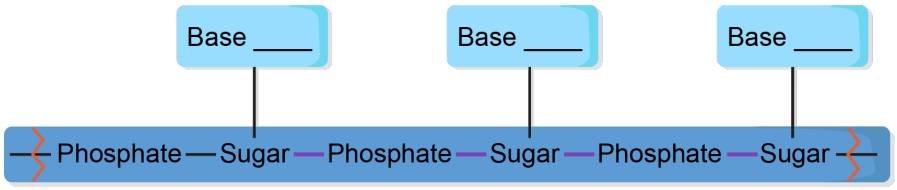
CONCEPT: PRIMARY STRUCTURE OF NUCLEIC ACIDS

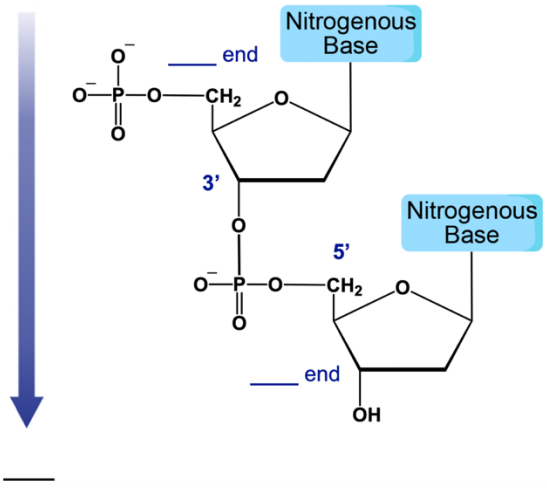
- The primary structure of a nucleic acid is the _____ of nucleotides attached through phosphodiester bonds.
  - □ **Phosphodiester bonds:** the bonds of the phosphate group that connect ___ sugars in the primary structure.
  - □ Repeating phosphate-sugar-phosphate sequence forms the nucleic acid _____.



EXAMPLE: A pentanucleotide has a base sequence of G-A-U-C-A. Based on the given sequence, what is its likely origin?

a) DNA b) Fructose c) RNA d) Oleic acid

- **Directionality:** the sequence of nucleotides is read from the ____ to ____ end.
  - □ **MEMORY TOOL:** _____phate = ___ive



EXAMPLE: Which of the following statements about primary nucleic acid structure is incorrect?

a) The structure and function of a nucleic acid is based on the sequence of the connected nucleotides.

b) The sequence of nitrogenous bases is read from the 5' to the 3' end.

c) A phosphodiester bond represents a bond between the phosphate group and the sugar.

d) The difference between nucleic acids is the result in the difference of the sugar attached to the backbone.

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PRACTICE: Draw the full structure of the DNA trinucleotide G-A-T and label its 5' and 3' ends.

PRACTICE: Draw the following primary structure based on the following description:

Draw 3 nucleotides with deoxyribose sugars with dTMP bases connected by phosphodiester bonds.