

## The Digestive System - 11/17:

Introduction by Tasha

1. Motivation
  - a. What have you eaten today?
  - b. Why did you choose to eat that food?
  - c. What happened to your food after you ate it?
    - i. Should lead students to think about stomach and digestive system
2. Show and explain the parts of the digestive system
3. Where do people get energy?
  - a. From food - calories
4. How does the energy from food get into the body?
  - a. Nutrients flow into the bloodstream from the small intestine
5. What happens to the indigestible parts of the food?
  - a. Leftovers go into the large intestine and are eliminated
6. Make an announcement to not eat the food unless we say it's okay

Now break into groups - segway by one of leaders saying we will focus on what each part of the digestive system does:

### 7. Activity 1: Digestive System Simulation

- a. This can become messy and probably cause some giggles
- b. Materials:
  - i. 3 baggies
  - ii. Crackers and bread
  - iii. Tablespoon of water
  - iv. Shot glass amount of OJ
  - v. Wide mouth funnel
  - vi. Panty hose leg
  - vii. Shallow basin
  - viii. Paper towels
  - ix. Gloves
- c. Instructions:
  - i. **Mouth:** Place the crackers and bread into one baggie and mash it up with fingers.
    1. *Explain to the students that they are modelling the mouth aka mechanical digestion and the action of our teeth)*
  - ii. **Saliva:** Add the water and observe how further mashing makes the food mushy
    1. *Explain to the students that the water is like the saliva that breaks down our food and makes it soft enough for our tongues to push it down our throat and into the esophagus)*
  - iii. **Esophagus and Stomach:** Use the funnel to pour the contents of your bag into the double baggy (inside bag will have holes) and add the OJ. Begin squeezing the bag again.

1. *The students should notice that the contents of the inner baggy begin leaking out into the outer baggy. Explain the OJ acts as acid in our stomach and our stomach muscles contract and break down the food even further like we did when squeezing the bag. The outer baggy acts as the mucus lining our stomach walls and protecting us from the acid in our stomachs.*
  2. *Ask students what they think would happen if the mucus wasn't there. Explain the strength of the acid and how it could erode our stomach.*
- iv. **Small Intestine:** Holding the pantyhose over the basin, allow students to pour the contents of the bag into the basin.
1. *Explain that the liquid leaking out of the pantyhose is like the nutrients that leak out into our bloodstream through the small intestine. This is how we get our nutrients from food!*
  2. Try to get as much of the liquid out as possible so squeeze if needed.
- v. **Large intestine:** Using paper towels, roll the pantyhose and food in the paper towels, squeezing and patting along the way
1. *Explain that our body absorbs all the remaining water from our food as it moves through the large intestine. This helps us to remain hydrated since our body is made up of 70% water*
- vi. **Rectum:** Show the students the end product. It should look like waste (aka poop). You can choose to explain that the waste will remain in the rectum until we excrete it.
- vii. Remember to clean up well!

## 8. Activity 2: Length of the Digestive System

- a. Materials:
  - i. Strands of yarn, twine, rope and ribbon tied together
  - ii. Digestive system handout
- b. Instructions:
  - i. Let students recall the steps through the digestive system and label the handout
  - ii. Unravel the strings and talk to the students about the lengths of each part of the system -
    1. Mouth = 3 inches
    2. Esophagus = 10 inches
    3. Stomach = 6 inches
    4. Small intestine = 15 feet (smaller diameter)
    5. Large intestine = 4 feet (larger diameter)

## 9. Activity 3: The Esophagus - Peristalsis

- a. Peristalsis is the movement of food through the digestive system.
- b. Recall the part of the previous activity which demonstrated the esophagus (pouring through the funnel). Ask students if they think that the food just slides through our bodies? - No. Our muscles do this work for us to push the food down

our esophagus. (*Recall involuntary and voluntary muscles - esophagus muscles are involuntary*)

- c. Materials:
  - i. Plastic easter eggs
  - ii. Panty hose leg
- d. Instructions:
  - i. Demonstrate the action of our muscles by letting students squeeze easter egg through the panty hose leg. Our fingers act as the muscles.
  - ii. Students can eat the candy and place their hands at the base of their throat to feel this muscle action

**10. Assessment questions:**

- a. How does energy from food get into the body?
- b. Name 3 parts of the digestive system.
- c. Fill in the table to describe the differences between the small and large intestine

	Smaller diameter	Larger diameter
Shorter		
Longer		