RNA Study guide

Chapter 13

1. What is RNA? single strand - helps to make proteins
2. Name the base unit of RNA? nucleotide
3. What is the shape of RNA? single strand
4. Name the sugar in RNA? ribose
5. Name the bases in RNA. A, T, G, Uracil
6. What makes up the sides of the single helix? sugar + phosphate alternating
7. What makes up the middle part of the helix? bases
8. Explain 3 main differences between DNA and RNA molecules. — sugars — Bases — structure
9. What is the function of mRNA? takes DNA message & brings to ribosome
10. What is the function of tRNA? brings amino acid
11. What is on the top of a tRNA? Bottom? top = amino acid bottom = anticodon
12. What is the function of rRNA? brings mRNA & tRNA together
13. What are the 2 steps in protein synthesis? transcription + translation
14. What is the genetic code? the codons matched to certain amino acids
15. What is a codon? What is it on? What is it complementary too? on mRNA 3 bases
    ↳ anticodon
16. What is an anticodon? What is it on? What is it complementary too?
    ↳ tRNA ↳ mRNA
17. Why do organisms need to go through protein synthesis? –
18. What is the difference between an intron and exon? → code for particular proteins
    ↳ do not code
19. How/what does RNA polymerase do in transcription? matches mRNA to DNA
20. What is the purpose of a promoter? starts process
21. Name the amino acids from the following mRNA codons: AUG (start) AAC (asparagine) UCU (serine) CAC (histidine) GAU (aspartic acid) UAA. (stop)
22. Where does transcription take place in a cell? nucleus
23. Where does translation take place in a cell? cytoplasm
24. If the codons are: AUG CCC UUU AGA AAG UGA, what is the anticodon sequence? UAC GGG AAA UCU UUC ACU
25. What is the Central Dogma of Biology? DNA → RNA → proteins
26. Define mutation. heritable changes in genetic info
27. Explain a point mutation. change in 1 nucleotide UAC → UAG
28. Explain a frameshift mutation. all amino acids shifted UAC → UA_ delete so others "shift" down
29. What is polyploidy? extra sets of chromosomes
30. What type of organisms can survive polyploidy? plants

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Chapter 12

DNA Study Guide

1. What is DNA? copy of heredity info
2. Name the base unit of DNA? nucleotide
3. What is the shape of DNA? double helix
4. Name the sugar in DNA? deoxyribose
5. Name the bases in DNA. Adenine, Thymine, Cytosine, Guanine
6. What makes up the sides of the double helix? sugar + phospate alternate
7. What makes up the "rungs" of the (ladder) double helix? bases
8. Explain Chargaff's Rule. A match to T G match to C
9. What happened in Griffith's experiment? transformation caused by DNA
10. What did Avery prove?
11. What did Hershey and Chase prove?
12. What did Franklin find? the shape of DNA
13. What technique did she use? Xray diffraction
14. What is Watson and Crick credited for? discovery DNA
15. What is antiparallel? 1 strand of DNA - other is opposite
16. What does a prokaryotic DNA look like? Where is it in the cell? in a ring, no nucleus
17. What does a eukaryotic DNA look like? Where is it in the cell? chromosomes, in nucleus
18. List the 3 parts to DNA replication. unwind, base pairing, joining
19. When does DNA replication take place? S phase of cell cycle
20. Explain the Unwinding stage of DNA replication. DNA helicase (enzyme) breaks bases bonds to unwind
21. Explain the Pairing stage of DNA replication. DNA polymerase (enzyme) adds complimentary base
22. Explain the Joining stage of DNA replication. DNA rewinds back up
23. What is the purpose of DNA polymerase? adds complimentary base A→T, G→C
24. What is a telomere? cap on end of chromosomes
25. If the original DNA strand is TAC GGC ATC GAT, what is the replicated strand?

ATG CCG TAG CTA

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