

**ITQ ARTS AND SCIENCE INTEGRATION
GRADE 5
DANCE AND LIFE SCIENCE**

**Down the Hatch – The Digestive System
Lesson #2**

FOSS California, Grade 5, Living Systems, Investigation 1, Part 2

CONTENT STANDARDS

Dance Grade 5

- 1.2** Name and use a variety of movements (e.g., isolations vs. whole body).
- 2.1** Create, memorize and perform complex sequences of movement with greater focus, force/energy, and intent.

Science Grade 5

- LS2C** Students know the sequential steps of digestion and the roles of teeth and the mouth, esophagus, stomach, small intestine, large intestine, and colon in the function of the digestive system.

ESSENTIAL QUESTIONS (*Questions students might ask about the topic*)

- What is the role of the digestive system in keeping my body healthy and active?
- How can I use dance to help me memorize the parts of the digestive system and how they work?

OBJECTIVES & STUDENT OUTCOMES (*Students will be able to.....*)

- demonstrate the sequential steps of the digestive process through chanting, memorizing and performing six whole body and isolation movement sequences formed into a dance study.
- describe how nutrients are absorbed into the blood in the small intestine.

ASSESSMENT (*Various strategies to evaluate effectiveness of instruction and student learning*)

- **Feedback for Teacher**
 - Student performance
 - Student response to inquiry
 - Student Science Notebook Journal Entry
- **Feedback for Student**
 - Teacher Feedback
 - Peer feedback

WORDS TO KNOW

Dance

- **Dance Sequence:** The order in which a series of connecting movements and shapes occur.
- **Dance Study:** A short work of dance that investigates a specific idea or concept and shows a selection of movement ideas.
- **Isolation:** Movement done with one body part or a small part of the body.

Science

- **Colon:** The large intestine where solid waste is compacted in preparation for elimination.
- **Digestion:** The process of breaking down food into nutrients that can be used by cells.
- **Digestive System:** The system of organs and structures responsible for the digestion of food. The digestive system includes the teeth, mouth, esophagus, stomach, small intestine, large intestine, and colon.

- **Esophagus:** The tube connecting the mouth and the stomach.
- **Large Intestine:** A part of the digestive system between the small intestine and the rectum where water is removed from solid waste.
- **Mouth:** A body opening where an animal takes in food.
- **Nutrient:** A chemical found in food that helps keep an organism alive and active.
- **Small Intestine:** The part of the digestive system between the stomach and large intestine that absorbs nutrients from digested food.
- **Stomach:** The organ where food is reduced to mush by acid and muscle activity.
- **Teeth:** Hard structures in the mouth used of cutting, biting, and chewing food.

MATERIALS

- CD Player and music
- FOSS Teacher Notebook, pg. 144, “The Disassembly Line Review”, questions 1-5
- 12 sets of six different colored pieces of paper labeled with each part of the digestive system
- Diagram #1 “Digestive Chant”
- Diagram #2 “Slices of Pizza”
- One 16’ piece of butcher paper labeled with the six parts of the digestive system
- Science notebooks, 1 per student

RESOURCES

- *FOSS California, Grade 5, Living Systems, Investigation 1, Part 2*
- Interactive video at <http://interactivehuman.blogspot.com/2008/05/digestion-interactive-game-for-kids.html>
- VAPA Grade 5 Dance Lesson #3 at the link below:
http://www.sandi.net/cms/lib/CA01001235/Centricity/Domain/176/lessons/dance_5.pdf
- “How to do the Dougie” at <http://www.youtube.com/watch?v=C1RFlyo8PgE&feature=fvwwrel>

PREPARATION

- Present vocabulary from *FOSS California, Grade 5, Living Systems*, and teach Investigation 1, Part 2.
- Teach Grade 5, Dance Lesson #3, *Isolations and the Development of Style* prior to teaching this lesson.
- Prepare 12 sets of labels on 8X10 piece of paper, six different colors to represent each part of the digestive system (12 mouth and teeth, 12 esophagus, 12 stomach, 12 small intestine, 12 large intestine, 12 colon)
- One piece of white butcher paper 16’ long labeled from top to bottom, with each part of the digestive system. Allow ample space between each part.
- Show “How to do the Dougie” at <http://www.youtube.com/watch?v=C1RFlyo8PgE&feature=fvwwrel>

WARM UP *(Engage students, access prior learning, review, hook or activity to focus the student for learning)*

(5 minutes)

- Post a picture of a piece of pizza and *ask/say*:
 - *Today, we are going to talk about my favorite subject, food! How many of you like pizza? I especially like pepperoni pizza!*
 - *Look at this picture of a slice of pepperoni pizza (attached). Turn to a neighbor and discuss what ingredients are in a pepperoni pizza. [Pepperoni pizza consists of a crust, cheese, pepperoni, and tomato sauce.]*
 - *The ingredients found in the pizza provide nutrition for the cells in our body so you can live and be active. But your body cannot use the pizza you ate until it is broken down into essential **nutrients** that your cells can use as fuel. The **digestive system** breaks down the food we eat into **nutrients** that the blood **transports** to all the cells in your body to give you energy.*

MODELING *(Presentation of new material, demonstration of the process, direct instruction)*

(30 minutes)

- Post a chart of the **digestive system** and corresponding vocabulary.
- Identify each part one at a time beginning with the **teeth** and **mouth**. Describe its function and then teach the movement and chant. Repeat this process for all six parts of the **digestive system**.
- Teach the class six, 16-beat **sequences**. Each **sequence** will represent one part of the **digestive system**.
 - The first 16-beat **sequence**:
 - The “Dougie” dance.
 - Say:
 - *Sway right* (beats 1-2), *sway left* (beats 3-4), *sway right-left-right* (beats 5, 6, 7, 8).
 - *We use our hand on the side of our head to show the starting of the **digestive process**. The mechanical process of chewing the food combined with the chemical process of **saliva** mixing with the food starts the **digestive process**.*
 - Chant: *In the **mouth**, in the **mouth**. Where the **teeth** chew up the food.* Repeat one more time.
 - The second 16-beat **sequence**:
 - The Body Wave
 - Say:
 - *Wave right* (beats 1-2), *wave right* (beats 3-4), *wave left* (beats 5-6), *wave left* (beats 7-8).
 - *We do the body wave by **isolating** our torso in a moving line to show the swallowed food traveling down the **esophagus** on its way to the **stomach**.*
 - Chant: *The **esophagus** (beats 1-2), the **esophagus** (beats 3-4). Where food goes down the tube.* Repeat one more time.
 - The third 16-beat **sequence**:
 - The Rolling Paddle Turn
 - Cross your left foot over your right. Raise arms in the air and pivot one-quarter turn to the right while moving (**isolating**) your torso in a circle (beats 1-2). Repeat the paddle step three more times for a total of eight beats. Repeat the entire eight-beat **sequence** one more time.
 - Say:
 - *Cross and pivot, cross and pivot, circle, circle.*
 - *We do this movement to show the physical process of the **stomach** churning up the swallowed food. Gastric juices (hydrochloric acid and pepsin) break down the food into small molecules. This is the chemical process of **digestion**.*
 - Chant: *In the **stomach** (beats 1-2). In the **stomach** (beats 3-4). Where the acid breaks down the food (beats 5-8).* Repeat one more time.
 - The fourth 16-beat **sequence**:
 - The Sway
 - Place hands together and starting at a high level, sway right, then left, alternating for eight beats and end at a medium level.
 - Say:
 - *Sway right, and left, and right, and left* for a total of eight beats.
 - *The **small intestine** has many, many folds and is about 32 feet long! It is long like this so that the **nutrients** have plenty of time to be absorbed into the bloodstream. When the nutrients pass through the intestinal wall into the blood, the blood carries the nutrients to all the cells of your body. We show the large intestine as a long series of zigzag movement.*
 - Chant: ***Small intestine** (beats 1-2), **small intestine** (beats 3-4). Where **nutrients** enter the blood (beats 5-8).* Repeat one more time.
 - The fifth 16-beat **sequence**:
 - The Jazz Square
 - Starting with the right foot, step and slide to the right. With the right foot, step and slide to the back. With the left foot, step and slide to the left. With the left foot, step and slide forward,

- Say: *Slide right, slide back, slide left, slide forward.*
- The **large intestine** is responsible for absorbing water left over from the digestive process. It also compacts food waste, the foodstuffs the body cannot use. Cellulose, like the skins on apples or in celery cannot be used by the body and is excreted. The **large intestine** is shaped like a square, so that's why we do a jazz square
- Chant: **Large intestine** (beats 1-2), **large intestine** (beats 3-4). *Where the water is absorbed* (beats 5-8). Repeat one more time.
- The sixth 16-beat **sequence**:
 - Four Shapes
 - Create 4 different shapes. Shape one at a high level, Shapes two and three at a medium level, and shape four at any level.
 - Say: *Shape one, shape two, shape three, shape four. Freeze.*
 - The **colon** is another name for the large intestine. *At the end of the colon, waste is stored for elimination.*
 - Chant: *In the **colon*** (beats 1-2), *in the **colon*** (beats 3-4), *elimination* (beats 5-6), *elimination* (beats 7-8).

GUIDED PRACTICE (*Application of knowledge, problem solving, corrective feedback*)

(10 minutes)

- Continue to stress the function of each part of the **digestive system** as you teach and review each **sequence**.
- Rehearse until the **sequences** in the **dance study** are memorized.
 - Option: Break students into smaller groups of six and have them conduct their own rehearsal.
 - Place students in pairs. Partner A will perform the dance. Partner B will have a set of identification cards labeled with the parts of the **digestive system**. As partner A performs, partner B will hold up a sign that corresponds to the part of the **digestive system** being done at the level of where that part is located on the body (e.g., **mouth** and **teeth** label should be placed up at the head, the **esophagus** will be placed on the chest, etc.)
 - Perform the six **sequences** to music without chanting then switch partners and perform again.
 - Option: On a long piece of butcher paper, create a **digestion** map. In correct sequence, write the names of each part of the **digestive system**. As students perform they will move to that structure on the map. Students will continuously rotate along the **digestive** tract showing them that the process is ongoing.
 - Videotape performance.

DEBRIEF & REFLECT (*Identify problems encountered, ask and answer questions, discuss solutions and learning that took place. Did students meet outcomes?*)

(5 minutes)

- Digestive system icheck: Randomly hold up one of the six labels from the digestive system and have students say the chant and do the dance. Repeat for several labels. Ask students to arrange the labels in correct order.
- Complete questions 1-5 on the "Disassembly Line Review" handout on page 144 in the FOSS Teacher Handbook.
- Answer the following question in your science notebooks:
 - *How do the **dance sequences** relate to the movement of food through each part of the digestive system?*

EXTENSION (*Expectations created by the teacher that encourage students to participate in further research, make connections, and apply understanding and skills previously learned to personal experiences.*)

- Rehearse the **Digestion Dance** for 10 minutes each day throughout the week until the chanting and movement **sequences** are memorized.
- Brainstorm ideas for creating a 16-beat dance sequence showing nutrients passing through the walls of the small intestine into the blood stream.

Diagram #1 - **DIGESTIVE DANCE & CHANT**

THE DOUGIE

1. In the mouth, in the mouth.
Where the teeth chew up the food.

THE BODY WAVE

2. The esophagus, the esophagus.
Where the food goes down the tube.

THE ROLLING PADDLE TURN

3. In the stomach, in the stomach.
Where the acid breaks down the food.

THE SWAY

4. Small intestine, small intestine.
Where the nutrients enter the blood.

THE JAZZ SQUARE

5. Large intestine, large intestine.
Where the water is absorbed.

FOUR SHAPES

6. In the colon, in the colon.
Elimination, elimination.