Name _____

EOR #7

(Chapter 10 Readings)

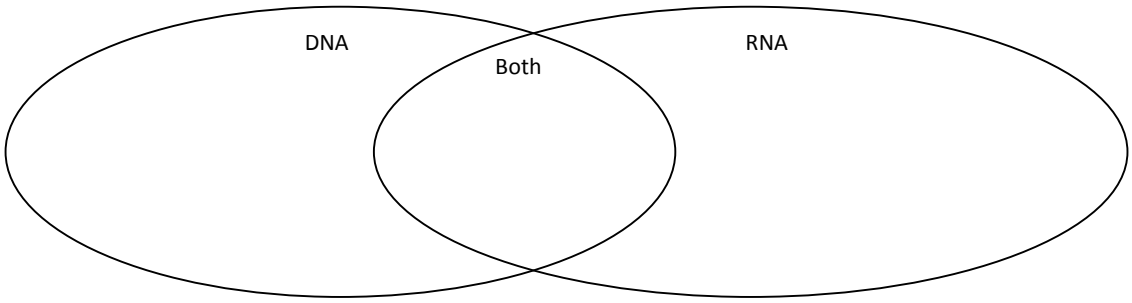
DIRECTIONS: Read sections 10.2 → 10.3 in the textbook and answer the following questions

1) Draw a diagam of one **nucleotide** (the DNA "building block") and label the 3 subunits

2) **Circle** the parts of the nucleotide (above) that make up the **backbone** of DNA

3) Name the **5-carbon sugar** molecule found in DNA: _____

4) Compare and Contrast the structure of **DNA** and **RNA** in the Venn diagram below



5) Summarize the work of **James Watson** & **Francis Crick** that earned them a Nobel Prize. **WHEN** did they publish their news?

6) Below is a short sequence of DNA code. Write the **complementary sequence** for the other DNA strand?

T G C T A A C G T

_____

DIRECTIONS: Read sections 10.6 → 10.15 in the textbook and answer the following questions

7) Draw a **diagram** summarizing the key activities of **TRANSCRIPTION** and label the **4** following items in your diagram: (promoter, terminator, mRNA, template DNA) (see Figures 10.9A & 10.9B)

8) **Number** the **6** key activities that happen during **TRANSCRIPTION in the correct sequence:** (see 10.9)

_____ RNA Polymerase enzyme attaches to the DNA template at the promoter

_____ Each letter of the DNA code is read by RNA Polymerase and matching RNA nucleotides are added across from each DNA letter.

_____ The completed mRNA strand breaks away from the DNA and leaves the nucleus. The DNA strands "re-zip" and "re-wind".

_____ Helicase enzymes unwind and unzip the 2 DNA strands

_____ The mRNA strand arrives at the ribosome and awaits the arrival of the tRNA.

_____ RNA Polymerase enzyme reaches the terminator sequence of the DNA template

9) Draw a **diagram** summarizing the key activities of **TRANSLATION** and label the **7** following items in your diagram: (ribosome, mRNA, tRNA, amino acid, polypeptide, codon, anticodon) (see Figure 10.15)

10) **Number** the **5** key activities that happen during **TRANSLATION** in the correct sequence: (see 10.14)

____ Each tRNA "taxi" parks at the ribosome across from the codon by showing its matching anticodon

____ The ribosome reads the start codon and a tRNA "taxi" delivers a methionine amino acid

____ The ribosome links all of the amino acid passengers together with peptide bonds until a stop signal is reached.

____ The tRNA drops off its amino acid passenger and then the empty tRNA leaves to find another amino acid passenger.

____ As each mRNA codon is read a tRNA "taxi" picks up and delivers the required amino acid.

Directions: Review the assigned DNA reading by indicating whether each DNA statement below is T/F and the textbook page where the answer can be found.

	DNA Statements (Chapter 10)	After reading **T/F**	Textbook page
1	Erwin Chargaff's rules suggest that for any kind of DNA sample tested, the # of A = T and the #C = G		
2	Genetic information flows from DNA → protein → RNA		
3	The sugars and phosphates on one DNA chain are oriented upside down with respect to the direction of the sugars and phosphates on the other DNA chain		
4	During Translation, each transfer tRNA molecule delivers one specific amino acid to a ribosome as each codon on the mRNA is read.		
5	The function of ribosomes is to build a polypeptide by directly reading the DNA molecule 3 letters at a time.		
6	When reading the genetic code during Translation, there are actually 3 different STOP codons that are used to indicate that the polypeptide being produced is finished.		
7	The first step of Transcription is to make sure that only the tRNA with a complementery anticodon binds to the mRNA promoter .		
8	When reading the genetic code, it was discovered that there are many more amino acids than codons ... thus several different amino acids can be requested by the same codon		
9	The DNA backbone includes the sugar and the Nitrogen base		
10	When tRNA molecules arrive at a ribosome to deliver the requested amino acid, they first "park" at the P site of the ribosome and later will slide to the A site.		