

## Genetics Plus Unit Test Review Packet

This is NOT everything on the unit test, but this is the big idea so far. The key to studying is to go over things early and often. The more times you see the information, over long periods of time, the better you will learn it. So this will help you *start* to study for the Unit test, and in the long run, the final. Follow these steps to complete this activity effectively:

1. Try to do as much of this FIRST from memory, so you can see what you already know.
2. Then, put a question mark next to the things you do not know from memory.
3. Then, use your notes to look over the things you do not know, and find the correct answers.
4. Then, look through your notes and *make sure* you have the right answers to ALL the questions (sometimes you think you know something, but really you may have mixed up some information)
5. Then, print this at home, and try it again to see if the number of question marks has decreased.
6. Then, I would do it again.
7. And again.
8. And again.

Do you see the idea here? Studying takes a lot of time and a lot of repetition. Looking at something once is not enough.

### Compounds of Life

1. Complete the following chart for each compound of life:

Compound	Element	Monomer	Polymer	Function	Examples

2. What is the difference between and organic and an inorganic compound?
  
3. What is the relationship between monomers and polymers?



13. What is the first step of DNA Replication? Include the name/function of the enzyme
  
14. What is the second step of DNA Replication? Include the name/function of the enzyme.
  
15. What is the third step of DNA Replication? Include the name/function of the enzyme.
  
16. Explain how the two sides of DNA replicate differently. Use all 3 key terms.
  
17. What is the outcome of DNA replication?
  
18. What are the differences between DNA and RNA?
  
19. What are the three types of RNA? Name them, draw a picture, and explain the function in respects to transcription/translation?
  
20. What are the two steps of protein synthesis? Where does each take place?

21. Explain what happens in transcription. What enzyme completes this process?

22. Explain the steps to translation. Make sure to include the following key terms: mRNA, tRNA, rRNA/ribosome, codon, anticodon, amino acid, peptide bond.

23. What is the point of protein synthesis?

24. What is a codon? What is an anticodon? How do they relate?

25. Use the following strand of DNA to complete the rest of the questions.

**ATGCTACACTGGCTACGAACT**

- create the complementary strand of DNA
- create the complementary strand of mRNA (from the strand above)
- Use the codon chart below to complete translation from the above strand of mRNA

	U	C	A	G
U	UUU = phe UUC = phe UUA = leu UUG = leu	UCU = ser UCC = ser UCA = ser UCG = ser	UAU = tyr UAC = tyr UAA = stop UAG = stop	UGU = cys UGC = cys UGA = stop UGG = trp
C	CUU = leu CUC = leu CUA = leu CUG = leu	CCU = pro CCC = pro CCA = pro CCG = pro	CAU = his CAC = his CAA = gln CAG = gln	CGU = arg CGC = arg CGA = arg CGG = arg
A	AUU = ile AUC = ile AUA = ile AUG = met	ACU = thr ACC = thr ACA = thr ACG = thr	AAU = asn AAC = asn AAA = lys AAG = lys	AGU = ser AGC = ser AGA = arg AGG = arg
G	GUU = val GUC = val GUA = val GUG = val	GCU = ala GCC = ala GCA = ala GCG = ala	GAU = asp GAC = asp GAA = glu GAG = glu	GGU = gly GGC = gly GGA = gly GGG = gly

26. What is the end product of mitosis? In which cells does it occur?

27. What is the end product of meiosis? In which cells does it occur?

28. Define the following terms:

- a. Homozygous
- b. Heterozygous
- c. Dominant
- d. Recessive
- e. Genotype
- f. Phenotype

29. What is incomplete dominance? Give an example.

30. What is codominance? Give an example.

31. Long Hair (H) is dominant over short hair (h) in cats. Cross 2 homozygous cats, one with long hair and one with short-hair.

Genotype percents:

Phenotype percents:

32. In pea plants, tall (T) is dominant over short (p). Purple flowers (P) are dominant over white flowers(p). Cross a heterozygous purple, heterozygous tall pea plant with a heterozygous purple, homozygous tall pea plant.

Genotype percents:

Phenotype percents: