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DNA Review

1. Use the following terms in the same sentence: *mutation* and *mutagen*.

A mutagen causes a mutation.

The statements below are false. For each statement, replace the underlined term to make a true statement.

nucleotides 2. The information in DNA is coded in the order of amino acids along one side of the DNA molecule.

ribosomes 3. The "factory" that assembles proteins based on the DNA code is called a gene.

D 4. James Watson and Francis Crick
   a. took X-ray pictures of DNA.
   b. discovered that genes are in chromosomes.
   c. bred pea plants to study heredity.
   d. made models to figure out DNA's shape.

B 5. A gene can be all of the following EXCEPT
   a. a set of instructions for a trait.
   b. a complete chromosome.
   c. instructions for making a protein.
   d. a portion of a strand of DNA.

B 6. Which of the following statements about DNA is NOT true?
   a. DNA is found in all organisms.
   b. DNA is made up of five subunits.
   c. DNA has a structure like a twisted ladder.
   d. Mistakes can be made when DNA is copied.

A 7. Within the cell, where are proteins assembled?
   a. the cytoplasm
   b. the nucleus
   c. the amino acids
   d. the chromosomes

B 8. Changes in the type or order of the bases in DNA are called
   a. nucleotides.
   b. mutations.
   c. RNA.
   d. genes.

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9. What would be the complementary strand of DNA for the following sequence of bases?

C T T A G G C T T A C C A

GAAT CCGAATGGT

10. If the DNA sequence TGAGCCATGA is changed to TGAGCACATGA, what kind of mutation has occurred?

Insertion

11. Explain how the DNA in genes relates to the traits of an organism.

DNA in genes codes for specific proteins and proteins control cells + results in traits

12. Why is DNA frequently found associated with proteins inside of cells?

proteins do much of the work of copying + handling the DNA

13. What is the difference between DNA and RNA?

U replaces T
doubles ~ single strand

14. Draw and label a picture that explains how DNA is copied.

15. The following DNA sequence codes for how many amino acids?

T C A G C C A C C T A T G G A

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The illustration below shows the process of replication of a DNA strand. Use this illustration to answer the questions that follow.

C 16. Which strands are part of the original molecule?

a. A and B
b. A and C
c. A and D
d. None of the above

B 17. Which strands are new?

a. A and B
b. B and C
c. C and D
d. None of the above

B 18. Which strands are complementary?

a. A and C
b. B and C
c. All of the strands
d. None of the strands