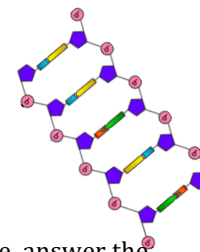


Bioman Protein Synthesis Activities



PROTEIN SYNTHESIS RACE GAME

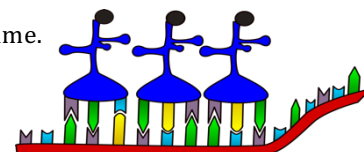
- Play Protein Synthesis Race Game. <http://bit.ly/2DMHX1e>
- Click "Start a New Game" to begin.
- Read** the game instructions and follow the directions to complete the game. As you play the game, answer the questions on this handout.

Transcription In the Nucleus

- Transcription is the process of copying a gene to make: _____
- Transcription is the first process that must happen in order to make a _____ **but really, we know it is to make a * _____
- In order for transcription to happen, DNA must: _____ using the enzyme * _____
- Only _____ strand of DNA is used for transcription. If read left to right the left side of the template DNA is the * _____ end.
- Before RNA polymerase can bind, what molecule must be attached the promoter region? * _____
- What is the name of the enzyme used to add RNA nucleotides? _____
- What end of the mRNA strand are the nucleotides added? * _____
- What are the complementary RNA nucleotides for the DNA bases? (DNA: RNA) A: _____. T: _____. C: _____. G: _____
- What does the messenger RNA (mRNA) do? _____
- What happens to the DNA molecule after transcription? _____
- Where does the messenger RNA have to travel to after transcription? _____
- What was omitted from this simulation? _____

Transcription - Did You Get It? Answer the multiple-choice questions in the game.

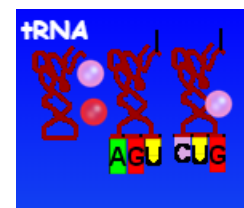
SAVE YOUR GAME!



Translation in the cytoplasm

- In order to start translation a mRNA must bind to a _____
- A **polypeptide** (protein) is a chain of _____
- Codons are triplets of nitrogenous bases on mRNA that code for a specific _____
- The codon AUG codes for the amino acid _____.
- Where is the first codon located in the ribosome? _____
- What is the **anticodon** for AUG? _____
- What determines which amino acid will be brought to the ribosome? * _____
- Except for the **first** tRNA, where do all other tRNA enter the ribosome? _____
- tRNA move from the _____ site to the _____ site, then to the _____ site in the ribosome.

FROZEN??



The game may freeze at this point and not allow you to select the next tRNA. If this happens load your saved game and try again. If it continues to happen, let me know.

- What happens between the amino acids when a new tRNA is added? _____
- What happens to the tRNA in the E site? _____
- Why does the codon UGA stop translation?
* _____
- What happens to the ribosome after translation? _____
- What needs to happen to the polypeptide before it can be considered a functioning protein? _____

The "what is a polypeptide" question is incorrect. It is NOT a protein YET