**AP Biology Review: Selection, Origins**

1. Gather together all your notes and labwork and read them, highlighting the key concepts and terms, and crossing out the extraneous content. Turn off your phone and music; commit to staying in your chair and staying on task; do not interrupt your focus. Now rewrite all the highlighted material in your own words, by writing short essays on each topic, or by creating an outline of it all, or by creating a Cornell page per topic, with a summary at the end. Use other resources to look up the material your notes are not clear on. Finally, read with a highlighter again, but only highlight the stuff you do not have committed to memory. Review these highlights repeatedly until you feel you know the material. Then try to answer the following extemporaneously, referring to your rewritten notes only when you are stumped:
2. Distinguish between evolution and selection.
3. Give examples of observed evolution.
4. What evidence supports the theory of evolution?
5. Describe a polymorphic population. What is the role of said population in evolution?
6. Define “fitness” as it relates to populations and evolution.
7. How are recessive alleles retained for a lethal recessive condition? Use sickle cell as an example.
8. Distinguish between directional, stabilizing, and disruptive selection. What is the effect on the mean, median and mode in each case?
9. Differentiate between convergent and divergent evolution, citing homologous, analogous and vestigal structures.
10. How did Darwin’s theories differ from Lamarck’s?
11. What criteria would need to be met in order for a population to NOT evolve?
12. Why do small populations tend to evolve faster than larger?
13. Explain how mathematical evidence is used to investigate evolution.
14. Calculate the allele frequencies in a population of 1250 for a trait for which there are only 2 alleles, one dominant and one reccessive, and where the dominant phenotype is expressed in 750 individuals.
15. What is the normal curve? What stats are used as benchmarks for describing the population?
16. Relate a data set’s (populations) range, mean, and standard deviation.
17. What factors influence the SD and SE? Provide an example of the effect of changing one of those factors.
18. Typically population data represents a sample – explain. How is the fact that you know only about the sample accounted for in statistical analysis?
19. What stats values would you use to compare a population at two different points time? Justify.