Name: _____ Period: _____ **VOCABULARY REVIEW: HEREDITY I**

CELL CYCLE & STEM CELLS

cell cycle	chromatid	anaphase	metastasize	haploid number
mitosis	gap 1	metaphase	carcinogen	diploid number
cytokinesis	gap 2	telophase	sexual reproduction	
chromosome	synthesis	cancer	asexual reproduction	
histone	centromere	malignant	stem cell	
chromatin	prophase	benign	interphase	

1. _____Process by which a cell's cytoplasm divides.
2. _____Process by which a cell's nucleus divides.
3. _____Phase of the cell cycle where DNA is copied.
4. _____Phase of mitosis where the chromosomes are lined up along the equator of the cell.
5. _____One-half of a duplicated chromosome.
6. _____Phase of mitosis where sister chromatids separate and are pulled to opposite poles of the cell.
7. _____Type of tumor that cells break away and spread to other parts of the body.
8. _____The act of spreading out from one area to another.
9. _____A substance that promotes the development of cancer.
10. _____Uncontrolled cell growth.
11. _____Process where offspring are produced from one parent.
12. _____Process where offspring are produced by more than one parent.
13. _____Phase of the cell cycle between cell divisions; most of a cell's life is spent in this phase.
14. _____Phase of mitosis where chromosomes condense and nuclear envelope breaks down.
15. _____Region of the condensed chromosome where spindle fibers attach; place where sister chromatids are attached.
16. _____Protein that DNA wraps around and organizes into chromosomes.
17. _____Long continuous threads of DNA that consist of numerous genes and regulatory information (condensed during prophase).
18. _____Undifferentiated cells; types include embryonic and adult.
19. _____DNA and histones in interphase (not condensed).
20. _____Normal growth and functions of a cell's life cycle.
21. _____ 2 copies of the chromosomes; found in somatic cells.
22. _____ 1 copy of the chromosomes; found in gamete cells.

DNA, RNA, & PROTEIN SYNTHESIS

codon	ribosome	translation	replication	frameshift mutation
anticodon	double helix	DNA nucleotide	mutation	point mutation
RNA polymerase	nucleotide	RNA nucleotide	start codon	
DNA polymerase	uracil	mRNA	stop codon	
helicase	base pairing rules	tRNA	mutagen	
nucleus	transcription	rRNA	central dogma	

23. _____Monomer of nucleic acids.
24. _____Composed of deoxyribose, phosphate group, and a nitrogen-containing base.
25. _____Composed of ribose, phosphate group, and a nitrogen-containing base.
26. _____Adenine binds with thymine and cytosine binds with guanine; explains how nucleotides interact with each other.
27. _____Process by which DNA is copied.
28. _____Enzyme that unwinds DNA in replication.
29. _____Enzyme that forms bonds between nucleotides and proofreads during replication.
30. _____Structure of DNA.
31. _____Process where a gene of DNA is used as a template to form a complementary RNA strand.

32. _____Enzyme that catalyzes transcription.
33. _____Location of replication and transcription.
34. _____Location of translation.
35. _____Process by which an mRNA sequence is used to code for a polypeptide.
36. _____Form of RNA that has codons that code for an amino acid sequence.
37. _____Form of RNA found in a ribosome.
38. _____Form of RNA that brings amino acids to a ribosome for protein synthesis.
39. _____A 3-nucleotide sequence on mRNA.
40. _____Signals the end of translation (on mRNA); UGA is an example.
41. _____Signals the beginning of translation (on mRNA); AUG.
42. _____Change in the sequence of DNA.
43. _____A 3-nucleotide sequence on tRNA.
44. _____Base found in RNA but not in DNA.
45. _____ Caused by the insertion or deletion of nucleotides in DNA.
46. _____ Examples include radiation and UV light.
47. _____ A change in a single nucleotide of DNA (substitution of one base for another base).
48. _____ Describes the flow of information from DNA to RNA to proteins.

IDENTIFYING MUTATIONS:

Circle the whether the mutation is a point or frameshift mutation. In the line that follows, identify whether the mutation is a substitution, insertion, or deletion.

49. AGCGCGAUU to ACCGCGAUU point or frameshift _____
50. AGCGCGAUU to AGGCGCGAUU point or frameshift _____
51. AGCGCGAUU to ACGCGAUU point or frameshift _____

SHORT ANSWER:

52. **For humans**: the diploid number is _____.

53. **For humans:** the haploid number is _____.

Replication

DNA Sequence: ATCTACGACTTTCCCACTCGC

54. Complementary DNA: _____

55. Location:

56. Where in the cell cycle does replication occur? _____

Protein Synthesis

DNA Sequence: ATCTACGACTTTCCCACTCGC

57. Complementary mRNA: _____

58. Location:

59. What process is this? _____
(DNA gene used to generate an RNA)

Find the start codon & translate the mRNA codons into the appropriate amino acid sequence (polypeptide) using the genetic code table in your textbook on p. 244. Don't forget to stop at the stop codon!

61. Polypeptide: _____

62. What process is this? _____
(mRNA codons used to generate a protein?)

61. Location: