

Name: _____ Dr. C _____

QUIZ #1 (graded)

1. In what ways does the handling (storage, copying, and retrieval) of information by cells resemble the handling of information by computers?

There are many parallels, and you didn't have to cover them all, but here are a few:

- *The genome is a cell's equivalent of a computer's hard drive, where information is stored permanently.*
- *Just as the hard drive is divided into files, the genome is divided into genes. Special sequences flag the start and end of files/genes for easier retrieval.*
- *When information is copied from the genome/hard drive, the copy that is made is often temporary (like mRNA). The original gene/file is not destroyed in this process.*
- *Information is generally copied or retrieved one gene at a time or one file at a time.*
- *Just as software is needed to move data around in a computer, enzymes are needed to process genetic information.*
- *Information is stored in a code. In a computer, the code is a binary code, consisting of 0s and 1. In cells, the code involves the bases A, G, C, and T/U.*

2. Where does translation happen in cells? What components are needed for it to occur, and what role does each component play?

Translation occurs at ribosomes, which are made up of protein and ribosomal RNA (rRNA). For translation to occur, there must be an mRNA strand to translate. The triplet codons of the mRNA dictate the identity and sequence of the amino acids to be joined together. For this translation to occur, there must also be tRNA molecules that have anticodons complementary to the codons and that carry the corresponding amino acids.