

AND DNA

Genes are located on chromosomes
in the nucleus of most cells.

Chromosomes are made of protein
and DNA as well.

DNA has four subunits
known as nucleotides.

And each nucleotide has a sugar,
a phosphate, and a base inside.

The four bases are adenine,
thymine, guanine and cytosine.
Adenine binds to thymine,
while guanine and cytosine bind.
Groups of three code for aminos.
Long strings of amino acids make
proteins which send messages
determining our traits.

*Adenine binds to thymine,
while guanine and cytosine bind.*

Mutations, caused by mutagens like radiation,
occur when the order of bases
in DNA changes.

With genetic engineering they
use mutations in a beneficial way
to make desired proteins,
fix damaged genes
and keep diseases at bay

*Adenine binds to thymine,
while guanine and cytosine bind.*

A deletion mutation is
when a base is left out.
When a base is added
insertion mutations come about.

Lyrics and music by Bram Barker <http://brambarker.com/>

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Structure-what is DNA composed of?

Function-how does DNA work?

Application-how does understanding genetics benefit us?

Structure:

- Genes are located on chromosomes, which are in the nucleus of most cells.
- Chromosomes are made of protein and DNA, short for deoxyribonucleic acid.
- DNA is made of four subunits known as nucleotides. Each nucleotide has a sugar, a phosphate, and a base.
- The four bases are adenine, thymine, guanine, and cytosine. (Bram, this is very fundamental)
- Adenine binds to thymine while guanine binds to cytosine. (This too is most fundamental).

Function:

- Groups of three bases code for a specific amino acid. For example, AGC makes serine.
- Long strings of amino acids form proteins, and proteins send the chemical messages that determine all our traits: how tall we will grow, what colors we see, whether our hair is curly or straight.
- Mutations occur when the order of bases in an organism's DNA changes. Mutations are caused by mutagens, like radiation.
- A deletion mutation is when a base is left out. An insertion mutation is when an extra base is added.

Application:

- Genetic engineering is a way scientists use mutations in a beneficial way. It is used to manufacture desired proteins, repair damaged genes, and cure diseases.
- A pedigree is a sort of family tree that follows traits through generations of a family. It is useful to predict whether a person carries an allele for a hereditary disease.