

Lampasas High School Biology- Year at A Glance (YAG)

2023-2024 School Year

Ongoing Scientific Process Standards: B. 1A, B. 1B, B. 2A- B.2H, B. 3A, B. 3C, B. 3D

Semester 1

1ST 9 WEEKS: Intro to Biology (39 days of instruction)

1. *Syllabus, Policies/ Procedures, Capturing Kid's Hearts Social Contract per class- (3 days)
2. **Lab Safety** B. 1A and B.1B (Canvas Resources and Flinn Safety Video, Contract, Safety Drawing, and Test) Lab Safety Avid One Pager (3 days)
3. **Scientific Method, Experimental Design, and Inquiry (CER)** B.1A, B. 1B, B. 2B, B. 2D, B. 2E, B. 2F, B. 2G, B. 2H, B. 3A Marshmallow Lab (2 days)
4. **Define Science** B.2A, B.2C, B.3D, B. 3F History of Biology and contributions of scientists. Electronic presentation. (2 days)
5. **Impact of Science Research** B. 3D, B. 3B, B. 3C Research, Graphic organizer, Writing assignment. Evaluate Models B. 3E (3 days)
6. **Characteristics of Life** (Biology) B. 10C, B. 2C, B. 3F Levels of organization and Cell theory. Microscope Lab- Pond Water (6 Days)
7. **Cell structure and function** B. 4A Compare and contrast Pro vs Eu. Cell organelles (7 days) Models: Plant, animal, and bacteria.
8. **Investigate and explain cellular processes-** B.4B Homeostasis (Cell membrane model) and transport (Active vs Passive transport- Simple Diffusion, facilitated diffusion, osmosis, tonicity). (7 days) Cornell Notes, Graphic Organizer, Writing Assignment.
9. **Stages of cell Cycle** B. 5A Cell Cycle Cut and Paste (5 Days) Mitosis vs Meiosis (B. 6G)
10. **Disruptions of Cell Cycle** B.5C ex. Cancer (1 Day) Anchor Chart

2nd 9 WEEKS: Biological Processes and Systems and Mechanisms of Genetics (35 days of instruction)

1. **Compare the Structures of Viruses to Cells:** B. 4C Biotic vs Abiotic, structure, viral reproduction (lytic vs lysogenic), pathogen role, ex. HIV and influenza. (3 days) Anchor Chart
2. **Biomolecules** B. 9A Carbohydrates, Lipids, Proteins, and Nucleic Acids
Biomolecules Graphic organizer, 4 corners, Biomolecules indicator lab, and Avid one pager. (7 Days)
3. **Enzymes** B. 9C Active site match, Enzyme Lab (2 days)
4. **Compare the Reactants and Products of Photosynthesis and Cellular Respiration.** B. 9B
Drag and drop. (4 days)
5. **DNA and RNA** B.6A, B.6B, B. 6C, B. 5B B.6D, DNA and RNA Models. Nitrogenous bases, purines and pyrimidines, Chargaff's rule, Protein synthesis-transcription, translation, and protein folding. (7 Days)
6. **Gene Expression** B.6D, B. 3D, B. 3B ex. Transgenic organisms, AI Biology. Ethics and technological advances. (2 days)
7. **Mendelian vs Nonmendelian Genetics** B. 6F, B. 6E (10 days) Monohybrid cross, dihybrid cross, alleles, homozygous, heterozygous, dominant, recessive, Punnett square, genotype, phenotype, Law of independent assortment (**FOIL**)

Semester 2

3rd 9 WEEKS: Evolution, Classification, and Interactions Among Systems. Interdependence within Environmental Systems (41 days of instruction)

1. **Evolution:** B. 7A, B. 7B, B. 7C, B. 7D, B. 7E, B. 7F, B. 11B Evidence of Evolution, Common Ancestry, Fossil record (abrupt appearance and stasis), Natural Selection changes populations **NOT** individuals, Speciation, Darwin's 4 Postulates, Wallace's Survival of the Fittest, differential reproductive success, adaptation, and diversity. Evolutionary mechanisms: genetic drift, gene flow, mutation, and recombination. Changes to population and species diversity. (15 Days)
2. **Taxonomy and Classification:** B. 8A, B. 8B, B. 8C Define taxonomy, Importance of a standardized taxonomic system to the scientific community. Binomial Nomenclature, Carolus Linnaeus, Cladograms, dichotomous key, compare taxonomic groups including archea, bacteria, protists, fungi, plants, and animals. (7 days)
3. **Biological systems are composed of multiple levels:** B. 10A, B. 10B, B. 10C Functions of regulation, nutrient absorption, reproduction, and defense from injury or illness in **animals**. Functions of transport, reproduction, and response in **plants**. Review Levels of Organization. (4 days)
4. **Biological systems work to achieve and maintain balance:** B. 11A and B. 11B Summarize the role of microorganisms in both maintaining and disrupting the health of organisms and ecosystems. Describe the events and processes that occur during ecological succession that change populations and species diversity. (5 days)
5. **Interdependence and interactions occur within an environmental system:** B. 12A, B. 12B, B. 12C, B. 12D, B. 12E Symbiosis including predation, parasitism, commensalism, mutualism, and competition, among organisms. Compare variations and adaptations of organisms in different ecosystems. Analyze flow of matter and energy through trophic levels using various models, including food chains, food webs, and ecological pyramids. Describe flow of matter through the carbon and nitrogen cycles and explain consequences of disrupting these cycles. Describe how environmental change can impact ecosystem stability. (10 days)