Understanding by Design Lesson Plan: The Digestion System
Teacher: Kathryn E. Guinotte

Grade level: 3rd
Date: TBA

Subject: Science

Three-Week Plan

1. Introduction to Digestion	2. How Systems Work	3. Where It All Begins	4. Experiment with the Mouth	5. Stomach Discussion and Inquiry
6. Secrets of the Stomach by Ashley Chase	7. Small Intestine Discussion and Inquiry	8. Small Intestine Experiment	9. Liver and Healthy Eating	10. Large Intestine Inquiry
11. Large Intestine Experiment	12. The Colon and the Way Out	13. The Whole System	14. What happens to our system when we eat bad stuff?	15. Closing Lesson – The Magic School Bus

Stage 1 – Desired Results

Established Goals/Content Standards:

A1: Science as Inquiry and Process

- The student develops an understanding of the processes of science by:
 - [3] SA1.1 asking questions, predicting, observing, describing, measuring, classifying, making generalizations, inferring and communicating.
- The student will demonstrate an understanding of the attitudes and approaches to scientific inquiry by:
 - [3] SA2.1 answering, "how do you know?" questions with reasonable answers.

Content Standards: Concepts of Physical Science B

Concepts of Physical Science

A student should understand and be able to apply the concepts, models, theories, universal principles, and facts that explain the physical world.

A student who meets the content standard should:

1) develop an understanding of the characteristic properties of matter and the relationship of these properties to their structure and behavior.

Content Standards: Skills for a Healthy Life A

Skills for a Healthy Life

A student should be able to acquire a core knowledge related to well-being.

A student who meets the content standard should:

2) understand how the human body is affected by behaviors related to eating habits, physical fitness, personal hygiene, harmful substances, safety, and environmental conditions.

Writing Performance Standards

• The student writes about a topic by W [3] 1.1.2 Writing a paragraph on a single topic with two or more supporting details

Understandings:	Essential Questions:	
Students will understand	 How does what we eat affect how we live? 	
 That scientists observe, imagine, 	 How does the structure of our digestion 	
reason, and question in order to	system affect how it works?	

- examine an object or system.

 That what we eat directly affe
- That what we eat directly affects how well our digestion system functions.
- That our digestion system is many parts that work together as a whole.

Student objectives (outcomes): Student objectives (outcomes):

Students will be able to...

- Students will know...
 Characteristics of the digestive system.
 Students
 Consideration of the digestive system.
 - The different parts of the digestive system.
 - How the digestive system works together.
 - The connection between a functioning digestive system and eating healthy.
 - The uses of adverbs, adjectives, verbs, and nouns.

- Compose a paragraph of descriptive
 - sentences
 Describe the function of each part of the digestive system.
 - Explain how healthy eating helps digestion.
 - Breakdown systems and describe the parts using descriptive words.

Stage 2 – Assessment Evidence

Performance Tasks:

- Write descriptive sentences about each part of the digestive system.
- Write a descriptive paragraph of the digestive system from the beginning to the end as a class
- Beaumont's Explanation
- Mouth Experiment
- Small Intestine Experiment
- Large Intestine Experiment

Other Evidence:

- Science Journals
- Teacher Observation
- Student Participation

Self-Assessments

- Pre KWL
- Post KWL

Other Evidence, Summarized

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Stage 3 - Learning Plan

Learning Activities:

Day One

- Hook: What have you eaten today? What happens to what you eat?
- Introduction to topic
- Expectations
- Discussion about what student's know and expect to learn
- Fill out the KWL

Day Two

- Why are we looking at the whole system?
- What is a system and how does it work?
- What do the students know about systems? Write a list to post on the wall. Write down

student's inquiry questions

Have student's record personal questions in their science journals.

Day Three

- What do we already know about the mouth?
- The importance of saliva.
- The importance of teeth.
- Digestion starts in the mouth by breaking down food.
- Write down questions in science journals and one descriptive sentence.

Day Four

- Today we will be testing our inquiry from the previous day.
- Students will pair up and take turns observing the other student eat various food items (i.e. saltine crackers, jelly beans, etc...)
- Write down observations in science journals. Draw pictures.

Day Five

- What is the stomach like?
- Have students palpate stomachs to come up with ideas about the formation of the stomach.
- Review stomach acid and why we need it. How does this further digestion?
- Write about the stomach, draw the stomach, or work with the stomach manipulative from the plastic human body.

Day Six

- Students will read The Secrets of the Stomach by Ashley Chase.
- Assign students to read solo, in pairs, or in groups based on readiness.
- Students will fill out the worksheet answering questions about Beaumont's Explanation.

Day Seven

- Facts about the small intestine. What is the small intestine like?
- Palpate small intestine area.
- What does the small intestine do?
- How does the small intestine further digestion?

Day Eight

- Students will imitate the small intestine functioning by using long plastic tubing and pingpong balls.
- Students will record experiment observations in their science journals.

Day Nine

- The liver's function is to clean what comes into the body. How might this be affected by poor eating habits?
- Ask students to list healthy food and unhealthy food and speculate on how it might affect their bodies.
- Record their guesses in their science journals.

Day Ten

- Facts about the large intestine. How the large intestine is different from the small intestine.
- Explain why the large intestine and the small intestine have their names.
- Describe the purpose of the large intestine and how what it does is different from the small

intestine.

Day Eleven

- Using tube socks and a small wet piece of foam have students imitate the large intestine
 and draw conclusions about how it acts by observing what happens to the sponge and the
 sock.
- Record these observations in their science journal.

Day Twelve

- Remind students of how scientists approach inquiry. Remind them of the expectations.
- Talk about how the colon works.
- Why does food have to exit? What are our bodies getting rid of?

Day Thirteen

- Now we have talked about all the parts of the system. What happens if one part isn't working right?
- Have students speculate about if one part of the system isn't working right? What do they think would go wrong?
- · Record in their science journals.
- Have each table group write a descriptive paragraph about a part of the system. Write these on sentence strips then assemble them as a class.

Day Fourteen

- Now that we know more about the whole system, what happens when we eat the bad foods that we listed earlier? What happens to the intestines when food gets stuck there?
- Why do we need fiber in our diet?
- Let the kids' questions shape the discussion.
- Have the students record their questions in their science journals.

Day Fifteen

- Watch The Magic School Bus episode about the digestive system.
- Have a class discussion afterwards with students about what they already knew from the video and what might have been new. Did what they see match how they pictured it?
- Final KWL

MATERIALS

- Science Journals
- Human body model with removable digestion system
- Ping-pong balls
- 22 ft of flexible plastic tubing
- Tube socks with toes cut off
- Small pieces of sponges
- Water
- Classroom set of The Secrets of the Stomach by Ashley Chase
- Classroom set of worksheets on Beaumont's Explanation
- The Magic School Bus video
- Big paper for classroom observations, lists, paragraphs.
- Markers
- Sentence strips
- Various food items for mouth investigation

Self-Reflection

Planning this Interdisciplinary Thematic Unit gave me a lot to think about for next year for student teaching. I think I would easily be able to use this in any elementary classroom if I tweaked some of the material. The problems that I had planning this unit was that there is so much available to use and do with the kids that it was hard to narrow it down to three subject areas only. In addition to that there was an abundance of alternative activities that are available. This type of lesson easily integrates reading, writing, and science. In addition to that it would be easy to incorporate Skills for a Healthy Life and even social studies. There are many different directions that this unit could go, and the great thing about planning this unit is that it is easily adaptable to my future classroom.