STUDENT GUIDE
ENGAGE LESSON 2

Food and Agriculture Center for Science Education

Part 1: Our Motivation

Record what we were trying to figure out that led to this investigation.

- I know from commercials that milk can help my body be healthy and learned in this lesson that it is helpful for recovering from exercise, but I am unsure of exactly what it is in milk that helps with exercise recovery.
- We talked about dairy helping an athlete if they drink it after they workout. What happens to the body after you exercise?
- My partner and I added "recovery" into our initial explanations, but I'm not sure what recovery really means for athletes after exercise.
- Why does my body need to recover after exercise?
- What happens while I exercise that causes it to need recovery?
- We know that milk is being used in athletic recovery. What is in milk that makes it so good at doing this?
- What happens to milk after you drink it?

Part 2: Observing the Module Phenomenon

Watch the video your teacher shows and record your observations about how food is digested and the organs involved in the digestion process.

- Food is broken down into smaller bits. It eventually becomes mush.
- Food travels through multiple organs that look different: the mouth, the esophagus, the stomach, the small intestine, and the large intestine.
- There is a hierarchy in structure from organ to organ: mouth to esophagus and stomach into small intestine and then large intestine.

Record any questions you have during/after watching the video.

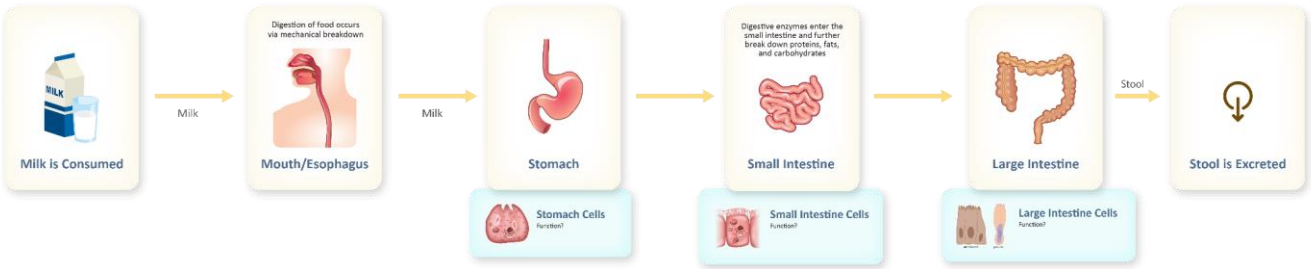
- What is happening to the food at each of these locations?
- What does the stomach/small intestine/large intestine do to the food?
- What is food made of?
- We are not sure what happens yet in each organ that changes food to mush.

Part 3: Creating Initial Models

Create a model that shows how you would currently answer our Module Question, *How is milk digested after it is consumed?* In your model, be sure to show:

- Images, icons, and pictures to visually represent different parts of the system.
- A description of what process happens in each part of the system.
- Arrows that show what enters and leaves each part of the system.
- Zoom-ins that show what is happening on a smaller scale in each part of the system.

Draw a copy of your group model below.



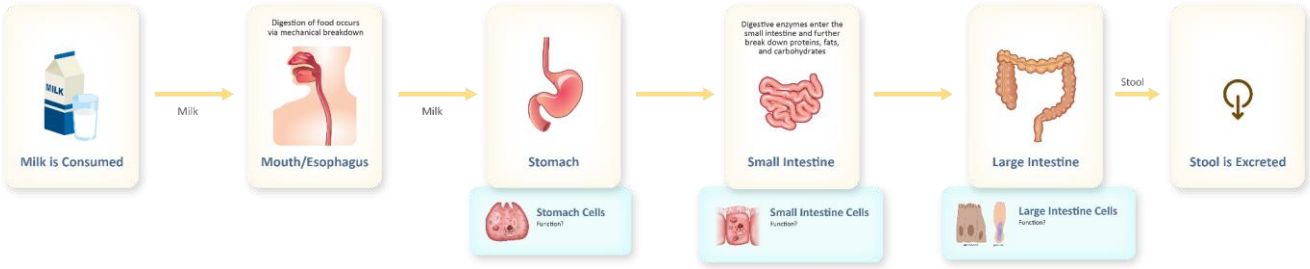
Record any similarities and differences between your model and other groups' models below.

Similarities	Differences

• We each showed the different organs of the digestive system.	• We showed different places where the milk was digested. • We showed different ways the milk was broken down in the body.

After we share our models as a class, record the Class Consensus Model below.

Milk is consumed, then swallowed, and enters the esophagus, entering the stomach where acid digests milk and then moves to the small intestine and the large intestine. What is left of milk in the large intestine is removed as stool.



Part 4: Asking New Questions

Record any new questions that you have that might help you:

- Find additional information about how milk is digested after it is consumed.
- "Fill in a gap" in your model or our class model.
- Settle an area of disagreement that we've identified in our models.

- How does milk get broken down in the body?
- What are organs doing with milk?
- Where do milk's nutrients go in the body?
- Where does the digestion of milk occur?
- What specifically does the body do to get nutrients from milk?
- What processes are taking place inside of me to allow milk's nutrients to be pulled out and used?
- What is happening to milk at each of these locations?
- What does the stomach/small intestine/large intestine do?
- What is the milk made of?