DETAILS OF DNA

WHAT EXACTLY *IS* DNA?

DNA = **Deoxyribonucleic acid**

- A long **molecule**
- The **"blueprint"** for life
- Found in **all** living things
- **double helix** – Twisted ladder shape, with "rungs" of nucleotides

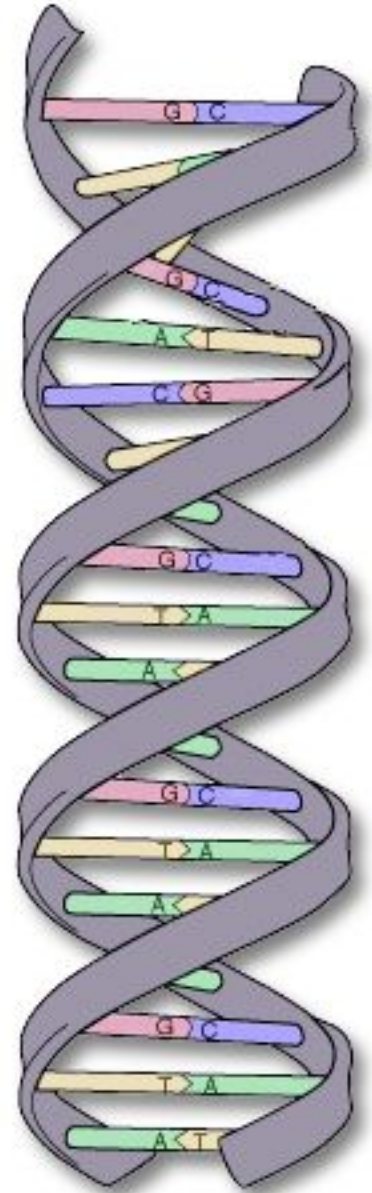**Nucleotide** = A subunit of DNA.

- There are **4** nucleotides:

  Adenine   **Thymine**

  Guanine   **Cytosine**

Base Pair Rule: AT   and   GC   always pair!

- **Adenine** pairs with **Thymine**
- **Guanine** pairs with **Cytosine**
- The rungs of the ladder can occur in any order, as long as the bases pair correctly.

Practice DNA Base Pairing

G   A   T   T   A   C   A   G   C

___ ___ ___ ___ ___ ___ ___ ___ ___

HOW IS DNA A *BLUEPRINT*?

DNA ⇒ amino acids ⇒ protein ⇒ Trait

DNA and Proteins

1. **Proteins** do *everything*! They determine **traits** and control cellular

    functions.

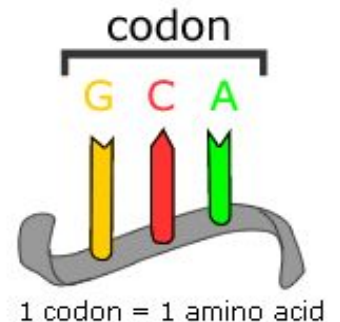2. Proteins are made of **amino acids.**

    Just like the alphabet has 26 **letters** to make all the words we

    know, there are 20 **amino acids** that make all the different

    proteins in living organisms.

3. DNA contains the information to put together strings of amino acids

    that make up proteins.

DNA as a Code

Codon = A group of three DNA bases that code for

one specific amino acid.

    Example: AAA = **Lysine**

codon

G C A

1 codon = 1 amino acid

Practice Codons

DNA Codon: TAT   GCG   AGT

Amino Acids: http://www.cbs.dtu.dk/courses/27619/codon.html