

Inflatable Human Digestive System Torso Model

Activity Guide

Learn how the body's digestive system works with the Inflatable Digestion Torso. The model features the mouth, esophagus, stomach, liver, pancreas, gallbladder, small intestine, large intestine, appendix, and rectum. Fill the torso with a liquid solution and watch as it moves through each organ in the digestive system before excreting at the bottom. Use the included diagram for students to label organs. When not in use, the torso easily deflates for convenient storage.

The organs on the model are not proportional to the body model. The organ size is exaggerated to emphasize the organs involved in the digestive process.

Digestive Demonstration

Use a water and food-coloring solution to fill the torso model for demonstration. Adding food coloring to the solution will help visibility of the liquid as it moves through the digestive track. Do not fill the model with any other type of solution.

Use the included wash bottle to insert liquid into the digestive track. Insert the end of the wash bottle into the mouth opening and squeeze the liquid into the torso model. To prevent the liquid solution from excreting at the bottom of the model, close the bottom valve.

Use the foot pump to push the liquid solution through the digestive system. To demonstrate how digested food is excreted from the body, open the valve at the bottom of the model. Open the valve over a sink or bucket to avoid ruining the floor.

To prevent mold from developing in the digestive track, use the foot pump to dry the track before storage. If mold does form, pump a weak water-and-bleach solution through the track.



Organ Order of the Digestive System

When we swallow, food goes into a tube called the esophagus. Muscles surround the esophagus to help squeeze and push food into the stomach.

The stomach is a sack that receives food from the esophagus. The stomach makes digestive juices (acids and enzymes) that help break down food into a thick liquid or paste. This substance is called chyme.

After leaving the stomach, food enters the small intestine where the most important part of the digestion process takes place. As the thick food paste travels through the small intestine, nutrients (vitamins, minerals, proteins, carbohydrates, and fats) are absorbed by millions of tiny, finger-like objects called villi and sent into the bloodstream where nutrients can travel to all body cells.

The undigested food enters the large intestine as a liquid paste. In the large intestine, water is removed from the liquid paste, turning the remains into solid waste. This waste collects in the rectum at the end of the large intestine and finally leaves the body through the anus.

Digestive Facts

- You can swallow upside down because the muscles around the esophagus are strong enough to push the food up to your stomach.
- The stomach gets a new lining every three days.
- The body makes about one liter of saliva a day.
- In a healthy person, it takes 24–72 hours for food to completely digest.
- The stomach wall is lined with three layers of powerful muscles.
- The small intestine is a 20- to 25-foot tube that is coiled up in your abdomen.
- The liver is the largest organ in the body.
- Food stays in your stomach for 2 to 3 hours.

Digestive Definitions

appendix small, functionless, tube-like structure attached to the first part of the large intestine

chyme partially digested food that moves through the digestive tract

digestion the breaking down of food into forms that our bodies can use as fuel to provide energy for work, play, and growth

esophagus the muscular tube for the passage of food from the mouth to the stomach

gallbladder pear-shaped organ that stores bile from the liver until the body needs it for digestion

large intestine final part of the digestive system that turns waste and other indigestible food into feces

liver the largest internal organ that aids digestion, controls metabolism, and removes harmful substances from blood

pancreas part of the endocrine system that produces insulin to regulate the amount of sugar in the blood; aids the digestion process and helps control metabolism

rectum the lowest portion of the large intestine that collects stool

small intestine part of the digestive system that takes nutrients from food and deposits them in the bloodstream; the longest internal organ

stomach part of the digestive system that contains acid to help break down food for the body to absorb

Inflation Instructions

1. The inflatable pieces must reach room temperature before they are inflated to reduce temperature shock that can cause defects.
2. For best results, inflate by blowing into the valve with your mouth only.
3. Do not over inflate. Do not attempt to remove every wrinkle from the pieces. Too much internal pressure will cause seam lines to burst.
4. Where there are multiple sections, inflate slowly, allowing air to seep into the smaller sections.
5. After inflating, cover the valve opening with your finger. Pinch the valve at its base with your fingers and insert the plug into the valve opening. Quickly insert the plug fully into the valve opening until the head of the plug touches the opening. Press the valve into the piece until the valve is flat with the surface of the object.

CAUTION: Do not inflate with an air compressor or any other high pressure hose. Do not pull on valves.
THIS IS NOT A LIFESAVING DEVICE.

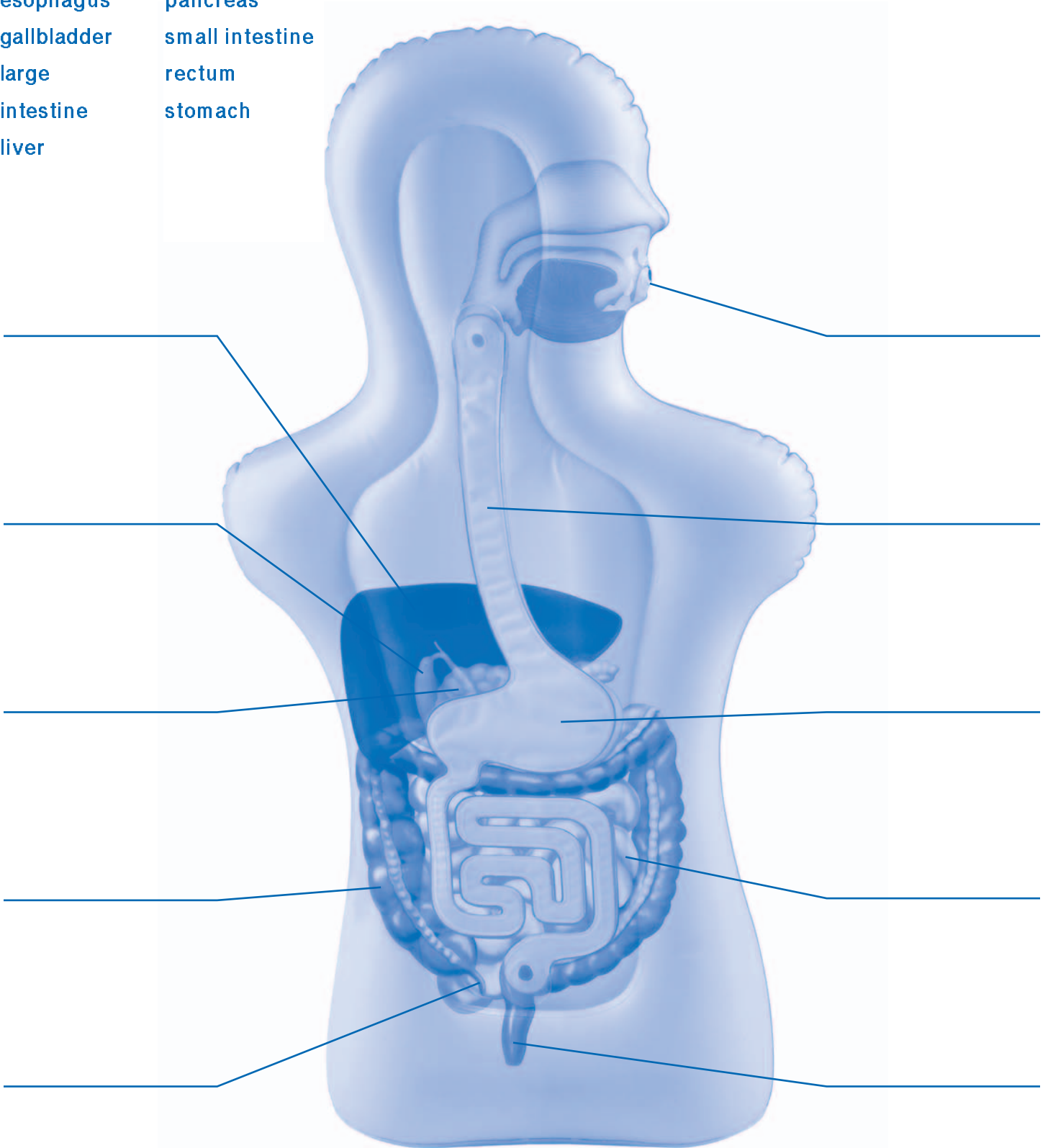
Maintenance and Deflation

1. Do not drag pieces over sharp objects or surfaces.
2. Avoid contact with hot or sharp objects.
3. To clean, rinse with lukewarm water and let air dry.

Digestive System

Directions: Label the digestive system.

- | | |
|-----------------|-----------------|
| appendix | mouth |
| esophagus | pancreas |
| gallbladder | small intestine |
| large intestine | rectum |
| liver | stomach |



Answer Key:

