

Name \_\_\_\_\_

Period \_\_\_\_\_

**Biology Basic**  
**Semester 2 Final Exam Review**

**Chapter 9: Cell Reproduction**

1. Define the following terms:

Mitosis -

Meiosis -

Cell division -

Haploid -

Diploid -

Cytokinesis -

Interphase -

Prophase -

Metaphase -

Anaphase -

Telophase -

Cancer -

Gamete -

Malignant tumor -

Benign tumor -

2. List 3 differences between meiosis and mitosis.

a.

b.

c.

3. A diploid cell has 24 chromosomes. How many chromosomes will a sperm cell have?

\_\_\_\_\_

4. Explain the major function of each process (what does it produce and why?):

a. meiosis

b. mitosis

### **Chapter 10: Genetics**

1. Who is Gregor Mendel and why is he important?

2. Define the following words:

a. homozygous -

b. heterozygous -

c. allele -

d. dominant -

e. recessive -

f. phenotype -

g. genotype -

h. Punnett square -

i. P<sub>1</sub> generation -

j. F<sub>1</sub> generation -

3. In pea plants, green seeds (G) are dominant to yellow seeds (g). Write the genotypes for the following pea plants:

Homozygous green \_\_\_\_\_ Heterozygous \_\_\_\_\_ Yellow \_\_\_\_\_

4. Brown eyes are dominant to blue eyes. If a female has blue eyes and a male has brown eyes and is heterozygous, what are the phenotypic and genotypic ratios of their offspring? (Hint: you'll need to draw a Punnett square)


5. In pea plants, green peas are dominant to yellow peas and smooth peas are dominant to wrinkled pea. Complete the dihybrid cross below.

G = green                      R = smooth  
g = yellow                     r = wrinkled

	GR	Gr	gR	gr
GR				
Gr				
gR				
gr				

What is the phenotypic ratio?

6. What is a sex-linked trait?
7. Give an example of a sex-linked trait.
8. What is the purpose of a pedigree?
9. In a pedigree, a circle represents a \_\_\_\_\_. A square represents a \_\_\_\_\_.

**Chapter 11: DNA and protein synthesis**

1. Define the following words:

- a. nucleotide -
- b. DNA -
- c. mRNA -
- d. tRNA -
- e. polypeptide -
- f. DNA replication -
- g. Transcription -
- h. Translation -
- i. Codon -
- j. Gene -

2. Replicate the DNA strand below.

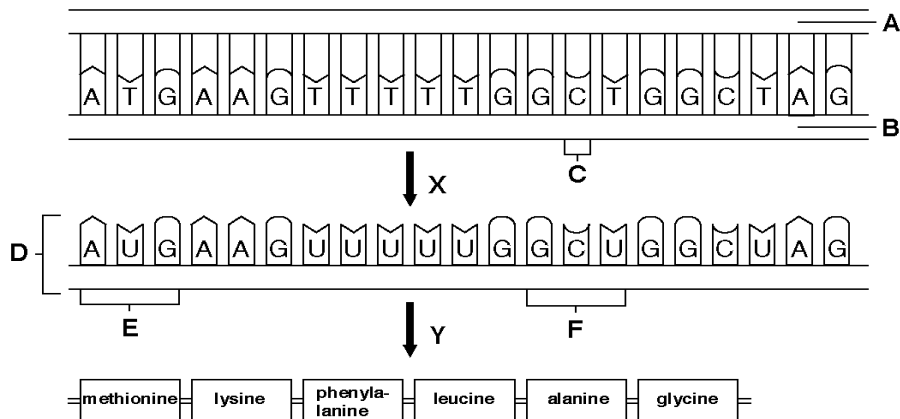
A    T    G    G    C    A    T    T    C    G    G

Transcribe the strand you just created.

3. Name 2 similarities between DNA and RNA.

- Name 2 differences between DNA and RNA.
- Where do you find DNA in the cell?
- Draw a nucleotide and label it with its 3 parts.

Describe in detail the structure of DNA.



- Describe what is taking place in the picture. Make sure to include what each letter represents.

### Chapter 14 & 15: Evolution and Taxonomy

- Who is Charles Darwin?
- Where did he do most of his work?
- Describe natural selection.

4. Define adaptation.

Give an example of an adaptation.

5. Define and give two examples of each word.

a. vestigial structure

b. homologous structure

6. Why does natural selection take place?

7. Give 4 forms of evidence that support the theory of evolution.

8. What is evolution?

9. What is a fossil?

Give 3 examples.

10. Define taxonomy.

11. Who is Linnaeus?

12. Write the classification table from the largest category to the smallest category.

13. How do you write a scientific name?

14. Fill out the chart below for the six kingdoms.

KINGDOM	EUKARYOTIC/ PROKARYOTIC	UNICELLULAR OR MULTICELLULAR	FEEDING PATTERN Autotrophic/heterotrophic
Animalia			
Plantae			
Protista			
Fungi			
Eubacteria			
Archaeobac- teria			

15. Use the chart to answer the next 3 questions.

	Red Maple	Brown Trout	Australian Tick	Mayfly
Kingdom	Plantae	Animalia	Animalia	Animalia
Phylum	Tracheophyta	Chordata	Arthropoda	Arthropoda
Class	Angiospermae	Osteichthyes	Insecta	Insecta
Order	Sapindales	Salmoniformes	Acarina	Ephemeroptera
Family	Aceraceae	Salmonidae	Ixodidae	Ephemeridae
Genus	<i>Acer</i>	<i>Salmo</i>	<i>Argos</i>	<i>Ephemera</i>
Species	<i>rubrum</i>	<i>trutta</i>	<i>persicus</i>	<i>danica</i>

Which is the most specific group that both the mayfly and tick belong to? \_\_\_\_\_

What organism(s) is/are most closely related to the trout?

\_\_\_\_\_

### **Chapter 34, 35, and 36 - Ecology**

1. Define the following words.

- a. ecosystem -
- b. population -
- c. community -
- d. biosphere -
- e. abiotic factor -
- f. biotic factor -
- g. population density -
- h. trophic level -
- i. biomass pyramid -

j. herbivore -

k. carnivore -

l. producer -

m. consumer -

n. omnivore -

2. Define a density dependent factor and a density independent factor. Give an example of each factor.

3. What is in a niche?

4. What would be some of the possible limiting factors of an animal population?

5. Create a food chain with the following animals: bird, grass, insect, and dog

Circle the producer. Star the primary consumer.

6. What is the difference between a food chain and food web?

7. What is symbiosis?

List 3 types of symbiotic relationships and explain them.