Rosalind Franklin

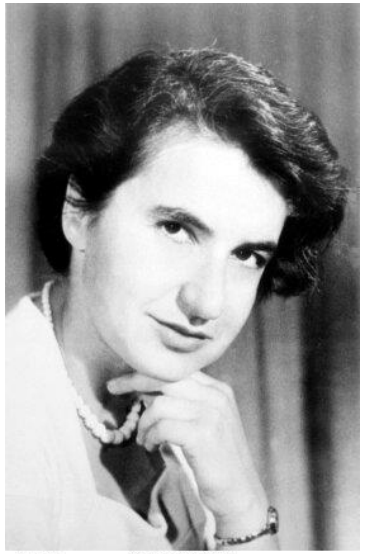
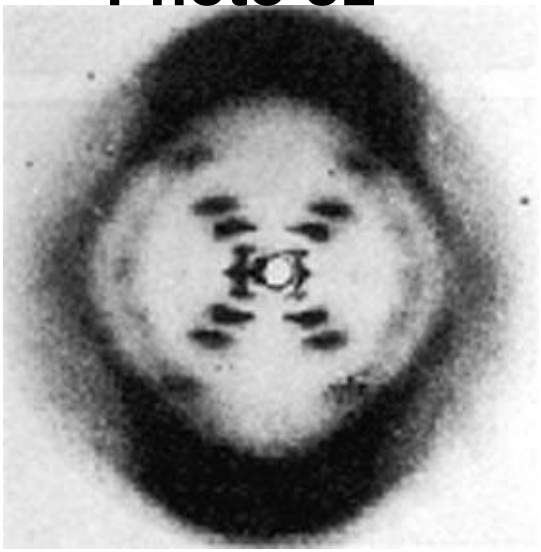
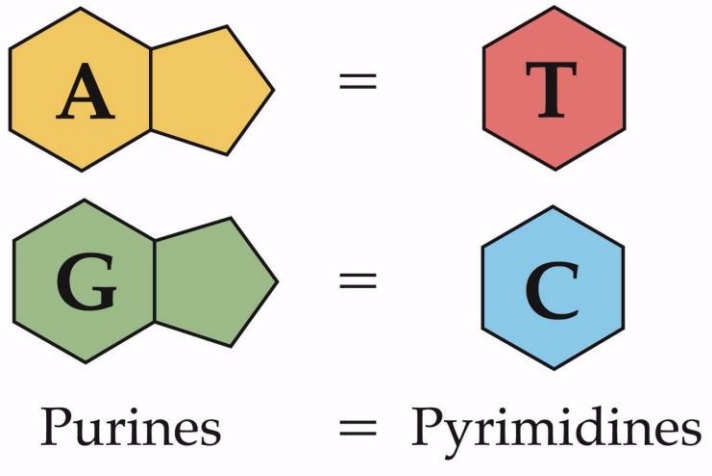


Photo 51



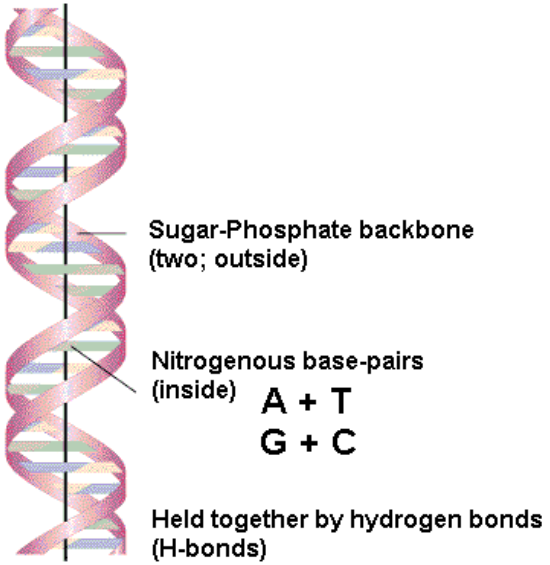
- Rosalind Franklin worked with **X-ray crystallography** to find more clues about the structure of DNA.
- Franklin’s X-ray images suggested a helical structure (**Photo 51**).

Erwin Chargaff



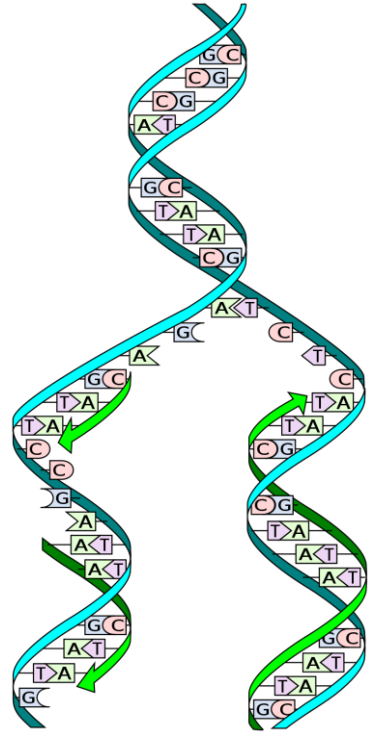
- Discovered that there are always equal amounts of the bases **Adenine** and **Thymine**, and equal amounts of **Cytosine** and **Guanine**.
- Chargaff proposed that these bases pair with one another in some way. Unsure of DNA's overall structure.

James Watson & Francis Crick



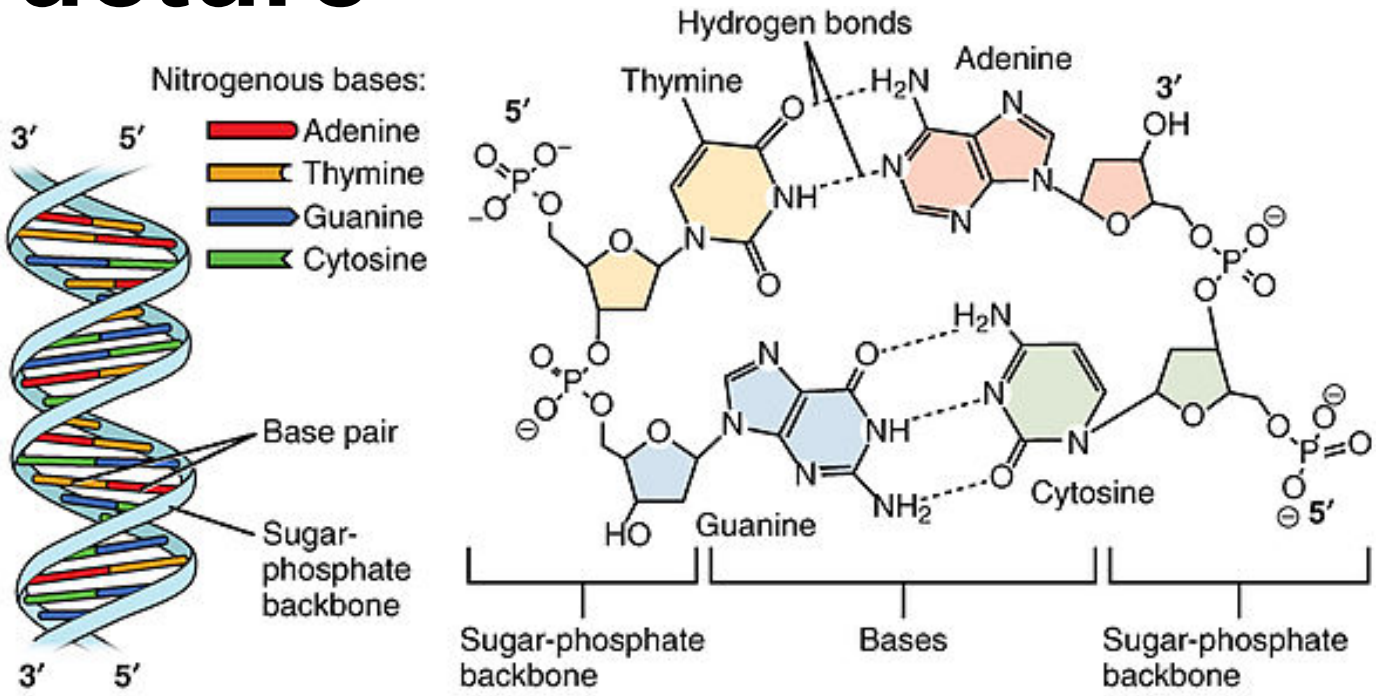
- Created the first accurate model of DNA
- Applied Chargaff's rule, assumed that A always pairs with T, C with G.
- Using Franklin's Photo 51, they were able to confirm DNA's helical structure

DNA Functions



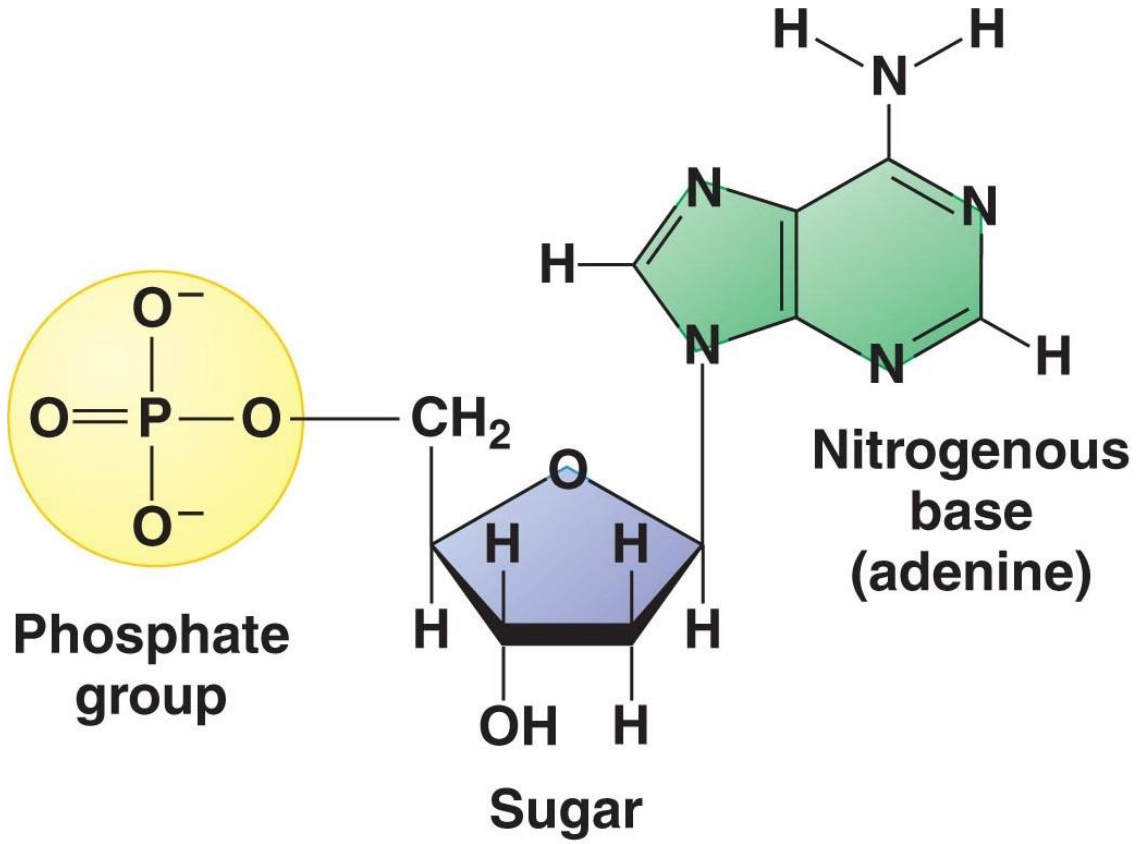
- DNA stores genetic information that is able to be passed from generation to generation
- DNA can be changed due to environmental factors which allows for new variations in genes

DNA's Structure



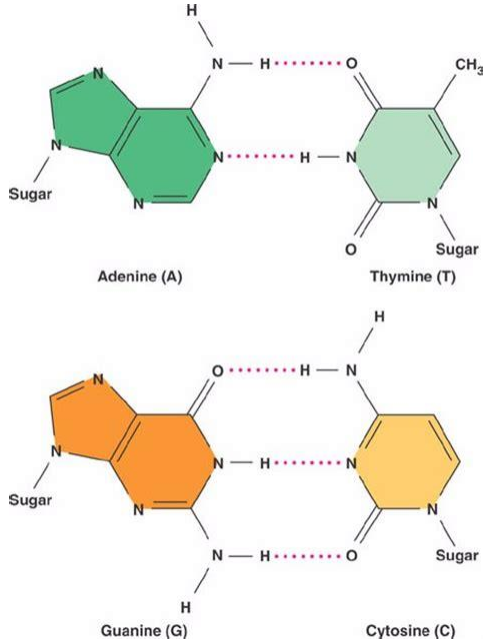
- DNA's forms a "spiral ladder" or **<u>double helix</u>**
- The outside or "**backbone**" of the helix is made up <u>strong covalent bonds</u> between phosphates and sugars
- The inside of the helix is where complementary base pairs <u>hydrogen bond (weak bonds)</u>.

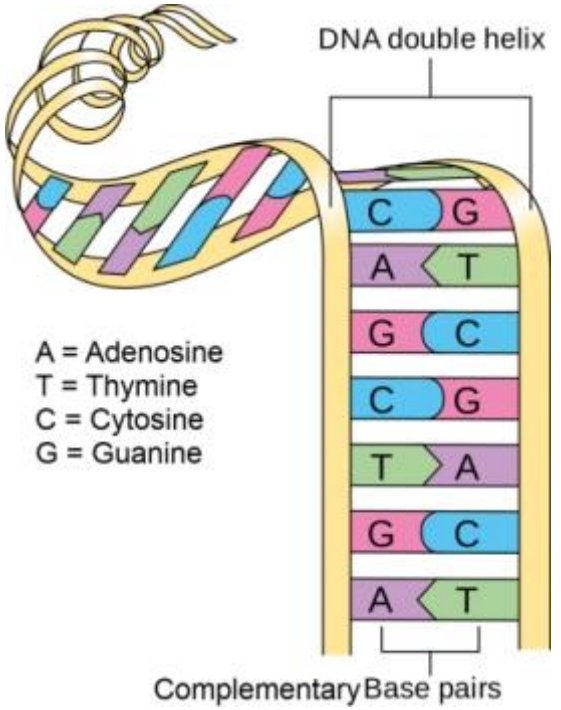
Nucleic Acid



- The monomer to DNA is a nucleic acid
- Nucleic acids are made of a phosphate, sugar (deoxyribose), and a nitrogen base

DNA Base Pairing





- There are 4 nitrogen bases: **A**denine, **G**uanine, **T**hymine, and **C**ytosine
- Each base has a "partner" that makes a complimentary base pair:
  - **A** ←→ **T**
  - **G** ←→ **C**