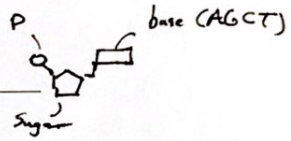
DNA - The Double Helix -- Questions

1. Write out the full name for DNA. deoxyribonucleic acid
2. What are CHROMOSOMES? Chromosomes are microscopic, thread like strands composed of the chemical DNA.
3. What is a gene? GENES are segments of DNA that code for certain traits.
4. What does DNA do, "in simple terms"? building instructions
5. Where in the cell are chromosomes located? Nucleus
6. DNA can be found in what two organelles (other than the nucleus)?
   mitochondria & chloroplasts
7. Where in the cell are proteins made/built? Nucleus & ribosomes
8. What two scientists established the structure of DNA? James Watson & Francis Crick
9. What is the shape of DNA? double Helix
10. What sugar is found in DNA? deoxyribose
11. What are the sides of the DNA "ladder made" of? sugar & phosphate



12. What are the "rungs" of the DNA "ladder" made of?
    Bases → A G C T
13. How do the bases bond together? A bonds with T G bonds with C
    → what is this pattern of pairing know as? Base Pair Rule
14. If one "side" (or, "STRAND") of DNA contains the bases ATGGCCTTA, then the other side of the DNA molecule would have bases in the order: TACCGGAAT
15. The two "sides" of the double helix are held together by hydrogen bonds (between the "complementary" base pairs)
16. DNA is made of repeating units called ~~GENES~~ nucleotides; which are each made up of sugar, phosphate, base.
17. Why is DNA called the "Blueprint of Life"?
    A blueprint contains the instructions to build the entire organism (heart, lungs, Nose, etc.)
18. What is "junk DNA"?
    "junk DNA" is information that is Not used when building a specific trait or organ.
19. How do some cells become brain cells and others become skin cells, when the DNA in ALL the cells is exactly the same. In other words, if the instructions are exactly the same, how does one cell become a brain cell and another a skin cell?
    Cells "turn off" information in DNA that they don't need to use.

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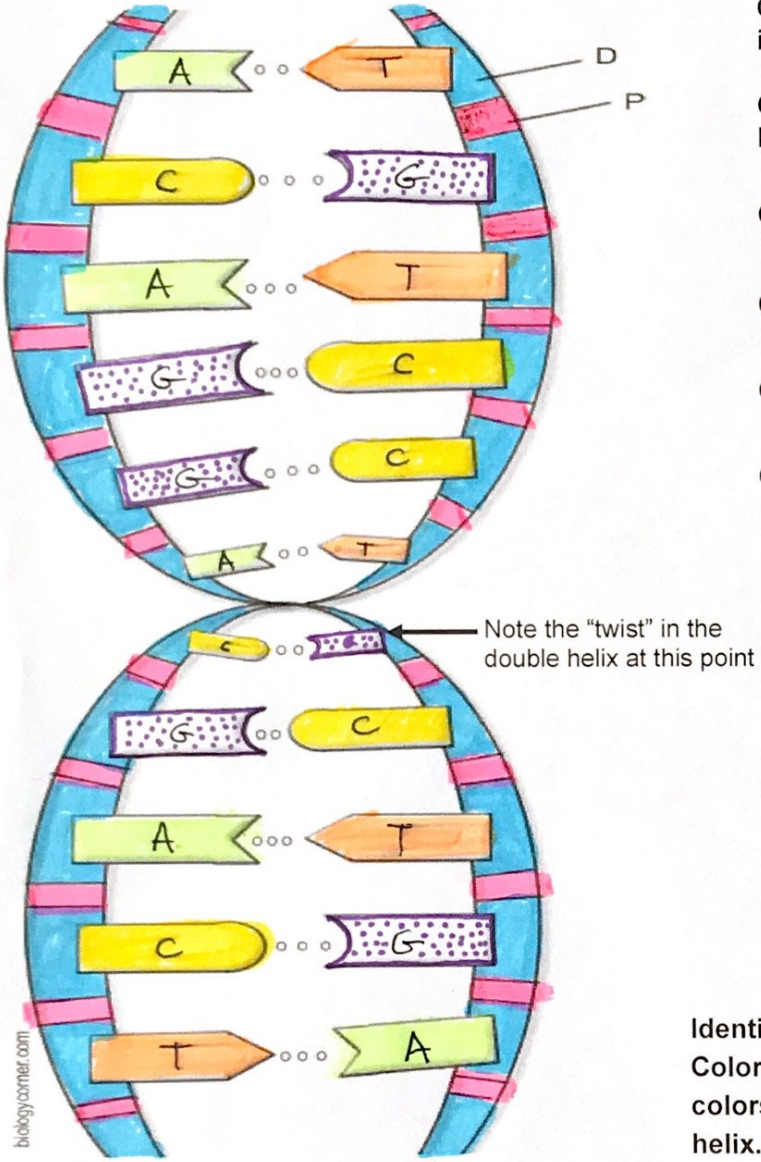

Color the DNA components using the instructions below:

Color all the phosphates pink (one is labeled with a "P").

Color all the deoxyribose sugars blue (one is labeled with a "D").

Color the thymines orange. T

Color the adenines green. A

Color the guanines purple. G

Color the cytosines yellow. C

Color the HYDROGEN BONDS red.

Identify each nucleotide below. Color the nucleotides using the same colors as you colored them in the double helix.