Digestion

mouth esophagus

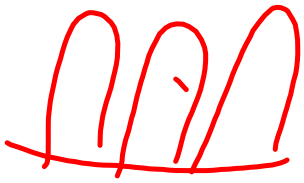
saliva

Parts of your digestive tract?

What helps digest food? Stomach

Stomach acid

Digestive issues?



(2) Lg intestine
(1) Sm intestine

Chapter 20
DIGESTION

Digestion is the breakdown of large complex organic materials into smaller components, which can be used by the body.

Nutrition Facts

Serving Size 1 cup (8 fl oz) (265g)

Amount Per Serving

Calories 228	Calories from Fat 77
	% Daily Value*
Total Fat 9g	13%
Saturated Fat 5g	24%
Trans Fat	
Cholesterol 29mg	10%
Sodium 191mg	8%
Total Carbohydrate 28g	9%
Dietary Fiber 0g	0%
Sugars 22g	
Protein 10g	

Vitamin A	50%	• Vitamin C	46%
Calcium	33%	• Iron	20%

*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs.

NutritionData.com

<u>Nutrients</u> are chemicals that can be used by the body.

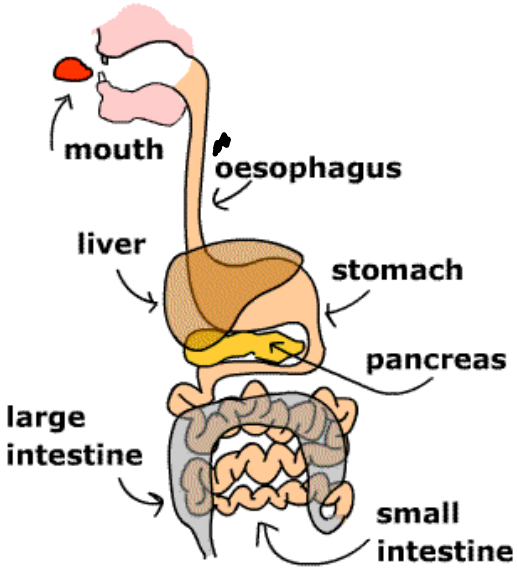
"Eating the poinsettia didn't make him sick. It was the three pounds of potting soil."

Ingestion- Taking of food.

Digestion- Breakdown of food.

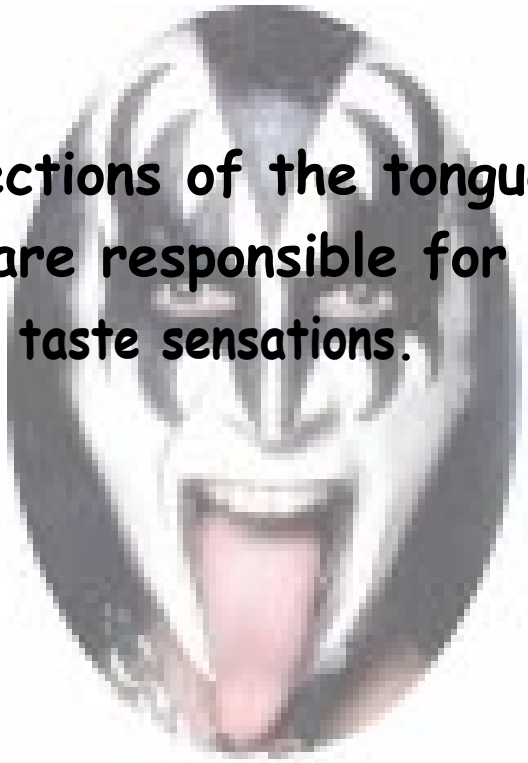
Absorption- Transport of digested nutrients to body tissues.

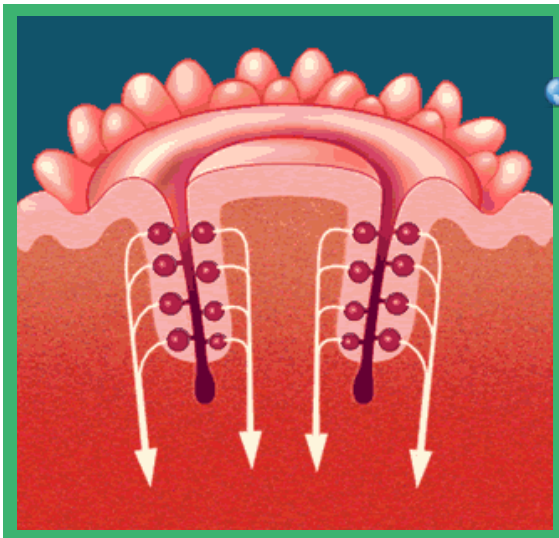
Egestion- Removal of waste.



As you guessed, digestion begins in the mouth with the physical breakdown of food. Salivary glands aid by secreting amylase enzymes, which break down starch into carbohydrates, called dextrins.

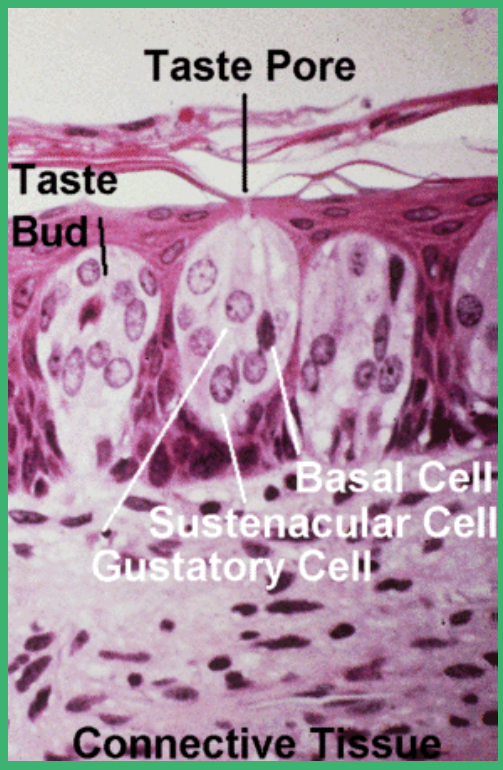
Sections of the tongue are responsible for taste sensations.

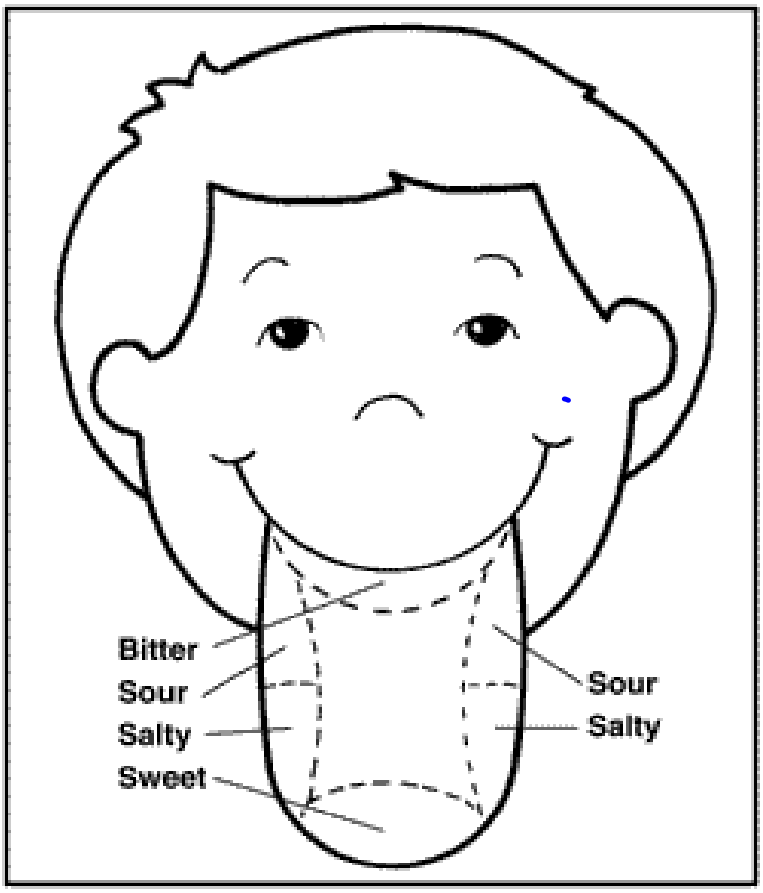




https://www.youtube.com/watch?v=KuP-Kj7MHes

Food particles must be in a solution before they can penetrate the taste buds of the tongue.



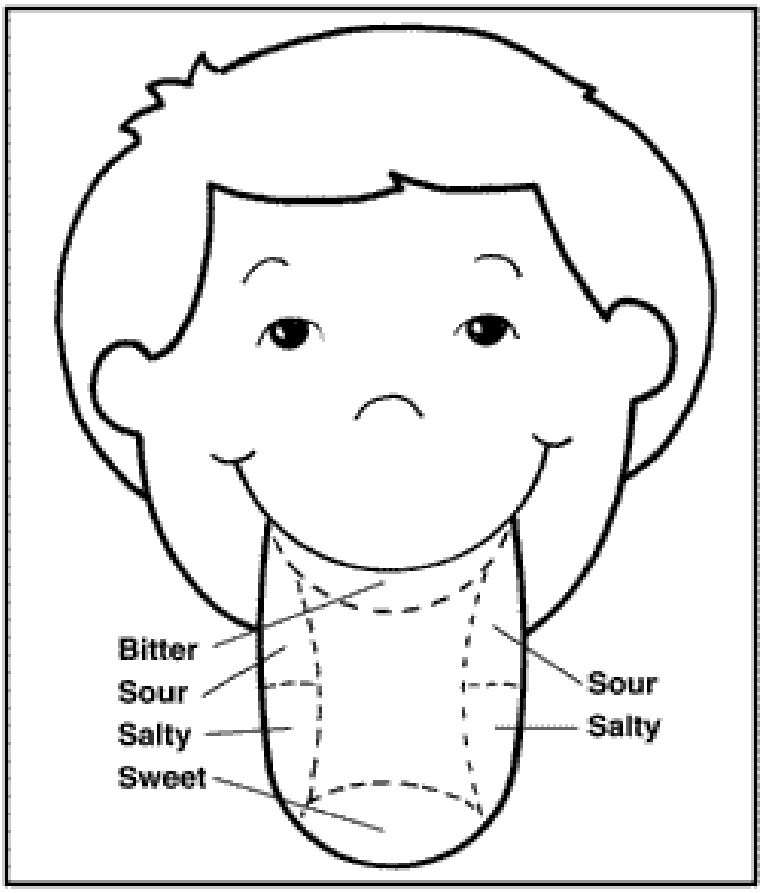


sour

sweet

bitter

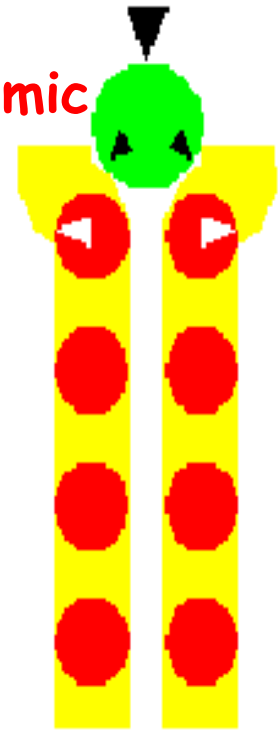
salty

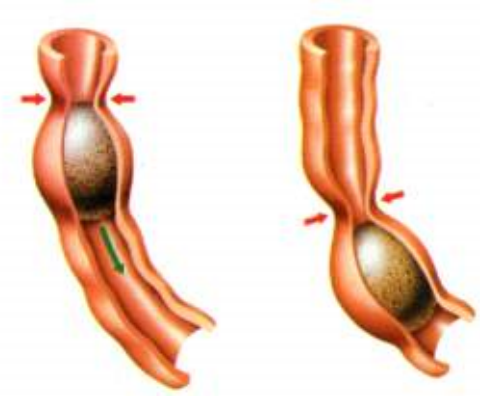

Bitter
Sour
Salty
Sweet
Sour
Salty

Supertaster lab

Supertaster Lab space for answers.docx

Food travels from mouth to esophagus. It moves by rhythmic muscle contractions called peristalsis to the stomach.





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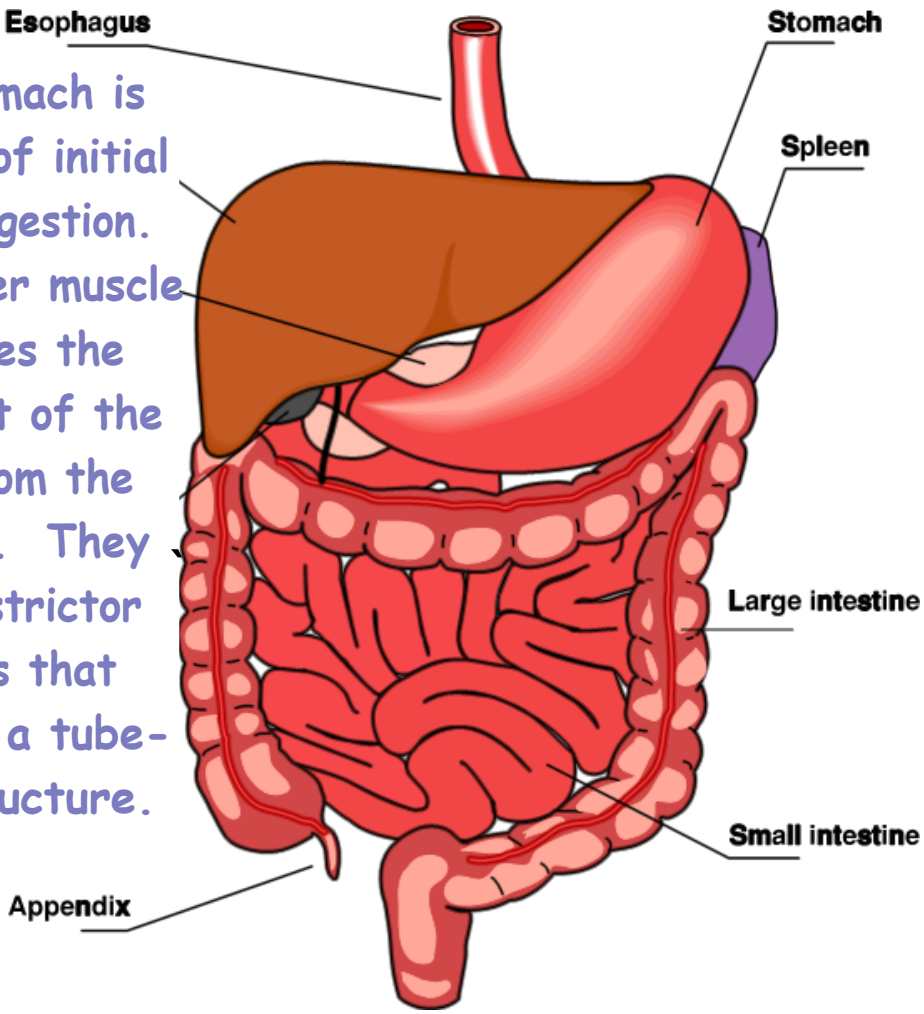
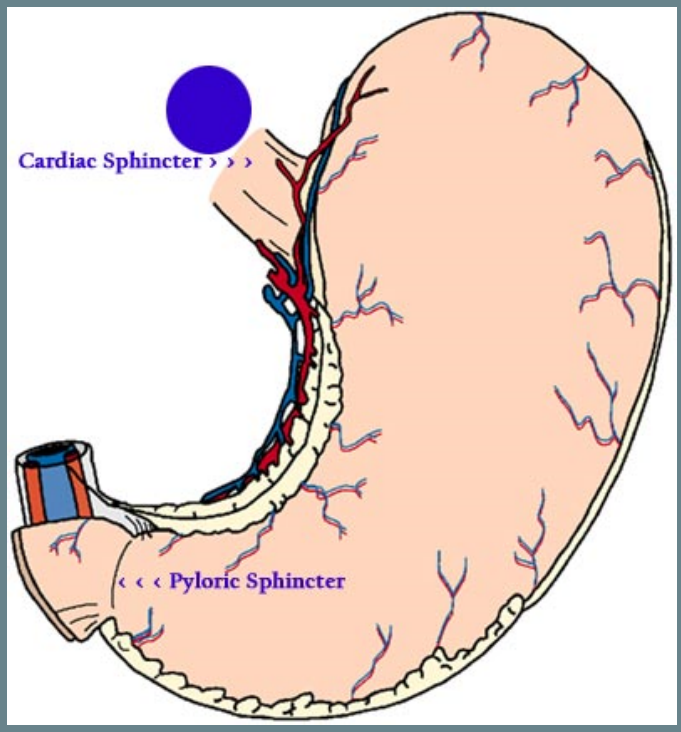
The stomach is the site of initial protein digestion. A sphincter muscle regulates the movement of the food from the stomach. They are constrictor muscles that surround a tube-like structure.

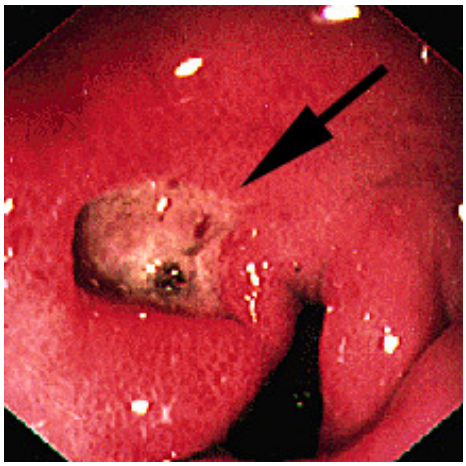


A cardiac sphincter contracts and closes the opening to the stomach. When it relaxes, food may enter. The pyloric sphincter regulates movement of food and stomach acids to the small intestine.



The stomach contains secretory cells, gastric juices, mucous cells (protective coating), parietal cells (secrete hydrochloric acid), peptic cells (secretes a protein-digestive enzyme called pepsinogen). Rennin is another stomach enzyme that slows the movement of milk in the gastrointestinal tract thus allowing more time for breakdown and absorption.

Ulcers form when the protective lining of the stomach breaks down exposing the cell membrane to digestive enzymes.



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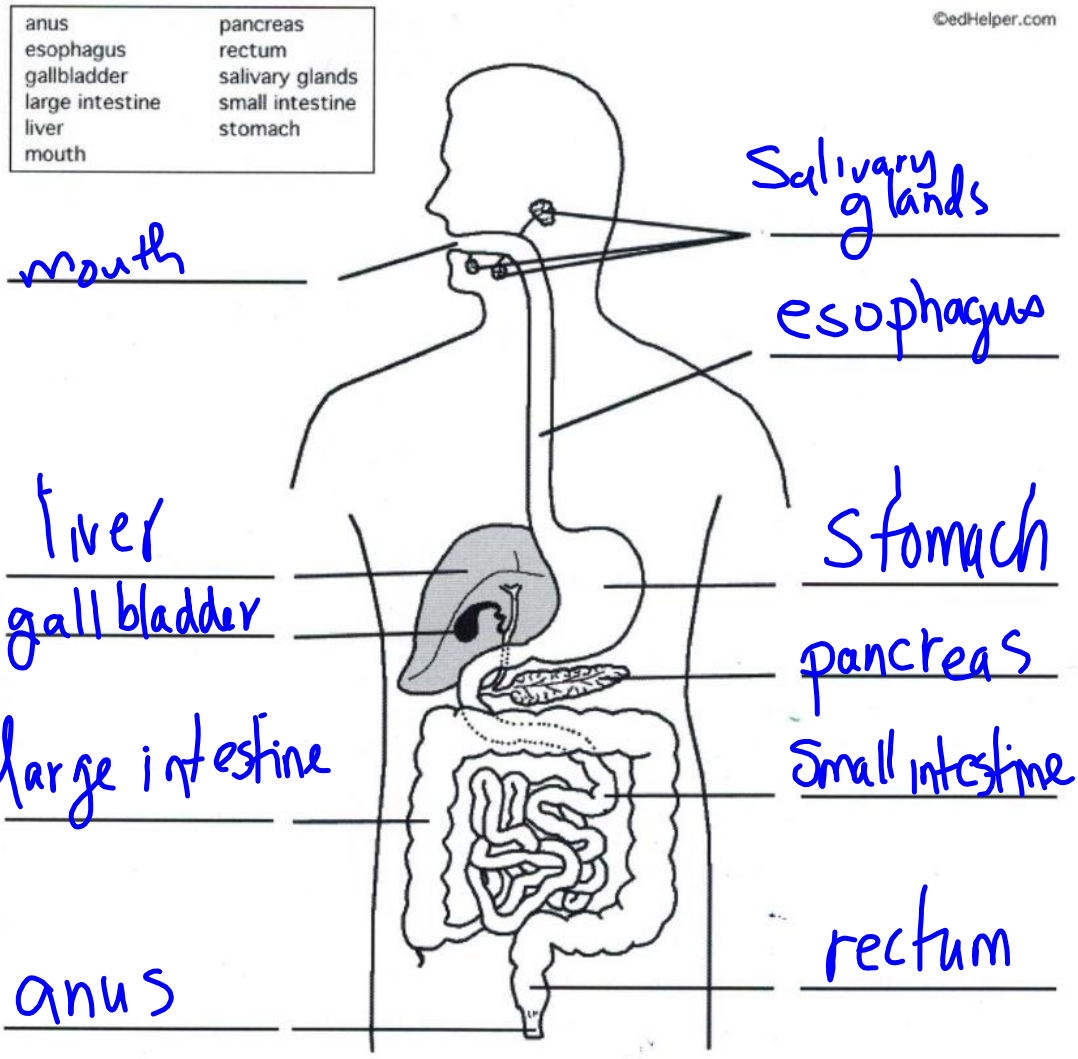
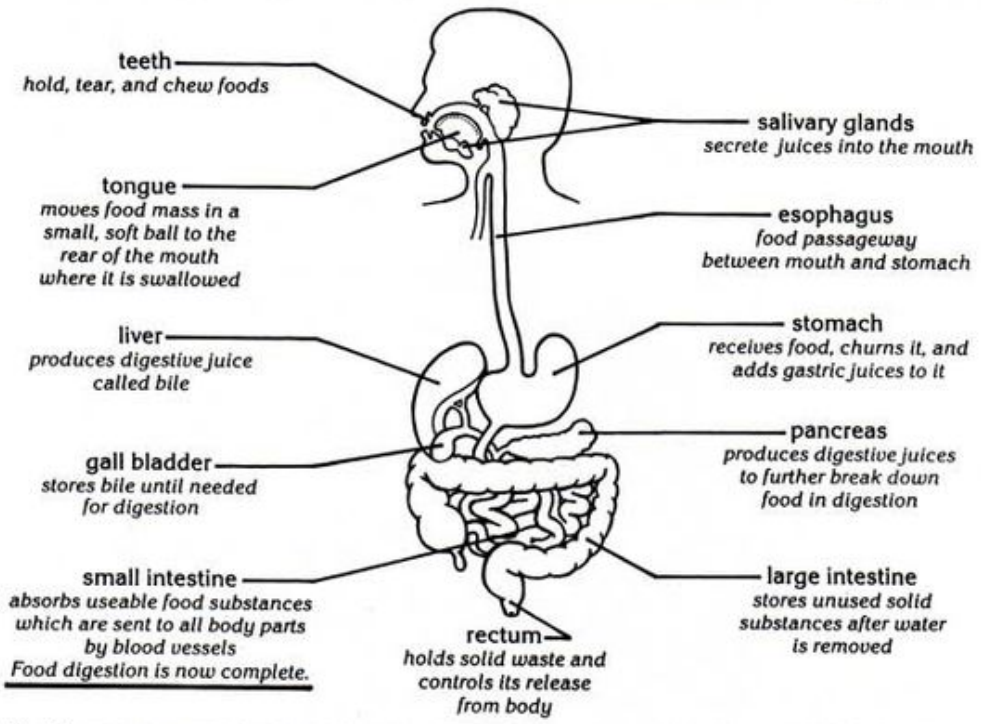


Digestive System

https://s-media-cache-ak0.pinimg.com/originals/ff/79/6c/ff796cd3668bdce86d3c0c61d8a... 10/12/2016

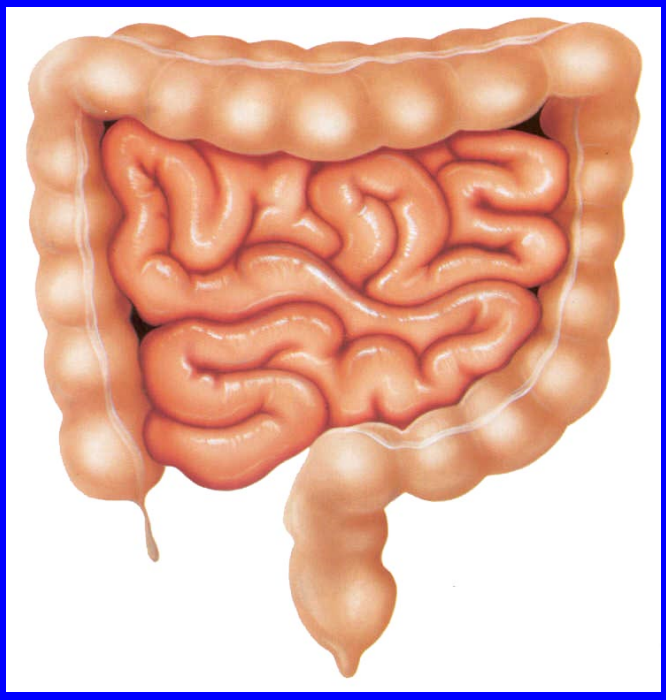
The Digestive System

The digestive system changes food into useable substances for the body.



QUESTIONS

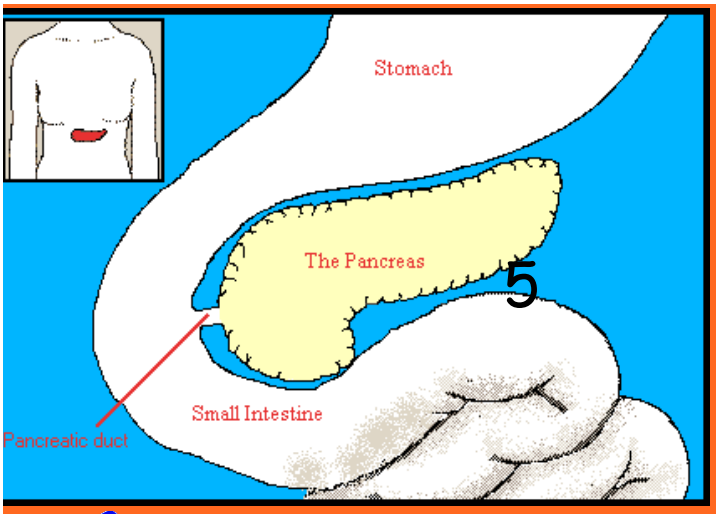
1. What would happen if ingested food was not in a solution?
2. Describe where taste sections of the tongue are found.
3. Why is the tongue divided into different sections?
4. Is the nose involved in taste? Does this explain why you can't taste different things when you have a cold?

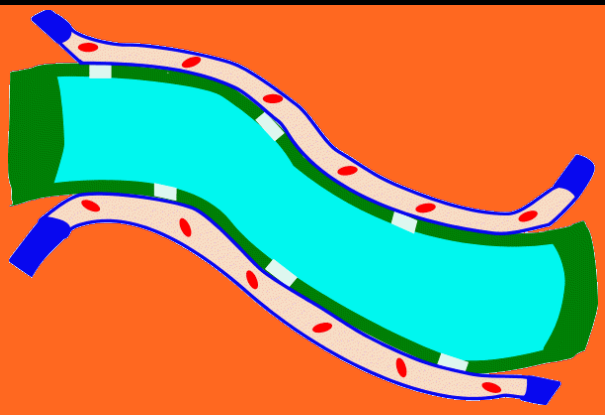


Small Intestine and Pancreas

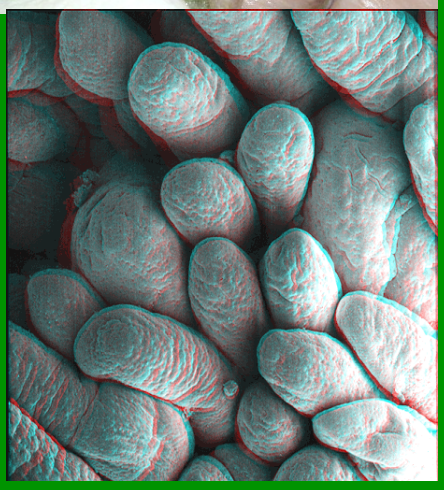
7m long and 2.5cm in diameter. The duodenum is the first segment and the area of greatest digestion. The food enters here soaked with HCl. The small intestine is protected by bicarbonate ions released by the pancreas. They are released by the high concentration of acid (the HCl) thus neutralizing the acid.

HCl- hydrochloric acid

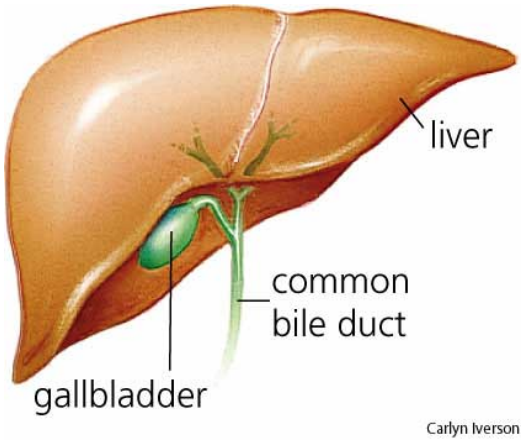


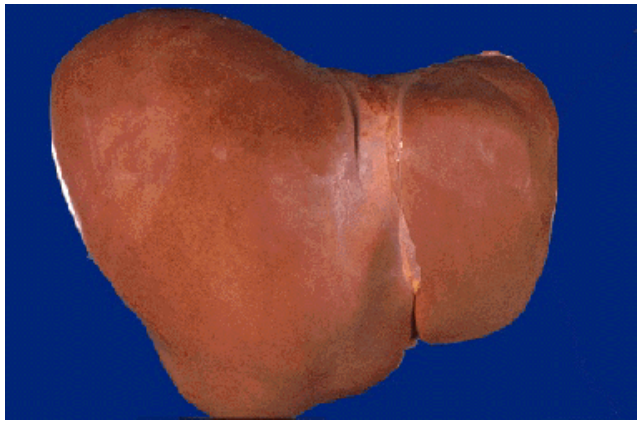


Pancreas secretions also allow the breakdown of proteins, carbs and lipids (fats). Trypsin and erepsin aid in the breakdown of protein. More amylase released from the pancreas helps break down the carbs. Lipases break the lipids and lactase breaks the dairy.



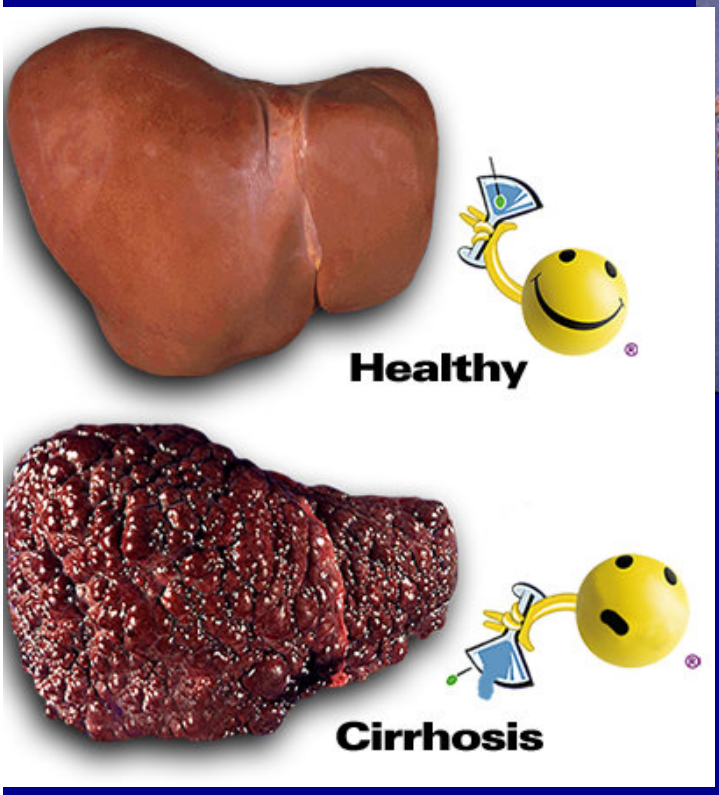
Absorption- Fingerlike tube called villi increase the surface area of the small intestine. More absorption is allowed to take place.



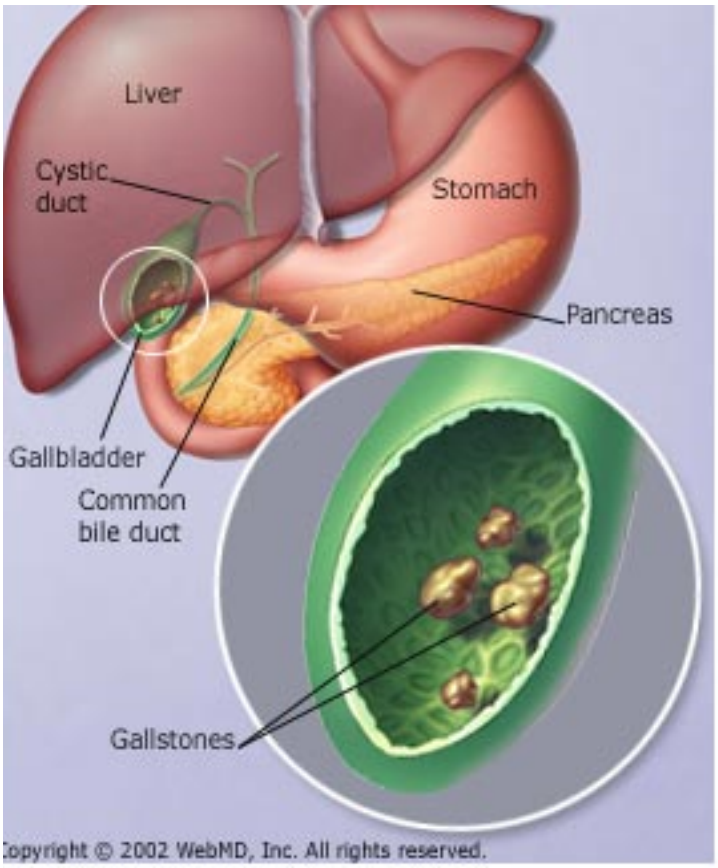


Liver and Gallbladder

Bile salts are produced in the liver and stored in the gallbladder. Carried by the bile duct to the small intestines (s.i.), it is released into the s.i. by a hormone signal. Bile breaks down fat into smaller particles. This is a physical digestion example.

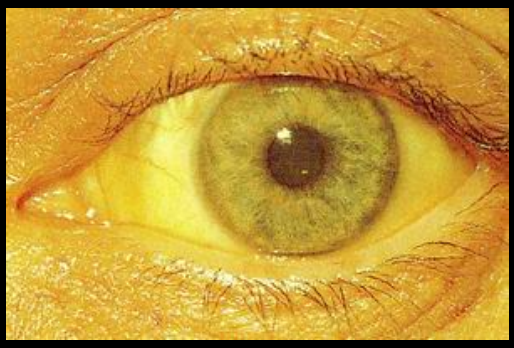


The liver stores glycogen and vitamins. It also detoxifies many substances. Cirrhosis of the liver is caused by the damage to liver cells that are replaced by connective tissue and fats.



Cholesterol is found in bile. It is involved with salt crystal formation, which may develop into gallstones. These stones may lodge into the bile duct and prevent bile from being released. Not good. Very painful.

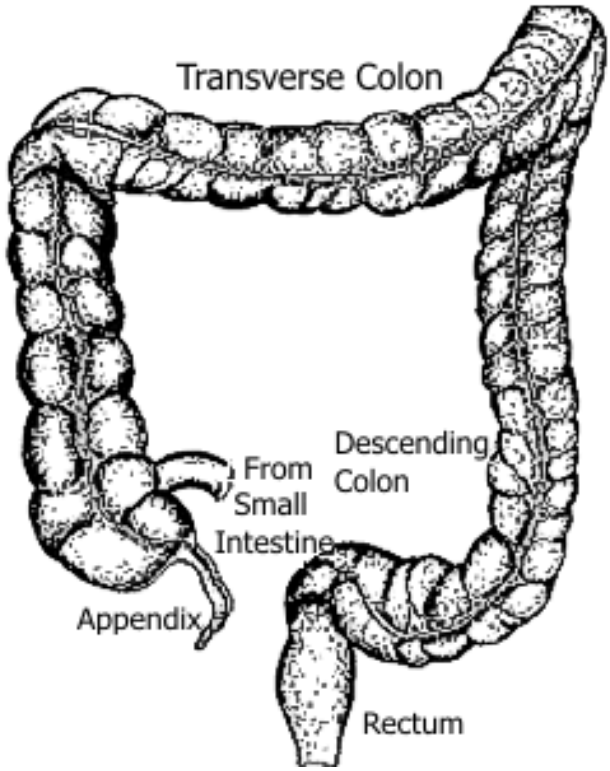
The accumulation of salts may result in a yellowish discoloration called Jaundice.



Digestion assignment

Computer lab

Digestion - assignment.docx



Colon

The colon is the largest part of the large intestine and it stores the water long enough for water to be absorbed. Large intestine also house bacteria, which use waste material to synthesize (make) vitamins B and K. Cellulose provides bulk, which is important for the regular movement of waste.

If a person is not regular, toxic waste remains in the body for unsafe periods of time. This may be linked to colon cancer.

Name _____

Digestion Vocabulary

Find the word in the box that matches the definition. Write the definition on the line provided. Use a dictionary, if you need one.

1. _____ a large, lobed organ that produces bile
2. _____ any of the tiny blood vessels connecting the small arteries and veins
3. _____ a liquid produced by the liver that helps digest fat
4. _____ a complex carbohydrate that is the chief part of the cell walls of plants
5. _____ process by which the body changes food so it can be used to supply energy
6. _____ flap of tissue that covers the windpipe during swallowing of food
7. _____ the main part of the system of tubes by which air passes to and from the lungs in vertebrates—called also windpipe
8. _____ a muscular tube which connects the throat to the stomach
9. _____ a J-shaped, muscular sac that stores food and helps digest it
10. _____ bodily waste discharged through digestive system/process
11. _____ a fluid containing water, protein, salts, and often a starch-splitting enzyme that is secreted into the mouth by salivary glands
12. _____ organ where bile is stored
13. _____ one of the hard bony structures that are usually located on the jaws of vertebrates and are used for seizing and chewing food
14. _____ the enzyme in saliva that breaks down starch into sugar
15. _____ a short, wide tube in which water is absorbed from undigested food
16. _____ finger-like structures that cover the inner wall of the small intestine
17. _____ chemicals that break down food
18. _____ the opening through which food passes into the body
19. _____ a gland that produces pancreatic juice
20. _____ squeezing motion that pushes food through the digestive system
21. _____ part of the body at the end of the large intestine where solid wastes are stored until they leave the body; a straight muscle
22. _____ the partly fluid and partly solid mass of incompletely digested food that passes from the stomach into the first part of the small intestine
23. _____ glands that produce saliva
24. _____ a long, coiled tube in which food is digested and absorbed
25. _____ a muscle that works with the food and saliva to form a "ball"

amylase
bile
capillary
cellulose
chyme
digestion
enzyme
epiglottis
esophagus
feces
gall bladder
large intestine
liver
mouth
pancreas
peristalsis
rectum
saliva
salivary glands
small intestine
stomach
tooth
tongue
trachea
villi

There are 6 groups of nutrients your body needs:

Carbohydrates	minerals
Proteins	vitamins
Fats	water

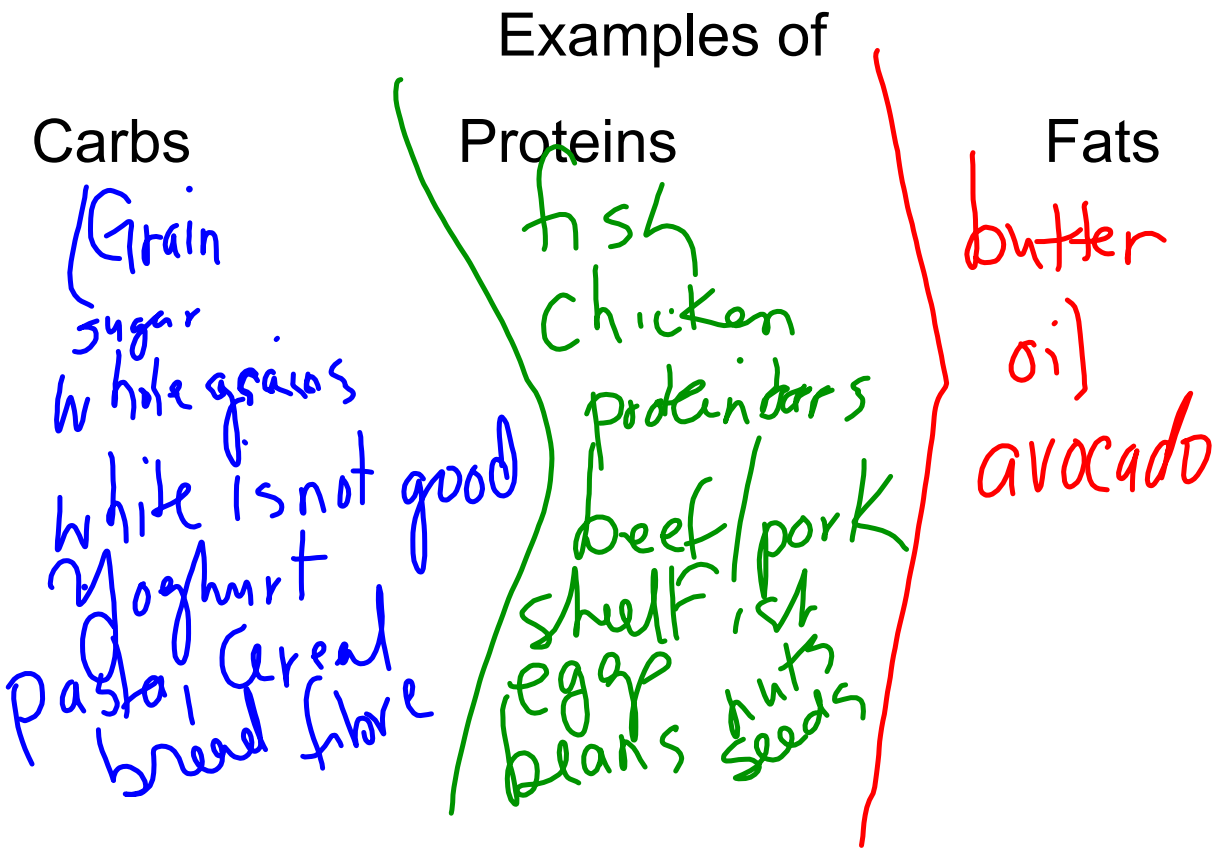
You get these from the foods you eat. Each one has a specific job to perform in the body. Without adequate amounts of these nutrients & proper digestion your chance of health problems will increase.

The nutrients do three things:

1. build and repair body tissues

2. regulate all body processes

3. provide energy


Examples of
Carbs
Grain
sugar
whole grains
white is not good
Yoghurt
Pasta, Cereal
bread fibre
Proteins
fish
Chicken
protein bars
beef/pork
shellfish
eggs
beans nuts seeds
Fats
butter
oil
avocado

Basic Nutrition Module 1 - Getting started

https://www.youtube.com/watch?v=eVBWHnHEX6I

Carbohydrates includes sugar, starches and fiber. They provide you body with energy, spare protein, breakdown fats and provide bulk (fiber) in your diet.

Lipids - includes fats, oils, lecithin and cholesterol- They provide for normal growth and development. Our body cannot product essential fatty acids -linoleic acid and linolenic acid - therefore we must get them from our diet. We require them for the skin, reproductive system, liver and kidney function.

Proteins are found in meat, fish, beans, eggs, etc. Proteins are essential for building and maintaining cell structures. They can also provide energy for the body if no carbohydrates are consumed.

Digestive system issues and diseases

Digestive Disorders - fill in chart.docx

add colon cancer &

colorectal cancer

c. diff - clostridium difficile

https://www.youtube.com/watch?v=DkOyoSeHxN8

https://www.youtube.com/watch?v=-nDPjGAGEak

Celiac disease

https://www.youtube.com/watch?v=BuGvRUjBGYU

https://www.youtube.com/watch?v=nXzBApAx5lY

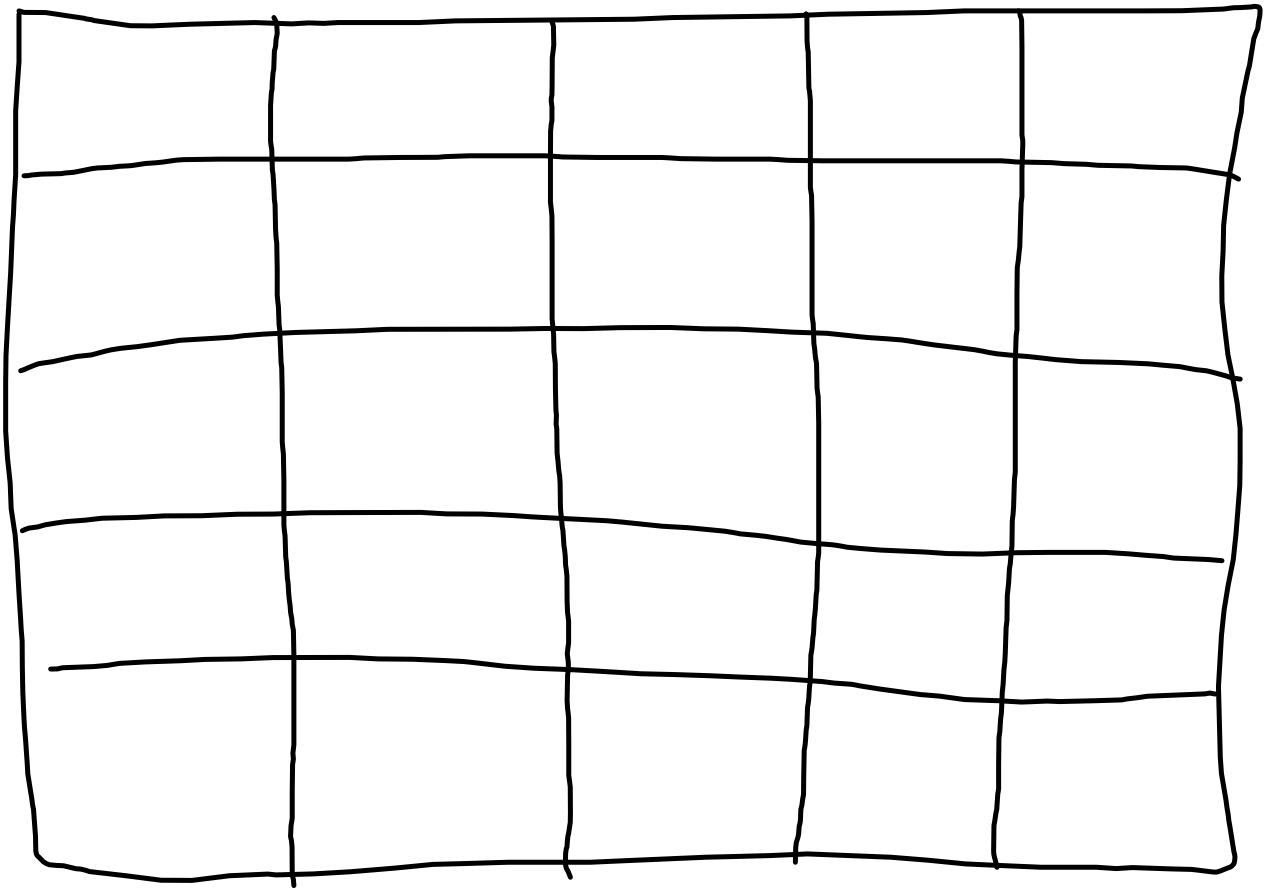
https://www.youtube.com/watch?v=ae7wjpp7MIk

Irritable bowel syndrome (IBS)

https://www.youtube.com/watch?v=uhoPP_lJa8c

Ulcerative Colitis & Crohn's disease

https://www.youtube.com/watch?v=iefghc2g91M




Chemical Digestion
Duodenum
Jaundice
Small
Pancreas
Dextrin
Esophagus
Intestine
Physical Digestior
Cellulose
Epiglottis
Villi
Erepsin
Cardiac
Lactase
Sphincter
Rennin
secretin
Absorption
Nutrients
Peristalsis
Pepsin
Gallbladder
Digestion
Pyloric
Lipase
Sphincter
Egestion
Liver
Ingestion
Amylase
Colon
Ulcer
bicarbonate ions

Test Wednesday

on Digestion

Review

What do carbohydrates included?

What is their function in the body

What do lipids include?

What is their function in the body

What do proteins include?

What is their function in the body?

SKMBT_50116102511010.pdf Vocabulary review

SKMBT_50116102511011.pdf 21-2

SKMBT_50116102511012.pdf 21-2

SKMBT_50116102511013.pdf 21-3

Overall review

Matching

1. pepsin
2. gall bladder
3. feces
4. epiglottis
5. villi
6. rectum
7. esophagus
8. pharynx
9. peristalsis
10. mechanical digestion

Identifying relationships

word that does not belong

1. liver
2. chyme
3. mechanical digestion
4.bile
5. digestion
6. small intestine
7. pancreas
8. pharynx
9. villi
10. gall bladder

Completion

1. 4
2. tongue
3. muscles
4. appendix
5. plaque
6. small intestine
7. enzymes
8. pharynx
9. mucus

Finding the main ideas

1. A change in the size, shape or color of something.

2. It breaks the food down into smaller pieces.

3. Pharynx is the passage way for food and air.

4. The epiglottis prevents food from entering the wind pipe.

5. It has 3 layers of muscles that contract in different directions to churn its contents.

6. The liver produces bile to break down fats

7. Appendix is where the small and large intestines join.

8. saliva, food and bacteria

9. Poor eating habits are usually the cause of indigestion.

10. Acidic from the stomach escaping up the esophagus.

11. Constipation occurs when peristalsis of the large intestine is abnormally slow.

Critical thinking

2. If part of the stomach was removed more digestion would take place in the small intestine

3. The absorption allows nutrients to be transported by blood to all parts of the body and to cells that need them.

4.THe large surface area is very important to allow for as many nutrients to be absorped as possible.

5. No digestion doesn't take place in the large intestine.

Attachments

Digestion - assignment.docx

Supertaster Lab space for answers.docx

Digestive Disorders - fill in chart.docx

SKMBT_50116102511010.pdf

SKMBT_50116102511011.pdf

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