<https://geneed.nlm.nih.gov/topic_subtopic.php?tid=15>

1. Read DNA, genes and chromosomes
2. What is the full name of DNA?
3. How many strands does DNA have? \_\_\_\_\_\_\_\_
4. What does a gene contain?
5. DNA packages itself and the genes within it in structures we call\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. How many PAIRS of chromosomes does a human cell have? \_\_\_\_\_\_\_\_\_\_\_
7. How many total chromosomes does a human cell have? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
8. From where do you get each set of 23 chromosomes from?
9. Click on the 2nd animation link or use <https://www.dnalc.org/resources/3d/07-how-dna-is-packaged-basic.html>
10. Where is the DNA located within the cell?
11. How many base pairs are in a full strand of DNA?
12. What is the name of the first protein DNA is wrapped around?
13. Are chromosomes always present in the nucleus?
14. Click on genetic code or <https://geneed.nlm.nih.gov/topic_subtopic.php?tid=15&sid=19> What is your genetic code made up of?

\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_

The order of these 4 bases is called a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of bases.

A pairs with \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and C pairs with \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

1. Click on replication or <https://geneed.nlm.nih.gov/topic_subtopic.php?tid=15&sid=21>
2. Define DNA replication.
3. Why must we replicate DNA?
4. <http://mw.concord.org/modeler/showcase/simulation.html?s=http://mw2.concord.org/public/student/biomodels/replicate.html>
5. What enzyme catalyzes the replication of DNA?
6. What are the ends of a DNA molecule called?
7. Stop the animation and write the first 7 bases of the complimentary strand.
8. Click RNA or <https://geneed.nlm.nih.gov/topic_subtopic.php?tid=15&sid=18>
9. What is the name of RNA?
10. What sugar is part of the RNA structure?
11. How many strands is RNA?
12. What are the 4 bases in RNA?
13. How do the bases differ from DNA?
14. What are the 3 types of RNA?
15. Click on transcription or <https://geneed.nlm.nih.gov/topic_subtopic.php?tid=15&sid=22>
16. What is the process of making RNA called?
17. What is the function of mRNA?
18. Can mRNA leave the nucleus?
19. Where (what organelle)does mRNA do its job?
20. Go to: <http://www.dnai.org/a/index.html> ----- click copying the code------ click putting it together-------- click interactive
21. What enzyme transcribes DNA into RNA?
22. What is the first step in transcription? (it happens to DNA so RNA polymerase has access to only one strand?
23. What are the four bases used in making RNA?
24. The strand of DNA used in transcription is called the…..
25. What are the 6 bases (in order) you put together (they diappear so write them as you do them) \_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_
26. Click translation or <https://geneed.nlm.nih.gov/topic_subtopic.php?tid=15&sid=23>
27. Translation is the process of translating the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of bases in \_\_\_\_\_\_\_\_\_\_\_\_\_ to a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that make up a protein.
28. How many bases are translated at a time? \_\_\_\_\_\_\_\_\_\_
29. Each 3 bases (called a codon) codes for one \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_.
30. Therefore the sequence of bases in mRNA decide the sequence of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_ that make up the protein.
31. Go to <http://lab.concord.org/embeddable.html#interactives/sam/DNA-to-proteins/3-modeling-translation.json>
32. Write the chain of amino acids made. The first 5 in order.
33. Go to <http://www.dnai.org/a/index.html> …… Click reading the code…….. Click putting it together………….. Click interactive ………
34. What translates the mRNA (organelle)?
35. What brings the amino acids to the ribosome?
36. How does the tRNA know which amino acid to connect to the chain?
37. Make your own chain of amino acids (polypeptide) and write the sequence of amino acids as you do it?

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SUMMARY

1. What is DNA replication?
2. What enzyme helps replication occur?
3. What is transcription?
4. What difference is there in the bases of RNA and DNA?
5. What is a codon?
6. What does it code for?
7. What does mRNA do?
8. What does tRNA do?
9. What is a polypeptide?
10. What ultimately has the instructions for which proteins to make?
11. How is the code “written” on this molecule?