

Name _____

Introduction to Enzymes

This worksheet is to be used with the online activity Introduction to Enzymes which can be found at: <https://cbm.msoe.edu/modelingResources/molecularExplorations/enzymesIntro.html>

Enzyme Catabolism

1. Are the two substrates pieces bound together before the reaction or not?
2. Did the enzyme change from the beginning to the end of the reaction?
3. Are the two substrates pieces bound together before the reaction or not?
4. Describe how the products are the same/different from the substrate.
5. Does this model better represent the induced fit or lock and key model for enzyme-substrate interactions? Why?

Enzyme Anabolism

6. Are the two substrates pieces bound together before the reaction or not?
7. Describe how the products are the same/different from the substrate.
8. Does this model better represent the induced fit or lock and key model for enzyme-substrate interactions? Why?
9. Write a complete sentence describing anabolism and catabolism.
 - a. Anabolism
 - b. Catabolism

Name _____

Enzyme Specificity

10. What are the chemical characteristics of the enzyme's active site?

11. What do the red and tan pieces represent?

12. What are the chemical characteristics of the red and tan pieces?

13. How are the red and tan pieces similar?

14. How are the red and tan pieces different?

15. Will the red piece interact with the enzyme correctly? Why or not?

16. List any interactions that would occur between the enzyme's active site and the red substrate.

17. Will the tan piece interact with the enzyme correctly? Why or not?

18. List any interactions that would occur between the enzyme's active site and the tan substrate.

19. Write a complete sentence describing the two features that make a substrate a good 'fit' in an enzyme active site.

Name _____

Competitive Inhibition

20. Can the substrate enter the active site when the competitive inhibitor is present? Why or not?

21. How will the substrate interact with the enzyme's active site?

22. Can the substrate get into the active site once the inhibitor leaves?

Noncompetitive (Allosteric) Inhibition

23. Can the substrate enter the active site when the noncompetitive inhibitor is present? Why or not?

24. Can the substrate get into the active site once the inhibitor leaves?

25. What would be a purpose for stopping an enzyme from doing its function?