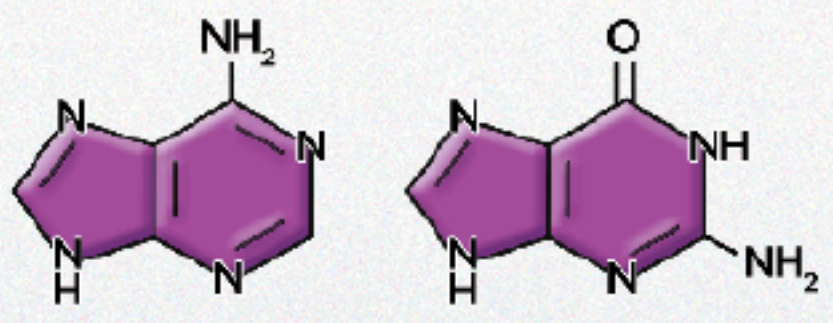


It has been very difficult to make the pyrimidines & purines under pre-biotic early Earth-like conditions.

**RNA PARTS LIST**



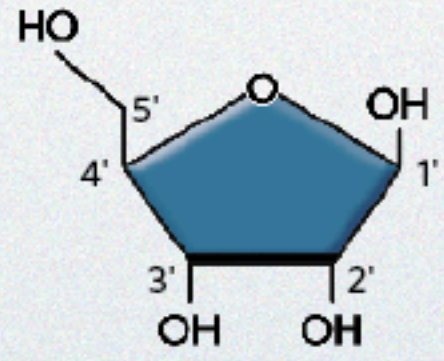
Adenine

Guanine

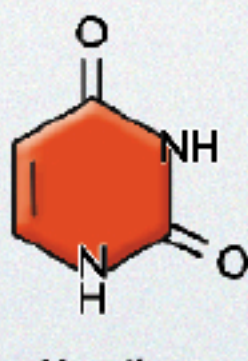
in 2009 pyrimidines were made from glycoaldehyde & glyceraldehyde, which can be made from HCN, a prebiotic molecule.



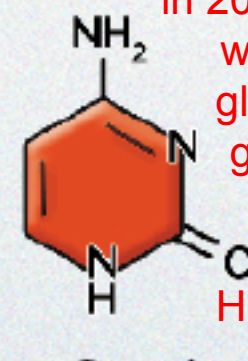
**PHOSPHATE**



**RIBOSE**

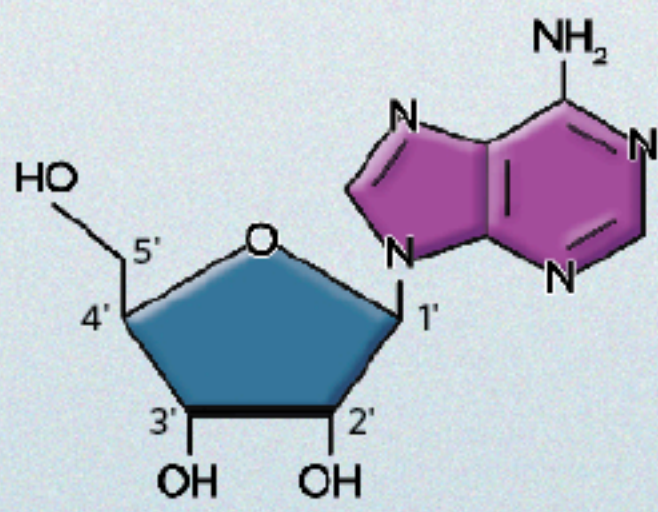


Uracil

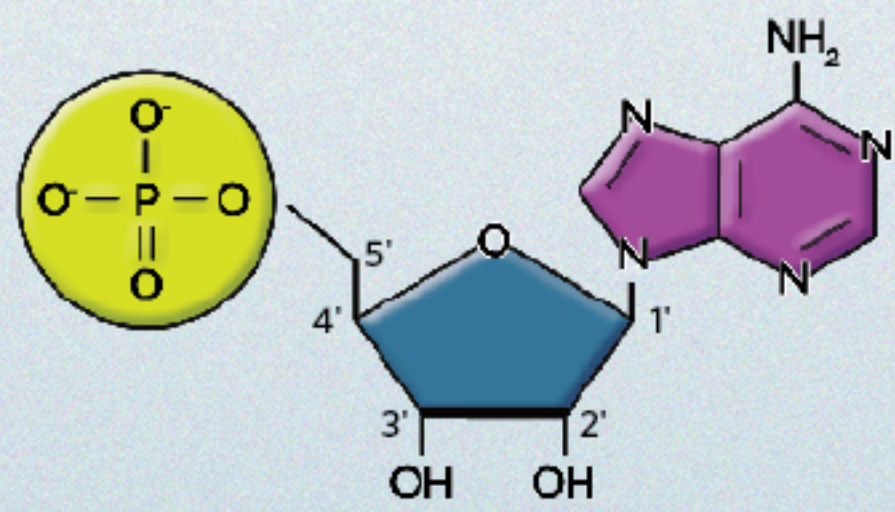


Cytosine

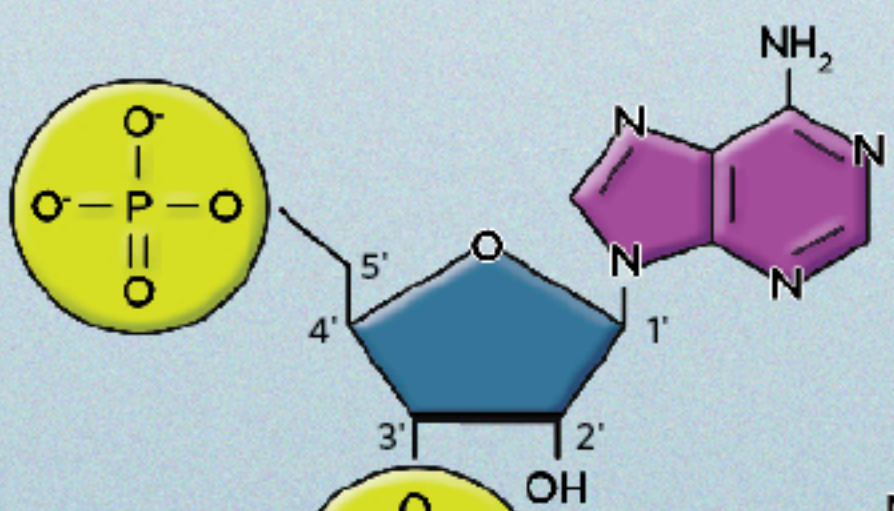
**NUCLEOBASES**



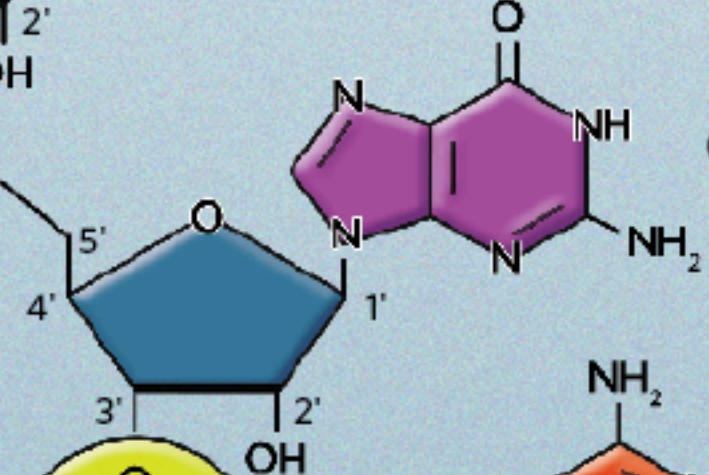
**NUCLEOSIDE**



**NUCLEOTIDE**



Adenosine



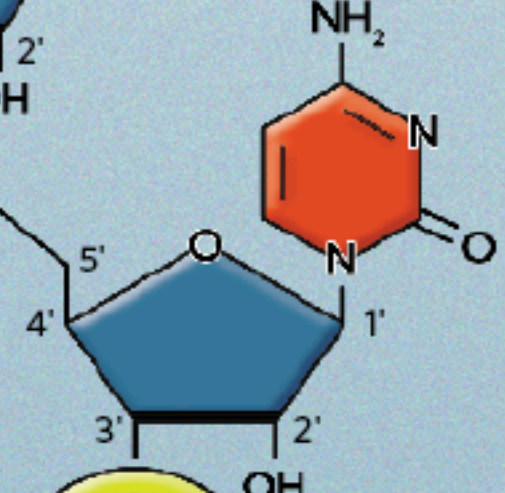
Guanosine

**PURINES**

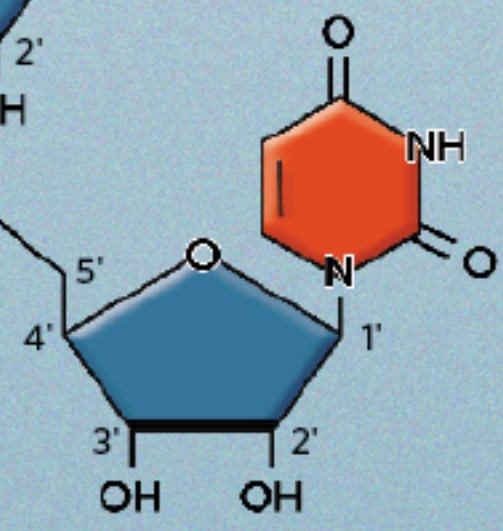
In 2016 the A & G purines were made in the lab from formic acid & aminopyrimidines under conditions that mimicked early Earth.

polymerize at the 2' or 3' position on ribose

**PYRIMIDINES**



Cytidine



Uridine

**RIBONUCLEIC ACID (RNA)**