

# **STRUCTURE OF DNA**

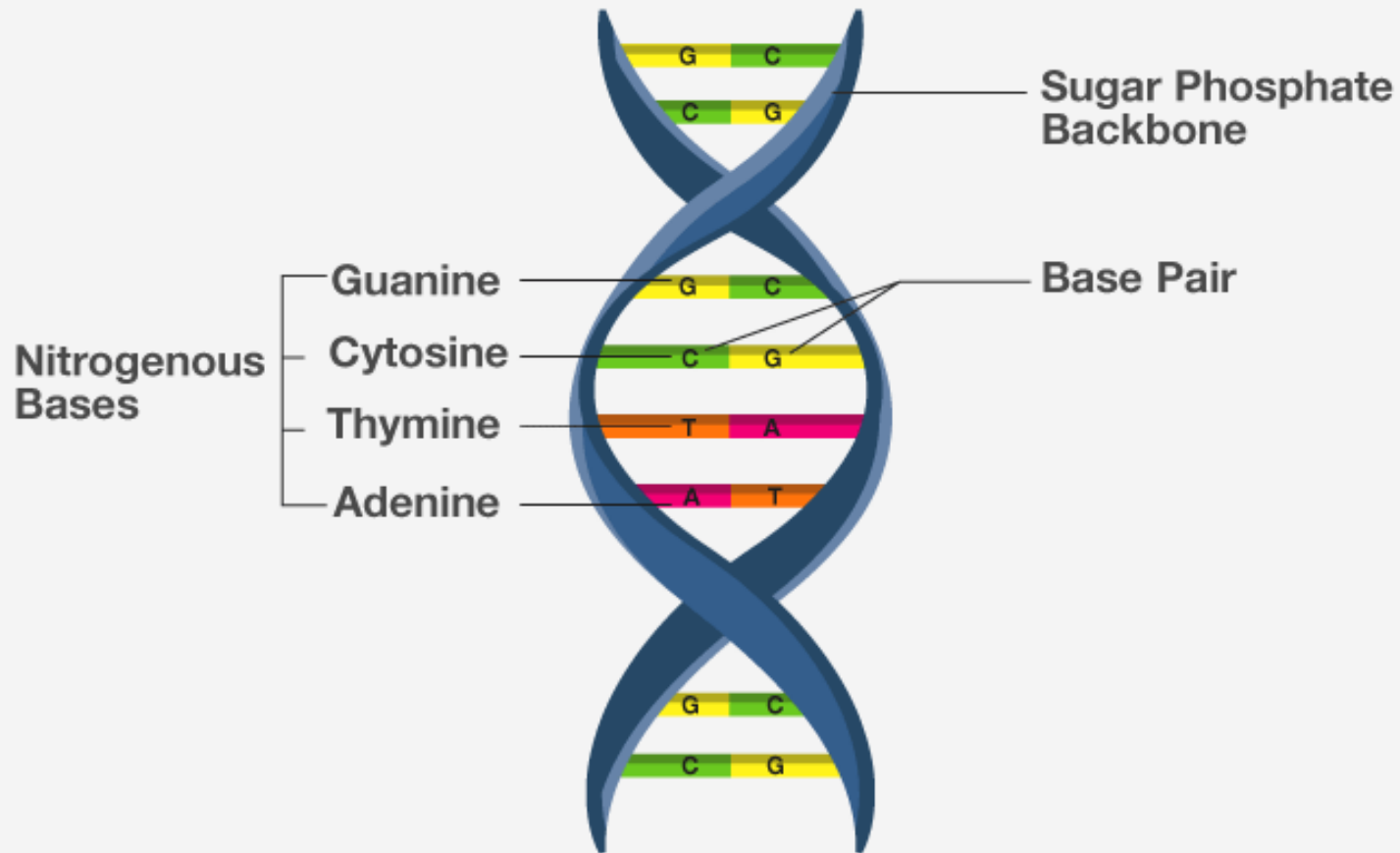
**DR. JESY. E. J.**

DNA

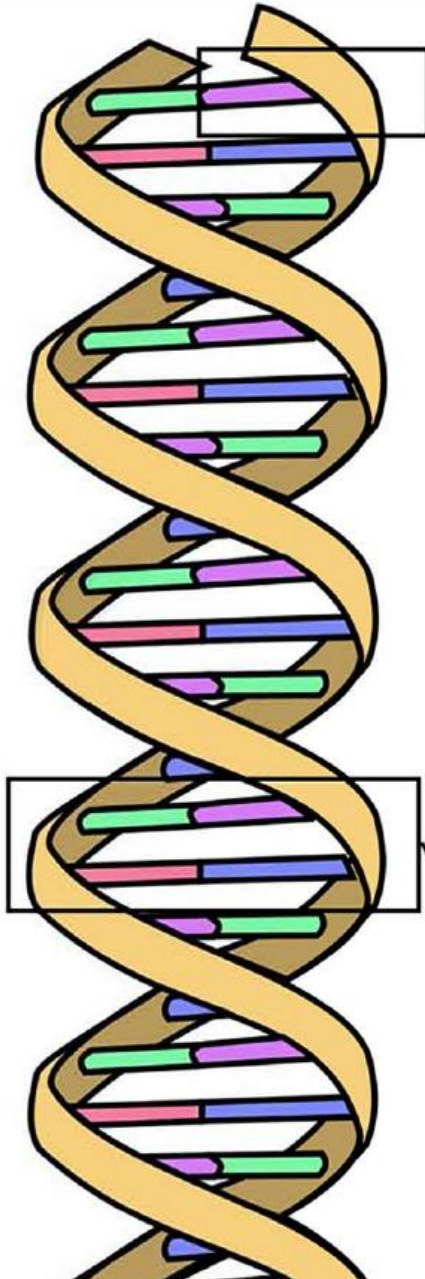


deoxyribonucleic acid

# DNA STRUCTURE

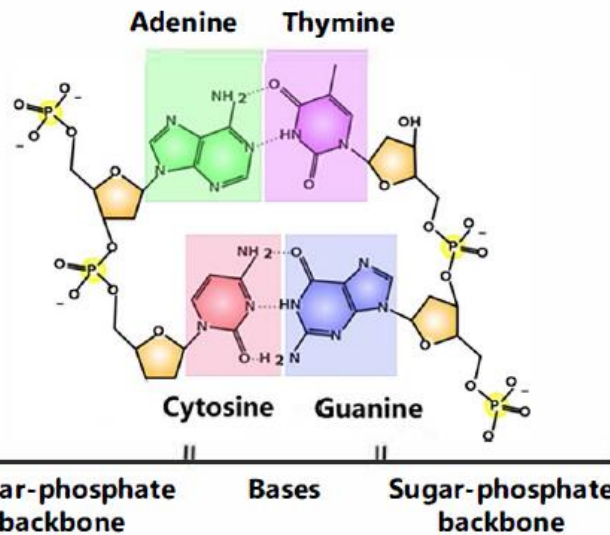
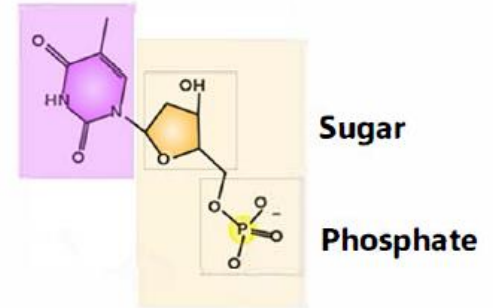


# DNA STRUCTURE



DNA is built from nucleotides, small molecules made of a base, a **sugar**, and a **phosphate**. Many nucleotides bind with each other to make a DNA double helix. The sides of the helix, or the backbone, are made of strands of sugars and phosphates.

**Nitrogenous base**

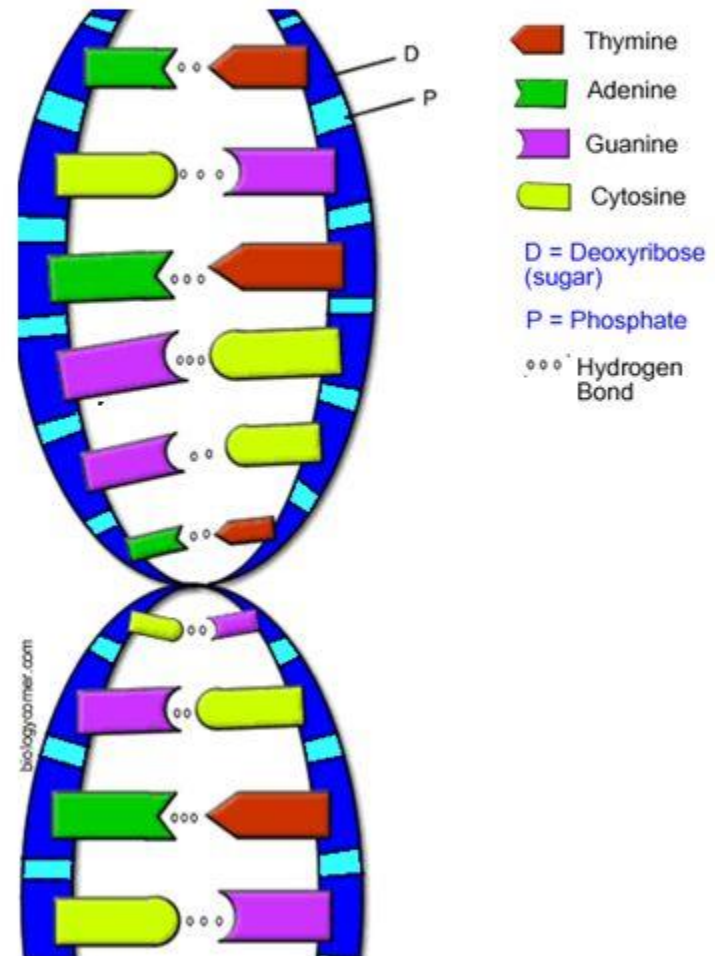


The rungs are made of two bases, one from each side of the helix. There are four bases; **adenine**, **guanine**, **cytosine**, and **thymidine**. Each base can only bind with one other base. Adenine always binds with thymidine, and guanine always binds with cytosine.

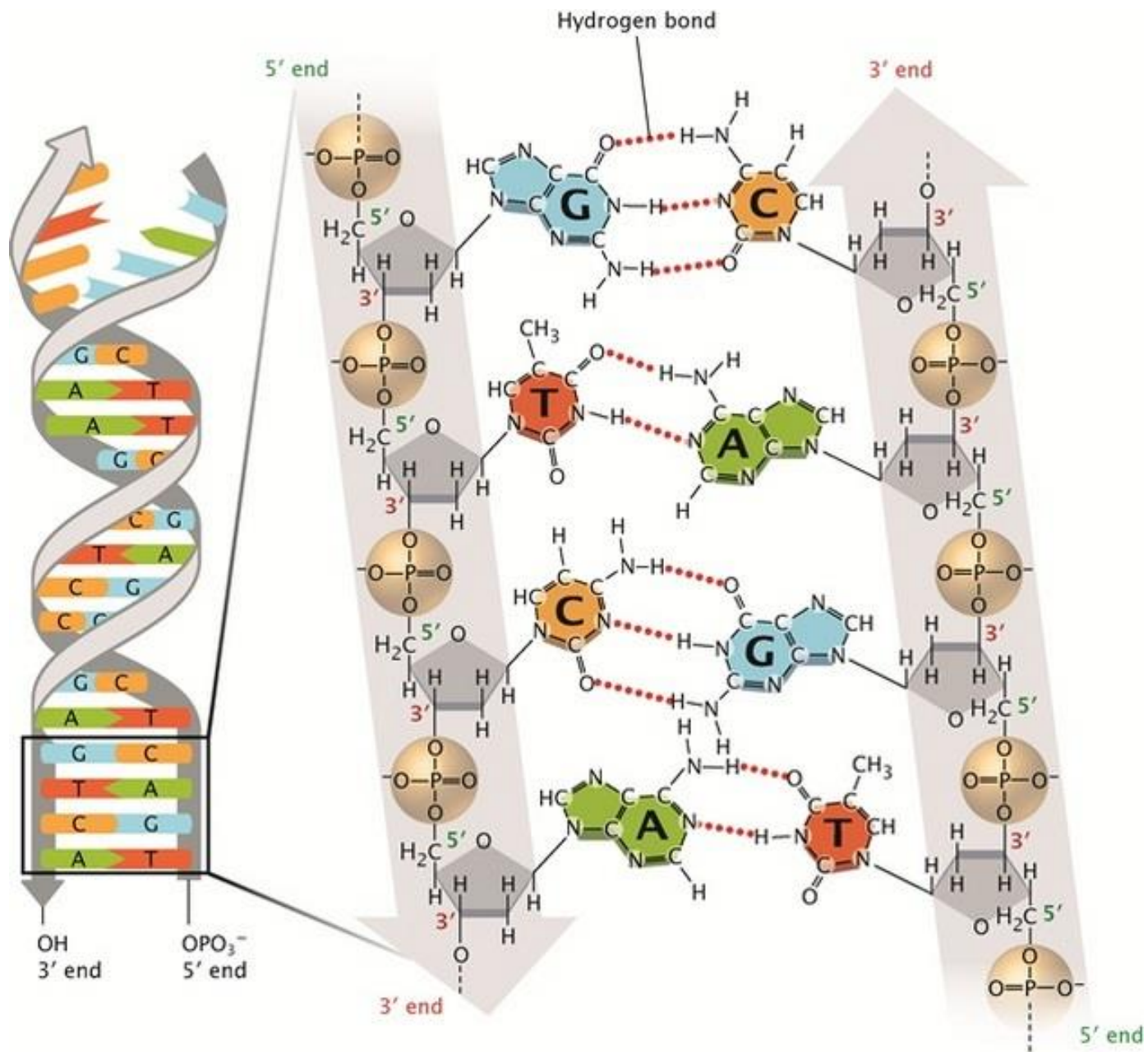


# How is the Structure of DNA related to its function?

- The sequence of bases acts as information storage in the form of codes to build proteins
- The molecules are long to store more information
- The base pairing means that complementary strands of information can be replicated
- The double helix gives the molecule stability
- Hydrogen bonds allow for easy unzipping for copying and reading information









# DNA vs. RNA



DEOXYRIBONUCLEIC ACID

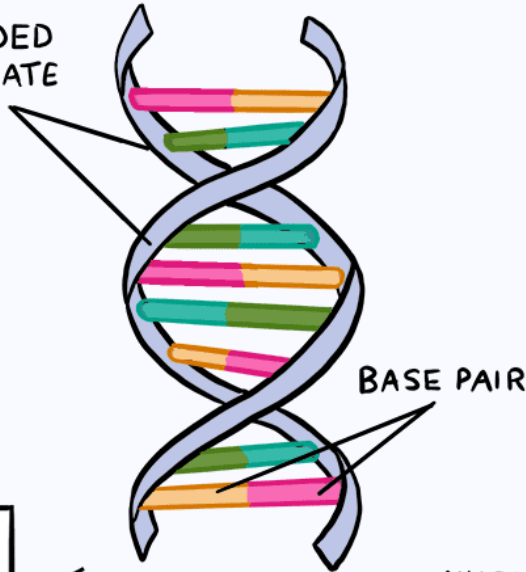
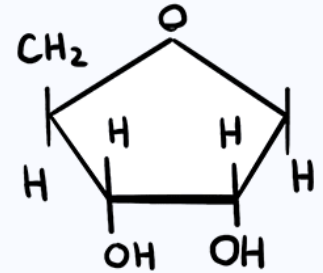
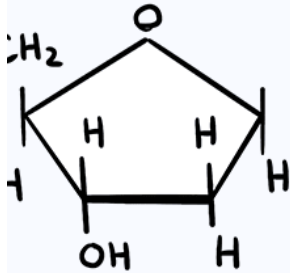
RIBONUCLEIC ACID

DOUBLE-STRANDED  
SUGAR\*PHOSPHATE

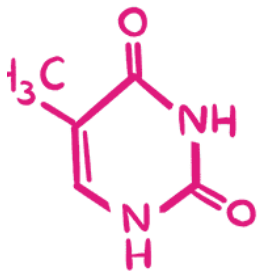
USUALLY SINGLE-STRANDED  
SUGAR\*PHOSPHATE

DEOXYRIBOSE

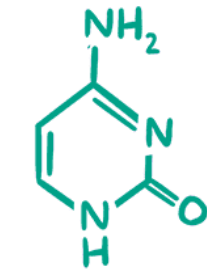
★ RIBOSE



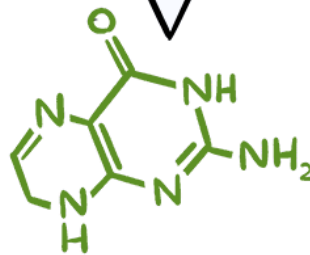
NUCLEOBASES



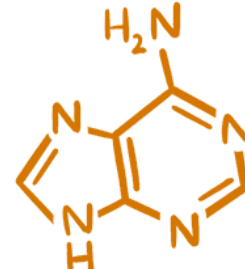
THYMINE



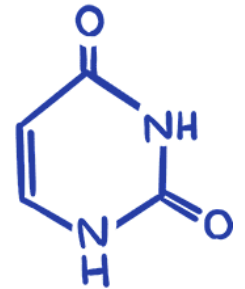
CYTOSINE



GUANINE



ADENINE



URACIL



# DNA - RNA comparison

Characteristic	DNA	RNA
• <b>Monomer</b>	• Nucleotide (P-S-B)	• Nucleotide (P-S-B)
• <b>Sugar</b>	• Deoxyribose	• Ribose
• <b>Bases used</b>	• A,T,C,G	• A,U,C,G
• <b>Usual location</b>	• Nucleus only	• Nucleus AND cytoplasm
• <b>Function</b>	• Carries/transfers genetic info	• Carries/transfers genetic info AND PROTEIN SYNTHESIS
• <b>Structure</b>	• Double strand	• Single strand