Topic: DNA Worksheet

Summary: Students answer questions about DNA's structure; genetic code is the nitrogen base sequence, complimentary base pairing, and DNA replication.

Goals & Objectives: Students will be able to identify the structure of DNA and how it is replicated.

Standards: CA Biology 5a. *Students know* the general structures and functions of DNA, RNA, and protein. CA Biology 5b. *Students know* how to apply base-pairing rules to explain precise copying of DNA during semiconservative replication and transcription of information from DNA into mRNA.

Time Length: 20 minutes

Materials:
- Class textbook or class notes
- Photocopied worksheets
- Pencils or pens

Procedures:
1. Tell the students which section they are to use in the textbook. Students are then going to read the section and answer the questions on the worksheet.

Accommodations: Students with an IEP can take the handout home if they need extra time or modify the number of questions to 1, 2, 3, 4, 8, 10, 11, 15, 17, 20, 23, 24.

Evaluation:
Each question is worth 1/2 point, with the DNA Replication diagram worth 1 point. The assignment is worth a total of 13 points.

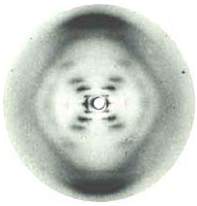
Name: _____ Row: _____

Date:_____ Period:_____

DNA Worksheet

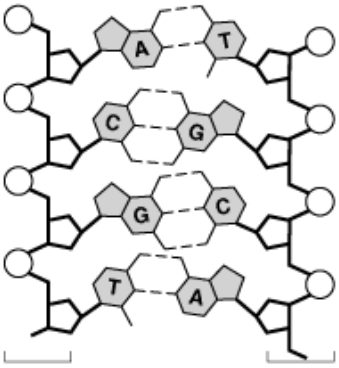
DNA Structure

1. What does DNA stand for? _____
2. What are the two main functions of DNA?
   a. _____
   b. _____
3. Monomer of nucleic acid? _____ Polymers? _____ _____
4. How many strands does DNA have? _____ What is its shape? _____
5. Roseland Frankland's x-ray diffraction image was used by Watson and Crick to discover? _____



6. DNA in eukaryotes can be found in the _____.
7. DNA in prokaryotes can be found in the _____.
8. What are the three parts of a nucleotide? _____
   _____ _____
9. Draw lines linking the following terms to their location on the DNA diagram on the right.

   Phosphate
   Deoxyribose sugar
   Hydrogen bond
   Nitrogen base



10. Write in the complimentary base pair names
    a. G _____ pairs with _____
    b. T _____ pairs with _____
11. The backbone of the double helix has alternating _____ and _____.
12. What bond holds complimentary bases of DNA together? _____
13. In a DNA molecule, the number of cytosines equals the number of _____.
14. In a DNA molecule, the number of adenines equals the number of _____.

DNA and Genes

15. What part of a nucleotide contains the genetic code? _____
16. The sequence of nitrogen bases is _____ for almost all organisms.

DNA Replication

17. What is the purpose of DNA replication? _____
    _____
18. The location where the DNA is unzipped is called a _____

19. During DNA replication, why are there many replication forks? _____

_____

20. After the result of DNA replication, one strand is new and one strand is old, this type of replication is called _____.
21. The _____ strand has DNA made continuously.
22. The _____ strand has DNA made in short segments call Okazaki fragments.

DNA Replication Enzymes

23. What enzyme unzips (unwinds) the DNA? _____
24. What enzyme attaches new nucleotides to the original DNA strands? _____
25. The diagram on the right is demonstrating DNA replication. Draw in the main enzymes required for DNA replication and label the enzymes, replication fork, new strand, and original strand.