

AP Biology Winter Break Homework

Name: _____

Date _____ Period __

Your job is to dive into genetics!

Please read through the beginning of chapter 11 (pages 206-212) and answer the following questions in your notebook.

1. Who was Gregor Mendel and how did he contribute to the study of genetics?
2. The following are key vocabulary, please define them.
 - a. Trait
 - b. True-breeding
 - c. Heredity
 - d. Alleles
 - e. Dominant
 - f. Recessive
 - g. Homozygous
 - h. Heterozygous
 - i. Genes
 - j. Genotype
 - k. Phenotype
3. Describe Mendel's "principle of segregation" and give an example.
4. Describe Mendel's "principle of independent assortment" and give an example.
5. What's a test cross? Give an example to make your point.
6. What are Punnett squares? (Why might you use them? What can they tell you?)

Next step... Watch the 2 Bozeman AP Biology videos on DNA and RNA (# 027) and create concept maps based on them...you can have LABELLED concept maps or "Big Idea" 4 Squares.

Please read through the beginning of chapter 13 (pages 245-250) and answer the following questions in your notebook.

1. Create a timeline of the discovery that DNA is our genetic material. Include: dates, the key ideas of the each discovery, the scientists involved and how they used the information of others to build new knowledge. (You can use the text or web resources...the Bozeman video referenced below can help!) and the timeline can go in the book or on separate paper if that's easier.) Include the following scientists:
 - a. Gregor Mendel
 - b. Fredrick Griffith
 - c. Oswald Avery
 - d. Erwin Chargaff
 - e. Hershey & Chase
 - f. Rosalind Franklin
 - g. Watson & Crick
 - h. Meselson & Stahl
2. Sketch & label the nucleotide of DNA shown to the left. Identify the 5' and 3' ends of the sugar.
3. What is the shape that a double strand of DNA forms and why does it form this shape?
4. What are the base pairing rules? Why do they exist? (stated differently...what pairs with what and why do they pair? See Figure 13.8)
5. Why are hydrogen bonds essential to maintaining the shape of DNA?

