

Chapter 10 vocabulary

- **DNA replication**
This is the process where one DNA molecule becomes two DNA molecules.
- **Transcription**
This is the process whereby DNA is used to make RNA.
- **Translation**
This is the process whereby RNA is converted into protein.
- **Nucleotides**
These are the subunits that makeup DNA or RNA.
- **Pyrimidines**
This is the name of a class of base that might be found in DNA or RNA. This base has only one ring. Thymine (T), cytosine (C) and uracil (U) are examples.
- **Purines**
This is the name of a class of base that might be found in DNA or RNA. This base has two rings. Adenine (A) and guanine (G) are examples.
- **Ribonucleic acid**
This is the sugar that is found in RNA.
- **Deoxyribonucleic acid**
This is the sugar that is found in DNA.
- **Hydrogen bonds**
This is the type of bond that holds together the two strands of DNA.
- **Helicase**
This is the enzyme that separates or unwinds the two strands of DNA.
- **DNA polymerase**
This enzyme adds new DNA nucleotides to the growing DNA strand. It only adds bases in the 5' to 3' direction. That means it adds bases to the 3' end.
- **Leading strand**
This is the strand of DNA that is replicated continuously. Bases are added in the 5' to 3' direction by DNA polymerase.
- **Lagging strand**
This is the strand of DNA that is replicated continuously. Bases are added in the 5' to 3' direction by DNA polymerase but small pieces of DNA must be tied together.

- **DNA Ligase**
This is the enzyme that ties together the small pieces of DNA on the lagging strand when DNA is replicated.
- **RNA primer**
This is needed to start DNA replication. It is removed at the end of the process.
- **Single stranded binding protein**
When the two strands of DNA separate during DNA replication, single stranded binding protein binds to them so that they do not come back together before the DNA is replicated.
- **Okazaki fragments**
The small pieces of DNA made on the lagging strand of DNA when DNA is replicated.
- **Ribosomes**
This is the site where proteins are synthesized. Translation occurs here.
- **Nucleus**
This is where the DNA is located. DNA replication and transcription occur here.
- **Amino acids**
This is the subunit that makes up proteins.
- **Polypeptide**
This is a small protein.
- **RNA polymerase**
This enzyme adds new RNA nucleotides to the growing RNA strand.
- **Promoter**
This is the start site for transcription. It is where the RNA polymerase binds to the DNA.
- **Triplet code**
Three DNA bases (or RNA bases) code for 1 amino acid.
- **Degenerate code**
There is more than one combination of 3 nucleotides that codes for the same amino acid.

- **Start codon**
This sequence in the mRNA (codon) signals the start of translation. AUG is the only start codon.
- **Stop codon**
This sequence in the mRNA (codon) signals to stop translation. There are three stop codons – UAG, UAA and UGA.
- **Exons**
These are coding regions.
- **Introns**
These are noncoding regions.
- **mRNA processing**
These are steps that the mRNA must go through before it is mature and can leave the nucleus.
- **Splicing**
This is one of the steps of mRNA processing. Exons are brought together (spliced) and introns are removed.
- **5' methyl guanosineCAP**
This is one of the steps of mRNA processing. A CAP is added to the 5' end of the mRNA.
- **Poly A tail**
This is one of the steps of mRNA processing. A string of A nucleotides is added to the end of the mRNA.
- **mRNA**
This is the messenger RNA. It contains the codon which is complementary to and binds to the anticodon on the transfer RNA.
- **tRNA**
It contains the anticodon which is complementary to and binds to the codon on the messenger RNA. It also carries the amino acid.
- **Codon**
This is a sequence of three bases on the mRNA. It is complementary to the anticodon.
- **Anticodon**
This is a sequence of three bases on the tRNA. It is complementary to the codon.

- **Reading frame**
This is a correct reading of three bases in the mRNA. You start reading with AUG. If you started with the U instead of the A, the reading frame would be changed.
- **Mutation**
This is a change in one of the bases in the DNA (and hence, in the RNA).
- **Electrophoresis**
This is a technique used to separating DNA molecules (or RNA or proteins) of different sizes through a gel.
- **Gel**
This is a substance similar to jello. It is used in electrophoresis to separate the different molecules.
- **Agarose**
This is what a DNA gel is made of.
- **Ethidium bromide**
This is a dye that gets into the bases of the DNA. It fluoresces under UV light.
- **Micropipet**
This is a device that is used to load the gel.
- **Comb**
This makes wells in the gel so that there is a place to load the samples.