Name _____

TNT Review

MATCHING: Match each question or description to the MOST correct term or # in the word bank.
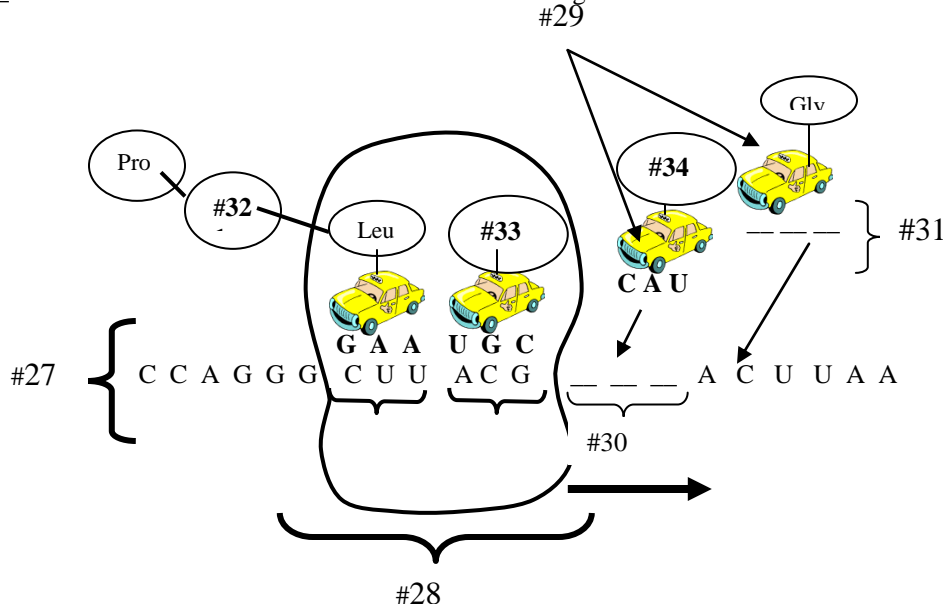You may use some terms or #'s more than one time if needed.

Word Bank

1	Adenine	nucleus	nucleotide	amino acid	DNA
2	Cytosine	ribosome	backbone	polypeptide	gene
3	Uracil	mitochondria	phosphate group	chromatin	mRNA
4	Guanine	translation	5-C sugar	chromosome	tRNA
23	Thymine	transcription	Nitrogen-base	Codon	covalent bond
46	24,000	6 billion	double helix	Anti-CODON	hydrogen bond

DNA → #1 → RNA → #2 → Protein

_____ 1. The process of making a **m**RNA copy of a DNA gene code. (see diagram above → #1)

_____ 2. The process of converting a **m**RNA code into a specific protein chain.   (see diagram above → #2)

_____ 3. The **total** number of **nitrogen base letters** found in one human blueprint?

_____ 4. Which Nitrogen base is found in RNA but NOT in DNA ?

_____ 5. Which Nitrogen base is found in DNA but NOT in RNA ?

_____6. The name for the 20 "building block" molecules linked to form **protein** chains

_____ 7. The name for the "L-shaped" "building block" molecules which form **RNA** or **DNA** chains.

_____ 8. How many chains or strands of N-base letters are found in a mRNA molecule.

_____ 9. How many chains or strands of N-base letters are found in a DNA molecule.

_____10. A sequence or short piece of DNA letter codes which determines a specific trait for an organism

_____ 11. A series of CODONS one after another are located on what type of molecule in a cell?

_____ 12. Which molecule transfers "like a taxi" ONE specific Amino Acid "passenger" ?

_____ 13. The process of **Translation** occurs <u>where</u> in a cell as mRNA is used to make a protein?

_____ 14. The process of **Transcription** occurs <u>where</u> in a cell as the DNA is copied into mRNA ?

_____ 15. According to the DNA base pairing rules, which nitrogen base is the complementery match for cytosine?

_____ 16. How many Nitrogen base letters (in a row) are in a CODON and an ANTICODON ?

_____ 17. How many **total chromosomes** are required to contain the complete human blueprint of 6 billion letters ?

_____ 18. How many hydrogen bonds connect Adenine and Thymine ?

_____ 19. How many hydrogen bonds connect Cytosine and Guanine ?

_____ 20. After replication, DNA strands shorten and coil into "X-shaped" structures called ?

_____ 21. The term for DNA's "twisted ladder" shape of 2 spiraled chains

_____ 22. Deoxyribose is which of the 3 parts of a DNA "building block" ?

_____ 23. Term for the outside, alternating sugar and phosphate groups in the DNA structure ?

_____ 24. The actual DNA "blueprint" code is found in the order of the _____ in the DNA structure ?

_____ 25. The **total** number of **gene codes** found in one human blueprint?

*** Use the Translation <u>Diagram</u> and CODON <u>Table</u> below for questions 26- 34.   ***

_____ 26. List your favorite **STOP** or **terminate** CODON from the table

_____ 27. Identify the molecule labeled as **#27** in the diagram

_____ 28. Identify the molecule labeled as **#28** in the diagram

_____ 29. Identify the molecule labeled as **#29** in the diagram

_____ 30. What are the 3 CODON letters for #**30** in the diagram

_____ 31. What are the 3 Anti-CODON letters for #**31** in the diagram

_____ 32. What is the Amino Acid labeled #**32** in the diagram

_____ 33. What is the Amino Acid labeled #**33** in the diagram

_____ 34. What is the Amino Acid labeled #**34** in the diagram

First base	Second base				Third base
	U	**C**	**A**	**G**	
U	UUU UUC Phenylalanine / UUA UUG Leucine	UCU UCC UCA UCG Serine	UAU UAC Tyrosine / UAA UAG Stop	UGU UGC Cysteine / UGA—Stop / UGG—Tryptophan	U C A G
C	CUU CUC CUA CUG Leucine	CCU CCC CCA CCG Proline	CAU CAC Histidine / CAA CAG Glutamine	CGU CGC CGA CGG Arginine	U C A G
A	AUU AUC Isoleucine / AUA / AUG—Start	ACU ACC ACA ACG Threonine	AAU AAC Asparagine / AAA AAG Lysine	AGU AGC Serine / AGA AGG Arginine	U C A G
G	GUU GUC GUA GUG Valine	GCU GCC GCA GCG Alanine	GAU GAC Aspartic Acid / GAA GAG Glutamic Acid	GGU GGC GGA GGG Glycine	U C A G

35. Number the steps of <u>transcription</u> below in the correct sequence:

_____ The mRNA strand arrives at the ribosome and awaits the arrival of the tRNA.
_____ Each letter of the DNA code is read by RNA Polymerase and complementary 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 DNA.

36. Number the steps of <u>translation</u> below in the correct sequence:
_____ The tRNA taxi cab parks at the ribosome across from the codon by showing its matching anticodon
_____ The mRNA codon is read and a tRNA taxi cab picks up the required amino acid.
_____ The ribosome links all of the amino acid passengers together 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.