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Date: March 8, 2021

Student Exploration: RNA and Protein Synthesis

Directions: Follow the instructions to go through the simulation. Respond to the questions and prompts in the orange boxes.

Vocabulary: amino acid, anticodon, codon, gene, messenger RNA, nucleotide, ribosome, RNA, RNA polymerase, transcription, transfer RNA, translation

Prior Knowledge Questions (Do these BEFORE using the Gizmo.)

1. Suppose you want to design and build a house. How would you communicate your design plans with the construction crew that would work on the house?

To communicate my design plans with the construction crew, I would show them my plan and I would then tell them how to do it.

2. Cells build large, complicated molecules, such as proteins. What do you think cells use as their "design plans" for proteins?

I think cells use DNA as their "design plans" for proteins.

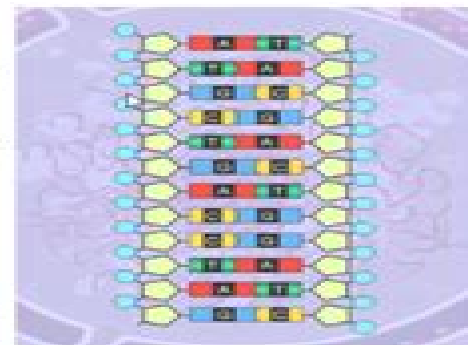
Gizmo Warm-up

Just as a construction crew uses blueprints to build a house, a cell uses DNA as plans for building proteins. In addition to DNA, another nucleic acid, called **RNA**, is involved in making proteins. In the *RNA and Protein Synthesis* Gizmo, you will use both DNA and RNA to construct a protein out of **amino acids**.

1. DNA is composed of the bases adenine (A), cytosine (C), guanine (G), and thymine (T). RNA is composed of adenine, cytosine, guanine, and uracil (U).

Look at the SIMULATION pane. Is the displayed segment a part of a DNA or RNA molecule? How do you know?

It is a part of a DNA molecule, since there is a double helix.



2. **RNA polymerase** is a type of enzyme. Enzymes help chemical reactions occur quickly. Click the **Release enzyme** button, and describe what happens.

The enzymes split the hydrogens bonds in the middle.

Gizmo Answers For Rna And Protein Synthesis

M Mark



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