



EOR 5 (chapter 9A)

Name _____



DIRECTIONS: Read sections 9.1 → 9.10 in the textbook and answer the following questions:

1) WHO was Gregor Mendel, WHEN and WHERE did he live, and WHAT did he contribute to the world of science?

2) Explain Mendel's technique for cross-fertilizing pea plants?

3) Summarize what happened when Mendel crossed true-breeding **purple** flowered pea plants with true-breeding **white** flowered pea plants during his famous pea plant experiments? (see figure 9.3A)

First generation (F₁) results:

Second generation (F₂) results:

4) Explain Mendel's Law of Segregation with a pea plant example

5) Explain the difference between a **genotype** and a **phenotype** and give a pea plant **EXAMPLE** of each concept.

6) Summarize what happened when Mendel crossed true-breeding **yellow & round** pea plants with true-breeding **wrinkled and green** pea plants during his famous pea plant experiments? (see figure 9.5A)

First generation (F₁) results:

Second generation (F₂) results:

7) Explain Mendel's Law of Independent Assortment with a pea plant example

8) Compare and contrast 2 forms of fetal testing [**amniocentesis** vs **chorionic villus sampling (CVS)**] that allow physicians to diagnose various genetic conditions before birth.

	amniocentesis	chorionic villus sampling (CVS)
fetus age when harvested		
type of fetal cells harvested		
Equipment used to harvest cells		

9) The genetic test for **Phenylketonaria (PKU)** is given to all newborn babies in the US. Summarize this condition below:

Cause	
Frequency	
Symptoms	
Treatment	

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

	Heredity Statements (Chapter 9)	<u>After reading</u> T/F	Textbook page
1	Mendel's Law of Segregation predicts that gametes after meiosis will only contain one allele for each inherited trait.		
2	A fetus that tests heterozygous for the HD mutation will live life as an unaffected carrier.		
3	Two advantages of CVS fetal testing is that they can be performed earlier in a pregnancy and the results obtained faster than with amniocentesis testing.		
4	The phenotype for a Cystic Fibrosis (CF) carrier is Ff.		
5	A testcross is used to determine the genotype for an organisms with a recessive phenotype		
6	If a geneticist knows the phenotype for every member in a 3-generation pedigree, then they can deduce the exact genotype for every person.		
7	After his famous dihybrid cross, Mendel determined that all the round, green peas had a Rryy genotype.		
8	All organisms that breed true for a trait are homozygous for that trait		
9	If a tall pea plant is crossed with a dwarf pea plant and 50% of the F1 generation are dwarfs, then the original dwarf parent was heterozygous		