# Final Semester 2

### Respiration

- 1. I can define cellular respiration and state its purpose.
- 2. I can write the chemical equation for cellular respiration and explain in words what it means.
- 3. I can identify the reactants and the products in the cellular respiration equation.
- 4. I can identify the changes in the forms of energy that occur during cellular respiration.
- 5. I can state the inputs and outputs of the three stages of aerobic cellular respiration and where each takes place.
- 6. I can state the stages of anaerobic cellular respiration and where each takes place.
- 7. I can compare and contrast the process of aerobic cellular respiration and anaerobic cellular respiration and describe which is more efficient.
- 8. I can compare and contrast the process of cellular respiration and photosynthesis.
- 9. I can explain how fermentation is used to make items.
- 10. I can explain the different pathway options depending on if oxygen is available.
- 11. I can identify the types of organisms that carry out respiration.

## Photosynthesis:

- 1. I can define photosynthesis.
- 2. I can state where the process of photosynthesis takes place and the parts of the chloroplast.
- 3. I can recognize the equation for photosynthesis and the factors that affect it.
- 4. I can identify the reactants and the products in the photosynthesis equation and the 2 stages.
- 5. I can write the chemical equation for photosynthesis and explain in words what it means.
- 6. I can identify the changes in forms of energy that occur during photosynthesis.
- 7. I can state the two stages of photosynthesis and where each takes place.
- 8. I can describe why plants appear green.

9. HONORS: I can state where each of the atoms in the reactants are found in the products.

## **Genetics and Patterns of Inheritance- Chapter 9,12**

- 1. I can identify and describe homologous chromosomes with homozygous or heterozygous alleles.
- 2. I can draw and label homologous chromosomes with homozygous or heterozygous alleles.
- 3. I can describe the difference between **dominant** and **recessive** alleles.
- 4. I can state the difference between a **genotype** and a **phenotype**.
- 5. I can use a Punnett Square to **predict** all of the possible genotypes and phenotypes of the offspring when crossing two parents with a specific trait.
- 6. I can describe the different inheritance patterns for:
  - a) Complete Dominance
  - b) Incomplete dominance
  - c) Codominance
  - d) Sex Linked
- 7. I can identify traits that are polygenic.
- 8. I can use a pedigree to determine the inheritance pattern.
- 9. Explain Mendel's experiment with pea plant to determine dominant and recessive traits.
- 10. HONORS- I can use a test cross to find the genotype of a unknown dominant trait.
- 11. HONORS- I can read a dihybrid genotype and decipher a dihybrid Punnet square.

## **DNA and Protein Synthesis- Chapter 10**

- 12. I can describe the structure and function of DNA.
  - a) b. including the types of bonds
- 13. I can describe the structure and function of RNA.
- 14. I can explain the complementary base pair rules.
- 15. I can predict the consequences that changes in DNA may have on an organism.
- 16. I can demonstrate how the genetic information in DNA molecules provides instructions for assembling protein molecules.
- 17. I can describe the processes of transcription and translation in making proteins.
- 18. I can read/use the Amino Acid chart to decode codons.
- 19. I can understand the contribution of scientists to the discover of DNA

## Cell Reproduction- Chapter 8

- 20. I can describe the process of replication and where it takes place.
- 21. I can explain cell division, growth, and development as a consequence of an increase in cell number or cell size.
- 22. I can compare cell division in prokaryotes (binary fission) to eukaryotes.
- 23. I can explain how a karyotype is used to indentify genetic defects.
- 24. I can identify and describe the phases of interphase
- 25. I can identify and describe the phases of mitosis.
- 26. I can identify and describe the phases of meiosis.

- 27. I can compare and contrast the processes of cell division (mitosis and meiosis).
  - a) mutations during meiosis are passed on to offspring vs a mutation in mitosis is not
- 28. I can explain that the sorting and recombination of genes in sexual reproduction result in a great variety of possible gene combination from the offspring of two parents.
- 29. I can explain that gene mutation can result in uncontrolled cell division called cancer. Skin cell mutations are not inherited. These mutations can be caused by exposure to chemicals and/or radiation.
- 30. I can describe how mutations that occur during Meiosis, in formation of the sex cells, are inherited by offspring.
- 31. I can explain the advantages and disadvantage to sexual reproduction.

Vocaulary: acquired traits, inherited, homologous structures, vestigial structure, punctuated equilibrium, gradualism, variability, "crossed with", allele, carrier, hybrid, pure (pure-bred), di-, mono-, hetero-, homo-, filial (F), genetics, heredity, speciation, gamete, triplet, catalyzed, complementary, synthesize, sister chromatid, spindle fiber, centriole, crossing over, cytokinesis, histones, centromere, cell cycle, codon, anti-codon, Chlorophyll, pigment, granum, fermentation, lactic acid