Biochemistry

Lesson 1.3

Enzymes

1.3a. Introduction to Enzymes

1.3.1. Introduction

"All life, whether plant or animal, requires the presence of enzymes to keep it going..."
— Dr. Edward Howell: "Enzyme Nutrition" *(1995)*

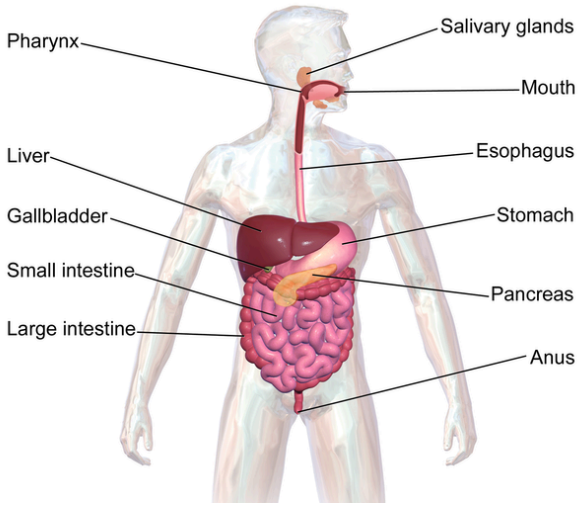


Figure 1.3.1 Digestive System by Bruce Blaus / Creative Commons Attribution 3.0 Unported

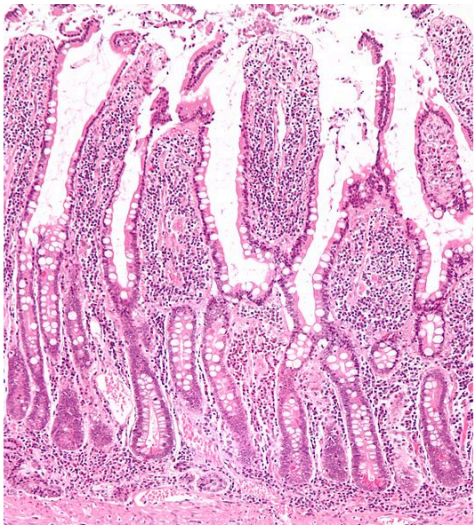


Figure 1.3.2 Small Intestine by Nephron / Creative Commons Attribution 3.0 Unported

Essential Question:
How does your food get digested?

Prior Knowledge Quick Write:
Please read the above quote and look at the images on this page (Figures 1.3.1 and 1.3.2). On the lines below, please write your ideas as to what you think this lesson is going to be about.

_____
_____
_____
_____
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_____

Lesson 1.3 Pre-Assessment of Learning Targets (Table)

Get a hard copy of this table from your teacher. Below are the learning targets you will master during this lesson.

As a pre-assessment, *before the lesson begins*, please **circle** the number that describes your current understanding of the learning target.

Before the formative assessment for this lesson, please draw a **triangle** around the number that describes your understanding of the learning target.

Before the summative assessment, please draw a **square** around the number that describes your understanding of the learning target.

1 - I have never seen this learning target before.
2 - I have seen this learning target, but I don't know what it means.
3 - I have seen this learning target, and I think I know what it means
4 - I can explain this learning target to another student.

Learning Targets for Lesson 1.3	**Tracking my own learning:**
Benchmark: 9.4.1.2.2 I can recognize that the work of the cell is carried out primarily by proteins, most of which are enzymes. 1 2 3 4 **Benchmark: 9.4.1.1.1** I can explain how cell processes are influenced by internal and external factors, such as pH and temperature. 1 2 3 4 **Benchmark: 9.4.1.2.2** I can describe that enzyme function depends on the amino acid sequence and the shape it takes as a consequence of the interactions between those amino acids.	Formative assessment #3 Date: _____ Score: _____ Questions I still have: My plan for getting my questions answered:

Pre-Assessment of Vocabulary Terms (Table)

Get a hard copy of this table from your teacher. Below are the vocabulary terms you will master during this lesson.

As a pre-assessment, *before the lesson begins*, please **circle** the number that describes your current understanding of the term.

You will complete the “Definitions” and “Extra Practice” (shaded gray*) as we progress throughout the unit.

Before each formative assessment, you will reassess your understanding of the terms. When instructed, please draw a **triangle** around the number that describes your understanding of the term.

Finally, *at the end of the unit* (before the summative assessment) you will make a final assessment of your understanding of the terms. When instructed, please draw a **square** around the number that describes your understanding of the term.

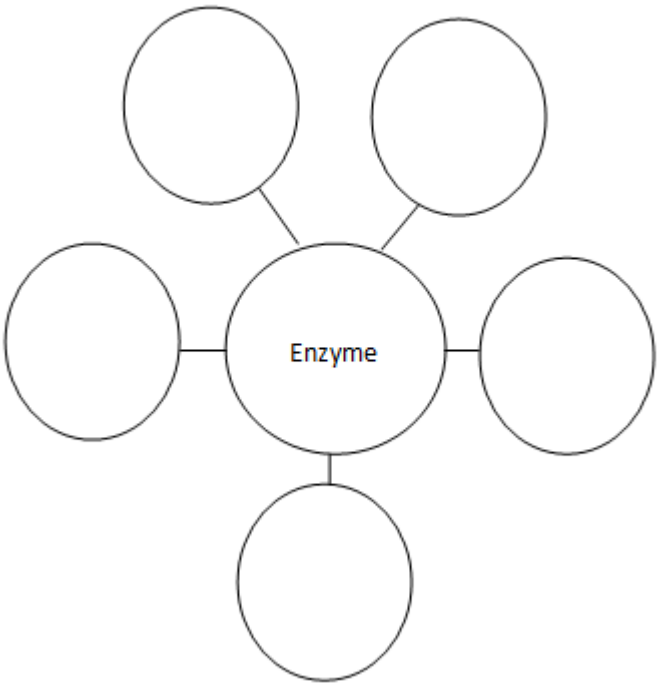
Term 1 - I have never seen this term before. 2 - I have seen this term, but I don't know what it means. 3 - I have seen this term, and I think I know what it means 4 - I can explain this term and its meaning to another student.	**Definition**	**Extra Practice** *Prefixes and Suffixes*: Find out what the word parts mean, then put them together *Sentence*: Use the term properly in a complete sentence *Sketch*: Draw a sketch of the term *Examples*: Give examples of the term *On Your Own*: Choose your own option or write an alternative definition using your prior knowledge.
1. Enzyme 1 2 3 4		Examples:
2. Substrate 1 2 3 4		SKETCH:

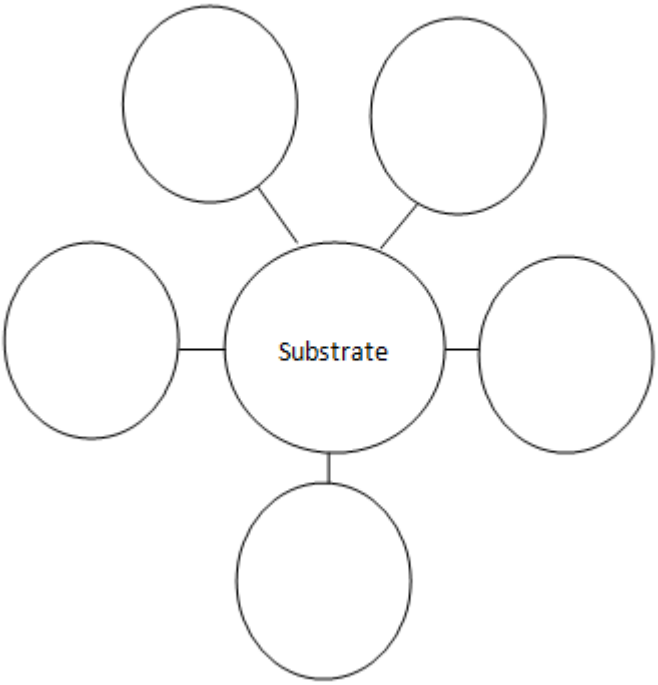
3. Denature 1 2 3 4		EXAMPLES (What can cause an enzyme to denature?):

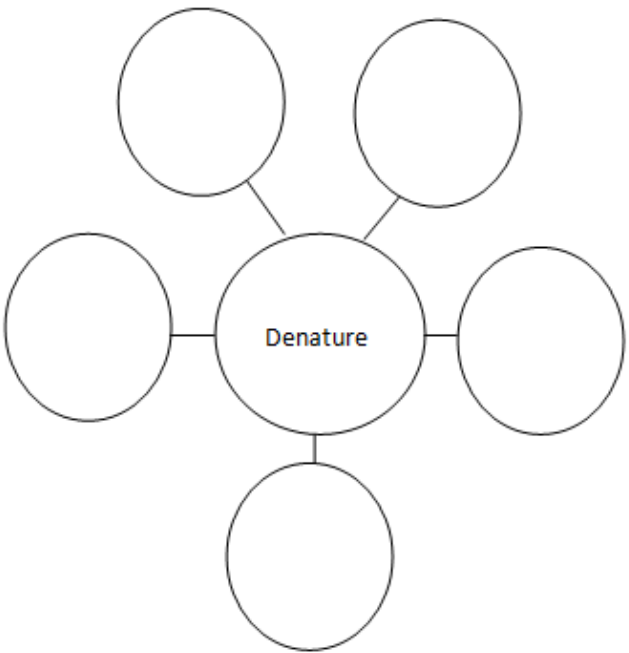
Pre-Assessment of Vocabulary Terms (Partner Brainstorming Bubble Maps)

Once you have made your individual initial circles for the above terms, please discuss each term with a partner. Brainstorm what you each think the terms mean. Make a bubble map for each term with your ideas. Possible questions to consider:

1. Have either of you ever heard of any of the terms before? If yes, in what context?
2. What do you visualize when you hear the term?
3. Do the terms remind either of you of anything? If yes, what?
4. Can you think of any examples of the terms? If yes, what?
5. Record your ideas below.







*Once you have recorded your ideas above, record additional ideas on your bubble maps as your classmates “share out” during the class group preview discussion of the terms. As the lesson progresses, please fill in the “definition” and “extra practice” columns in the vocabulary table above. Compare your initial ideas from your bubble maps with the actual definitions you record in the table.