

YOUR VERY OWN "DO-IT-YOURSELF" DNA DISCOVERY KIT

A WORK/STUDY PLAN FOR MOST EFFECTIVE LEARNING

1. Look over the objectives (below)
2. Read text pages on DNA structure; then do Part I (Nucleotide Kit). Re-read the pages.
3. Read text pages on Replication; then do Part II (DNA Replication Kit). Re-read the pages.
4. Read text pages on Protein Synthesis; then do Part III (Protein Synthesis Kit). Report the secret word (discovered while doing this) to your teacher, quietly; don't tell anyone else! If it is correct, get the Say It With DNA worksheet and list of Secret Messages.
5. Do the Say It With DNA worksheet (finish the practice message first, then decipher the secret message (number assigned to you) in the "Secret Message" list, using the same technique as in the model.
6. Re-read text pages on Protein Synthesis, then finish the DNA chapter(s). Review all reading, until you can respond to all objectives below.

OBJECTIVES FOR DNA UNIT

1. Identify the main function of nucleic acids in the cell.
2. Indicate, in a general way, the nature of viruses (structure, sizes relative to other cells, shapes, and how they function).
3. Indicate what is needed in cells so they can repeatedly carry out a complex series of chemical reactions in an exact order.
4. Recognize where in the cell such information is found.
5. Given that many enzymes are immediately responsible for controlling the many complex reactions occurring in a cell, indicate what is the most likely source of those enzymes, and the evidence for this relationship.
6. Recognize the differences (in structure and function) between DNA and RNA, the evidence for that information, and where each (DNA and RNA) is usually found in a cell.
7. Identify (in terms of nucleic acids) the definition of "gene" and "mutation".
8. Indicate how cell control instructions are transferred to new cells.
9. Recognize the relationship of chromosomes to DNA
10. Describe the role of nucleic acids in protein synthesis.
11. Identify the definition of sexual reproduction, and the probable definition of asexual reproduction ("non-sexual" reproduction).
12. Recognize the most important result of sexual reproduction, and how this relates to natural selection.
13. Recognize the kinds of organisms in which sexual reproduction has been shown to occur.
14. Recognize the way in which gene mutations are related to natural selection. (Look at the components of natural selection; where do the results of mutation fit in?)
15. How is gene splicing done? Why?
16. Describe several ways gene splicing is being used to help us.
17. How does DNA fingerprinting work?
18. How is DNA sequenced?
19. What is the Human Genome Project? How is it being carried out?
20. What are some of the ethical issues resulting from gene splicing, DNA fingerprinting, and the Human Genome Project?