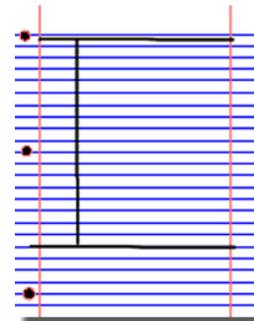


**AP Biology Homework Guidelines:**

ALL Homework should be saved in a notebook that can be used later as a resource to study for the AP Biology Exam

**Possible Homework Strategies and Descriptions:**

1. **Cornell Notes:** Divide paper as shown in diagram to the right. Notes go in the top right box (Don't use complete sentences – diagrams and concept maps are welcome), key points go in the top left, a summary of information goes on the bottom (this should be done in complete sentences).
2. **Guided Readings:** Each student will answer a set of questions based on information from the textbook.
3. **Concept Mapping:** Each student will create a concept map about main themes of each chapter. Making connections and relationships from the information given.
4. **Traditional Outlines:** Each student will read the chapter and generate an outline based on information in the chapter
5. **MasteringBiology.com:** Each student will log on using their student accounts and answer questions regarding the chapter we are discussing in class.



**For ALL Strategies:** Please read each through the chapter once. Consider taking notes and drawing diagrams or concept maps. Think about what you have read and follow that up by answering the following questions completely, in detail and in your own words.

**GRADING:** Please note the due date for each assignment. You are to submit your work on the day it is due. You will receive zero credit for any late work (refer to syllabus for policies.) All work submitted must be your own. You may not collaborate with others on homework or use words that are not your own. If you need to quote the text, include the proper citations. If you choose not to follow the Academic Honor Code proper action will be taken.

**Chapter 13 – Meiosis and Sexual Life Cycles.****Due : 11/10****Guided Reading:**

1. Explain why organisms reproduce only their own kind and why offspring more closely resemble their parents than unrelated individuals of the same species.
2. Distinguish between asexual and sexual reproduction.
3. Diagram the human life cycle and indicate where in the human body that mitosis and meiosis occur; which cells are the result of meiosis and mitosis; and which cells are haploid.
4. List the phases of meiosis I and meiosis II and describe the events characteristic of each phase. Recognize the phases of meiosis from diagrams or micrographs.
5. Describe the key differences between mitosis and meiosis. Explain how the end result of meiosis differs from that of mitosis.
6. Explain how independent assortment, crossing over, and random fertilization contribute to genetic variation in sexually reproducing organisms.
7. Explain why inheritable variation was crucial to Darwin's theory of evolution.

**Chapter 14 – Gregor Mendel's Discoveries****Due : 11/12****Guided Reading:**

1. Define true breeding, hybridization, monohybrid cross, P generation, F<sub>1</sub> generation, and F<sub>2</sub> generation.
2. List and explain the four components of Mendel's hypothesis that led him to deduce the law of segregation.
3. Distinguish between the following pairs of terms: dominant and recessive; heterozygous and homozygous; genotype and phenotype.
4. Explain how a testcross can be used to determine if a dominant phenotype is homozygous or heterozygous.
5. Define Mendel's law of independent assortment.

6. Use the laws of probability to predict from a trihybrid cross between two individuals that are heterozygous for all three traits, what expected proportion of the offspring would be:
  - a. homozygous for the three dominant traits
  - b. heterozygous for all three traits
  - c. homozygous recessive for two specific traits and heterozygous for the third
7. Give an example of incomplete dominance and explain why it is not evidence for the blending theory of inheritance.
8. Explain how the phenotypic expression of the heterozygote is affected by complete dominance, incomplete dominance, and co-dominance.
9. Explain why dominant alleles do not necessarily mean that the allele is more common in a population. Illustrate your explanation with the character polydactyly.
10. Describe the inheritance of the ABO blood system and explain why the  $I^A$  and  $I^B$  alleles are said to be *co-dominant*.
11. Define and give examples of pleiotropy and epistasis.
12. Describe how environmental conditions can influence the phenotypic expression of a character. Explain what is meant by "a norm of reaction."
13. Describe the inheritance and expression of cystic fibrosis, Tay-Sachs disease, and sickle-cell disease.

## Chapter 15 – Relating Mendelism to Chromosomes

**Due: 11/14**

### Guided Reading

1. Explain why *Drosophila melanogaster* is a good experimental organism.
2. Define and compare linked genes and sex-linked genes. Explain why the inheritance of linked genes is different from independent assortment.
3. Distinguish between parental and recombinant phenotypes.
4. Explain why linked genes do not assort independently and explain how crossing over can unlink genes.
5. Explain how Sturtevant created linkage maps and define a map unit.
6. Explain how genetic maps are constructed for genes located far apart on a chromosome.
7. Explain the impact of multiple crossovers between loci.
8. Explain how sex is genetically determined in humans and the significance of the SRY gene.
9. Explain why sex-linked diseases are more common in human males.
10. Describe the inheritance patterns and symptoms of color blindness, Duchenne muscular dystrophy, and hemophilia.
11. Describe the process of X inactivation in female mammals. Explain how this phenomenon produces the tortoiseshell coloration in cats.
12. Distinguish among nondisjunction, aneuploidy, trisomy, triploidy, and polyploidy. Explain how these major chromosomal changes occur and describe the consequences.
13. Distinguish among deletions, duplications, inversions, and translocations.

**\*Meiosis Lab – Nov 10-11**

**\*Unit Test – Heredity – Nov 19**

*\*Dates subject to change*