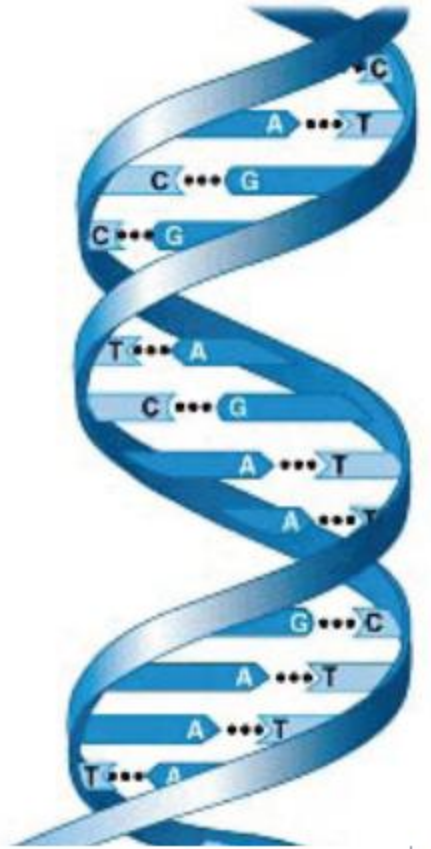


# NUCLEIC ACIDS

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# Nucleic Acids

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- Function:
  - Store and transmit \_\_\_\_\_
  - Primary storage molecules in all living organisms.
- Examples:
  - DNA – \_\_\_\_\_
  - RNA – \_\_\_\_\_
- Structure:
  - Monomers: \_\_\_\_\_

# Nucleotide Structure

## □ 3 Parts:

1. Nitrogen containing

\_\_\_\_\_ (C-N ring)

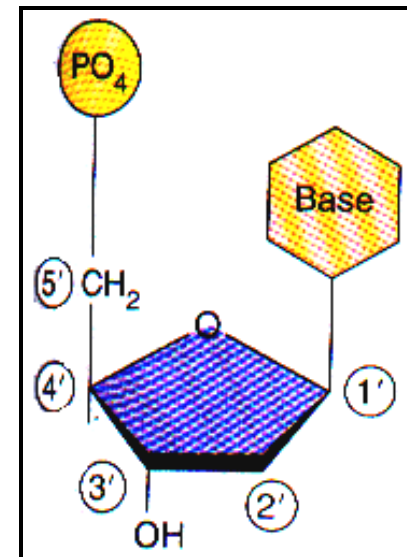
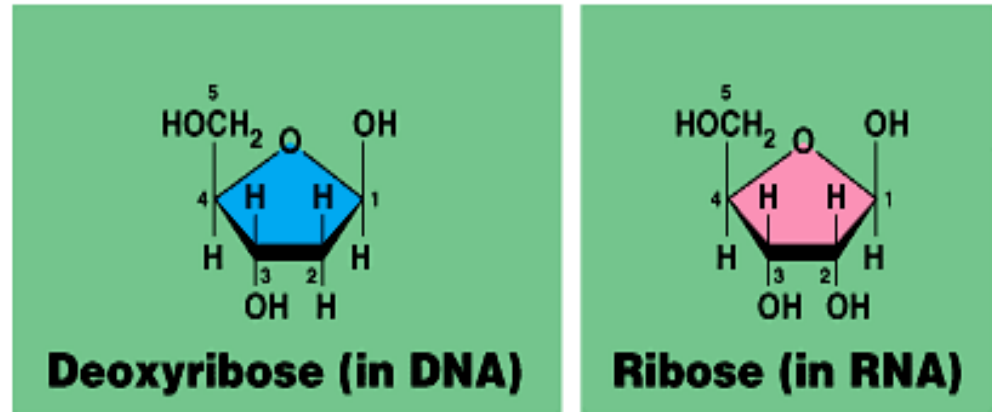
2. Pentose

\_\_\_\_\_ (5C)

- Deoxyribose in DNA
- Ribose in RNA

3. \_\_\_\_\_ Group

□ Nucleoside (base + sugar)



# Types of Nucleotide Bases

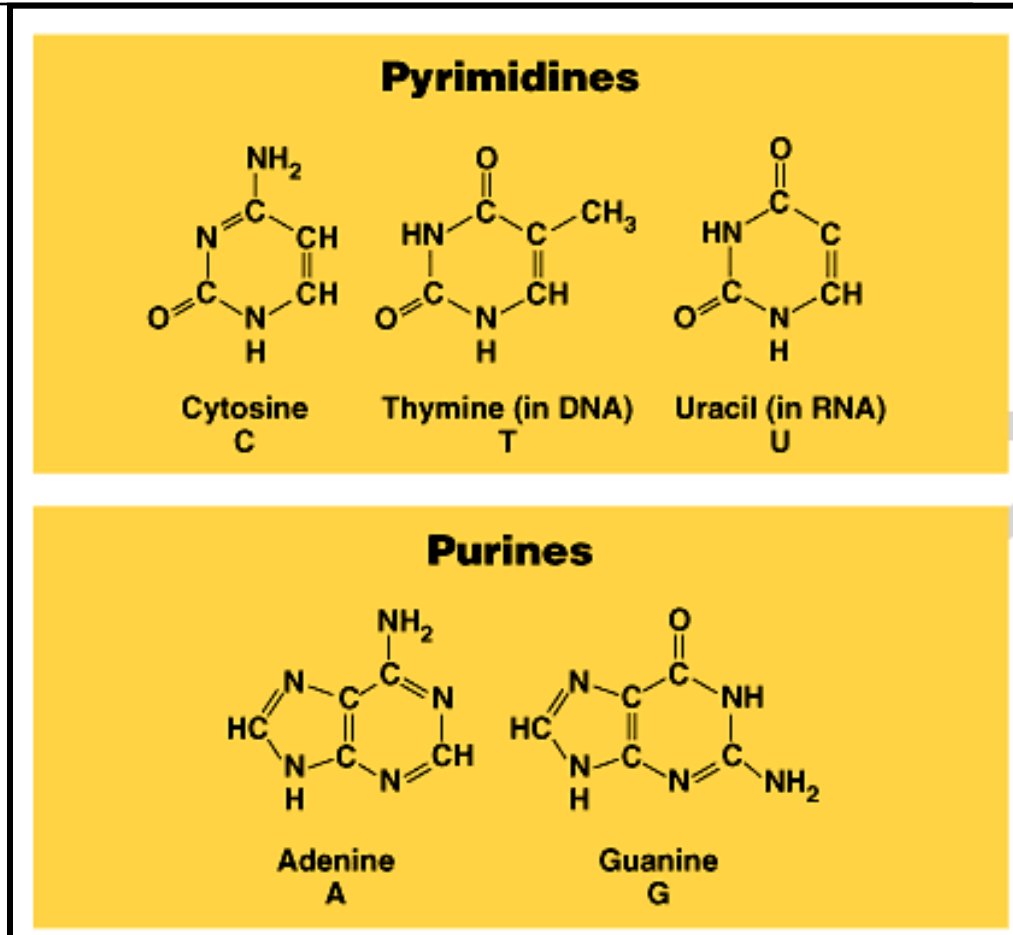
## □ 2 Types of Bases

1.

- Single ring N-base
- Cytosine ( C )
- Thymine ( T )
- Uracil ( U )

2.

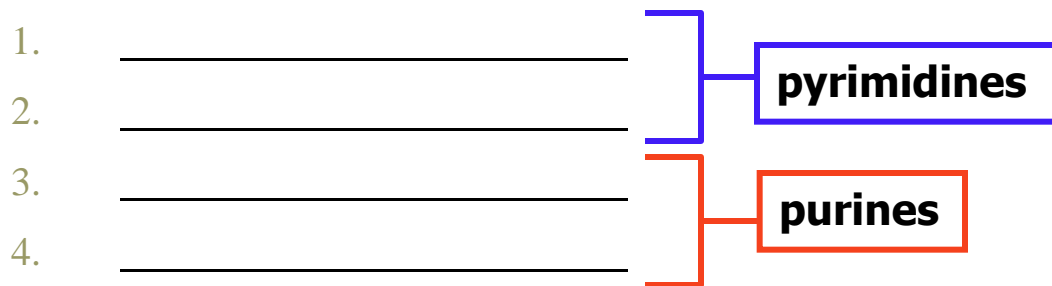
- Double ring N-base
- Adenine ( A )
- Guanine ( G )



# DNA Bases

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□ 4 DNA bases:

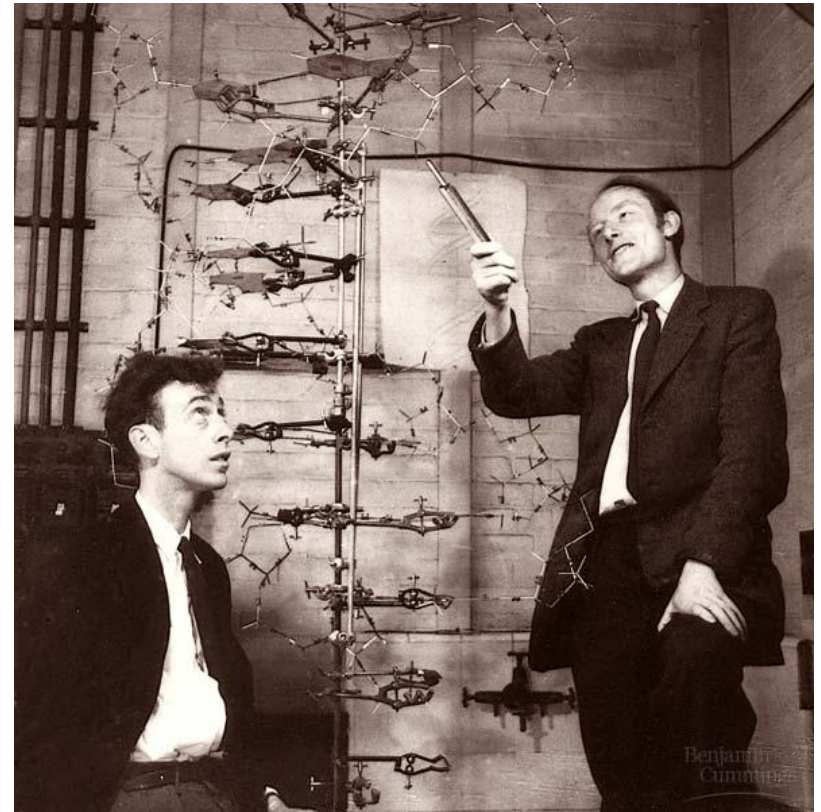


- Adenine always bonds with thymine \_\_\_\_\_
- Guanine always bonds with cytosine \_\_\_\_\_
- Bases are always found **located on the** \_\_\_\_\_ portion of the DNA molecule.
- Bases of one strand are bonded in the inside portion of the DNA molecule to the bases of the other strand using **hydrogen bonds**.

# Nucleic Acids

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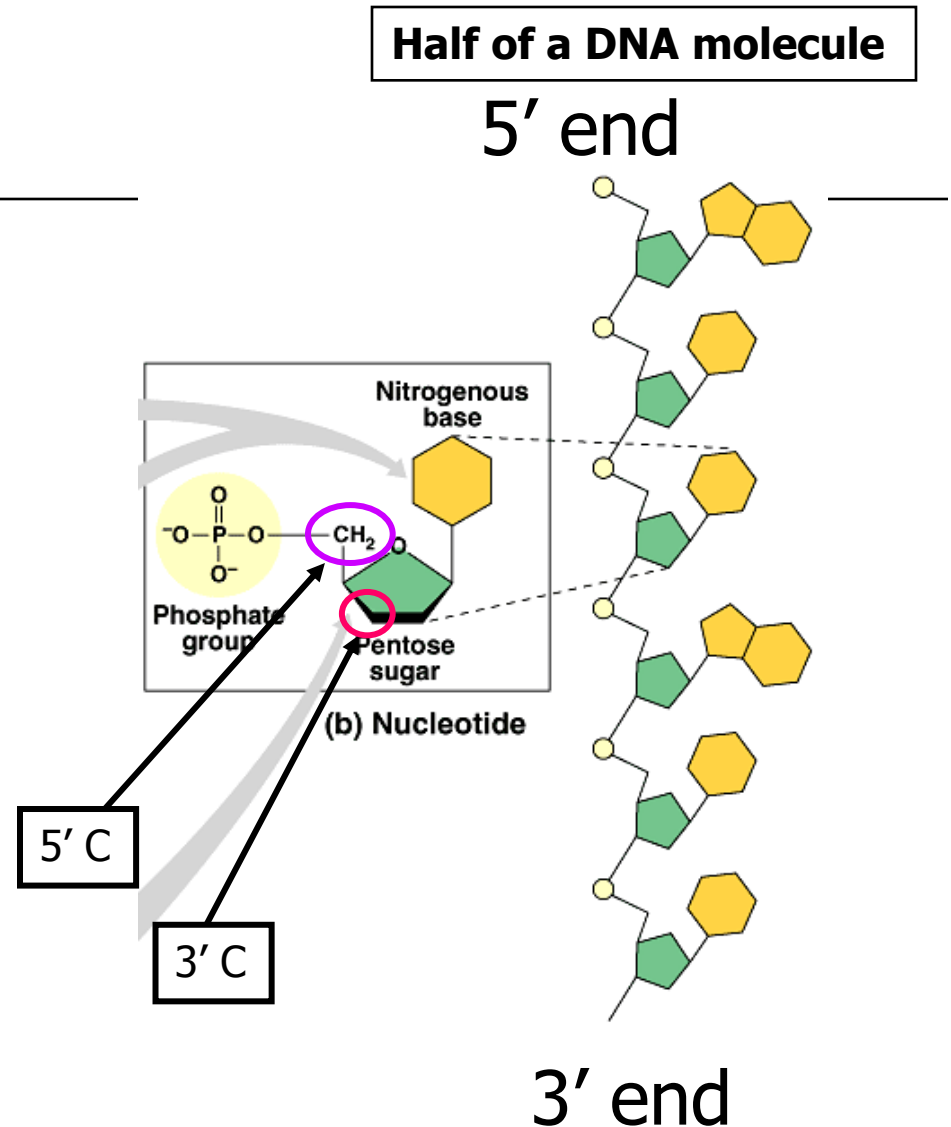
- Inheritance based on DNA replication
- Double helix (Watson & Crick - 1953)
  - \_\_\_\_\_ —  
between paired bases
  - van der Waals — between stacked bases



# Building DNA

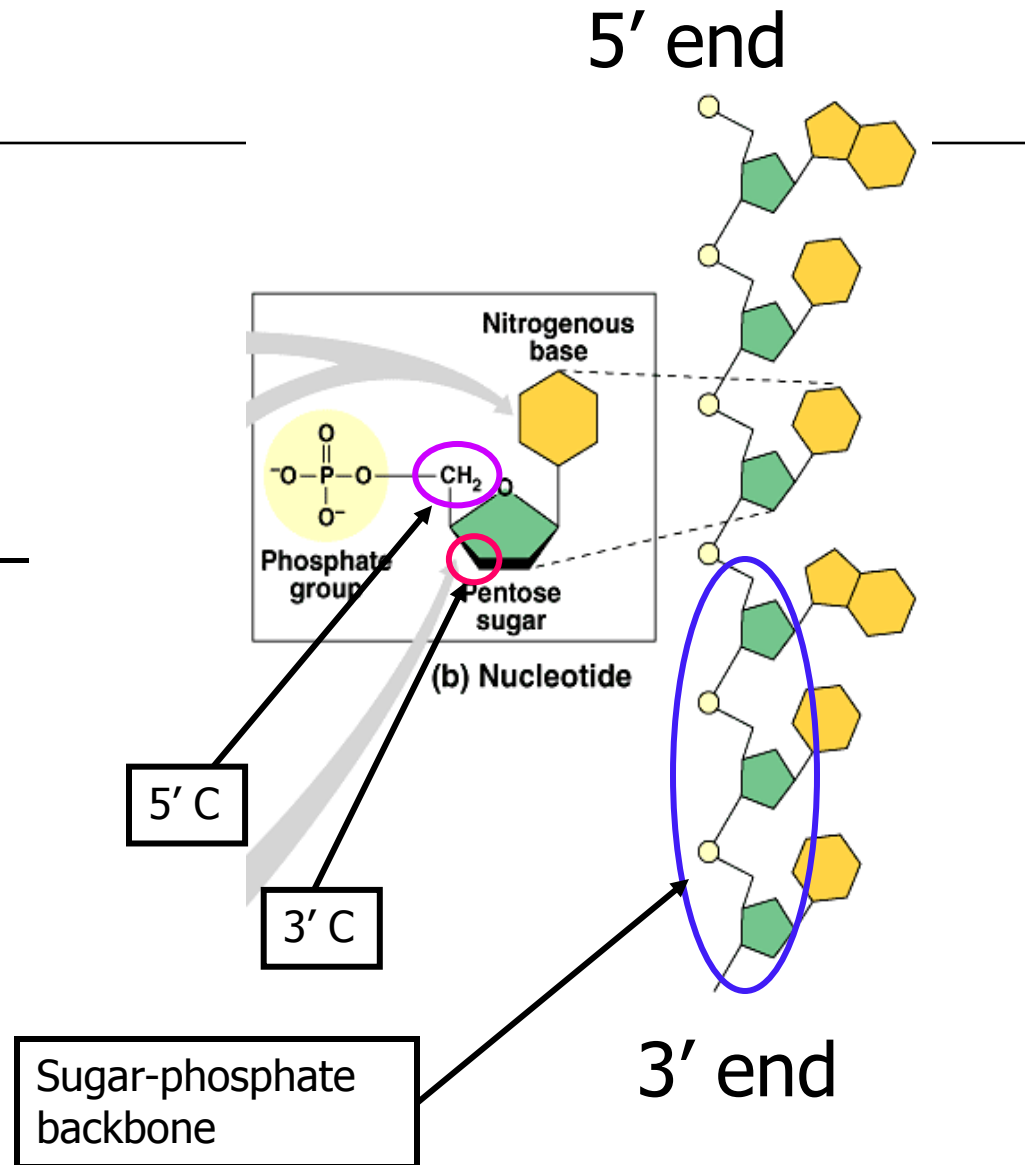
- DNA is a polymer of **polynucleotides**.
- Each nucleotide is bonded to another nucleotide on a DNA or RNA strand using covalent bonds called

- Bond between \_\_\_\_\_  
group on the 3' carbon of one nucleotide and the \_\_\_\_\_  
group on the 5' carbon on the next nucleotide.



# Building DNA

- Nucleotides are added in the \_\_\_\_\_ direction.
- Nucleotides are added one at a time.

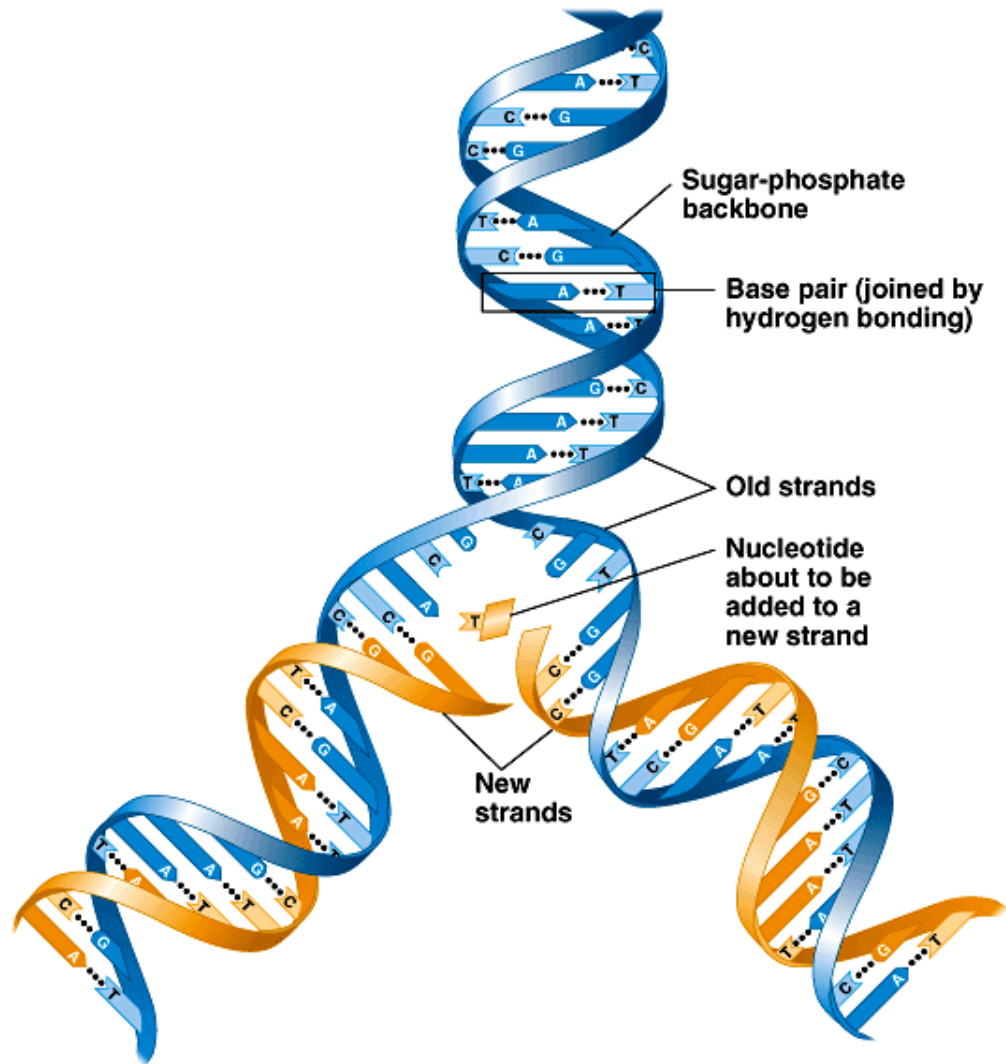




# DNA

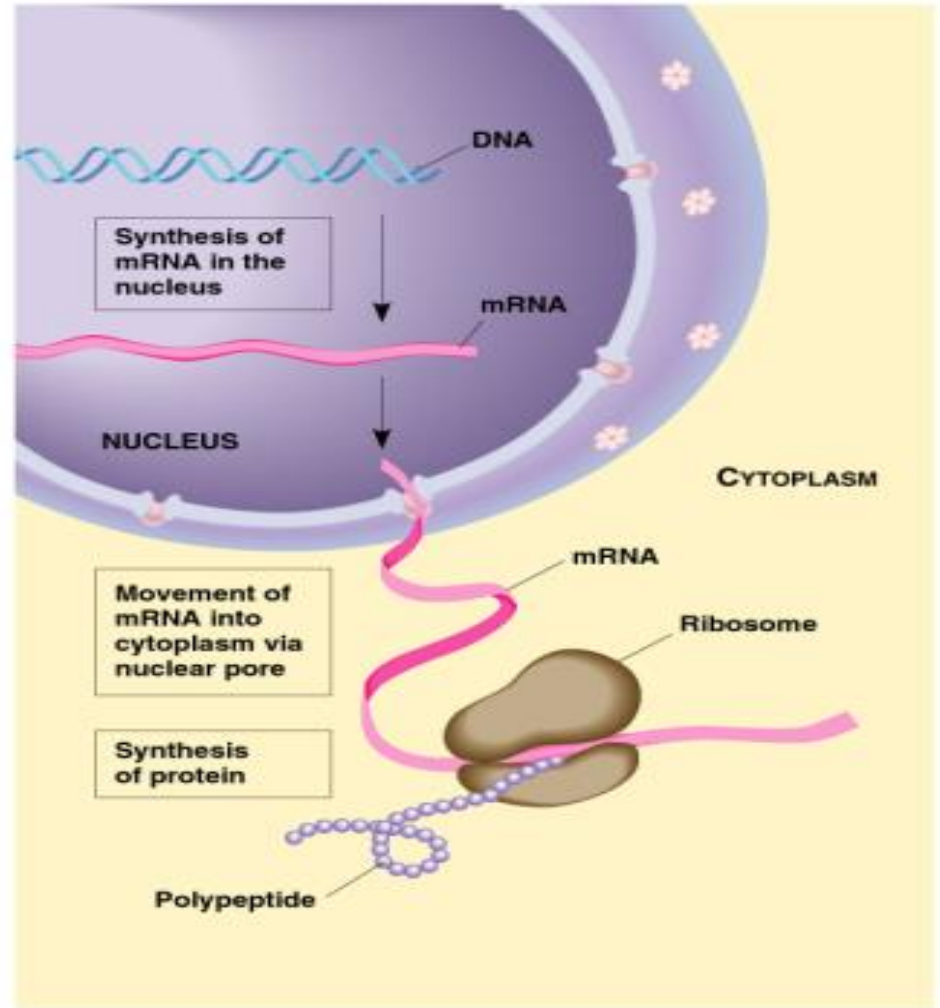
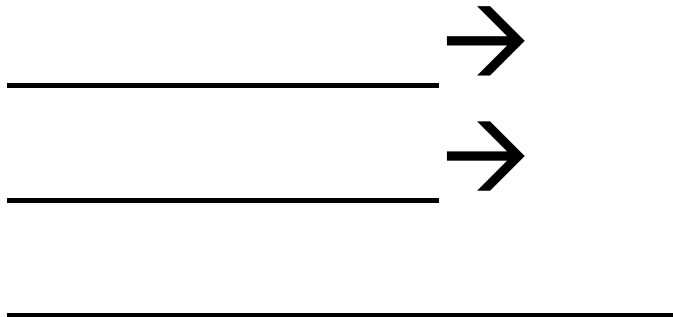
## □ General:

- \_\_\_\_\_  
stranded
- 4 bases (A, T, C, G)
- DNA Replication
  - Occurs when cell is about to \_\_\_\_\_
  - Semi-conservative model of replication



# Nucleic Acids

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# RNA Bases

- \_\_\_\_\_  
stranded
- Made from \_\_\_\_\_
- RNA Bases:

1. Cytosine
  2. \_\_\_\_\_
  3. Adenine
  4. Guanine
- pyrimidines
- purines

