Source: [KBBiologyMasterIndex]

1 | DNA/RNA

1.1 | Nucleic Acids

d-Oxy Ribone Nucleic Acid: DNA Ribone Nucleic Acid: RNA

All nucleic acids are comprised of monomer units that's synthesized together into polymers. => Just like [KBhBIO101Carbs] or [KBhBIO101AminoAcids]

1.2 | 3 basic parts of a Nucleic Acid

Two parts of the backbone (phosphate and sugar) + a nitrogenous base that labels what type of nucleotide this is.

1.2.1 | Backbone

- phosphate group
- sugar (Ribos => sugar in RNA, di-oxy Ribos => sugar in DNA)=> In di-oby Ribos: a OH pair is replaced with a hydrogen **only in one position.** Hence "di-oxy"

1.2.2 | nitrogenous base

- Bases in DNA
    - A, T, G, C
- Bases in RNA
    - A, U, G, C

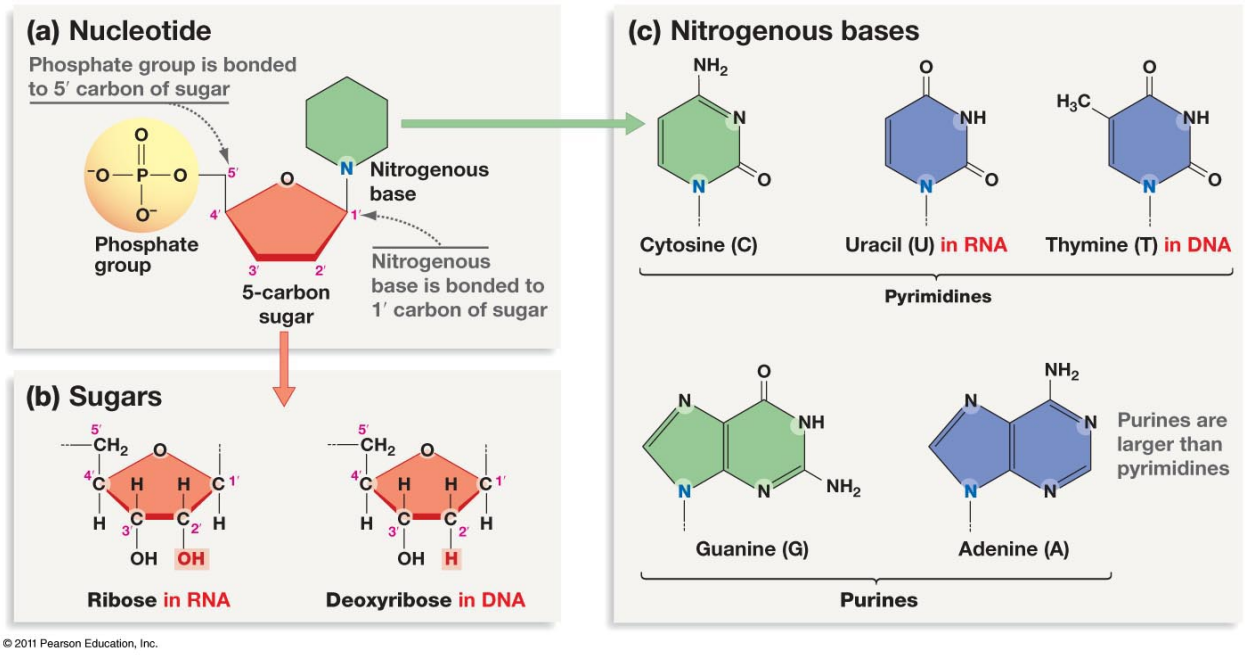


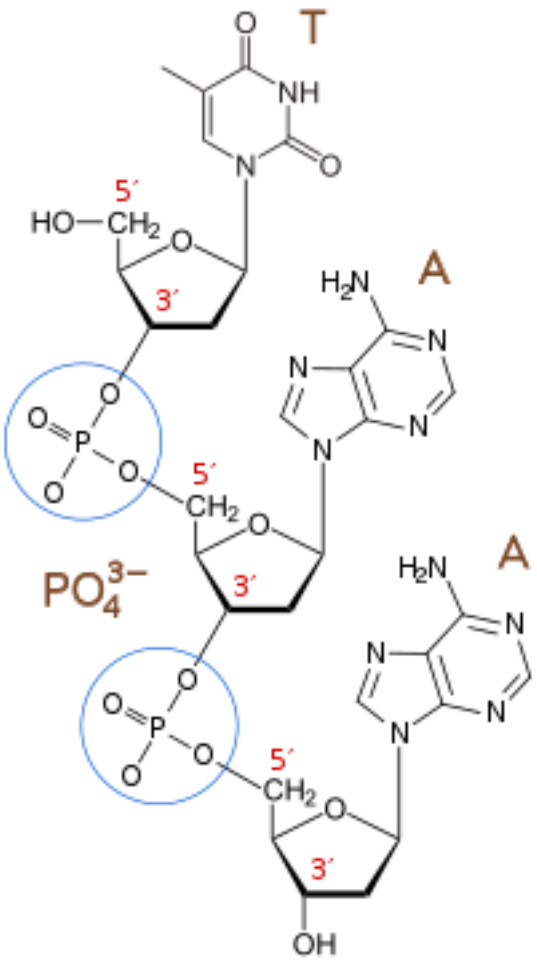
Figure 1: d_na.jpg

How do we make nucleic acids? Can you guess? Huh? **Dehydration synthesis!**

1.3 | Shapes of the DNA

1.3.1 | DNA/RNA Primality

- 5' => one end of an RNA/DNA part (connection from the phosphate group)
- 3' => another end of a RNA/DNA part (connection from the third carbon on the sugar counting from left)



As in…

1.3.2 | DNA/RNA Strand

- DNA is supposed to be double stranded: DNA is *anti-parallel* to each other => 5’ to 3’ backbone parallel to 3’ to 5’ backbone
- RNA is supposed to be single stranded, but viruses may give them in bundles so that it would avoid detection

Type	Identifier	Purpose
DNA 3’…5’	DNA Antisense/Noncoding/Template Strand	Used as a template for transcription
DNA 5’…3’	DNA Sense/Coding/Nontemplate Strand	The complement to the template strand + what is being used (bar urisil) in RNA form to perform protein synthesis
RNA 3’…5’	mRNA Sense/+ss	

Temp copies of genome is RNA, permanent record in DNA

The Central Dogma The process of the central dogma is a rough path by which DNA is converted into

Proteins. This helps us understand how proteins are made in a cell, and also how viruses could hijack this process to make themselves.

See [[KBhBIO101CentralDogma]]

1.4 | DNA-Made Structures

In a [[KBhBIO101Cells]], DNA is organized into different shapes depending on which [[KBhBIO101CellCycle]] that the cell is in. These structures help facilitate cell replication.

See [[KBhBIO101DNAStructures]]