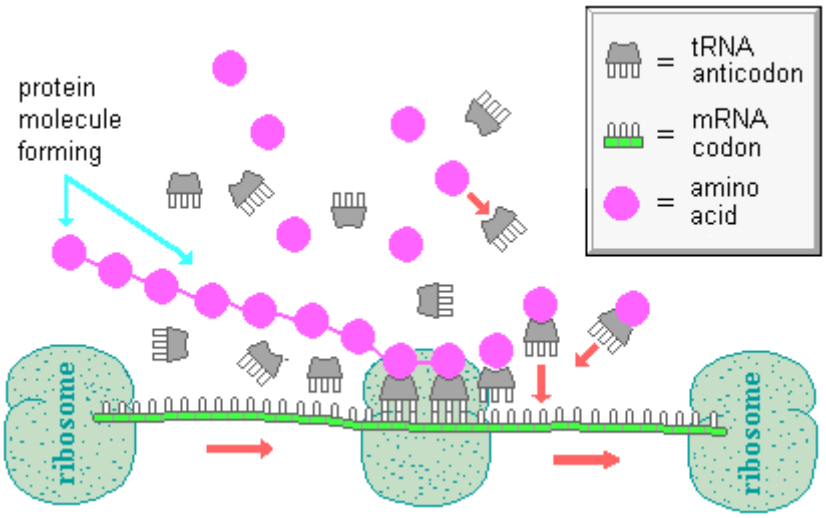
Protein Synthesis Analysis



1. What information or "recipe" is contained within DNA?
The instructions to make a protein are contained in a gene found on DNA.

2. Why is mRNA needed for protein synthesis to occur?
mRNA is needed to deliver the instructions to make a particular protein to the ribosome as DNA is too large to leave the nucleus to go to the ribosome.

3. Where does mRNA go with the recipe? What occurs at this site?
mRNA delivers these instructions to the ribosome, which is the site of protein synthesis.

4. What is the term used for every three nucleotides on mRNA?
Every three nucleotides (bases) on mRNA are referred to as a codon.

5. What do these groups of three nucleotides code for?
These codons code for an amino acid.

6. How is tRNA involved in protein synthesis? tRNA is like the bus or Peapod delivery truck, bringing the ingredients (building blocks) or proteins (amino acids) to the ribosome (protein factory).

7. How are the building blocks joined together to create a polypeptide?

These amino acids (building blocks) are joined together by peptide bonds to form a protein/polypeptide/long chain of amino acids.

8. What signals the ribosome to stop adding amino acids to the polypeptide?

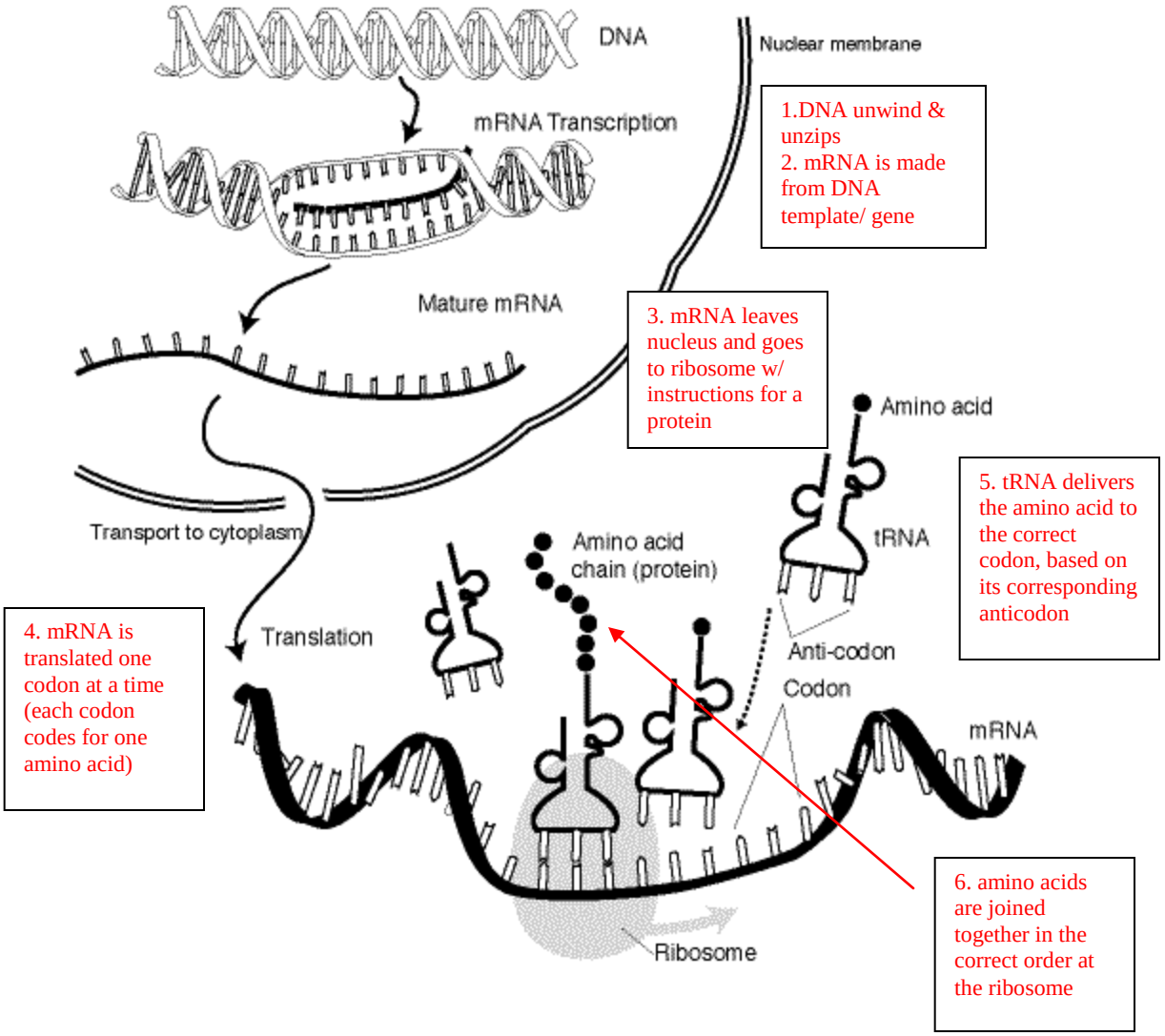
When the ribosome translates a "STOP" codon it is signaled to release the protein/ polypeptide to go on through the ER to the Golgi body to be packaged into the proper shape for use.

9. How does the nucleus help maintain homeostasis with regards to protein synthesis?

The nucleus determines which proteins are made and when in a cell, allowing levels of hormones, enzymes etc. to be kept within a normal range for that organism. (too much insulin in the blood, would lower your blood glucose to dangerous levels, and too little could cause a spike in blood glucose, also very dangerous)

10. If there are only 20 different amino acids, how can there be so many different types of proteins?

These 20 amino acids are arranged in numerous combinations, resulting in the over 2 million different types of protein found in nature.



1.DNA unwind & unzips
2. mRNA is made from DNA template/ gene

3. mRNA leaves nucleus and goes to ribosome w/ instructions for a protein

4. mRNA is translated one codon at a time (each codon codes for one amino acid)

5. tRNA delivers the amino acid to the correct codon, based on its corresponding anticodon

6. amino acids are joined together in the correct order at the ribosome

*7 amino acid chain continues to grow until a STOP codon is translated, at which point the protein is released from the ribosome