

AP Biology Topic 1.5 – Nucleic Acids

Directionality of the subcomponents influences structure of nucleic acid _____.

- What is the linear sequence of all nucleic acids characterized by? _____

Label the following nucleic acid:

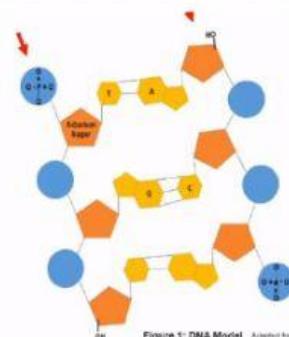


Figure 1: DNA Model - Adapted from

- DNA is a nucleic acid polymer containing two strands, each
- What does antiparallel mean?
- What does overlapping your elbows represent?
- How many and what type of bonds are Adenine and Thymine held together by?
- How many and what type of bonds are Guanine and Cytosine held together by?
- What do hydrogen bonds do for a DNA molecule?
- The linear sequence of nucleotides

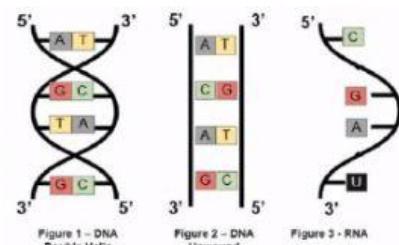


Figure 1 – DNA Double Helix

Figure 2 – DNA Unwound

Figure 3 – RNA

- What can a change in the sequence of nucleotides do?
- Where can nucleotides only be added when synthesizing nucleic acid polymers?
- What are covalent bonds used for?

Practice

Segment 1: 5' - ATATGAGTAGT - 3'
3' - TATACTCATCA - 5'

Segment 2: 5' - GGGCAGACCGAC - 3'
3' - CGCGTCTGCTG - 5'

Figure 1: Two separate DNA segments of the same DNA molecule Taken from AP Classroom

A scientist wants to determine whether varying nucleotide sequences within DNA molecules affect the overall structural stability of the molecule. The scientist isolates two separate segments of the same DNA molecule (Figure 1). Each segment is exposed to similar increases in temperature within the same duration of time. **Predict** which segment would destabilize faster.

Key Takeaways

- The linear sequences of all nucleic acids is defined by the _____
- DNA is structured as an _____ double helix with two strands running in opposite _____ directions. This allows for the two strands of DNA to be held together by _____ between the base pairs. A-T held together by _____; G-C held together by _____
- During DNA and RNA synthesis, nucleotides can only be _____
- Changes in the linear sequences of the nucleotide bases may lead to _____
