We study DNA for many reasons, including:

1. Its central \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to all life on Earth
2. It leads to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ benefits such as \_\_\_\_\_\_\_\_\_\_\_\_\_ for \_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. It helps us \_\_\_\_\_\_\_\_\_\_\_ better food crops

Review: The Shape of the DNA Molecule

* DNA is a very long \_\_\_\_\_\_\_\_\_\_\_\_\_ (poly = many)
* The basic shape is like a twisted \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_.
* The name for this shape is a “\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_”

DNA Model

* DNA is made of \_\_\_ different nitrogen \_\_\_\_\_\_\_\_\_\_\_ that are but in a different order to make different genes:

A\_\_\_\_\_\_\_\_\_\_\_\_\_ T\_\_\_\_\_\_\_\_\_\_\_\_\_ G\_\_\_\_\_\_\_\_\_\_\_\_\_ C\_\_\_\_\_\_\_\_\_\_\_\_\_

Two Stranded DNA

* Remember, DNA has \_\_\_ strands that \_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ something like a zipper.

Hydrogen Bonds

* The bases stick together because of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ bonds. Hydrogen bonds are weak but there are millions and millions of them in a \_\_\_\_\_\_\_\_\_\_\_\_\_ molecule of DNA.
* When making hydrogen bonds:
  + \_\_\_\_\_\_\_\_\_\_\_\_\_ ALWAYS pairs up with \_\_\_\_\_\_\_\_\_\_\_\_\_
  + \_\_\_\_\_\_\_\_\_\_\_\_\_ALWAYS pairs up with \_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + This is called “**Chargraff’s \_\_\_\_\_\_\_\_”**

DNA by the Numbers

* Each cell has about \_\_\_\_ meters of DNA
* The average human has \_\_\_\_\_ trillion cells

DNA Replication

* When the cell wants to \_\_\_\_\_\_\_\_\_\_\_\_\_ it has to copy its insides first, including its \_\_\_\_\_\_\_\_.
* You’d first need to be able to read the DNA to copy it…
* So the cell “\_\_\_\_\_\_\_\_\_\_\_\_” the DNA into two separate \_\_\_\_\_\_\_\_\_\_\_. Now you have \_\_\_\_ templates the cell can read and copy.
* The process of DNA replication turns 1 strand of \_\_\_\_\_\_ into \_\_\_\_.
* Each contains one \_\_\_\_\_\_ side of the original DNA and one side made of “\_\_\_\_\_\_” bases
* *Replicate the following DNA sequence, remembering that As go with Ts, and Cs with Gs*:

AGG-CTC-AAG-TCC-TAG