Answers

Digestive System worksheet 1

1. Indicate which of the following statements describe **mechanical or chemical transformations.**

a) Teeth grind up ingested food mechanical
b) Muscle contractions push food from esophagus to stomach mechanical
c) Enzymes in the stomach change protein into amino acids chemical
d) Stomach churns food and changes it into chyme mechanical
e) Saliva changes starch into glucose chemical
f) Bile allows for the emulsion of fats mechanical / chemical
g) Saliva softens food mechanical

2. Fill out the following table:

Part of Digestive Tract	Mechanical Transformation	Chemical secretion
Mouth	Mastication	Salivary amylase
Esophagus	Peristalsis	none
Stomach	Peristalsis / Churning	Gastric Juices, HCl, Pepsin
Liver	none	Bile
pancreas	none	Insulin / Pancreatic Juices
Small intestine	Peristalsis / Churn	Intestinal Juices
Large intestine	Peristalsis	none

3. Name the four stages of digestion.

Ingestion Absorption
Digestion Elimination of waste.

4. Define the following terms:

a) Digestion: Transformation of complex molecules into simpler molecules through mechanical + chemical transformations & absorbed by body

b) Absorption:
Simple molecules pass through small + large intestine into blood / lymph

5. When do the roles of the liver and the pancreas enter the digestive tract? What do they do? * Small intestine *
Liver secretes bile to emulsify fats
Pancreatic Enzymes help breakdown carbs / fats / proteins

6. What do we call the transport of nutrients from the digestive tract to the blood and lymph? Explain where this process takes place and how.

Absorption - small + large intestine simple molecules pass through to cells

7. Why does digestion take place?

to break down food so absorption can happen

8. **A)** Name the **enzymes that act on carbohydrates, lipids and proteins.** Carbs = amylase, intestinal enzymes, pancreatic enzymes
fats: bile, pancreatic enzymes / intestinal enzymes Protein - pepsin intestinal & pancreatic enzymes
B) Where does the chemical breakdown of these nutrients take place? carbs - mouth & small intestine
fats - small intestine protein - stomach + s.i
C) What are the **simple nutrients** that are formed through digestion? simple glucose
simple amino acids fatty acids + glycerol

9. When food passes through the digestive system, it undergoes two types of transformations. Name the two types. Explain what happens to the food during these two types of digestion.
Mechanical: peristalsis, chewing, deglutition, churning, smaller
Chemical: breaks down food to simpler food to be used.

10. Identify the glands and organs described below:
a) produces bile liver
b) runs along the vertebral column and is connected to the stomach esophagus
c) produce saliva salivary glands
d) entrance to the digestive tract mouth
e) last section of the digestive tract ending at the anus large intestine
f) J-shaped pocket located on the left side of the abdomen stomach
g) Glands dispersed throughout the inner surface of the stomach gastric
h) Organ common to the digestive and respiratory tract mouth / pharynx
i) Leaf shaped, located beneath the stomach pancreas
j) A long tube that is folded several times and is located in the abdomen small intestine
k) Digestive glands located in the small intestine intestinal glands

11. What happens during absorption of nutrients?

*12. Complete the following table:

Food	Digestive enzymes that break this food down	Nutrient obtained
Bread contains: Carbs	- salivary enzymes (Mouth) - pancreatic & - intestinal enzymes (small intestine	Glucose
Steak contains proteins	s.i { - pancreatic enzymes (insulin) - intestinal enzymes stomach gastric enzymes (pepsin)	Simple Amino Acids
Mayonnaise contains fat	s.i { - intestinal enzymes - pancreatic " s.i - bile (liver)	Glycerol and fatty acids.

13. Explain the difference between a chemical and a mechanical breakdown. _____

* See #9 M = changes physically
C = changes molecules.

14. What are the glands of the digestive system?
Liver salivary glands intestinal glands
pancreas gastric glands

15. Fill in the table by describing the physical breakdown occurring in each area.

Mouth	Esophagus	Stomach	Small intestine	Large intestine
Chewing. Swallowing Mixing with Saliva	peristalsis	peristalsis churning	peristasis Churning	peristalsis

16. Fill in the table by stating all the chemical breakdowns that occur for each nutrient.

	Where 1st bd begins	Gland responsible	Enzyme secreted	Nutrient becomes
Carbs.	Mouth	Salivary	Amylase	glucose
Protein	Stomach	gastric	pepsin	amino acids
Fat	S. I	Liver Pancreas intestinal	Bile enzymes	Fat fatty acids / glycerol.

17. Explain how the liver and pancreas play a role in digestion.
Liver - secretes bile to emulsify fats in small intestine
pancreas secretes enzymes to break down carbs fats protein
insulin for sugar

18. What is the function of bile? emulsify fats

19. What is the difference between a carbohydrate, a glucose molecule and a simple glucose molecule? Carb + glucose have not been broken down fully
simple glucose is the smallest form & can be absorbed.

20. Why can protein only be absorbed in the small intestine and not the stomach?
it has not been fully digested in stomach & must complete digestion in S. I.

21. What structure is common to both the respiratory and digestive system?
pharynx

22. Fill in the following table and label the diagram (be sure to check the #).

Structure Number	Structure Name	Function
1	Mouth	MECHANICAL DIGESTION/~~INCREASE SURFACE AREA~~ salivary amylase.
2	EPIGLOTTIS	block trachea.
3	LIVER	secretes bile
4	GALBLADDER	stores bile.
6	Large Intestine	WATER ABSORPTION, STORE WASTE Mineral vitamin
8	Salivary Glands	Secrete saliva amylase- breaks down carbs
9	tongue	PUSH FOOD INTO THE ESOPHAGUS
10	Esophagus	peristalsis to push bolus to stomach
11	Stomach	STORAGE/CHEMICAL DIGESTION pepsin - breaks down protein
13	Pancreas	SECRETE INSULIN TO LOWER BLOOD SUGAR LEVELS
14	Small Intestine	absorbs amino acids / fatty acids / glycerol / glucose - chemical breakdow
15	Rectum	STORES AND ELIMINATES WASTE