**Chap 17: Gene to Protein (Transcription/Translation/Mutation)**

**Diagram** and **Describe** the central dogma of biology.

**List** the number of amino acids that exist on planet Earth naturally.

**Describe** how many bases are read per codon.

**Explain** whether or not both strands of DNA get transcribed simultaneously.

**Explain** how multiple codons can code for the same amino acid.

**Define** a *reading frame*.

**Diagram** and **Explain** the processes and enzymes that creates RNA.

**Describe** a promoter region.

**Explain** what a terminator sequence in prokaryotes does.

**List** the 3 steps of Transcription and **Describe** what happens in each.

**Explain** how eukaryotic RNA is modified.

**Explain** when and where RNA modification happens.

**Differentiate** between introns and exons.

**Explain** how alternative splicing helps eukaryotic organisms be more efficient.

**Define** anticodon and **Diagram** its location.

**Explain** the importance of aminoacyl-tRNA synthetases.

**List** and **Describe** the purposes of the 3 kinds of RNA used in transcription and translation.

**Define** the *Wobble* effect.

**Describe** a polyribosome and **Explain** its purpose.

**Describe** the process that creates a protein that is to be secreted from a cell.

**Compare** and **Contrast** *point mutations*, *substitution/deletion mutations* and *frameshift mutations.*

**Differentiate** between *silent mutations* and *missense mutations*.

**Explain** how a frameshift mutation is almost always worse than a substitution mutation.