

Date:

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## DNA Web Quest

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Use the following websites to help you answer the following questions. Don't be afraid to explore the sites – there's lots of neat stuff there! Don't worry about typing in the urls – I've linked to them on my website (Unit 1 Biology – about halfway down).

### Part 1 DNA: The Double Helix (from Nobel Prize):

[http://www.nobelprize.org/educational/medicine/dna\\_double\\_helix/dnahelix.html](http://www.nobelprize.org/educational/medicine/dna_double_helix/dnahelix.html)

1. What is the full name of DNA?
2. What is the shape of DNA?
3. What are the “rungs” of the ladder?
4. Which nitrogenous bases pair together?
5. Play the game for all three organisms. Record your answers after completing each organism in the chart below.

Chromosome #	How many chromosomes?	How many base pairs?	How many genes?	What is the organism?
1				
2				
3				

### PART 2: STRUCTURE OF DNA

<http://learn.genetics.utah.edu/content/basics/oldtour/>

→ Take the tour of DNA by clicking on “What is DNA?” and answer the questions below:

6. In what organelle (CELL PART) would I find your DNA (YOUR INSTRUCTIONS)?
7. What does DNA stand for? \_\_\_\_\_

8. The DNA molecule comes in the form of a \_\_\_\_\_ ladder and scientists call its shape a \_\_\_\_\_.
9. The MIDDLE of the DNA MOLECULE is made of bases. These bases will only pair up in a particular way: \_\_\_\_\_
10. A always pairs with \_\_\_\_\_.
11. C always pairs with \_\_\_\_\_.
12. What makes up the handrails or SIDES of a DNA molecule (have to look at the picture)  
SUGAR and \_\_\_\_\_.
13. G stands for \_\_\_\_\_.
14. A stands for \_\_\_\_\_
15. T stands for \_\_\_\_\_
16. C stands for \_\_\_\_\_.

**→ GO BACK TO THE TOUR PAGE AND CHOOSE “WHAT IS A GENE?”**

17. GENES are \_\_\_\_\_ manuals for our bodies.
18. GENES are made of \_\_\_\_\_.
19. A gene or protein called \_\_\_\_\_ is responsible for our RED BLOOD CELLS to carry \_\_\_\_\_.
20. If our hemoglobin gene is normal, the hemoglobin protein will work fine. But if the instructions in the gene are changed, or \_\_\_\_\_, changes in the hemoglobin could result in the disorder \_\_\_\_\_.
21. TRUE or FALSE: YOUR DNA or GENES are responsible for your EYE COLOR. \_\_\_\_\_

**→ GO BACK TO THE TOUR PAGE AND CHOOSE “WHAT IS A CHROMOSOME?”**

22. If you pulled the DNA from one of your cells, it would be how long? \_\_\_\_\_
23. How does all of that DNA fit inside your cells? \_\_\_\_\_

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24. \_\_\_\_\_ are storage units for DNA.

25. TRUE or FALSE: Different organisms have a different number of chromosomes inside each cell.

26. How many chromosomes do humans have? \_\_\_\_\_

27. You received \_\_\_\_\_ of your chromosomes from your \_\_\_\_\_ and \_\_\_\_\_ from your dad.

28. Males have \_\_\_\_\_ and \_\_\_\_\_ sex chromosomes. Females have \_\_\_\_\_ sex chromosomes.

29. How many chromosomes does a mosquito have? \_\_\_\_\_

30. How many chromosomes does an onion have? \_\_\_\_\_

31. How many chromosomes does a carp have ? \_\_\_\_\_

**Part 3 DNA Replication Simulation:**

<http://www.johnkyrk.com/DNAreplication.html>

32. DNA must be replicated prior to \_\_\_\_\_.

33. Errors during DNA replication are called \_\_\_\_\_.

34. Describe a hydrogen bond. How many hydrogen bonds form between A and T? G and C?

35. Does DNA replication start at only one place in the DNA or in many places at once?

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36. In the chart below, describe what each enzyme does during the replication process.

Name of Enzyme:	Function during DNA replication:
Helicase	
RNA primase	
DNA polymerase	
Exonuclease	
Ligase	

37. The two types of cell division are \_\_\_\_\_ and \_\_\_\_\_.