

DNA/ protein synthesis word list

1. Complementary base pairs- The nucleotides that fit together to form the DNA double helix, adenine with thymine and cytosine with guanine .

Here is a visual, if the original strand of DNA has the following bases: A T C G A T T C G A T
Then... the complimentary bases would be: T A G C T A A G C T A

2. Replication- the process of copying the original strand of DNA to form a new, IDENTICAL, strand of DNA so that when the cell divides the daughter cells have the same exact genetic information as the parent cell.

3. Mutation- any change in someone's strand of DNA, it could be a few letters (bases) or just one base.

4. Protein synthesis- using a cells DNA to code for and then make a specific protein needed by the cell, three types of RNA are needed to do this.

5. Trait- a physical characteristic or feature of a person (ex; brown hair, tall, diabetic, blue eyes)

6. Genes- the segments of a person's DNA that code for a certain trait.

7. Transcription- when mRNA copies a segment of DNA in order to take the message out of the nucleus and to a ribosome. It must be written in the RNA's language which uses Uracil in place of thymine for a nitrogen base. The uracil still pairs up with Adenine.

8. mRNA- messenger RNA is the RNA responsible for sneaking into the nucleus of a cell and copying off a certain piece of DNA and then carrying that piece of the code out to a ribosome.

9. Codon- three letters of a mRNA strand that determine which amino acid is to be made by a ribosome.

10. Translation- when the code made by the mRNA gets turned into an amino acid in a ribosome.

11. rRNA- is ribosomal RNA, it's what makes up the ribosome and turns a mRNA codon strand into an amino acid strand.

12. tRNA- is the type of RNA that puts all of the amino acids in the correct order to form the proper protein. It has a complimentary RNA code for the newly produced amino acid to hook on to.

13. Peptide bond- it's what connects one amino acid to another to make a complete protein. a long chain of these amino acids can be referred to as either a protein or a polypeptide.

14. Hydrogen bond- weak bond that holds nitrogen bases (A with T or C with G) together.

15. Anti-codon- located at the bottom of the tRNA , it has the opposite nitrogen bases of the codon and its purpose is to make sure that the amino acids are returned to the proper place on

the mRNA strand being translated at the ribosome! This insures that the codons are put in the correct order, regardless of who gets back to the ribosome first.

Use these links to help you visualize what's going on:

DNA replication <https://www.youtube.com/watch?v=TNKWgcFPHqw>

proteins synthesis (RNA and transcription/ translation tutorial)

🔴 From DNA to protein - 3D

Factory analogy of protein synthesis

<https://www.youtube.com/watch?v=DuHAMkgT6B8>

BIG PICTURE STUFF: DNA and heredity

<http://learn.genetics.utah.edu/>

DNA/RNA song

I hope you enjoy this, my son helped me write it! The Replication, transcription and translation song – to "The Adam's Family" theme song

There's adenine and thymine
Cytosine and guanine
A phosphate and a sugar
And that makes DNA
DNA(clap, clap) DNA(clap, clap) DNA,DNA, DNA (clap, clap)

When thymine goes a missin'
Uracil is there to listen
It sends a little message
Because it's RNA
RNA (clap, clap) RNA (clap, clap) RNA, RNA, RNA (clap, clap)

Transcription's then completed
the code gets translated
acids are created
Then proteins are made!
Hip hip hooray! (clap, clap) Hip hip hooray! (clap, clap)
proteins are made, proteins are made, proteins are made!!!! (clap, clap)

THE STRUCTURE OF AN ACTUAL DNA STRAND IS SIMPLE AND BASIC, IT'S THE PATTERN OF THE CODE AND THE LENGTH OF THE CHAIN THAT MAKE DNA VALUABLE AND YOU UNIQUE!!!!

REMEMBER YOUR ORGANIC COMPOUNDS? THE SMALLEST FUNCTIONAL UNIT OF A NUCLEIC ACID IS A PHOSPHATE, A SUGAR AND A NITROGEN BASE EITHER ADENINE, THYMINE, CYTOSINE, GUANINE (URACIL REPLACES THYMINE IF IT IS A STRAND OF RNA INSTEAD OF DNA)