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Crash Course Biology #33: DNA Structure & Replication: Our Instruction Manual for Existing

Name: _____ Date: _____

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1. DNA contains the genetic instructions needed to build and maintain an organism, making it the most useful _____ in the world.
2. The complete set of genetic instructions in a human body is called the _____.
3. DNA is made up of molecules called _____, which consist of a sugar, a phosphate group, and a nitrogenous base.
4. The shape of DNA is a _____, resembling a twisted ladder.
5. In DNA, adenine (A) always pairs with _____, and cytosine (C) always pairs with _____.
6. DNA is packaged into structures called _____, which help fit it inside the nucleus of a cell.
7. The process by which DNA makes an identical copy of itself is known as _____.
8. The enzyme that unzips the DNA strands during replication is called _____.
9. Short fragments of DNA formed on the lagging strand during replication are called _____ fragments.
10. DNA replication is considered _____ because each new DNA molecule contains one original strand and one newly synthesized strand.
11. The enzyme responsible for adding new bases during DNA replication is called _____.
12. Errors in DNA replication that are not corrected can lead to permanent changes in the genetic code, known as _____.
13. A mutation that provides an advantage to an organism can lead to _____ over generations.
14. The study of heritable changes in gene expression that do not alter the DNA sequence is known as _____.
15. A set of laboratory techniques used to analyze and manipulate DNA is called _____ technology.

Crash Course Biology #33: DNA Structure & Replication: Our Instruction Manual for Existing – KEY

1. DNA contains the genetic instructions needed to build and maintain an organism, making it the most useful *instruction manual* in the world.
2. The complete set of genetic instructions in a human body is called the *genome*.
3. DNA is made up of molecules called *nucleotides*, which consist of a sugar, a phosphate group, and a nitrogenous base.
4. The shape of DNA is a *double helix*, resembling a twisted ladder.
5. In DNA, adenine (A) always pairs with *thymine*, and cytosine (C) always pairs with *guanine*.
6. DNA is packaged into structures called *chromosomes*, which help fit it inside the nucleus of a cell.
7. The process by which DNA makes an identical copy of itself is known as *DNA replication*.
8. The enzyme that unzips the DNA strands during replication is called *helicase*.
9. Short fragments of DNA formed on the lagging strand during replication are called *Okazaki* fragments.
10. DNA replication is considered *semiconservative* because each new DNA molecule contains one original strand and one newly synthesized strand.
11. The enzyme responsible for adding new bases during DNA replication is called *DNA polymerase*.
12. Errors in DNA replication that are not corrected can lead to permanent changes in the genetic code, known as *mutations*.
13. A mutation that provides an advantage to an organism can lead to *evolution* over generations.
14. The study of heritable changes in gene expression that do not alter the DNA sequence is known as *epigenetics*.
15. A set of laboratory techniques used to analyze and manipulate DNA is called *genetic* technology.

15 Questions

Answer Key Included

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