NOTES: Digestive System

Objectives

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The Digestive System

- All organisms need energy for survival.
- The _____ helps process the nutrients put into the body by breaking them down into usable parts.
- Nutrients for animals come in the form of _____
- The digestive system breaks down these complex molecules into smaller units and allows the body to absorb them.

Digestion

- There are 2 types of digestion:
  - _____:
    The is the breaking down of large pieces of food through ripping, tearing, crushing, or other physical process.
  - _____:
    The process of using acids, enzymes, or other chemical agents to break down food into smaller parts.

Gastrointestinal Tract

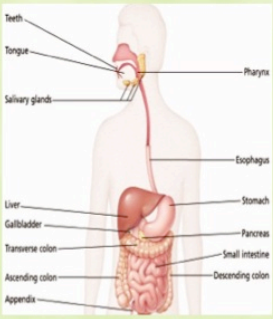
- The path that food takes is called the _____ and has several features that make it effective.
- The production of _____ break down large particles much faster than would be possible by mechanical digestion alone.
- Increasing _____ drastically increases the amount of space where absorption can occur. (_____)

Follow the Food

- Food begins in the _____ where the _____ aid in P.D.
- _____ (**parotid, sublingual, & submandibular**) produce _____ which contains an enzyme, **amylase**, which aids in C.D.

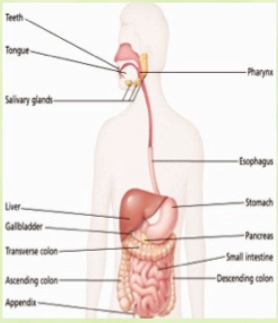
Follow the Food

- Food travels down the _____ through the process of _____, which is series of muscular contractions that both moves the food through the digestive tract, and helps in P.D.
- The esophagus leads the food to the _____ which churns the food (P.D.) and produces enzymes and acids which conduct C.D.



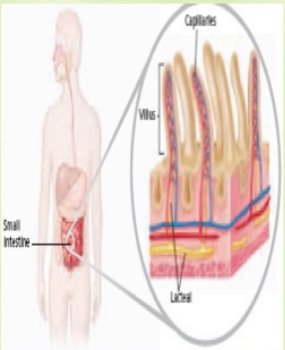
Follow the Food

- The food in now processed into _____ and is passed into the _____
- The small intestine is broken into three parts: The _____ (25 cm), _____ (8 ft), & _____ (13 ft). (Total: aprox. 21 ft.)
- Secretions from _____ _____ enter at the duodenum to aid in furhter C.D. of chyme.



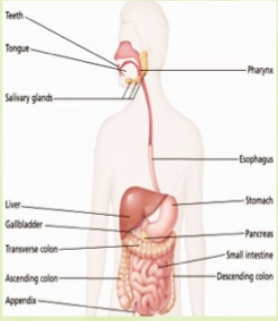
Follow the Food

- Much of the absorption of nutrients happens in the small intestine.
- The interior walls of the small intestine are covered in small finger like projections called _____ that increase the surface area for absorption. (_____ _____)
- Inside the villi are many _____ that take the nutrients into the blood stream.



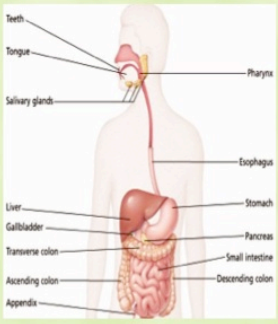
Follow the Food

- Once absorption in the Small intestine is complete, peristalsis moves the remaining material into the _____ (_____)
- The large intestine removes most of the remaining water leaving behind the unneeded material, or _____



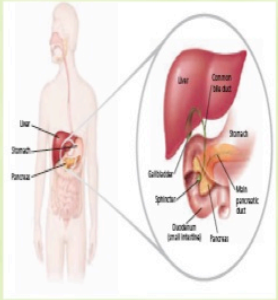
Follow the Food

- Feces is moved from the colon to the _____ where it is retained by the _____
- When relaxed, the anal sphincter allows feces to pass through the _____ and out of the body.



Other Organs

- The _____ secretes bile into the small intestine, which helps break down large fat globules.
- The _____ also secretes bile into the small intestine.
- The _____ produces sodium bicarbonate which neutralizes stomach acid and turns chyme from an acid to a base. (Also regulates insulin.)



Part IV: Digestive System

____ 1. Nutrients provide the body with the energy and materials it needs for
a. growth.
b. maintenance.
c. repair.
d. All of the above

____ 2. All essential amino acids
a. must be obtained from the foods we eat.
b. are made in our body in sufficient quantities.
c. are found in gelatin.
d. None of the above

____ 3. Refer to the illustration above. Most of the energy in the molecule shown is stored in the
a. carbon-oxygen bonds.
b. carbon-hydrogen bonds.
c. oxygen-hydrogen bonds.
d. carbon-oxygen double bond.

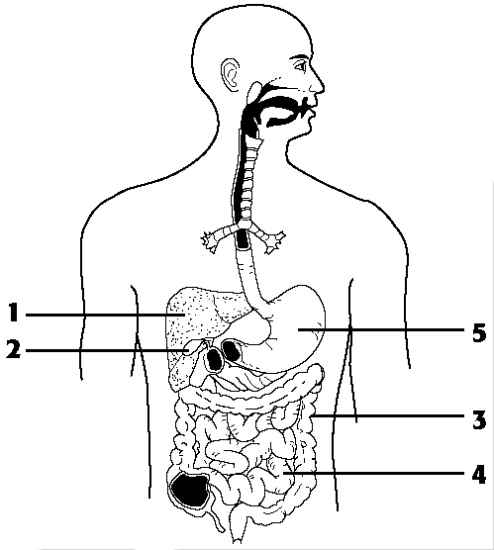
____ 4. Most of the body's energy needs should be supplied by dietary
a. carbohydrates.
b. fats.
c. vitamins.
d. proteins.

____ 5. The first portion of the small intestine is the
a. colon.
b. esophagus.
c. duodenum.
d. rectum.

____ 6. Which of the following provides a passage for both food and air?
a. the esophagus
b. the trachea
c. the pharynx
d. the duodenum

____ 7. The function of the digestive system is to
a. chemically break down food.
b. mechanically break apart food.
c. absorb nutrient materials.
d. All of the above

8.



Refer to the illustration above. Label all of the parts:

1. _____
2. _____
3. _____
4. _____
5. _____

____ 9. Chemical digestion occurs as a result of the action of
a. hydrochloric acid.
b. pepsin.
c. saliva.
d. All of the above

____ 10. The wavelike contractions of muscle that move food through the digestive system are called
a. peristalsis.
b. voluntary contractions.
c. mechanical digestion.
d. involuntary digestion.

____ 11. Enzymes in saliva begin the chemical digestion of
a. fat.
b. protein.
c. carbohydrates.
d. vitamins.

____ 12. Pepsin and hydrochloric acid in the stomach begin the digestion of
a. protein.
b. starch.
c. fats.
d. carbohydrates.

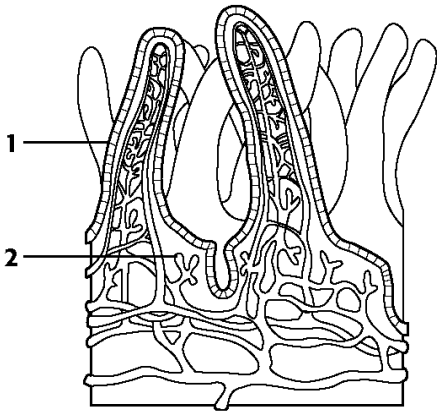
____ 13. Bile
a. breaks down globules of fat into tiny droplets.
b. is stored in the liver.
c. is produced by the gall bladder.
d. All of the above

____ 14. pancreas : enzymes for small intestine ::
a. stomach : saliva
b. stomach : proteins from amino acids
c. liver : bile
d. liver : hydrochloric acid

____ 15. Refer to the illustration to the right. Structure 1 is a(n)
a. villus.
b. nephron.
c. ureter.
d. urethra.

____ 16. Refer to the illustration to the right. This structure is found in the
a. kidney.
b. esophagus.
c. small intestine.
d. tongue.

____ 17. Refer to the illustration to the right. This structure allows for an increase in
a. nutrient absorption area.
b. mechanical digestion.
c. acid production.
d. bile production.



____ 18. Refer to the illustration above. Structure 2 is

a. a passageway for bile to flow into the stomach.
b. a capillary.
c. found only in the duodenum.
d. a nephron.

____ 19. The villi of the small intestine allow for an increase in the rate of

a. nutrient absorption.
b. cellulose digestion.
c. acid production.
d. bile production.

20. The body most easily uses the energy provided by _____.

21. The amino acids that humans must obtain from food are called _____ amino acids.

22. The mouth, esophagus, stomach, small intestine, and large intestine are the main organs of the _____ system.

23. The large intestine is also called the _____.

24. Digestion is completed in the _____, where most nutrients are absorbed.

25. The semisolid mixture of food, acid, and enzymes in the stomach is called _____.

26. The _____ sends enzymes through a duct into the first part of the small intestine.

27. When digestive enzymes eat through part of the stomach lining, they cause a(n) _____.

28. Describe the chemical phase of digestion that occurs in the mouth. Write your answer in the space below.

29. Draw a diagram of the human digestive system. Label the parts and direction of food movement.