

IDENTIFYING DNA CONCEPT QUESTIONS TEACHER GUIDE

ENZYME DIGEST CONCEPT QUESTIONS

1. What is an enzyme anyway? *An enzyme is a protein, and a protein is one of the four major biomolecules.*
2. What conditions influence how well an enzyme functions? *Temperature, pH, and concentration of substrate and enzyme.*
3. Do you think these conditions are also involved in how well a restriction enzyme functions? Why or why not. *Yes, all enzymes have the same requirements in order to function at the optimum level.*
4. Predict what would happen if the water bath or incubator were 100 degrees C? *The chemical bonds holding the protein in a specific shape would be broken, and the protein would lose its shape and thus its ability to function. (Denatures)*
5. What is the purpose for adding restriction buffer to the enzyme digest? *Maintains the correct pH in order for the enzyme to function optimally.*
6. At what step or point in the lab will RFLP segments be formed? How are these fragments formed? *When the enzyme and DNA are being incubated at 37 degrees C. The enzyme will cut the DNA at the restriction site when it recognizes a specific DNA sequence.*
7. If populations of organisms have fragment lengths in common, what might that tell you about that population? *This may indicate that the populations of organisms are closely related.*

EXTENSION:

8. If offspring (children) result from the mating of two different RFLP populations, what would you predict their DNA fingerprint pattern might be? *The DNA fingerprint pattern will be a mixture of fragment lengths, some matching the male parent and some the female parent.*

