

Materials Needed:

- Large Ziploc bag (gallon size recommended)
- Crackers (about 4-5)
- Water (about 1/2 cup)
- Orange juice or vinegar (about 1/4 cup)
- A leg from a pair of pantyhose or tights
- Scissors
- A plastic tray or baking sheet
- A plastic cup
- Paper towels

Let's Go on a Digestion Adventure!

Have you ever wondered what happens to your food after you chew and swallow it? It goes on an amazing journey through your body called digestion! Digestion is how your body turns food like apples, sandwiches, and yummy snacks into tiny pieces your body can use for energy to run, jump, and play!

Today, we're going to build a model to see how this works. It's going to get a little messy, but that's part of the fun!

Step 1: The Mouth

Let's pretend the Ziploc bag is your stomach. First, though, where does food start its journey? Your mouth! Put the crackers into the Ziploc bag. Now, use your hands (outside the bag) to break the crackers into smaller pieces. This is like your teeth chewing the food.

What else is in your mouth that helps break down food? Saliva! Add the water to the bag. Seal the bag almost completely, leaving a small opening for air to escape. Mush the crackers and water together with your hands for about 30 seconds. See how it's getting softer? That's chewing and saliva working together!

Step 2: The Stomach

Now, the food travels down a tube called the esophagus (we're skipping that part in our model) into the stomach! Your stomach has strong muscles and special juices (acids) that break down food even more. Add the orange juice (our pretend stomach acid) to the bag. Seal it tightly!

Now, carefully squish and mix everything in the bag for about 1-2 minutes. This is like your stomach churning the food into a soupy mix called 'chyme'. How does it look?

Step 3: The Small Intestine

Next, the food mush moves into a very long tube called the small intestine. This is where your body absorbs most of the good stuff (nutrients) from the food. Place the plastic cup in the center of your tray. Carefully cut a small corner off the Ziploc bag. Now, hold the pantyhose leg over the cup and slowly squeeze the contents of the bag into the top opening of the pantyhose. Let the liquid drain through the pantyhose into the cup. Keep squeezing!

What's happening? The pantyhose acts like the small intestine. The tiny holes let the liquid (nutrients and water) pass through into the cup (representing your body/bloodstream), while keeping the thicker stuff inside. Your real small intestine has tiny finger-like things called 'villi' that absorb the nutrients.

Step 4: The Large Intestine & Waste

What's left inside the pantyhose is the stuff your body couldn't digest. This moves into the large intestine. The large intestine's main job is to absorb the leftover water. Squeeze the pantyhose one last time over the tray (not the cup) to get out any remaining liquid. We can imagine paper towels on the tray soaking up this last bit of water.

The leftover solid material inside the pantyhose represents waste (poop!). In your body, this waste leaves when you go to the bathroom.

Wrap-up!

Wow! We made a whole digestive system! Let's review:

- **Mouth (Hands & Water):** Chewed the food.
- **Stomach (Bag & Orange Juice):** Mixed food with acid.
- **Small Intestine (Pantyhose):** Absorbed the nutrients (liquid).
- **Large Intestine (Tray & Squeezing):** Absorbed leftover water.
- **Waste (Stuff left in pantyhose):** What the body didn't need.

Isn't it amazing how your body takes the food you eat and turns it into energy? Great job being a digestion scientist today!