

### Transcription/Translation Quiz Study Guide

1. What is the Central Dogma of Molecular Biology?

**DNA → RNA → Protein**

2. List the similarities and differences between DNA molecules and nucleotides and RNA molecules and nucleotides.

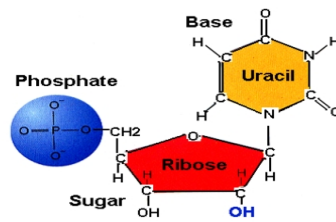
#### Similarities

1. Both made of chains of nucleotides

#### Differences

1. RNA is single stranded. DNA is double helix
2. RNA has nitrogenous base uracil
3. DNA has nitrogenous base Thymine
4. DNA has Deoxyribose sugar
5. RNA has Ribose sugar

3. Draw an RNA nucleotide.



4. What are the three major types of RNA? What are the functions of each?

#### mRNA

Most genes contain instructions for assembling amino acids into proteins. The RNA molecules that carry copies of these instructions are known as messenger RNA (mRNA) because they serve as the messenger from DNA to the rest of the cell

#### rRNA

Ribosomes are made of proteins as well as a form of RNA known as Ribosomal RNA (rRNA).

#### tRNA

During the construction of proteins, a third type of RNA molecule transfers each amino acid to the ribosomes as it is specified by coded messages in the mRNA. These RNA molecules are known as Transfer RNA (tRNA).

5. What is the main enzyme that transcribes DNA into RNA?

**RNA Polymerase**

6. How does RNA polymerase know where to start and stop?

**RNA polymerase will only bind to DNA in an area called the promoter region, which have specific base sequences. There are also non-coding regions of DNA called termination sequences which tell RNA polymerase to stop transcribing.**