

Bill Nye the Science Guy Digestion

Food is fuel for the body.

Describe one of the experiments that showed how food is energy.

- food powered car of science
- literally burn nutrients to see it make the car go.

How do you know when you are hungry?

Stomach muscles contract

How long does it take to digest food?

hours

12-48

Our stomach lining is replaced every ^{mucus} 3 days.

We consume approximately 1 kg of food per day,
and 3L of water per day.

The small intestine in an adult is approximately 7 meters long, and
is 4 meters long in a child.

The big intestine is about 2 meters long.

What is peristalsis?

Food is pushed along by muscles in throat

We make approximately how much saliva per day?

1L

rice & beans

The Gastrointestinal Tract

INGESTION



news and mixes food with saliva.

irects food from mouth to esophagus.

crete saliva (contains starch-digesting enzymes).

rotects airway during swallowing.

llows air to pass to and from lungs.

passes food from the mouth to the stomach.

Allow passage from mouth to esophagus and from esophagus to stomach. Prevent backflow from stomach to esophagus and from esophagus to mouth.

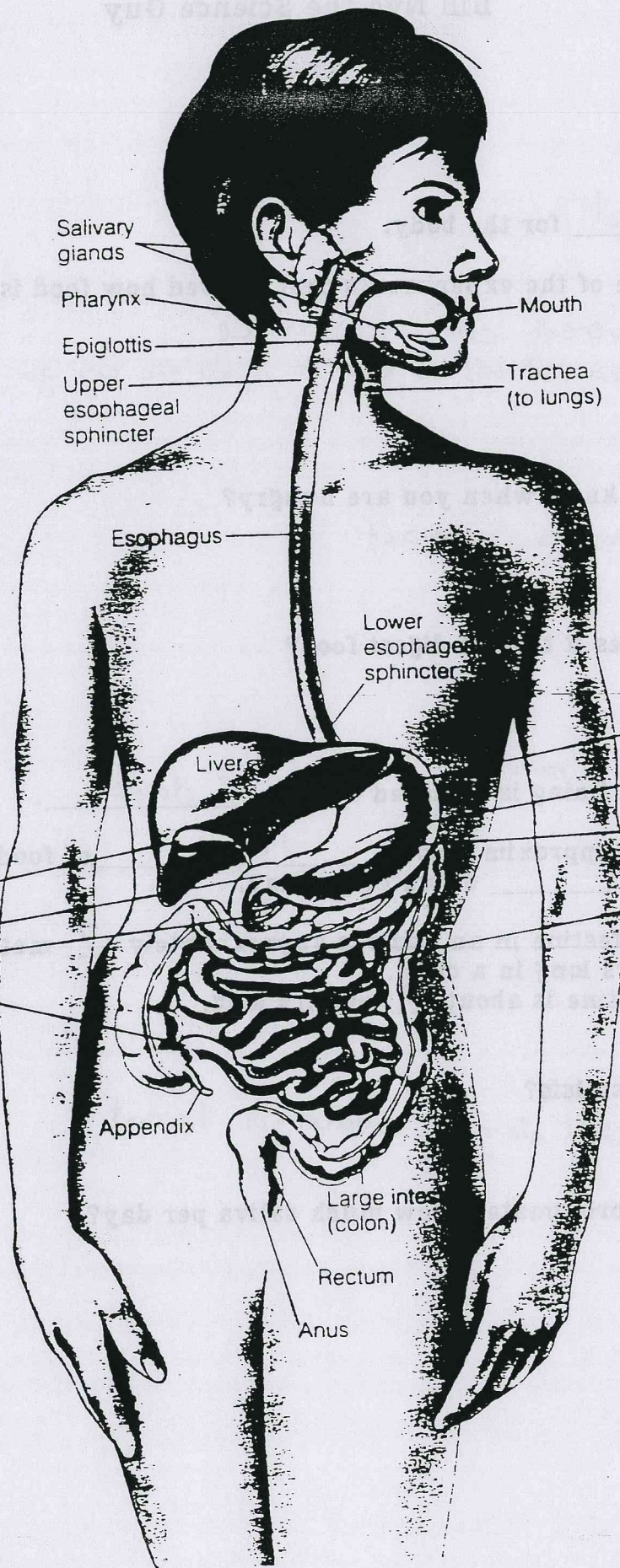
Adds acid, enzymes, and fluid. Churns, mixes, and grinds food to a liquid mass.

Allows passage from stomach to small intestine. Prevents backflow from small intestine.

Manufactures bile salts, detergent-like substances, to help digest fats.

Stores bile until needed.

Conducts bile from the gallbladder to the small intestine.



Allows passage from small to large intestine. Prevents backflow from large intestine.

Stores lymph cells.

Secretes enzymes that digest all energy-yielding nutrients to smaller nutrient particles. Cells of wall absorb nutrients into blood and lymph.

Manufactures enzymes to digest all energy-yielding nutrients and releases bicarbonate to neutralize acidic chyme that enters the small intestine.

Conducts pancreatic juice from the pancreas to the small intestine.

Stomach
Pancreas
Pancreatic duct
Small intestine (duodenum, jejunum, ileum)

Reabsorbs water and minerals. Passes waste (fiber, bacteria, and unabsorbed nutrients) along with water to the rectum.

Stores water prior to elimination.

Holds rectum closed. Opens to allow elimination.

ELIMINATION



The Gastrointestinal Tract

INGESTION

Mouth
Chews and mixes food with saliva.

Pharynx
Directs food from mouth to esophagus.

Salivary Glands
Secrete saliva (contains starch-digesting enzymes).

Epiglottis
Protects airway during swallowing.

Trachea
Allows air to pass to and from lungs.

Esophagus
Passes food from the mouth to the stomach.

Esophageal Sphincters
Allow passage from mouth to esophagus and from esophagus to stomach. Prevent backflow from stomach to esophagus and from esophagus to mouth.

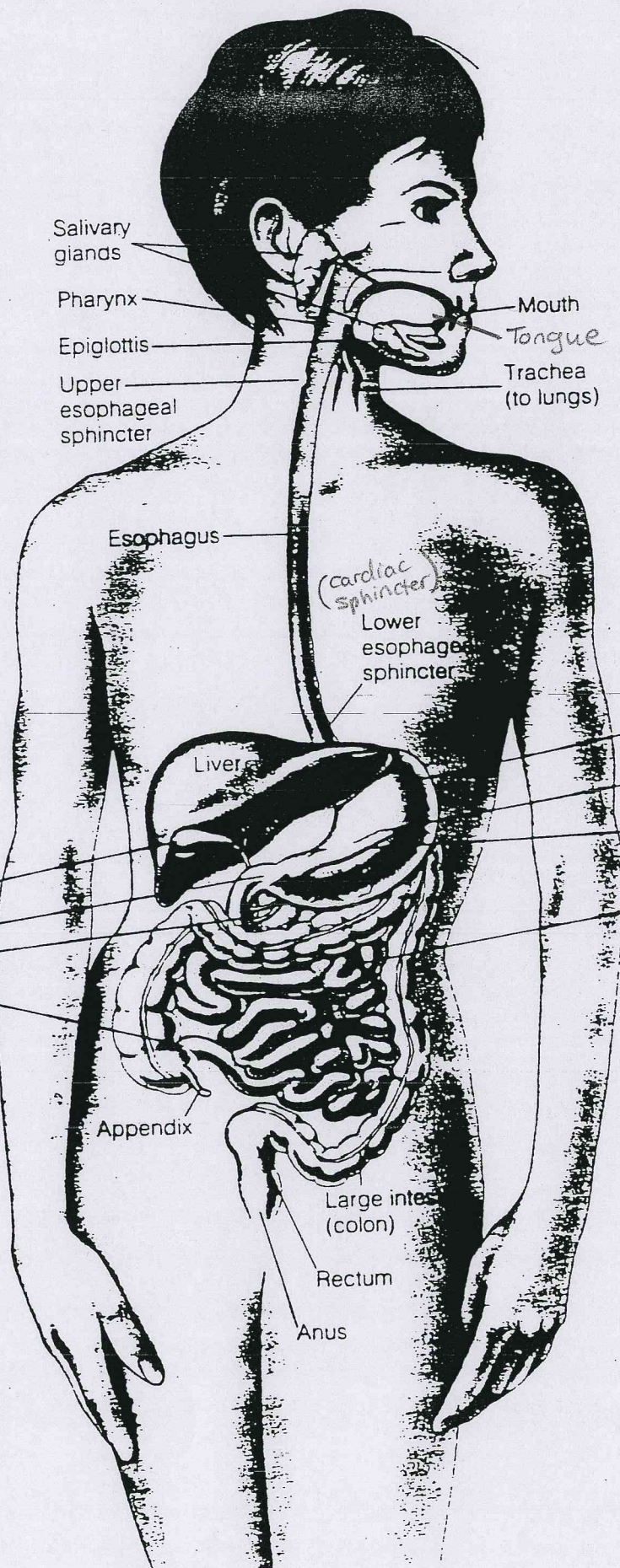
Stomach
Adds acid, enzymes, and fluid. Churns, mixes, and grinds food to a liquid mass.

Pyloric Sphincter
Allows passage from stomach to small intestine. Prevents backflow from small intestine.

Liver
Manufactures bile salts, detergent-like substances, to help digest fats.

Gallbladder
Stores bile until needed.

Bile duct
Conducts bile from the gallbladder to the small intestine.



Ileocecal Valve
Allows passage from small to large intestine. Prevents backflow from large intestine.

Appendix
Stores lymph cells.

Small Intestine
Secretes enzymes that digest all energy-yielding nutrients to smaller nutrient particles. Cells of wall absorb nutrients into blood and lymph.

Pancreas
Manufactures enzymes to digest all energy-yielding nutrients and releases bicarbonate to neutralize acidic chyme that enters the small intestine.

Pancreatic duct
Conducts pancreatic juice from the pancreas to the small intestine.

Small intestine
(duodenum, jejunum, ileum)

Large Intestine
Reabsorbs water and minerals. Passes waste (fiber, bacteria, and unabsorbed nutrients) along with water to the rectum.

Rectum
Stores water prior to elimination.

Anus
Holds rectum closed. Opens to allow elimination.

ELIMINATION