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| **Protein Synthesis *ppt Questions*** |

**DNA and Genes**

1. What are genes and what do they code for?

2. Proteins are made of chains of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

3. How do cells use proteins?

4. The subunits making up polypeptides are called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

5. How many amino acids exist?

6. Sketch and label the basic structure of an amino acid.

7. The group that makes amino acids different from each other & gives the amino acid its unique properties is called the \_\_\_\_\_\_\_\_\_\_\_ group.

8. DNA is found in the \_\_\_\_\_\_\_\_\_\_\_\_ of a cell and begins the process of making a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

9. Where are proteins made?

10. Describe the two types of ribosomes.

11. The first step in making a protein is to make a copy of \_\_\_\_\_\_\_\_\_\_\_ in the nucleus.

**RNA**

12. What nucleic acid contains the master code for making proteins?

13. What nucleic acids acts as a blueprint in copying the master code?

14. Compare and contrast the sugars on DNA and RNA.

15. Compare and contrast the nitrogen bases on DNA and RNA.

16. RNA is made of a \_\_\_\_\_\_\_\_\_\_\_\_ strand, while DNA is a \_\_\_\_\_\_\_\_\_\_\_ stranded molecule.

17. What base replaces thymine on RNA?

18. Name the 3 types of RNA molecules.

19. What is the function of mRNA?

20. What is the function of rRNA?

21. What is the function of tRNA?

22. Describe the shape of mRNA.

23. How does mRNA get out of the nucleus once it has copied DNA's instructions?

24. What bases pair together on RNA?

25. How long is mRNA?

26. What is a codon?

27. Methionine is called the \_\_\_\_\_\_\_\_\_\_ codon & is represented by the bases \_\_\_\_\_\_\_\_.

28. Name the 3 stop codons.

29. How long in rRNA?

30. What is the shape of rRNA?

31. What two things make up ribosomes?

32. What process occurs at the ribosomes?

33. Each codon stands for an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

34. Can amino acids have more than one codon?

35. There are \_\_\_\_\_\_ amino acids and \_\_\_\_\_\_ possible codons.

36. How do you read the circular genetic codon table?

37. Use the genetic codon table and name these amino acids:

     GGG?  
     UCA?  
     CAU?  
     GCA?  
     AAA?

38. Name the complementary bases on DNA.

39. Name the complementary bases on RNA.

40. What is the shape of tRNA?

41. What can attach to one end of a tRNA molecule for transport?

42. Opposite the attachment site on tRNA are 3 nucleotide bases called the \_\_\_\_\_\_\_\_\_\_\_\_\_\_.

43. Make a sketch of a tRNA molecule with its attachment site and anticodon labeled.

44. A codon on mRNA is complementary to an \_\_\_\_\_\_\_\_\_\_\_\_\_ on tRNA.

45. What anticodon is complementary to the codon - ACU?

**Transcription and Translation**

46. Sketch the pathway to making a protein.

47. define protein synthesis.

48. Name the 2 phases of protein synthesis.

49. Before mRNA can leave the nucleus it must be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in order to correctly make proteins.

50. Define transcription and tell where it occurs.

51. What RNA copies DNA?

52. Are both strands of DNA copied?

53. What enzyme is required to copy DNA?

54. The DNA strand that is copied is called the \_\_\_\_\_\_\_\_\_\_\_\_\_ strand.

55. What would be the complementary RNA sequence for the DNA sequence- 5'- GCGTATG-3'?

56. What enzyme separates the DNA strands in transcription?

57. RNA polymerase adds complementary \_\_\_\_\_\_\_\_\_\_\_\_ to the DNA template strand.

58. \_\_\_\_\_\_\_\_\_\_\_ are regions on DNA where RNA polymerase binds to start transcription.

59. The promoter contains a sequence called the \_\_\_\_\_\_\_\_\_ box.

60. Other sequences on DNA called \_\_\_\_\_\_\_\_\_\_ signals tell the RNA polymerase when to stop transcribing.

61. Newly made mRNA must be \_\_\_\_\_\_\_\_\_ to make the nucleic acid functional.

62. What are introns & what happens to them during mRNA processing?

63. What are exons and what happens to them during mRNA processing?

64. Describe the cap that is added to the new mRNA transcript.

65. What type of tail is added to the mRNA transcript?

66. The new mRNA transcripts is made of \_\_\_\_\_\_\_\_\_\_\_\_\_ with a 5' \_\_\_\_\_\_\_\_\_ and a 3' \_\_\_\_\_\_\_\_\_\_\_\_ tail.

67. What happens next to the newly made mRNA?

68. Define translation & tell where it occurs?

69. How do ribosomes read mRNA?

70. Describe the structure of a ribosome.

71. Ribosomes are composed of \_\_\_\_\_\_\_\_ rRNA and \_\_\_\_\_\_\_\_ protein.

72. Ribosomes have 2 tRNA sites called \_\_\_\_\_\_\_ and \_\_\_\_\_\_ along with an **exit site**.

73. The first part of translation is called \_\_\_\_\_\_\_\_\_\_\_\_.

74. The small ribosomal subunit attaches to what codon on mRNA?

75. Once the mRNA and small subunit attach, what happens next?

76. Sketch an label a ribosome with both its subunits, its 2 tRNA sites, and the attached mRNA transcript.

77. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_ moves along the mRNA strand \_\_\_\_\_\_\_\_ codon at a time.

78. How many tRNA's will fit into a ribosome at one time?

79. What happens to the two amino acids carried by the 2 tRNA's inside a ribosome?

80. The joining of amino acids by \_\_\_\_\_\_\_\_\_\_\_ bonds is the second part of translation called \_\_\_\_\_\_\_\_\_\_\_\_\_\_.

81. Once an amino acid is joined to the growing polypeptide chain, the tRNA leaves the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to pick up another \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

82. When a tRNA leaves the ribosome, the ribosome moves down the \_\_\_\_\_\_\_\_\_ strand allowing another \_\_\_\_\_\_\_\_ and its amino acid to enter.

83. each time the ribosome moves, it moves over \_\_\_\_\_\_\_\_\_ codon.

84. The last stage of translation is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

85. Name the 3 termination codons.

86. The sequence of amino acids in the polypeptide chain is called the \_\_\_\_\_\_\_\_\_\_\_\_ protein structure.