# DNA

## Structure



deoxyribonucleic acid

#### **DNA STANDS FOR**

#### Deoxyribonucleic acid

#### This chemical substance is present in the nucleus of all cells in all living organisms





### DNA STRUCTURE



- DNA consists of two molecules that are arranged into a ladder-like structure called a Double Helix.
- A molecule of DNA is made up of millions of tiny subunits called Nucleotides.
- Each nucleotide consists of:
  - 1. Phosphate group
  - 2. Pentose sugar
  - 3. Nitrogenous base



#### **NUCLEOTIDES**





#### NUCLEOTIDES



• The phosphate and sugar form the backbone of the DNA molecule, whereas the bases form the "rungs".

• There are four types of nitrogenous bases.





## NUCLEOTIDES

• Each base will only bond with one other specific base.





## **BASE-PAIR RULE**

- Adenine <==> Thymine
- Guanine <==> Cytosine
- The sides of the DNA ladder are phosphate & sugar held together by hydrogen bonds



Thymine

Adenine

Guanine

Cytosine

Bond

#### THE DOUBLE HELIX

chain





#### DNA STRUCTURE

 Because of this complementary base pairing, the order of the bases in one strand determines the order of the bases in the other strand.



#### One side: A T A T C A T G C G G G

Other side:

## BASE PAIR RULE

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Image adapted from: National Human Genome Research Institute.







