

Name: _____

Date: _____ Core: _____

Blueprint of Life

Show What You Know

1. **DNA** (_____) carries the chemical code, "the code of life," which cells use to develop the inherited traits of the organism.
2. DNA is coiled up in the nucleus of the cell in structures called _____.
3. The DNA molecule's shape is described as a _____. The sides of the molecule are made up of units of _____ sugar alternating with phosphate. Paired _____ form the middle of the molecule. The four nitrogenous bases are: _____, _____, _____, and _____. The nitrogen bases are often written using their first letters: A, T, C, G.
4. The nitrogenous base adenine will only pair with _____ (A with T), and the nitrogen base guanine will only pair with _____ (G with C). All nitrogen bases are connected together by a _____ bond.
5. The nitrogenous base sequence determines the code of the DNA. The code is written in groups of three pairs. EX) **A T G G C A**
T A C C G T

Why three?? _____

6. A certain section of a nitrogenous base sequence that produces a specific **protein** is called a _____. Therefore, specific proteins determine the _____ of traits in an individual organism, as well as, being essential for cell structure and function.
7. Since **genes** are found on the chromosomes, which are coiled up in the nucleus, it can be said that the main function of **chromosomes** is to direct or control the production of _____.
8. James _____ and Francis _____ made the first three-dimensional model of a DNA molecule, but they were **NOT** the first to discover the shape of DNA as two spirals connected together. (Rosalind _____ discovered shape.)
9. **BIG PICTURE**... a **chromosome** is made of _____, a segment of **DNA** is a _____, a **gene** contains the code for making a _____, and **proteins** determine the _____ of a _____.

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Practice. Complete the DNA sequence below by filling in the appropriate base pairs.

A T A
T T

C T
G A

G
C T

A G T

Accurately draw an example of the DNA molecule that would be found inside a **KILLER WHALE'S nucleus** and label its parts below. Write a sentence explaining why you know it looks the way it does.

