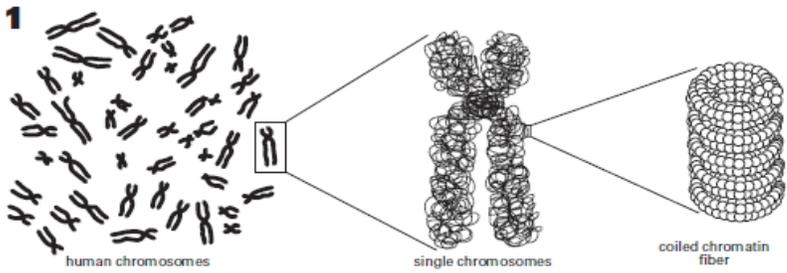
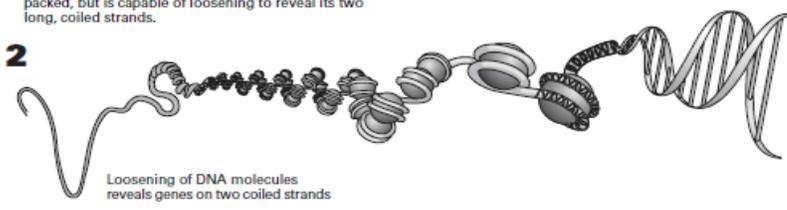
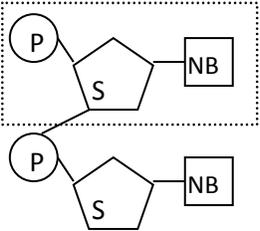


- What is the chemical basis of life?
- The structure of DNA is revealing of function
- Genes are sequences of DNA found on chromosomes

Key Vocabulary	Assignments	Due Date
<p>Adenine (A)</p> <p>Base Pairing Rule</p> <p>Chromosome</p> <p>Cytosine (C)</p> <p>DNA</p> <p>Double helix</p> <p>Gene</p> <p>Guanine (G)</p> <p>Helicase</p> <p>Mutation</p> <p>Nitrogen Base Pair</p> <p>Nucleotide</p> <p>Thymine (T)</p> <p>Replication</p> <p>Trait</p> <p>Variation</p>	<p><b>#1 - Read section 8.1 &amp; 8.9 (pages 194 and 208)</b></p> <p>a. What does DNA have to do with genes?</p> <p>b. What are the three essential properties of genes explained by Watson and Crick’s molecular model of DNA?</p> <p><b>#2 – Look at Figure 8.19 (page 209)</b></p> <p>a. What are the base pairing rules for nucleotides in DNA?</p> <p>b. Where are the phosphates and Deoxyribose sugars found in the DNA molecule?</p> <p>c. What is happening when DNA replicates?</p> <div data-bbox="467 1108 1295 1843" style="border: 1px solid black; padding: 10px;"> <p><b>1 Chromosomes</b></p> <ul style="list-style-type: none"> <li>• Each cell has a set of instructions, telling it what to do and when to do it.</li> <li>• These instructions are carried mainly by the cell’s chromosomes. For example, every cell in the human body has 46 chromosomes. Bacteria typically have just one chromosome.</li> <li>• The chromosomes are contained in the cell’s nucleus (except in bacteria, which don’t have a nucleus).</li> <li>• Chromosomes are made up of a material called chromatin. This consists mainly of deoxyribonucleic acid (DNA) and varying amounts of proteins.</li> </ul>  <p><b>2 Genes and DNA</b></p> <ul style="list-style-type: none"> <li>• Chromosomal DNA contains the cell’s instructions in the form of genes. Humans have roughly 30,000 different genes in each cell.</li> <li>• DNA is a very long molecule. It is normally tightly packed, but is capable of loosening to reveal its two long, coiled strands.</li> <li>• By loosening in this way, it lets the cell “read” certain genes, so that messages are sent to the rest of the cell.</li> </ul>  </div>	

## DNA, RNA & Protein Synthesis

<p style="text-align: center;"><b>DNA</b></p> <p>Deoxyribonucleic Acid</p> <p>Is a polymer constructed from four nucleotides containing:</p> <ol style="list-style-type: none"> <li>1. (A)</li> <li>2. (T)</li> <li>3. (C)</li> <li>4. (G)</li> </ol> <p>The molecule takes on a ladder like shape called the _____ with the nitrogenous bases to the inside and the sugar phosphate backbone to the outside. DNA is found in the _____ of Eukaryotic cells. It is responsible for storing the genetic information of every organism.</p>	<p style="text-align: center;"><b>Nucleotide</b></p> <p>Building block of DNA and RNA</p> <div style="display: flex; align-items: center;">  <div style="margin-left: 10px;"> <p>Constructed from Ribose sugar and a phosphate group bonded to a nitrogenous base.</p> </div> </div>	<p style="text-align: center;"><b>Translation</b></p> <p>The process that uses RNA and the ribosomes to synthesize polypeptides (proteins).</p> <p>mRNA travels to the ribosome where its bases are read in groups of three called <b>codons</b> or triplets.</p> <p>tRNA arrives at the ribosome with matching <b>anticodons</b> to bring amino acids to the ribosome where they are bonded to the next amino acid.</p>
<p style="text-align: center;"><b>Chromosome</b></p> <p>When DNA is condensed around proteins called histones it forms an easy to move structure called a chromosome.</p> <p>A human has 23 pairs of chromosomes (46 total)</p>	<p style="text-align: center;"><b>Gene</b></p>	<p>The chain of amino acids will continue to grow until the stop codon is reached. Then the chain is released and finished in the ER.</p>
<p><b>Polymers</b> are molecules made up of repeating subunits. The order of the subunits determines the meaning of the polymer.</p> <p><b>DNA/RNA</b> are polymers made up of Nucleic acids</p> <p><b>Proteins</b> are polymers made up of amino acids</p>	<p style="text-align: center;"><b>RNA</b></p> <p>Ribonucleic Acid is a single stranded polymer used to transmit the information from the DNA in the nucleus to the ribosomes in the cytoplasm. It exits the nucleus by way of the nuclear pores.</p> <p>There are three kinds of RNA</p> <p><b>mRNA-</b></p> <p><b>tRNA-</b></p> <p><b>rRNA-</b></p>	<p>Each tRNA has one of 64 possible anticodons however because there are only 20 amino acids some codons code for the same amino acids.</p>
<p style="text-align: center;"><b>DNA Base Pairing Rule</b></p> <p style="text-align: center;">A-T                      C-G</p>		<p style="text-align: center;"><b>Transcription</b></p> <p>The process that creates RNA using the coding strand of DNA as a template. RNA Polymerase assembles the RNA using the following substitution rules:</p> <p style="text-align: center;">A→Uracil, T→     , C→     , G→</p>