

## Activity 44: Components of Nucleotides

### *Learning Objectives*

*Recognize the component molecules in a nucleotide*

*Draw the products of a condensation reaction between components*

---

**Estimated Completion Time**      45 Minutes

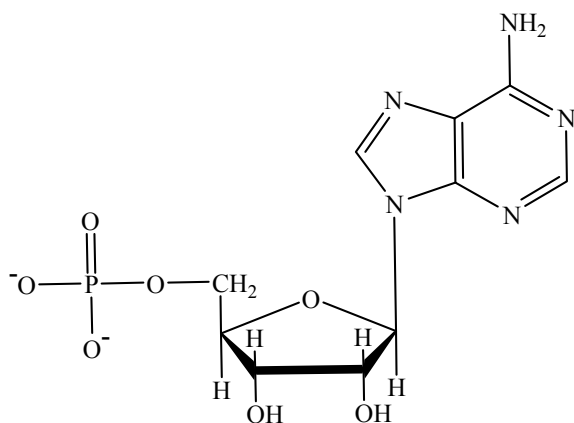
### **Instructor Information**

Introduces the students to the nucleotide components and condensation reactions.

### **ANSWERS TO QUESTIONS**

1. Nitrogenous base, sugar, and phosphate
2. Condensation
3. Purines: adenine and guanine; pyrimidines: cytosine, uracil, and thymine
4. DNA: A,T,G,C; RNA: A,U,G,C
5. They are very similar except that thymine has a methyl at carbon position 5 on the ring; uracil does not.
6. a. Ribose has an —OH at carbon position 2', and deoxyribose has an —H in the same position.  
b. DNA: deoxyribose; RNA: ribose
7. Having the carbons of the sugar and the bases distinguished with the prime (') symbol helps when discussing which element (sugar, phosphate, base) is attached to another element in a nucleotide.
8. Three; GTP, CTP, TTP, UTP

9.



10. Adenosine triphosphate would have three phosphates attached to the ribose instead of just one.

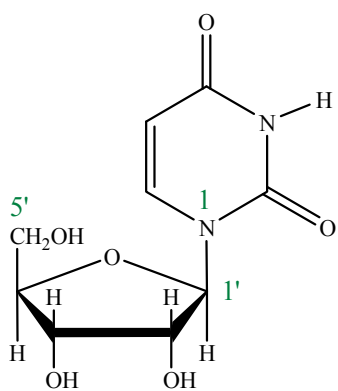
#### Activity 44: Skill Development

1. GMP, CMP, UMP

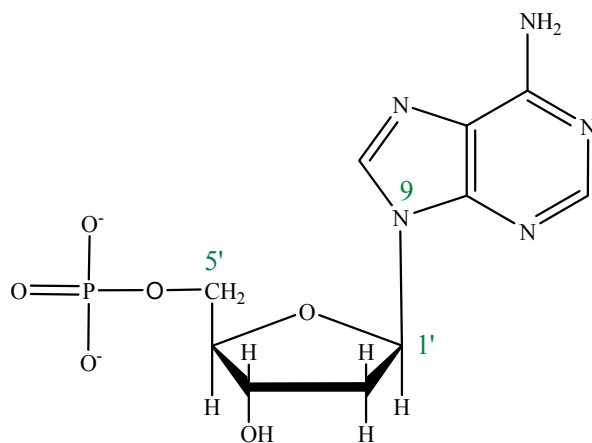
2. dAMP, dTMP

3.

a.



b.



4.

