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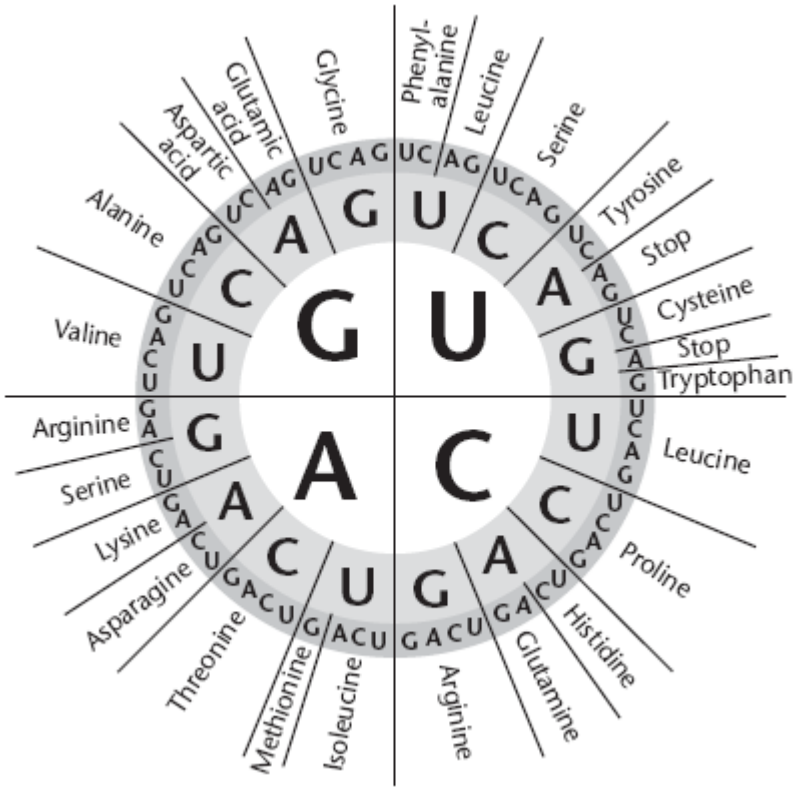
13.2 Ribosomes and Protein Synthesis pg. 366-371

Lesson Objectives

- Identify the genetic code and explain how it is read.
- Summarize the process of translation.
- Describe the "central dogma" of molecular biology.

The Genetic Code

Use the diagram to answer Questions 1–7.



1. What are the words along the outside of the circle?

_____

2. What can you find by reading this diagram from the inside out?

_____

3. For which amino acid is AAA a codon?

_____

4. What is the codon for tryptophan?

_____

5. For which amino acid is GGA a codon?

_____

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6. What is a codon for alanine?

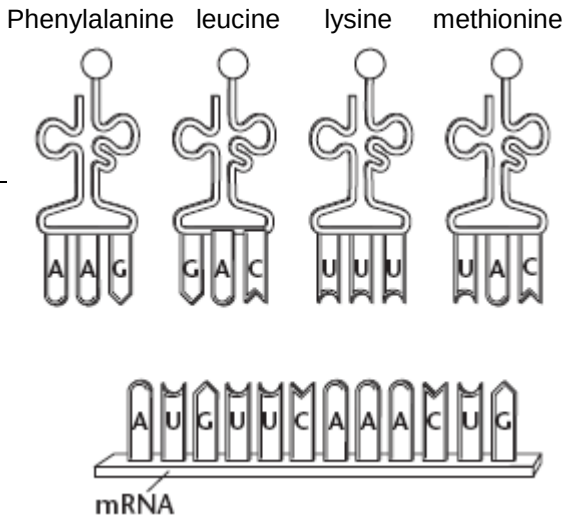
_____

7. What are three other codons for alanine?

_____

Translation

Use the diagram to answer Questions 8–10.



8. What is the anticodon for leucine? _____

9. What is the codon for leucine? _____

10. List the amino acids in the order they would appear in the polypeptide coded for by this mRNA.

_____

11. What is the difference between transcription and translation?

_____

_____

_____

12. Complete the table to describe the steps in protein synthesis

Step	Description
Beginning of translation	
Assembly of polypeptide	
Completing the polypeptide	

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The Molecular Basis of Heredity

For Questions 14–18, write the letter of the correct answer on the line at the left.

_____ **14.** The instructions for assembling proteins are contained in the

A. genes.

B. ribosomes.

C. exons.

D. introns.

_____ **15.** The central dogma of molecular biology is that information is transferred from

A. RNA to protein to DNA.

B. DNA to protein to RNA.

C. protein to DNA to RNA.

D. DNA to RNA to protein.

_____ **16.** An exception to the central dogma is

A. the infection of a virus by a bacteriophage.

B. the ability of some viruses to transfer information from RNA to DNA.

C. the expression of different genes during different stages of development.

D. the translation of the codon into the anticodon of tRNA.

_____ **17.** The way in which DNA, RNA, and proteins are all involved in putting genetic information into action in living cells is called

A. translation.

B. transcription.

C. gene expression.

D. viral transfer.

_____ **18.** All organisms are mostly the same in

A. the proteins they make on their ribosomes.

B. how their proteins catalyze chemical reactions.

C. the size of their genes.

D. the molecular biology of their genes.

Apply the Big idea

19. Whether the organism is a pea plant or a human being, the information in the DNA of the cell's nucleus directs synthesis of proteins in the cytoplasm. Why, then, are pea plants and human beings so different?

_____

_____