

Study Questions  
Lecture 9  
Nucleotides/Replication

1. What is the central dogma?
2. Draw a single deoxyribonucleotide(chemical structure), with a circle for the nitrogenous base. Label the carbons on the sugar.
  - a. Indicate where the covalent bonds to adjacent nucleotides would be if this were part of a strand of DNA
  - b. Put a (\*) by the 3' and 5' carbons of the sugar
  - c. Indicate where the weak bonds would be if this were part of a double stranded DNA
  - d. What bonds hold the sugar-phosphate backbone together?
  - e. What bonds hold antiparallel strands together?
3. What are purines and pyrimidines? Which are in DNA and which are in RNA? Which bases pair together in DNA? In RNA?
4. List three main differences between prokaryotic and eukaryotic chromosome structure.
5. What form does DNA take during eukaryotic interphase? M phase?
6. During the 1940's DNA was labeled as the genetic material. Explain the experiment.
7. Where does replication occur in prokaryotes? Eukaryotes?
8. Explain semiconservative in the context of DNA replication. What is the directionality of replication?
9. During replication, DNA polymerase adds nucleotides to the (3'/5') end of each nascent strand. Therefore DNA synthesis occurs in the (5'-3'/3'-5') direction.