



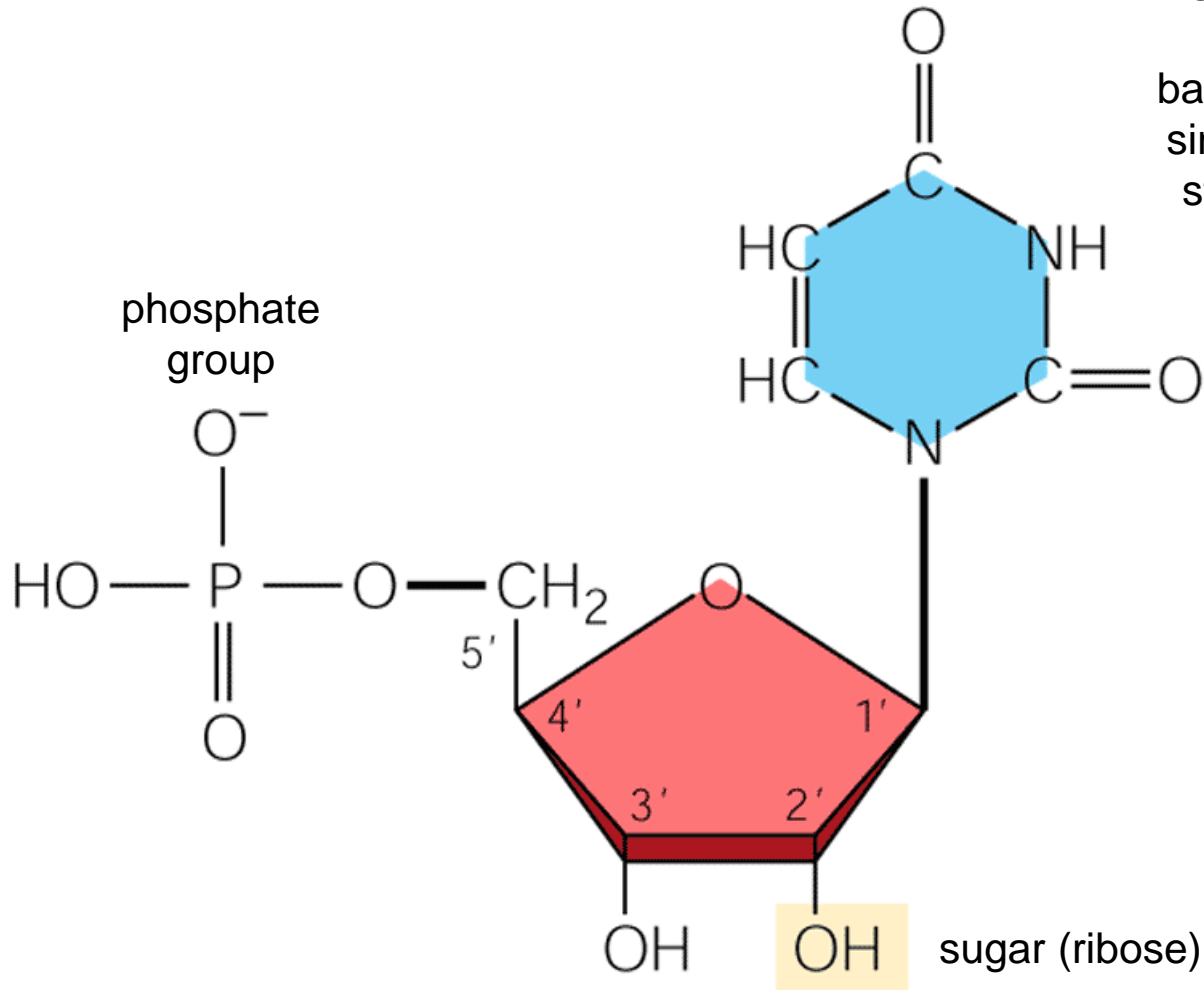
The DNA Structure

The Building Blocks of DNA and RNA
are Nucleotides.

Nucleotides consist of:

- Phosphate
- Sugar
- Base

URACIL
(U)
base with a
single-ring
structure



© Brooks/Cole - Thomson Learning

DNA structure

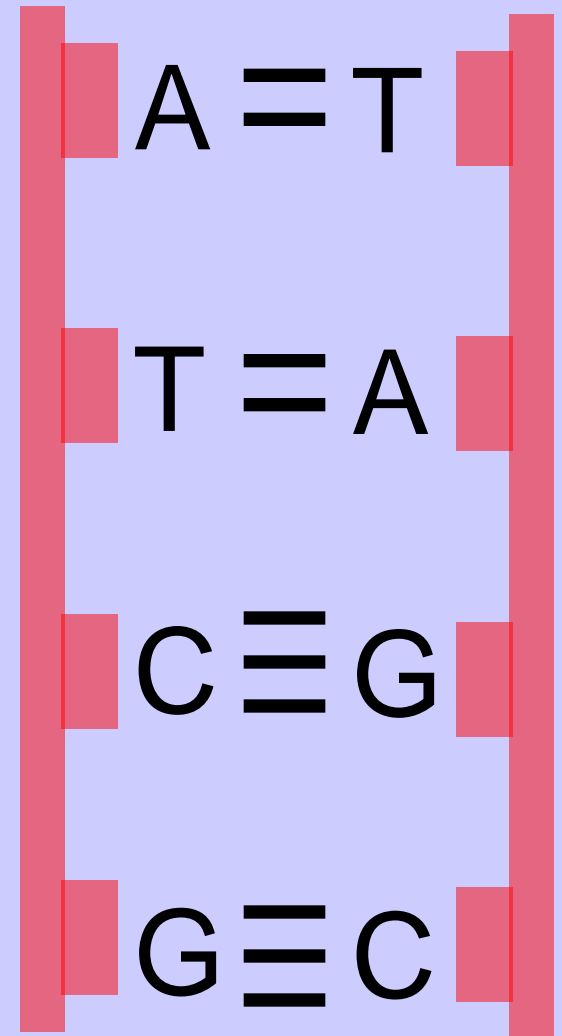
There are four different bases in DNA.

Adenine

Guanine

Cytosine

Thymine



The shape of the DNA molecule is a “Double Helix”

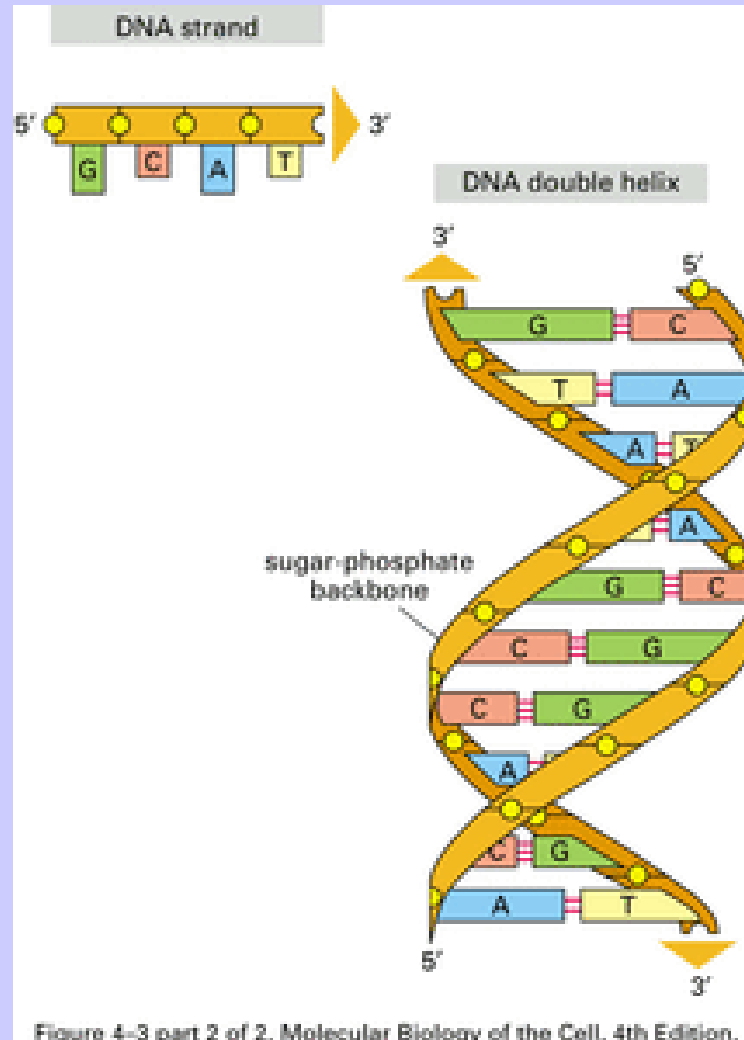
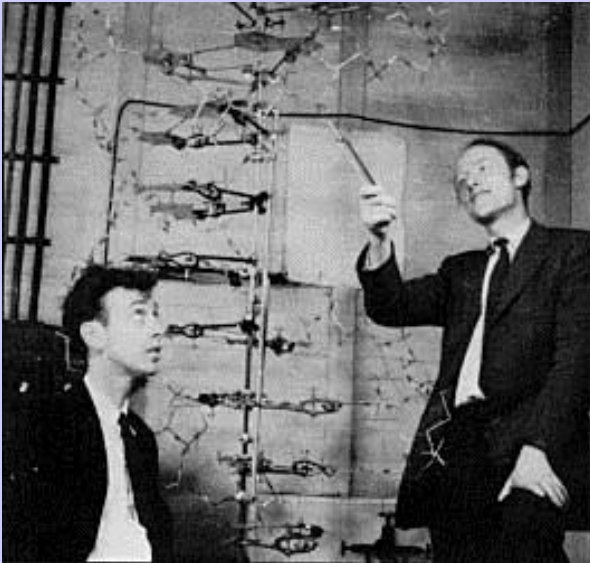
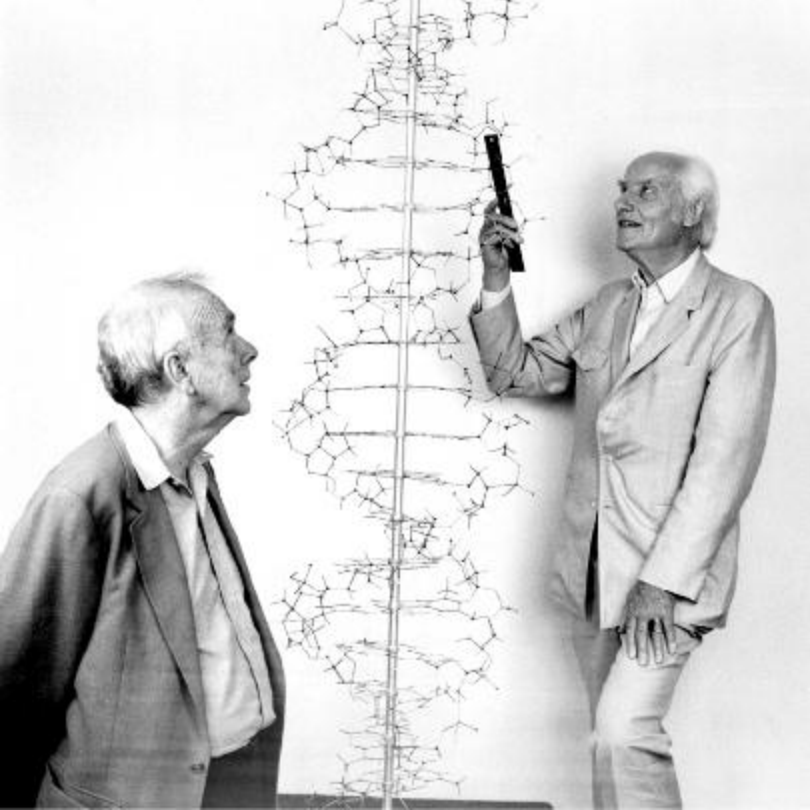


Figure 4-3 part 2 of 2. Molecular Biology of the Cell, 4th Edition.

James Watson and Francis Crick
were credited for coming up with
the structure of DNA.

But much of the information came from
contributions of other scientists.



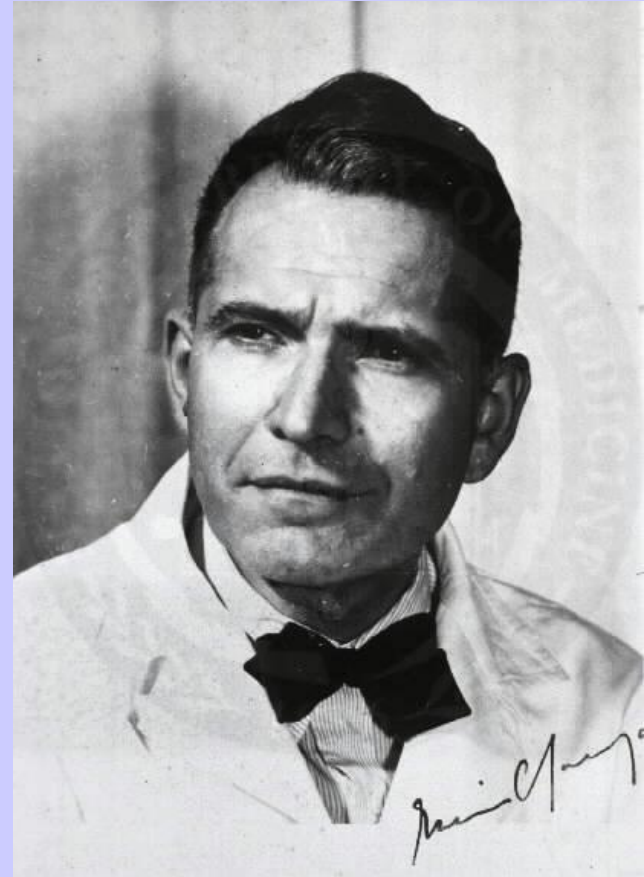


Base Ratios

Edwin Chagraff determined that the amounts of each base pair occurred in equal amounts.

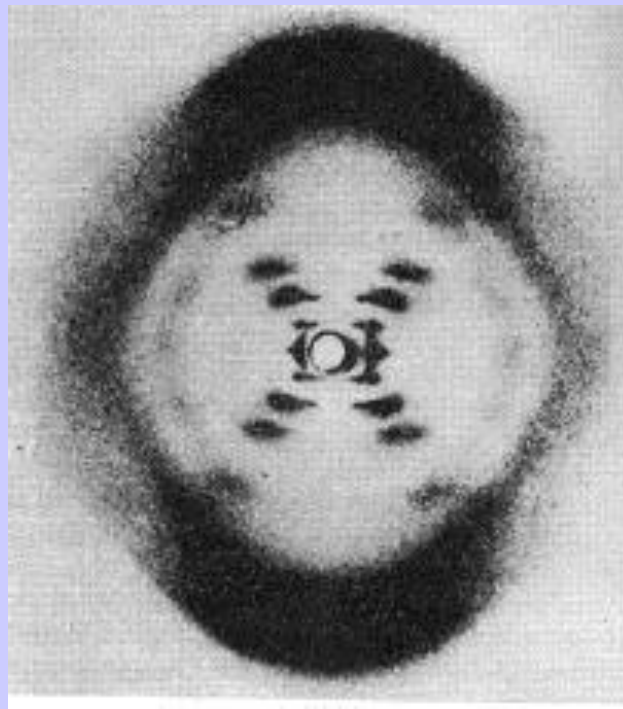
$$\%A = \%T$$

$$\%C = \%G$$



X-ray Crystallography Applied to Nucleic Acids

- Maurice Wilkins (1916-) and Rosalind Franklin (1920-1958) worked on X-ray/DNA. This helped determine the shape of the molecule.



How does DNA work?



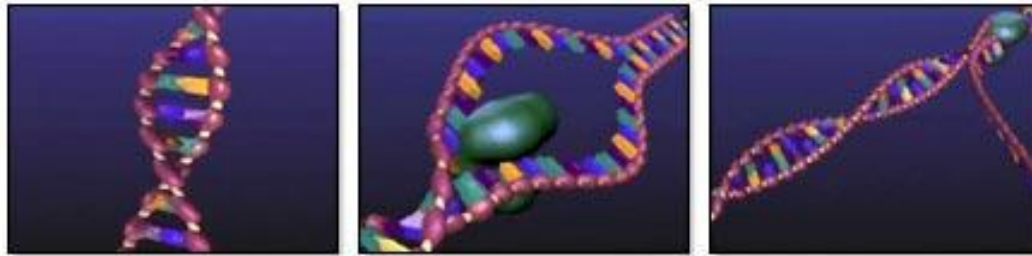
RNA Structure

Single Stranded

Sugar-ribose

Bases- A-U C-G

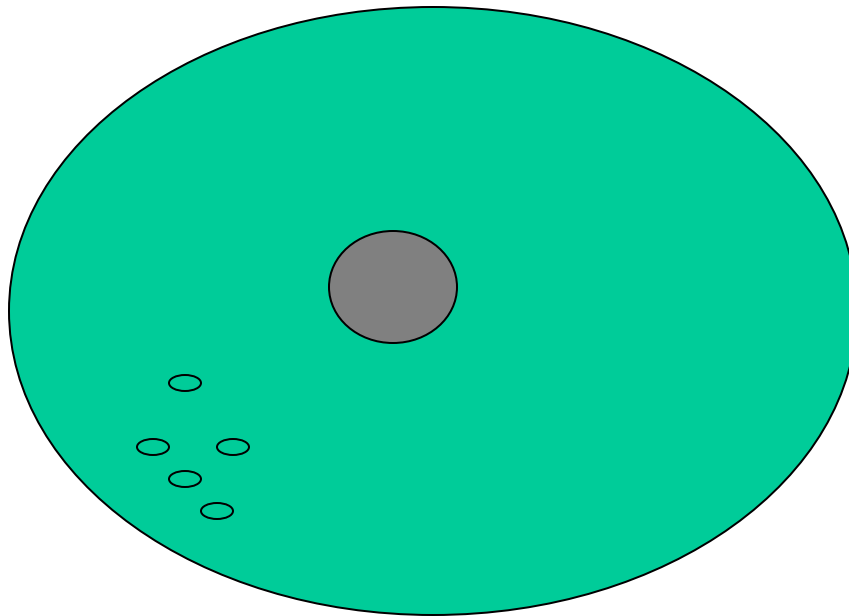
TRANSCRIPTION



Click on the frames above to view the animation.

Why do we need RNA?

Proteins are made at ribosomes which are outside the nucleus



Translation



Click on the frames above to view the animation.