- "Downstream" = direction of transcription; "upstream" is the other way
- **Transcription Unit** = the stretch of DNA downstream from the promoter that is transcribed into an RNA molecule
- Bacteria have 1 type of RNA Pol; Eukaryotes have 3+, one for pre-mRNA is called Pol II.
- In Eukaryotes, a collection of proteins called **transcription factors** mediate the binding of *RNA polymerase and the initiation of transcription*
- ONLY AFTER transcription factors bind to promoter does RNA pol II bind to it
- Transcription factors + Pol II bound to promoter = **Transcription Initiation Complex**
- RNA polymerase unwinds the DNA and elongates the RNA transcript
- RNA polymerase exposes 10-20 DNA nucleotides at a time for pairing with RNA nucleotides
- RNA Pol enzyme adds nucleotides to the 3' end of the growing RNA molecule
- (5'>3')
- DNA strands reform a helix as the RNA is formed and starts to peel away
- Transcription continues at a rate of 40 nucleotides per second in Eukaryotes
    - A single gene can be transcribed simultaneously by several molecules of RNA pol following each other
    - Increases the amount of mRNA transcribed from that gene, and helps the cell make the encoded protein in large amounts