

DNA Workshop (from GVL)

DNA Replication:

1. What is DNA replication?
 - **Click on DNA Replication**, and follow the given instructions.
 - **Unzip the DNA**
2. In a real cell, the molecule unwinds from spools made of _____.
3. What helps to unzip the DNA ladder?
 - **Click OK.**
 - **Drag the matching base** to the correct base on the chain.
4. What is the base pair rule?
5. How many bases are in the DNA chain?
6. What is the base sequence from top to bottom of the DNA molecule on the right?
7. What is the base sequence from top to bottom of the DNA molecule on the left?
8. Are the 2 sequences identical?
9. How many base pairs does each human chromosome contain?
10. All 46 chromosomes contain _____ pairs.
11. Where are you in the cell during DNA replication? Nucleus or cytoplasm?

Protein Synthesis:

- **Click on protein synthesis.**
12. What happens during protein synthesis?
 - **Unzip the DNA.**
 13. At this point, DNA resembles a _____.
 14. What moves up the ladder breaking the rungs?
 - **Click OK**
 - **Match the RNA bases** with the original DNA strand.
 15. What is the base pair rule for RNA?
 16. What is the base sequence from the top to the bottom of the molecule?
 17. Which side is the RNA molecule? How do you know?
 18. In a real cell, how long would the RNA molecule be?
 19. An RNA molecule transcribed from DNA is called _____.
 20. Where will the new RNA molecule go now?
 - **Click OK.**
 21. Where are you in the cell now?
 - **Match the tRNA** to the mRNA codon.

22. What is the function of ribosomes?
23. What is a codon?
24. What is an anticodon?
25. What is attached to the tRNA molecule?
26. What is the first amino acid in this sequence?
27. What is the first codon sequence and its complement?
 - **Click OK.**
 - **Drag the next molecule** to the ribosome.
28. What is the second codon sequence and its complement (anticodon).
29. What is the name of the second amino acid in this sequence?
30. Where will the ribosome go next?
31. What will happen to the first tRNA?
 - **Click OK**
 - Drag the next molecule to the ribosome.
32. What is the third codon sequence and its complement (anticodon).
33. What is the name of the third amino acid in this sequence?
34. How long is the protein now?
35. How long can the protein chain get?
36. When will protein synthesis end?
37. What will the ribosome do when the end is reached?
 - **Click OK.**
38. What is the correct amino acid sequence of your protein that you just made?
 - Close the window.
 - Scroll to the bottom of the main page and click on **Replication.**