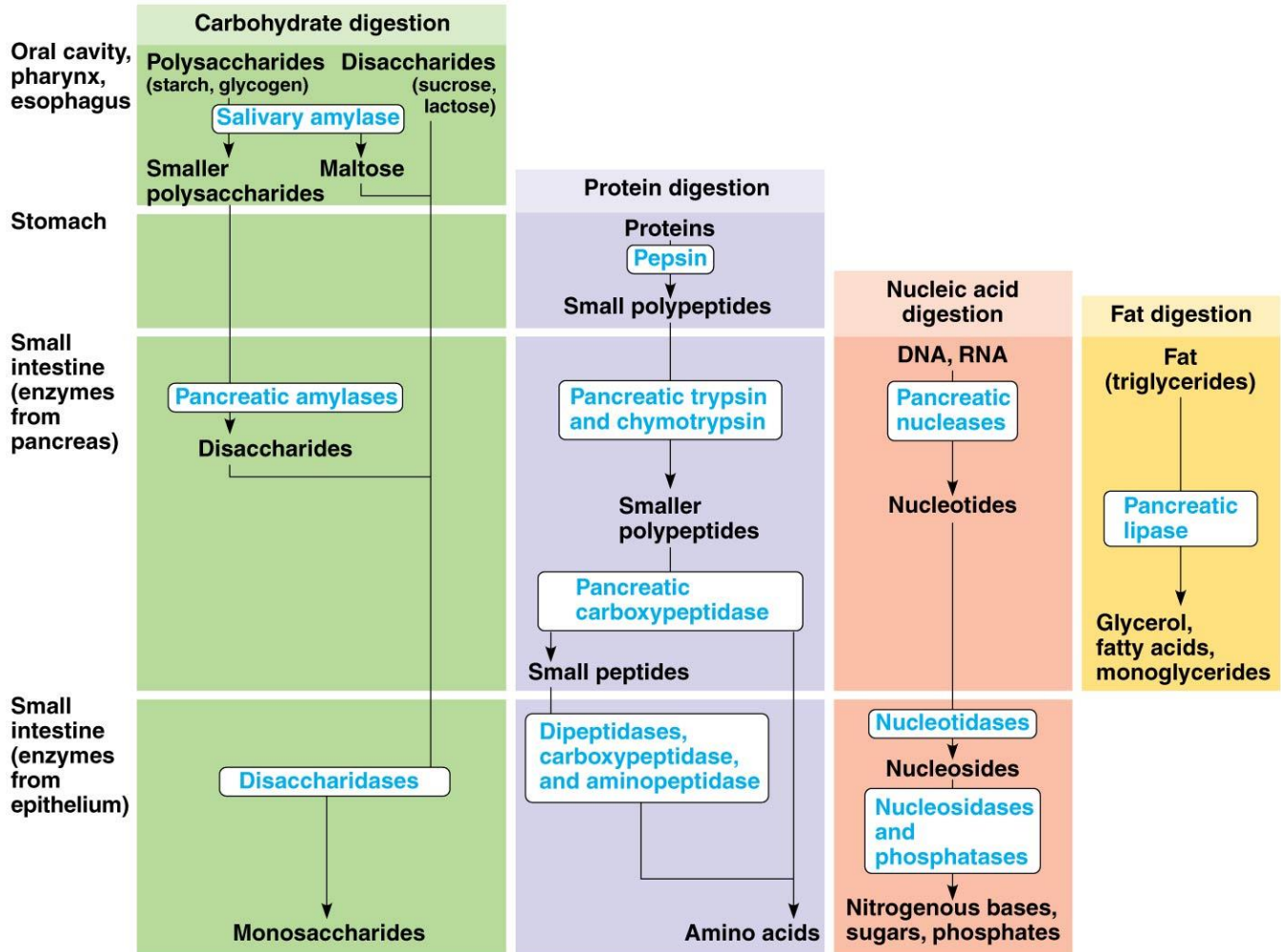


Name: _____

Worksheet: Digestion

Organic compounds ingested as food must first be digested into usable nutrient end products. The digestive systems of animals are structurally, physiologically, and biochemically adapted for this function.

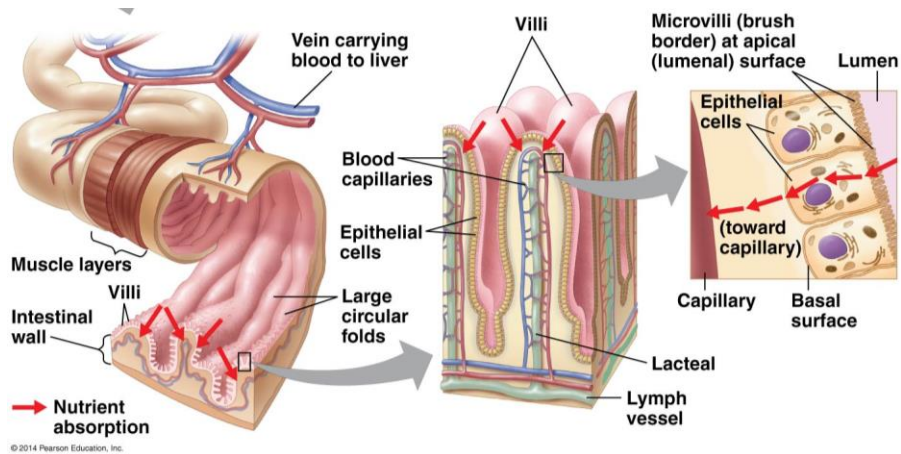
Examine the graphic below and classify all of the compounds displayed in the table:



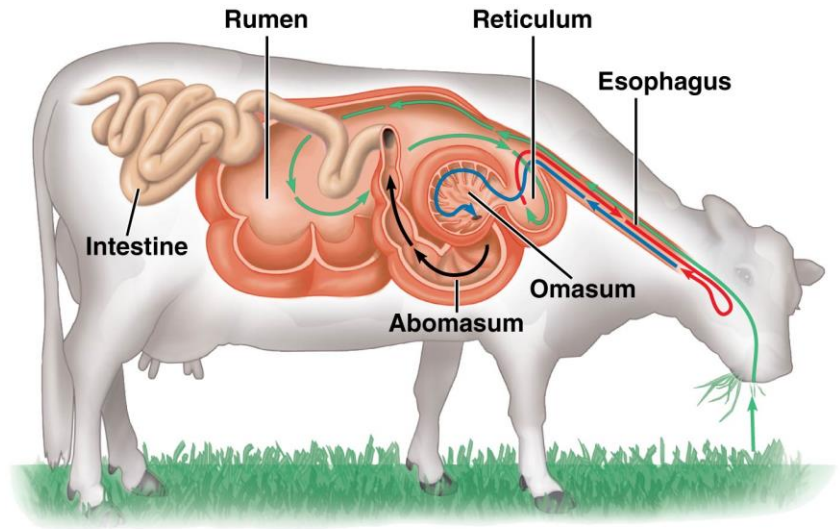
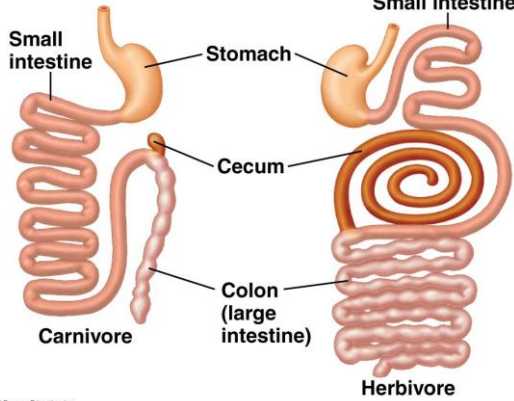
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Compound	Examples in the Chart
Carbohydrates	
Proteins	
Fats	
Nucleic Acids	
Products of Carbohydrate Digestion	
Products of Protein Digestion	
Products of Fat Digestion	
Products of Nucleic Acid Digestion	

Hydrolysis: Define hydrolysis and what are hydrolytic enzymes:



Describe structural features of the human small *intestine* and relate these structures to the digestive function of the organ:



Explain how the alimentary canals of a carnivore differs from that of a specialized herbivore in terms of structure and function – related to organic compound diet. Explain how digestion in a ruminant such as the cow reflects natural selection and adaptation:

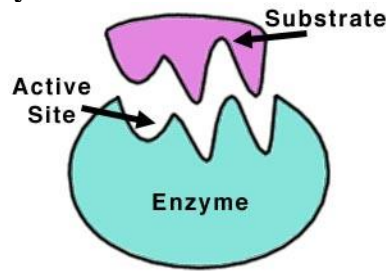
Identify a non-vertebrate organism that digests food *intracellularly* and describe the process:

(*)

Identify a non-vertebrate organism that digests food *extracellularly* and describe the process:

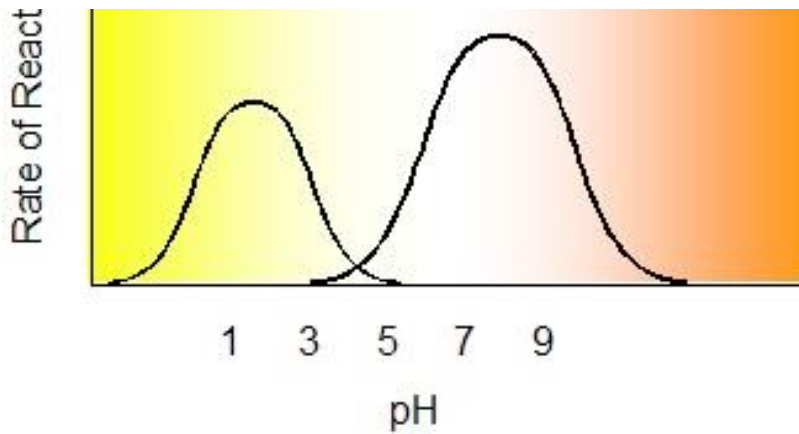
(*)

Enzymes are important reaction catalyzers.



Identify examples of a protease enzyme in the human body that shows maximum effectiveness (rate of reaction) at 37 C° and pH 2 and another protease that shows maximum effectiveness at 37 C° and pH 8.

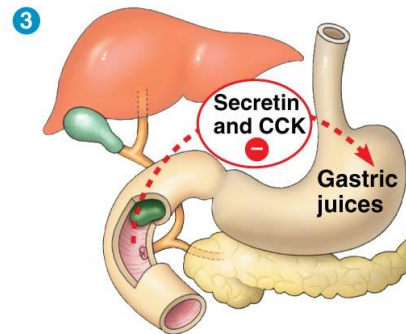
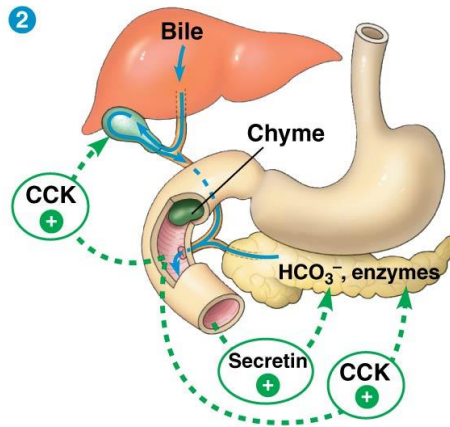
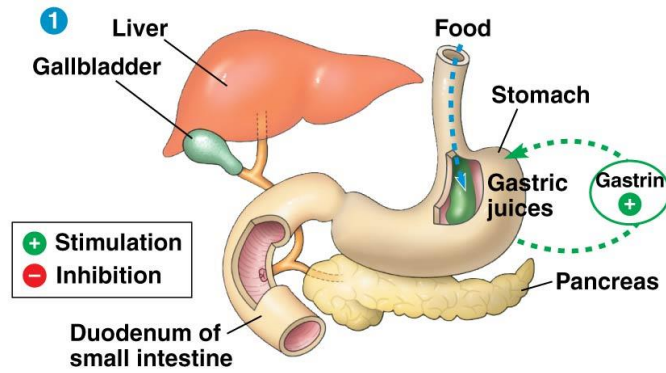
enzyme (best at pH 2): _____ enzyme (best at pH 8): _____



How do you explain the activity differences between these two enzymes:

How would an excess of carbon dioxide in the body affect enzyme effectiveness:
Show a chemical equation that best expresses your answer:

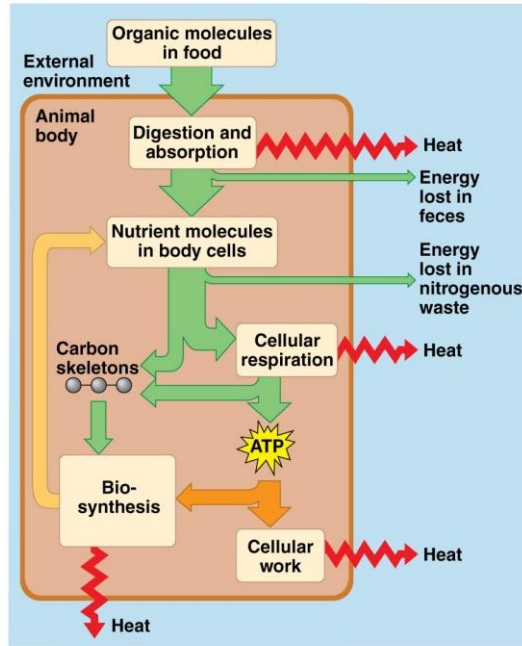
- Chemical Equation: Reactants → Products



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In the diagrams above identify three hormone molecules that regulate digestive secretions – for each describe its function(s):

Hormone	Secretion Site (released from where)	Target Functions (affects which glands and how)



Using the diagram above explain the concept of bioenergetics – include concept of energy coupling and heat production:

