”, p.55) or, more along the lines of the lesson itself, a monologue taking over the role of one of the foods as it is being eaten and digested. After, in cooperative groups, students will take the role of the digestive organ of his/her choice, or the food they have brought in to class, and describe the path followed through the 5 organs.

Performance Assessments:

Beginning ESL: - The student could draw an illustration of 1 organ as a graphic organizer, using all the vocabulary words he/she can think of to describe the organ and function. (see “transparencies, worksheets and graphic organizers of Lesson 5”, p.56)

Intermediate ESL: - The students will write a sequenced paragraph of simple sentences taking the role of the piece of food as it travels through the digestive system. (see “transparencies, worksheets and graphic organizers of Lesson 5”, p.57)

Advanced ESL: - In cooperative groups, students will role play the food and different organs during the digestive process, or create an original dialogue or skit following their favorite food as it passes through the system using mnemonic devices to remember the names of the organs such as Mike Molar, Erin Esophagus, Stephanie Stomach, Sally Small Intestine, and Larry Large Intestine to demonstrate their knowledge of the Digestive System.

Descriptive Narrative: In this lesson, the students have been able to show everything they have learned in the past 5 lessons. During the entire unit, the teacher has practiced sheltered strategies of all types, always with the intention of doing everything in her power to provide opportunities for her students to comprehend and interact with their peers. Certain units have lent themselves to certain strategies, such as teacher talk, gestures and modeling, along with paraphrasing and questioning. In all occasions, the teacher has taken into account the different learning styles of her class;
She has employed visuals of all types, realia, graphic organizers and student generated work for bulletin boards. She has used read and think alouds with direct questions, all the while creating opportunities for higher level thinking. Cooperative group work has been a component which has been present in the majority of her lessons. In many occasions, she has used strategies to activate background knowledge and has made use of the students' L1 to aid comprehension. In some cases, culture has become a component of her lessons, even if it wasn't a specified goal. Such was the case in this lesson, where the possibility arises for the student to bring not only his favorite American food, but perhaps his favorite food might be rice and beans, a typical Hispanic dish. Imagine the discussions that could result as an outcome of the activity of this lesson! The possibilities are endless.
Sample dialogue by teacher to model How food is digested. (Lesson 5)

(Holding up an orange.) Hello class. This morning when I ate an orange for breakfast, I heard my digestive system talking to me! As I bit into the orange with my teeth, I heard my tongue say, "tear up that orange... That orange is very sweet. It isn't sour like a lemon." "Send it to me", said my taste buds. "I like sweet things", said my tongue, "but I will give you some." Soon I could hear my esophagus saying," hey, I want some, too. I'll just contract my muscles and make you swallow that orange so I can get some.” When my esophagus was finished with the orange, he passed it onto my stomach. My stomach growled, "Oh, that orange is good! My acid is going to dissolve it so I can share it with the rest of my friends in the body." Just then, the nutrients from the orange passed into my small intestine. The villi absorbed the nutrients very quickly. They were certainly hungry, too. The villi passed the nutrients to the passing bloodstream. “Thanks", said the blood stream. "I'll take these right away, before your large intestine thinks they are leftovers and takes the water out of them.” And off they went. But, my poor large intestine was also ready to work, and took the water out of the leftovers. Then, he sent the part nobody wanted right out of me!
example of Graphic organizer for Beginning ELL's Lesson 5.
Intermediate ESL Simple Sentence Exercise (Lesson 5)

I usually have _________________________ for breakfast.
It tastes _________________________________.
First I put it ________________________________.
Then, my teeth ________________________________.
After, my tongue ________________________________, where it meets my taste buds.
Then, I swallow and my esophagus ________________________________ into my stomach.

From my stomach, ________________________________.
In my small intestine, the ________________________________ and pass them to my large intestine.
My large intestine ________________________________, and removes the waste.
Checklists
## FLA 518: TAT Sheltered ELL Strategies Checklist

Write the PAGE NUMBERS and any other identifying features to identify those parts of your lessons that employ the following strategies.

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<th>Lesson 3</th>
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<td>P. 28</td>
<td>Pp, 39-40</td>
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<td>Vocab;</td>
<td>Video,</td>
<td>CD-Rom;</td>
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<td>charts</td>
<td>Doll; chart</td>
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<td>I.1b Model (Instruction, Processes)</td>
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<td>Experiment</td>
<td>body parts</td>
<td>commands</td>
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<td>questions</td>
<td>questions</td>
<td>dialogue</td>
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<td><strong>II. Make Text Comprehensible</strong></td>
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<td>Digestive chart</td>
<td>Digestive tract chart</td>
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<td>II.2 Develop Vocabulary</td>
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<td>Word wall</td>
<td>Word wall, ?'s</td>
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<td><strong>III. Make Talk Comprehensible</strong></td>
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<td>overhead</td>
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<td>III.3 Pace teacher’s Speech</td>
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<td></td>
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<td>Simplify syntax</td>
<td>Pauses, Short sent.</td>
<td>Pauses, paraphrase</td>
<td>simplify</td>
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<td><strong>IV. Engage: Opportunities for Output</strong></td>
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<td>Indirect, direct ?'s</td>
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<td>Interactive classroom</td>
<td>Discuss Food/gas</td>
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<td><strong>V. Engage at Appropriate Language Proficiency Levels</strong></td>
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<tr>
<td>V.1 Use questions appropriate for language levels</td>
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<td>Direct ?'s</td>
<td>Direct ?'s</td>
<td>Direct ?'s</td>
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<td>charts</td>
<td>worksheets</td>
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<td><strong>VI. Literacy/Academic Development</strong></td>
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<tr>
<td>VI.1 Allow use of L1 for planning and conceptualizing</td>
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<td>Word wall</td>
<td>Pairs of L1's</td>
<td>Pair work</td>
<td>Pair work</td>
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<td></td>
<td>paragraph</td>
<td>story</td>
<td>Pair work; role play</td>
<td>Command Pair work</td>
<td>Dialogue; Role play</td>
</tr>
</tbody>
</table>
## Functional Checklist

<table>
<thead>
<tr>
<th>Describe</th>
<th>L1</th>
<th>L2</th>
<th>L3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name/Identify</td>
<td>L1, L2</td>
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<tr>
<td>Narrate in Sequence</td>
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<tr>
<td>Create</td>
<td>L4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Click</td>
<td>L4</td>
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<tr>
<td>Dialogue/Role Play</td>
<td>L5</td>
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<tr>
<td>Discuss</td>
<td>L4</td>
<td></td>
<td></td>
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<tr>
<td>Explain</td>
<td>L4</td>
<td></td>
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</tr>
</tbody>
</table>
**Grammar Checklist**

Many of these grammar points were recycled throughout all lessons, but I have shown the lessons in which they were explicitly used.

<table>
<thead>
<tr>
<th>Verbs: Present Simple 3rd Pers.</th>
<th>Verbs: Present Simple 1st Pers.</th>
<th>Modal &quot;can&quot;</th>
<th>Modal &quot;be&quot;</th>
<th>Imperative Commands</th>
<th>Sequence Words and Transition words</th>
<th>Demonstrative adjectives and pronouns</th>
<th>Adverbs of Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1, 2, 3, 4, 5</td>
<td>L5</td>
<td>L1, 2, 3, 4, 5</td>
<td>L1, 5</td>
<td>L1, 5</td>
<td>L2, 3, 4, 5</td>
<td>L4</td>
<td>L4</td>
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<tr>
<td>L5</td>
<td>L3</td>
<td>L1</td>
<td>L5</td>
<td>L4</td>
<td></td>
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</tr>
</tbody>
</table>

Mnemonic Devices

"sound" adjectives

Preposition use

Possessive adjectives

Adverbs of Place

L4

L5
Original Lessons
Title: The Digestive System  
Grade Level: 4th Grade  
Target Group: Content-based ESL class

Sources:
http://www.iit.edu/~smile/bi9602.html  
http://www.iit.edu/~smile/bi9705.html  
http://www.iit.edu/~smile/bi9807.html  
http://www.cecasun.utc.edu/~tpa/mcallistar/students/su98cherylgiddens.html  
http://www.cecasun.utc.edu/~tpa/mcallistar/students/su98karenduke.html  
http://www.wgby.org/edu/lessonplans/ntti/archive/digestion.html


Magic School Bus For Lunch. (Scholastic/South Carolina Educational T.V.

Source of lessons: Taken from various internet web-sites.

Goals:

- I want my students to review and recognize the sense of taste. Later I want them to expand on the sense of "taste", and learn what happens to the food that they take into their mouths as it is swallowed. I want my students to become familiar with the names, shapes, positions and functions of the body organs associated with the digestive system. I want my students to know how food is either used as a nutrient or disposed of as a waste. In continuation, I want my students to recognize the value of fiber in their diets, and perhaps in later, or more complicated lessons for more advanced students, become familiar with diseases of the digestive system.

- Include in final reflective narrative
SCHOLASTIC'S THE MAGIC SCHOOL BUS EXPLORES THE SENSES
by Joanna Cole & Bruce Degen
56 pages; Ages 6-9
Scholastic Press
Hardcover $15.95
Paperback $4.99
ISBN 0-590-44698-3

What is the best sense? For the kids in Ms. Frizzle's class, it's a sense of humor! But on their latest adventure, they learn about sight, smell, hearing, taste, touch, and much more!

When Ms. Frizzle leaves school before getting an important message, Mr. Wilde, the assistant principal, hops on the Magic School Bus to chase her. The class piles in after him, and before their day is over, they have tracked down the Friz — and traveled through an eye, an ear, a tongue, and even a dog's nose!

With clear text and vibrant illustrations, Joanna Cole and Bruce Degen take readers on their most sense-ational trip yet, providing up-to-date facts about the science of the senses in both the human and animal worlds.

http://place.scholastic.com/magicschoolbus/books/classics/senses.htm

7/1/03
“We are now passing into the stomach,” said Ms. Frizzle.
It wasn’t exactly quiet in there.
The walls of the stomach moved in and out, churning and mashing the food into a thick liquid.
The bus was turning round and round, and digestive juice splashed the windows.
Now we knew how it felt to be a hamburger!
Talk about a change of plans! Ms. Frizzle and her class are on the Magic School Bus headed for a museum. They have been studying how the body turns food into energy, and now they are going to see an exhibit on the human body. Things seem fine until they stop for lunch. A strange mishap causes the bus to shrink and then be swallowed! Ms. Frizzle's class is suddenly inside a real human body!

"I thought we were going to a museum," says one of the kids. "There's been a slight change of plans..." announces the Friz. "We're being digested instead."

Yikes! Through the stomach and intestines, into the blood stream, the class travels to the heart, the lungs, the brain. How will they ever get out?

Fasten your seat belts! Joanna Cole and Bruce Degen have come up with another incredible trip on the Magic School Bus.
Scholastic's The Magic School Bus® Explores The Human Body


Ages 6–10

Join Ms. Frizzle and the class on a wacky trip into... you guessed it... Arnold's body. Along the way you'll explore how the human body works as you discover a way out of Arnold and win the game!

Ordered 7-1-03

Also Ordered
"The Magic School Bus for Lunch"

Video

http://place.scholastic.com/magicschoolbus/cdrom/ex_human_body.htm  7/1/03
Hi, I'm Keesha. I'm one of the students in Ms. Frizzle's class. You'd never believe how or picnic in the park turned into a tour of another world — the mini world of microbes! We found out that there are living creatures all around us that we can't see because they are so small. We also learned that these tiny beings can have HUGE effects. That's how we knew we were in for BIG trouble when we ran into the GIANT GERM. Click here to see a sample page from this infectious adventure!
Objective:

This experiment is designed specifically for students in grades three to five. However, it should also be helpful for students in grades six to eight with minimal adjustments. It can accompany lessons which target the five senses, especially the senses of taste and smell or it will work well as a singular experiment which will enhance basic observation skills. Students will learn how the different taste sensations are experienced, particularly that sweet and sour sensors are located on specific parts of the tongue.

Materials Needed:

- Q-tips
- Lemon juice
- Vinegar
- Paper towels
- Blindfolds
- Tongue map (This is the shape of the tongue. Show students a design of the of the tongue with the specific taste areas labeled. Have them to create their own map from this design without labeling.)

This experiment should be conducted by students in groups of two or more. This will allow students to act as the subject, experimenter, recorder and observer. Students will need three maps each.

Strategy:

Place the lemon juice, vinegar, sugar and shock tarts in separate cups. Label the bottom of each cup to indicate the contents. On the sides of the cups, write A, B, C or D and place on a table facing the recorder. The subject (or taster) should be blindfolded. Using a clean Q-tip each time, the experimenter will dip the end into one of the cups with the liquid content and place on different areas of the student's tongue. The shock tarts should be placed in the subject's hand and they will place it on different areas of their tongue. Each time the tongue is touched, the student should be asked to identify the taste sensation that they experienced. Each response should be noted by the recorder on the tongue map. Once all students within the group have completed the task, allow students to conduct the experiment again. This time the blindfold should not be included. The experiment should be conducted a third time. This time students will hold their nose and complete each step of the experiment. When the experiment is completed, students should review their individual responses and then compare them with the other students in their group. Each group will write their overall results and compare with the rest of the class.

Performance Assessment:

Students will now be able to complete tongue mapping by labeling the areas of the tongue that are more sensitive to a specific taste and areas where taste sensations may overlap with each other. They will also understand how the sense of taste is influenced by both sight and smell.

Internet activities to do with this lesson:

http://www.iit.edu/~smile/bf9705.html
Lesson plan
Scavenger hunt
Biography
Photo

We are what we eat!
Karen Duke

Title of the Lesson: We are what we eat!

Goal: To identify and understand the function of the five main organs involved in digestion.

Instructional Objectives:
1. The student will (TSW) describe what digestion is and its function.
2. TSW identify the five main organs: mouth, esophagus, stomach, small intestine, and large intestine.
3. TSW describe the functions of each organ.
4. TSW construct a diagram of the digestive system.

Standards and Benchmarks:
Hamilton County Science Standard 2- Understand Living Things and Their Interaction with Their Environment
Benchmark 8 (2.8.4) Understand the function of the systems of the human body.

Instructional Considerations:
This lesson is intended for third grade students. The students learn through the use of computers, and are familiar with CD-ROMs and the Internet. Students will be working in a cooperative group setting to gather information and to construct their model of the digestive system. Cooperative groups will compensate for individual learning abilities. The CD-ROM The Magic School Bus Explores the Human Body will be viewed on a large screen monitor. The software will be available for students to view individually at another time. This lesson allows other content areas such as expression of art, writing skills, and research skills to be developed along with the science subject matter.

Set: Read orally The Magic School Bus Inside the Human Body. "Have you ever wondered what happens to your food after it is chewed up? Today we are going to find out. We have learned that our bodies have systems that do special jobs for us. We will be learning about one very important system in our body. It is called the digestive system. The digestive system helps us get our food to important places in our body so we can be healthy. It goes through our bodies in a neat way. Today you are going to take a trip through a human's body to learn more about the digestive system. Are you ready? Here we go!"

http://cecasun.utc.edu/~tpa/mcallister/students/su98karenduke.html
Instructional Strategies:
1. The teacher will (TTW) read orally The Magic School Bus Inside the Human Body to motivate the students. Questions, a discussion, and the reading of the book will compensate for auditory and visual learners.
2. The teacher will (TTW) guide students on a visual trip inside the human body using The Magic School Bus Explores the Human Body. This will help visual and auditory learners.
3. TTW explain the five major organs in the digestive system. TTW discuss each organ and its function. This will provide for all types of learners.
4. TTW divide the students into five cooperative learning groups. The groups will make a diagram of a human's digestive system. Students will label each of the five main organs inside the diagram. Each group will receive one organ to research on the computer and will write a brief summary about its functions. This type of learning will compensate for most types of learners.
5. TTW assign a homework assignment that will allow the student to demonstrate knowledge of the digestive system that has been learned. All types of learners will benefit.

Materials and Media:
* Book- The Magic School Bus Inside the Human Body
* Book- How Your Body Uses Food
* CD-ROM- Microsoft's The Magic School Bus Explores the Human Body
* CD-ROM- Encarta '98
* Computer/ Large Screen Monitor
* White Butcher Paper
* Crayons, markers, pencils

Student Practice:
1. TSW participate in the visual representation of the digestive system using the CD-ROM The Magic School Bus Explores the Human Body.
2. TSW work in a cooperative group setting to construct a diagram of the digestive system.
3. TSW work in a cooperative group setting to write a summary about one of the five main organs involved in digestion.
4. TSW present their findings to the class.

Supplementary Activities:
Reteaching: 1. TSW use the book How Your Body Uses Food to read and learn about digestion. 2. TSW use Encarta '98 to research one organ involved in digestion.
Enrichment: The student may use the websites below to do more research, or the student may choose another activity such as:
1. Make a book about organs in the digestive system.
2. Play the game "Operation."
3. Draw digestive systems found in other animals (i.e., frogs, dogs, etc.)

Websites:
1. Overview of the Digestive System
2. The Real Deal on the Digestive System
3. The Digestive System
4. The Digestive System: Production of Digestive Juices

http://cecasun.utc.edu/~tpa/mcallister/students/su98karenduke.html 6/30/03
5. **The Human Digestive System**

*Closure:* "You've done excellent work on your models. Who can tell me the five main organs involved in digestion? Great job! Can anybody tell me what each organ's function is? Good! Tomorrow we will begin studying about other systems that are important in our bodies. For homework tonight, let's see if we can write at least five facts we have learned about our digestive system. We'll go over them tomorrow in our class discussion."

*Evaluation:*

**Formative:**
1. TTW monitor student participation during the lesson and during the different learning techniques.
2. TTW monitor and adjust group progress during the construction stage and check to make sure students are on task.

**Summative:**
1. Evaluate the diagram of the digestive system and research presented to the class.
2. Evaluate the homework assignment for correct information about the digestive system.
3. A test will be given at the end of the unit on the human body. This test will check for content mastery.

*References:*

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**Scavenger Hunt**

**Title:** Body Systems

**Level:** Third Grade

**Standard and Benchmarks:**
Hamiton County Science Standard 2: Understand Living Things and Their Interaction with their Environment
Benchmark 8 (2.8.4) Understand the function of the systems of the human body.

**Instructions:**
Use the web sites to answer the questions in complete sentences.

1. What are the names of the two parts in the nervous system?
   *Adventures in Neuroanatomy: Divisions of the Nervous System*

2. How long is the esophagus in the digestive system?
   *The Real Deal on the Digestive system*

[http://cecasun.utc.edu/~tpa/mcallister/students/su98karenduke.html](http://cecasun.utc.edu/~tpa/mcallister/students/su98karenduke.html)
Science, Grades 2-4

What Happens to the Food You Eat?
The Digestive System

1997 Master Teacher: Karen Lynds, Leeds Elementary School, Leeds, MA

Overview

This lesson will provide the students with an understanding of how food is digested. The students will observe a video displaying the body parts and functions of the digestive system. The students will make drawings of the digestive system from their observations. The students will act out a short play starring the key players, Mike Molar, Erin Esophagus, Stephanie Stomach, Sally Small Intestine, and Larry Large Intestine to demonstrate their knowledge of the digestive system.

ITV Series
Magic School Bus for Lunch (Scholastic/South Carolina Educational TV)

Learning Objectives

Students will be able to:

- describe how food is taken in and ground down by teeth;
- describe how food travels through the body;
- describe how digestion is the process of breaking down food into smaller and smaller parts;
- explain how these parts are either used by the body as nutrients or disposed of as waste;
- perform a play to demonstrate their knowledge of the digestive system.

Materials

(per class)

- large chart displaying digestive system
- large roll of white paper
- foods for tasting such as pieces of apple, banana and celery
- glue
- staplers
- scissors
- model of human torso (if available)
- (per student)
  - pencil
  - colored pencils, crayons or markers
  - large body-size piece of white paper

http://www.wgby.org/edu/lessonplans/ntti/archive/digestion.html 6/30/03
Pre-Viewing Activities

Vocabulary

- **blood** -- the red liquid that flows throughout people and animals and carries oxygen and wastes through the veins and arteries.
- **bloodstream** -- the blood flowing through the body.
- **esophagus** -- a tube that connects the mouth and stomach, and through which food travels.
- **large intestine** -- a long, tube-shaped part of the digestive system that continues below the stomach. The large intestine absorbs nutrients and carries away waste.
- **mouth** -- part of the body containing the tongue and teeth, where food is chewed.
- **muscle** -- a tissue of the body that tightens and relaxes causing the body to move.
- **nutrients** -- items such as food, that are nourishing and promote growth and good health.
- **pharynx** -- the part of the canal between the mouth and the esophagus.
- **saliva** -- a clear liquid made in the mouth to help in chewing and swallowing.
- **salivary glands** -- glands where saliva is made.
- **small intestine** -- a smaller, tube-shaped part of the digestive system that is found after the stomach, which continues to break food down into smaller pieces.
- **stomach** -- a large pouch-like organ into which food passes from the mouth and throat, where the process of digestion begins.
- **teeth** -- hard objects found in the mouth used for biting and chewing.
- **tongue** -- a movable body part in the mouth that is used in tasting and swallowing food.
- **villi** -- tiny hairlike parts growing out of the membrane of the small intestine which absorb nutrients into the bloodstream.
- **waste** -- leftover material not digested by the body and then eliminated from the body.

The vocabulary will be presented on a chart to aid class discussion.

Sentences will be written using the vocabulary words on post-its. The students can volunteer to place post-its in the correct sentences.

Show the students plates filled with cut pieces of apple, banana and celery pieces. Ask, "Where do you..."

[Link to the source webpage](http://www.wgby.org/edu/lessonplans/ntti/archive/digestion.html)
think digestion begins? What do you think happens to the food you eat?" Then ask, "Can you eat a slice of apple without moving your tongue? Without moving your teeth?"

**Focus for Viewing**

The focus for viewing is a specific responsibility or task(s) students are responsible for during or after watching the video to focus and engage students' viewing attention. Say to the students, "Can you think of the names of the different body parts that are used when digestion takes place?" Watch the video to see if you were correct when predicting what happens to food after you eat it." Say, "You are going to watch a video that explains what happens to the pieces of food along the digestive tract."

**Viewing Activities**

**Begin** the video immediately following the introductory credits. Begin on the title screen showing *Magic School Bus for Lunch.*

**Pause** after Dorothy Ann says, "Your mouth is the first step in digestion." Ask,"Why do you think it is important for you to chew your food thoroughly? Accept all answers, i.e. so you don't choke, so that you don't swallow too much.

**Resume video and pause** after Miss Frizzle says, "Now that's more like it." Ask, "What did the rope that the skeleton swallowed represent?" Point out the parts of the digestive system to the students.

**Resume the video and pause** after, "So the first thing that happens to food when it gets digested is that you cut and grind it into smaller pieces." Ask, "Where does digestion first start to take place?"

**Resume video and pause** after, "The esophagus is where your food goes after you swallow." Ask, "What does the esophagus look like? And how does the food travel down this tube?" Remind students that this tube is lined with muscles that are constantly contracting, forcing the food down from the mouth. It takes an average of 10 seconds to swallow the mouthful of food to your stomach.

**Resume video and pause** after, "The stomach is the next step in digestion." Ask, "Do you think that the rest of digestion will take place in the stomach?"

**Resume video and pause** after, "And that is only half of what we do here at United Digestion." Ask, "What jobs do the teeth do? Accept all answers, i.e. the teeth tear, grind and crush the food. Ask, "What would be a reason for having acid in your stomach?" Remind students that stomach acids break down foods and dissolve them into a liquid.

**Resume the video and pause** after, "The doorway to his small intestine." Ask, "Why do you suppose the opening to the small intestine is not always open?"

**Resume the video and pause** after, "Some things are too tough to be broken up and dissolved." Ask, "Has anyone ever swallowed something that they shouldn't have? i.e. penny or seeds." Ask, "Did you have to go to the doctor's office?"

**Resume video and pause** after, "They are soaking up the food like a sponge." Ask, "What do the villi

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Resume the video and pause after, "We believe in turning foods into fuel." Ask, "If the villi soak up the food like a sponge, how are the nutrients delivered?" Remind the students that the bloodstream carries the nutrients to all parts of the body.

Resume the video and pause after, "Removes the water from the leftovers." Ask, "What are the functions of the large intestine?" Accept answers similar to the fact that the large intestine carries the remainder of the waste out of the body and removes all the water from the leftovers.

Distribute worksheet of the human body. Have the children recreate the trip that the children on the Magic School Bus have taken through the body stopping again near the end of the large intestine.

Restart Magic School Bus for Lunch from the point where you left off. Pause the tape to have students think of a solution to Wanda's question, "What are we gonna do, gonna do, gonna do?"

Resume the video and pause after Arnold asks, "How come it's alright to drink Wanda's seltzer?" Ask the students, "Why do you think seltzer and not some other liquid will help?"

Resume the video and pause after the Magic School Bus flies out of Arnold's mouth. Ask, "What do we know happens when you drink a carbonated beverage?" Resume video and play to the end.

**Post-Viewing Activity**

Say, "We are now going to work together to put on a short play about the digestive system using some of the information that you received by watching the video." Ask the students who some of the characters of the play could be.

Distribute the copies of the play to the students. Allow sufficient time for the class to read through the introductory paragraph and to choose a part. Once all the parts have been chosen or assigned, provide the class with some materials that might highlight their parts such as a body part name tag with drawings. Ask that the children come up and demonstrate the location of their body part on the chart or torso.

Allow the class sufficient time to complete the play. Reserve additional time for the class to produce the play again by exchanging roles.

**Action Plan**

Plan a trip to a local hospital to view real x-rays and to talk with a doctor.

Invite a pharmacist to discuss different products used for stomach ailments.

 Invite a nutritionist to discuss food groups and good eating habits

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Extensions

Art: Using large rolls of white paper, have each child trace the outline of another student's body while lying down on the white paper. Once the outline has been completed each child could begin to add features and the internal organs that are used in the digestive system. These could be drawn free hand or could be traced from prepared "Construct a Gut" patterns. Add color and label all parts.

Language Arts: Write a story from the stomach's point of view.

Literature: Read the book, What Happens to a Hamburger by Paul Showers (The Trumpet Club) to the students. The students could make a large class booklet featuring their favorite foods.

Math: The alimentary canal is a tube beginning at your mouth and ending at the anus. In an average adult, this tube measures 27 feet in length. Have the students use rulers to measure out 27 feet and then cut a length of yarn the exact same length. Using a cutout adult paper model, have the children lay the length of yarn down on the paper model, extending it from the mouth to the anus.

Math: Explain to the students that the digestive system is a truly remarkable machine and that during a person's lifetime it may process between 60,000 and 100,000 pounds of food. Using a small scale, have the students predict how many apples, grapes or peanuts might be needed to make just one pound. Then divide the class into small groups and have the children weigh the individual objects so that each group obtains one pound of weight. Check all predictions.

Science: Explain to the students that a stomach makes an acid that helps it digest food. That acid is called hydrochloric acid. Explain to the students that you can make a model of a stomach to see how that acid breaks down food.

You will need these materials:

- a small pickle jar
- a small piece of cooked beef
- some dilute hydrochloric acid

Put the piece of beef in the jar. Pour the diluted hydrochloric acid into the jar. It should cover the beef. (Caution: Some acids burn. If an acid spills on you, wash it off.) Put the jar in a safe place for one day. The next day, look at the beef. What happened to the beef?

Art: Construct-A-Gut

Using paper models and crayons, the students will be able to create and color life-sized (child-sized) models of their digestive systems. Before beginning, ask the children to predict how long the finished product will be. Do they think it will be as tall as one of them? As tall as the teacher? As long as the room? The following illustrations are accurately sized. You will need to make 18-20 copies of the small intestine (per child) and 4-5 copies of the large intestine (per child). Copy the stomach and esophagus only once. After reproducing the drawings, have the students cut them out and color them as coded (P=pink, B=blue, R=red, T=tan). Once they're colored and cut, staple the pieces together in order. Lay

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the completed model on the floor and let the children measure the length. This paper digestive system will be about 6 m long, the approximate length of a child's digestive system. (Hint: at this point, you can begin asking questions about why the intestines are so long. The length is needed because it provides enough surface area to absorb all the food that is eaten each day). When displaying the completed digestive system, the intestines can be held in place by a clear plastic bag.

**Language Arts:** The students may recite the poem, "The Digestive System."

**Math/Science:** Ask the students to keep a seven-day eating chart during the study of the digestive system. After the seven days the children will be able to calculate how many servings they have had of the milk group, the protein group, the fruit/vegetable group and the bread/cereal group. Based on the recommended daily servings, they will have eaten a well balanced diet for a day, or for the week. As another lesson aside from the recommended food groups, each child could calculate his/her daily caloric intake. As each item of food is listed, a caloric amount could be recorded next to it. Totals for the day could be compared with the recommended caloric chart for children. This could also be kept for the week.

**Additional Videos**

*All About You*, grades K-3 programs: *It's What You Eat* and *Getting Rid of Waste*

Distributed by AIT; call 800-457-4509 for more information

*3-2-1 Classroom Contact*, grades 3-6

Program #7- *Digestion: The Inside Story*

Distributed by GPN; call 800-228-4630 for more information

http://www.wgby.org/edu/lessonplans/ntti/archive/digestion.html
Objectives:

To introduce, identify, and explain the functioning of some body parts.
To construct a "living doll" composed of the body parts discussed.

Materials:

Plastic tubing
Baggies
Yarn
Sponges
Fabric
Place Mats
Paper plates

Strategy:

Using student bodies, students will stand, breathe in and out. Point out the movement of their chest area moving in and out and let them know that their lungs are performing this action. Repeat for primary students.

Students will jog in place. When given oral command, students will run in place. After this activity, students are directed to feel their hearts.

Instructor, using food items and/or "fun" materials, will construct a doll and introduce, identify, and, explain function of body parts.

For example: yellow squash is shaped like the stomach; bananas will represent lungs; pasta shells will be small intestines, and so on with food items that approximate shape of inside body organs.

Students will construct their own doll using fabrics, sponges, and place mats to make up the body parts. This will be a permanent reminder of how some of their inside body parts are placed inside of them to perform the activity they are responsible for doing.

Performance Assessment:

Students have made their own toy. They have a workable machine. They can see and feel the different textures of materials used for the body parts. Those different feelings will aid them in the placement of the body organs.

Evaluation:

1. Students were able to place body parts on doll.
2. Students were able to identify body parts.
3. Students were able to discern that it takes the working together of all parts to make our bodies run.
The Human Digestive System
Cheryl Giddens

The purpose of teaching the unit on the human digestive system is to give students the knowledge and understanding as to how their body functions as a whole unit. Students need to understand that the interior of their body works involuntarily without any conscience thinking. The unit should also show the students that personal health practices directly affect the functions of their digestive system.

Before beginning instruction on the human digestive system, the students will have completed other units on the human body. The circulatory system and the respiratory system are directly related to the digestive system. The students will have this background knowledge.

Instruction on the unit could be expanded/improved by asking the school dietitian or a specialist in digestive problems to come in and answer questions. This would allow the students the opportunity to learn first hand just how vital good personal health is to leading a healthy life.

The lesson on the human digestive system will improve the students knowledge of the daily functions of their body. By teaching the class in an interactive format, the students will have the opportunity to manipulate the digestive process that their bodies go through every time a piece of food enters their mouth. The students will understand why it is so important to take care of their body to prevent disease.

The Human Digestive System

GOAL:
To relate how personal health practices dealing with nutrition, disease prevention, alcohol, tobacco products, and other drug use affect the functions of the digestive system.

INSTRUCTIONAL OBJECTIVES:
Students should identify the parts of the digestive system. (Georgia's Quality Core Curriculum-Health and Physical Education, Grade 4 H.4.6)

INSTRUCTIONAL CONSIDERATIONS:
This lesson is designed for a regular fourth grade Health Education class of twenty-five. The students are familiar with the computer, CD-ROM, and the Internet.

http://cecasun.utc.edu/~tpa/mcallister/students/su98cherylgiddens.html 6/30/03
The students will:
1. List major organs of the digestive system.
2. Describe the overall functions of the system.
3. Describe how personal health practices affect the function of the digestive system.

SET:
Day 1: Explain to the students that they will be studying the human digestive system for the next week. Show the video The Magic School Bus: Inside the Human Body. After watching the video, lead the class in a discussion about the human digestive system and the overall role that those organs play in the daily function of the human body.
Day 2: Take the class to the computer lab which is networked with the CD-ROM The Magic School Bus: Inside the Human Body. As the teacher leads the students step-by-step through the program, the students will visit each digestive organ where the CD will play out its role and function relating to the digestive process.
Day 3: Take the class back to the computer lab where they will complete a Body Systems Chart. The students will list the digestive organs and then write a description of each. After going through the whole program, the students will compare their chart with a partner.
Day 4: The students will complete digestive puzzles in small groups.
Day 5: The students will eat their favorite food and then complete a digestive diagram. The diagram should show the step-by-step process that the food travels as it enters the mouth until it leaves the digestive system.

INSTRUCTIONAL STRATEGIES:
The students will:
1. Watch the video: visual and auditory learners
2. Work individually in the computer lab: visual, auditory, and kinetic learners
3. Digestive puzzles: kinetic and visual learners
4. Describe the process on a piece of eaten food: kinetic learners

MATERIALS AND MEDIA:
Video: The Magic School Bus: Inside the Human Body (gives a preview of the human digestive system)
Computers: Macintosh (to aid in the learning process)
Digestive System Puzzles: (recognition of the digestive organs)
Body Systems Chart: (retraining activity)

STUDENT PRACTICE:
The students will:
(Supervised)
1. Participate in class discussions.
2. Students will bring in their favorite food and describe the process and route that the food goes through as it passes through the digestive organs.
(Independent)
The students will make a set of flash cards with the name of the digestive organ on one side and the function of the organ on the back side.

SUPPLEMENTAL ACTIVITIES:
(Retaining)
Give students a Body Systems Chart where they have to list the digestive organs and their functions as
http://cecasun.utc.edu/~tga/meallister/students/su98cherylgiddens.html

6/30/03
Healthy Colon with Good Digestion and Fiber

Lenora Jean Black  
9736 South Harvard Avenue  
Chicago IL 60628  
(312) 568-8120

Parkmanor School  
7037 South Rhodes Avenue  
Chicago IL 60637  
(312) 535-3070

Objective:

This mini-teach lesson is designed for the 6th grade. Students will be introduced to the colon and the relationship it has with the body. Students will learn the process of digestion, the process of the colon, and why fiber is necessary for a healthy diet and a healthy colon.

Materials:

Activity one, Movement of Fiber:

2 long tubes, 1 cup of water, 1 empty cup, a small bag of high fiber raisin bran cereal or honey nut toasted oats. Students will work in pairs.

Activity two, Building a Colon:

1 wood stand, 6 or more flexible straws, 1 roll of masking tape. Students will work individually.

Activity three, Coloring the Colon:

Coloring sheet of the digestive system (As in The Anatomy Coloring Book), crayons and markers, sheet with the directions. Students will work individually.

Activity four, Making a Menu:

Menu sheet will present food listed for 5 days and to be served 3 times a day. The menu should state the calories for each food presented. Fat intake is optional. Students will work individually.

Strategies:

Activity one, Movement of Fiber:

Each pair of students will take one tube and place the cereal down the tube. Students will then use a liquid to push the cereal down the tube. The tube is the colon and the cereal is the fiber. The students will observe how fiber moves through the colon.

Activity two, Building the Colon:

Students will take the straws and join them at the ends. Students will then tape the straws and curve them into a circle, leaving the ends free. Finally, students will label their colon and intestines.

Activity three, Coloring the Colon:

Students will be presented with a coloring sheet followed by directions. Students are to read the directions and complete the assignment.

Activity four, Making a Menu:

http://www.iit.edu/~smile/bi9602.html

6/30/03
Students will construct a menu for 15 meals (3 meals a day, for 5 days). Students will be presented with a list of foods, their calories and fiber content. They must consider in the menu a healthful daily intake of fiber. The daily calorie intake for an average-sized man is 2500 calories per day; for the average-sized woman is 2000 calories per day.

Here is a list of high fiber foods:

<table>
<thead>
<tr>
<th>fiber</th>
<th>calories</th>
<th>fiber</th>
<th>Calories</th>
</tr>
</thead>
<tbody>
<tr>
<td>asparagus</td>
<td>23</td>
<td>turnip greens</td>
<td>17</td>
</tr>
<tr>
<td>bean sprouts</td>
<td>13</td>
<td>broccoli</td>
<td>39 (1 spear)</td>
</tr>
<tr>
<td>green/giant</td>
<td>16</td>
<td>green/beet</td>
<td>20</td>
</tr>
<tr>
<td>kidney</td>
<td>105</td>
<td>collard</td>
<td>14</td>
</tr>
<tr>
<td>beets</td>
<td>27</td>
<td>kale</td>
<td>21</td>
</tr>
<tr>
<td>carrots</td>
<td>17</td>
<td>mustard</td>
<td>7</td>
</tr>
<tr>
<td>mixed vegetables</td>
<td>39</td>
<td>okra</td>
<td>25</td>
</tr>
<tr>
<td>potato</td>
<td>55</td>
<td>onions</td>
<td>27</td>
</tr>
<tr>
<td>soy beans</td>
<td>77</td>
<td>sweet potatoes</td>
<td>162</td>
</tr>
<tr>
<td>squash, zucchini</td>
<td>33</td>
<td>white potatoes</td>
<td>155</td>
</tr>
<tr>
<td>tomato</td>
<td>110</td>
<td>spinach</td>
<td>6</td>
</tr>
</tbody>
</table>

**Background Information:**

The colon is a natural breeding ground for bacteria. The purpose and function of this bacteria is to neutralize, dissipate, avoid and prevent a toxic condition from developing in the colon. However, there are two types of bacteria: the healthy, scavenging type know as **bacilli coli**; and the pathogenic or disease-producing kind. In a proper, clean, healthy environment the healthy scavenging bacteria will control the pathogenic kind. When too much fermentation and putrefaction is generated in the colon (due to neglecting to keep it as free from feces and waste as possible), the pathogenic bacteria proliferate and ailments result. Such waste, through a high fiber diet, must be expelled from the body, and for this purpose your colon is equipped with a very efficient system for elimination, but only if your body is in good working order.

**Fiber:**

Fiber is an effective vehicle to cleanse your colon. Fiber carries bile and fat out of the body. Without fiber, much of this fat is reabsorbed and recirculated through the body. By helping cleanse fat and debris from the digestive tract, gasses are also reduced, allowing for more optimal absorption of important nutrients. A healthy colon also helps the body better absorb oxygen which is important for memory and energy levels.

Finally, presented below is a list of some of the parts of the body that can be affected by a blocked colon:

<table>
<thead>
<tr>
<th>lungs and bronchia</th>
<th>gall bladder</th>
</tr>
</thead>
<tbody>
<tr>
<td>heart stomach</td>
<td>thyroid</td>
</tr>
<tr>
<td>spleen</td>
<td>nasal catarrh</td>
</tr>
<tr>
<td>pancreas</td>
<td>sinus</td>
</tr>
<tr>
<td>kidneys</td>
<td>eyes</td>
</tr>
<tr>
<td>bladder</td>
<td>ears</td>
</tr>
<tr>
<td>prostate</td>
<td>liver</td>
</tr>
</tbody>
</table>

Some other diseases:

http://www.iit.edu/~smile/bi9602.html
Obesity, hypercholesterolemia, cardiovascular disease, hay fever, mineral deficiency, asthma, Parkinson's disease and certain cancers.

**Performance Assessment:**

Students will be able to satisfactorily answer the following questions:

1. What is the process of digestion?
2. What is the process of a colon?
3. What does "movement" mean in reference to digestion?
4. Name 5 ailments that can be linked to a blocked colon?
5. How many hours does it take for food to pass through the digestive system?
6. Where does digestion begin?
7. What is fiber and why is it important to the digestive system?
8. What is the body's "sewer system."

**Conclusion:**

Always consider healthy choices in your lifestyle.

**Return to Biology Index**
The larger lobe of the liver is the right lobe. The two lobes make up the largest gland in the body.

The only vein in the body that has to do more than carry blood back to the heart is the portal vein. It carries nutrients absorbed through the intestinal wall to the liver for processing.

The largest collection of bile is in the gallbladder. Bile is stored here in concentrated form until it is needed to work on fats in the small intestine.

The largest component of bile traveling down the bile duct is water, which makes up 97%. The rest is 1% bile pigments (coloring) and 2% mineral salts and fatty acids.

The widest opening in the wall of the duodenum is where the bile duct and the pancreas release their digestive enzymes into it. Some people also have a smaller extra duct carrying juices into the duodenum.

The placenta enters your baby through the umbilical cord. This little cord joins the baby's blood circulation. Because the oxygen rich blood contains more oxygen than an average person's, the umbilical cord is the body's only conduit to the placenta.