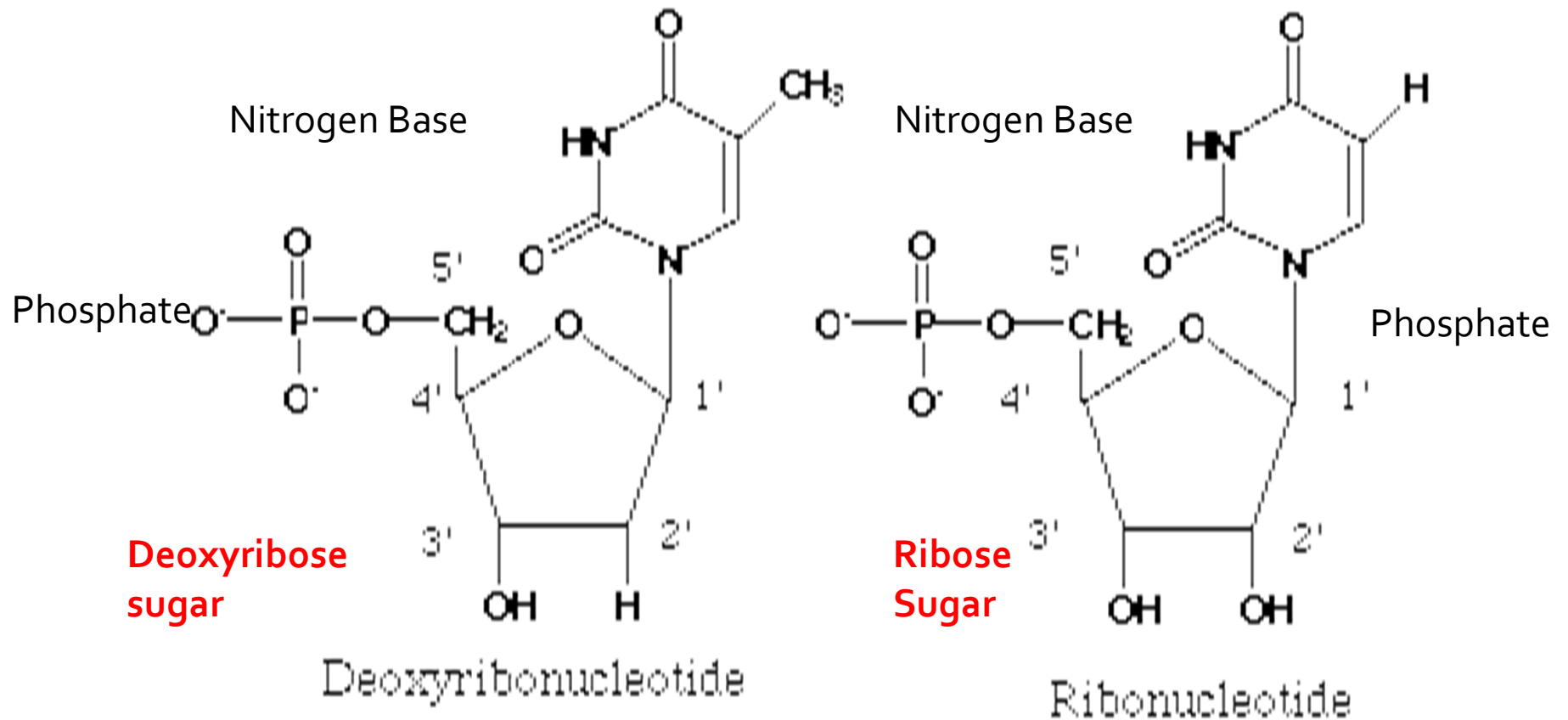


# DNA Structure

- Once they knew it was DNA that carried genes the question became – how was DNA structured?
- 1920's – determined that nucleotides make up DNA
  - Five-carbon sugar
  - Phosphate group
  - Nitrogenous base
  - Two types – DNA and RNA

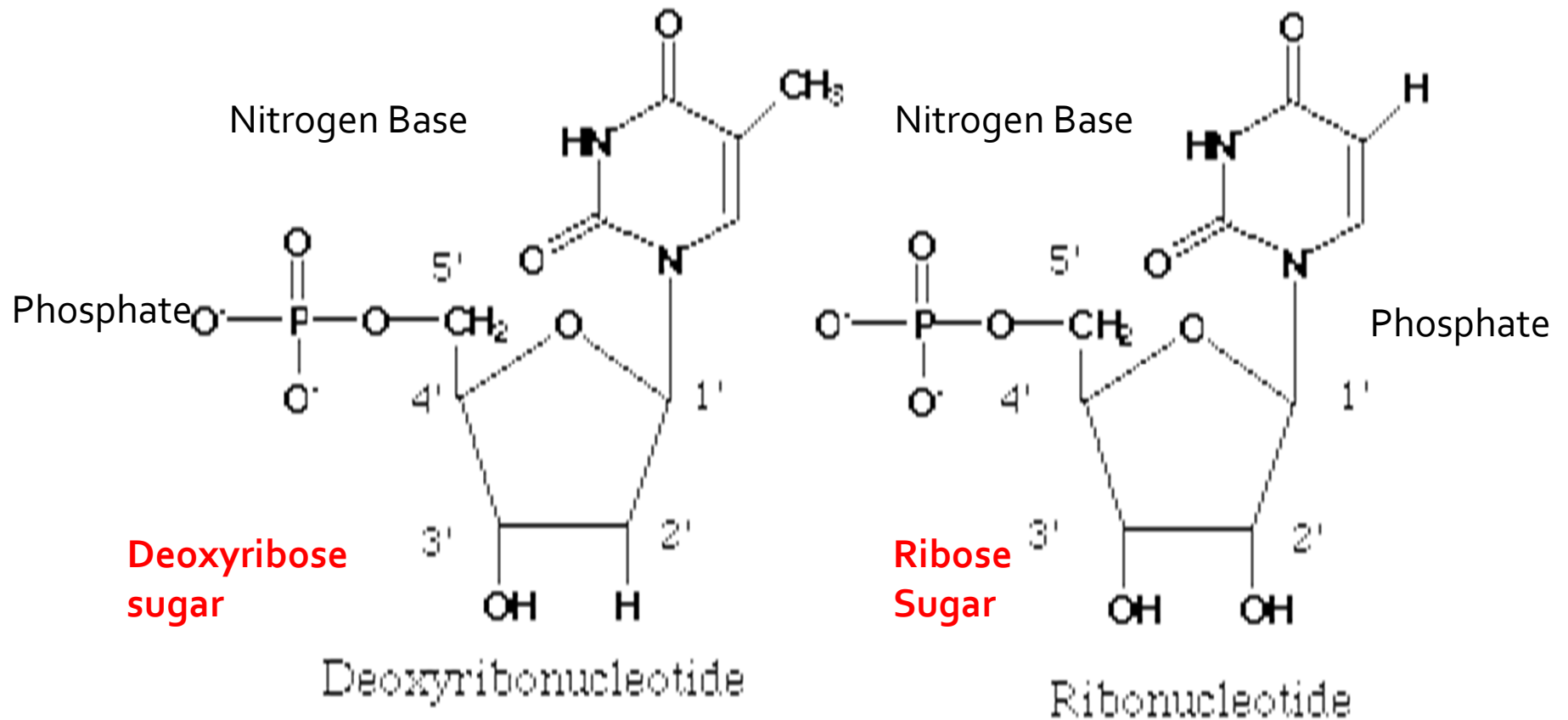
# DNA Structure



# DNA Structure

- Similarities between DNA and RNA
  - Phosphate group
  - A sugar
  - Nitrogen base
    - Cytosine, guanine, thymine bases
- Difference between DNA and RNA
  - DNA – deoxyribose sugar, adenine base, double helix
  - RNA – ribose sugar, uracil base, single strand

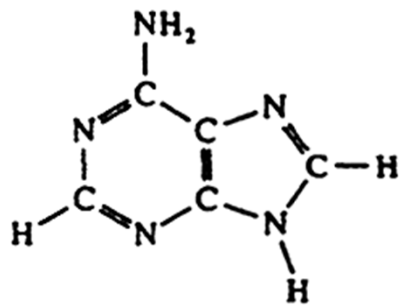
# DNA Structure



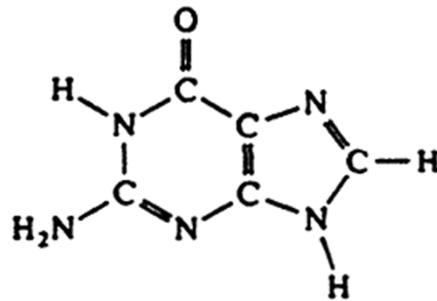
# Nitrogen Bases

- Purine

- Double ringed bases
- Adenine and guanine and uracil



Adenine

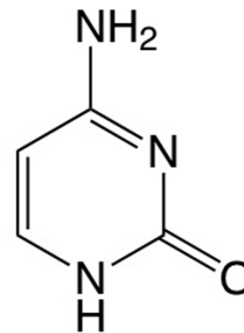


Guanine

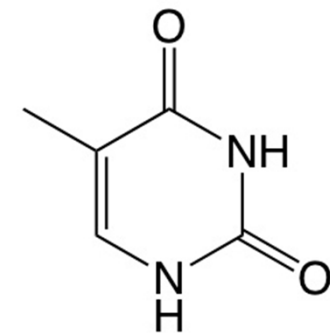
- Pyrimidine

- Single ringed bases
- Cytosine, thymine

Cytosine

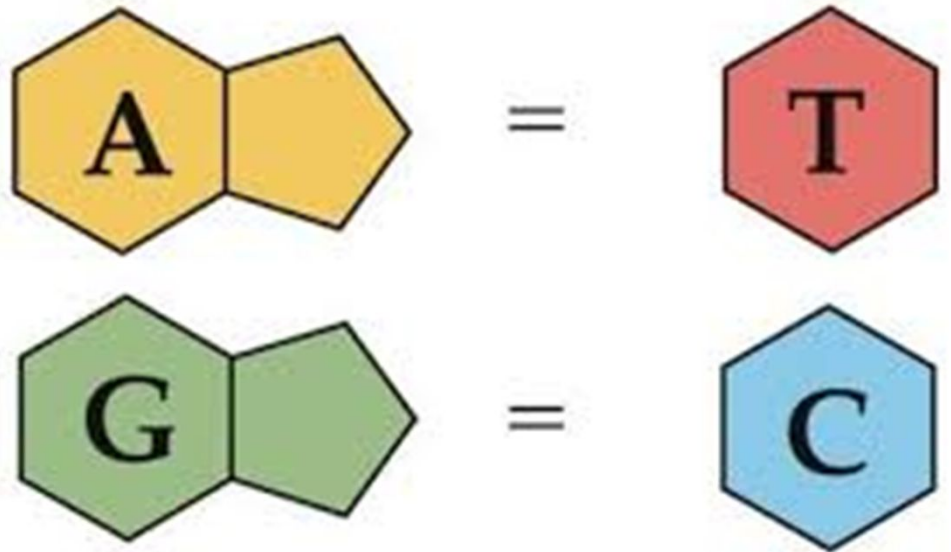


Thymine



# Nitrogen Bases

- Purines ALWAYS pair with pyrimidines
- In DNA, the bases pair:
  - Adenine (A) with thymine (T)
  - Guanine (G) with cytosine (C)
- In RNA, the bases pair:
  - Uracil (U) with thymine (T)
  - Guanine (G) with cytosine (C)



# DNA Structure

- DNA was found to have a **double helix** structure
  - Two strands of nucleotides twisted around each other
  - Two outside strands alternate deoxyribose and phosphate
  - Nitrogen bases pair together through hydrogen bonds

