



“In a world filled with the products of scientific inquiry, scientific literacy has become a necessity for all citizens. Everyone must use scientific information to make daily choices and to engage intelligently in public discourse about important issues that involve science and technology. And everyone deserves to share in the excitement and personal fulfillment that can come from understanding and learning about the natural world.”

Biology/Honors Biology

Teacher Contact Information

Lane L Warner liwarner@aps.k12.co.us

Office Hours:

Mornings by appointment, 7:00-7:25

Should you have any questions or concerns regarding the curriculum, assignments or your child’s performance, please do not hesitate to contact me. I check email several times throughout the day and will respond to your inquiry within 24 hours.

Course Materials

Students will be provided with a text to use in class. Additional texts are available as resources and further readings or references will be provided electronically as appropriate.

Students should come to class with a 3 ring binder, lined paper and a pen or pencil each day.

Course Overview

The curriculum for Biology guides students through the fundamental concepts of living organisms and systems. Using inquiry based activities and authentic scientific research, students will explore the core themes of molecules and cells, heredity and evolution, and organisms and populations.

Course Calendar/Schedule

This outline of lessons is tentative and subject to change depending upon the progress of the class and unforeseen changes to the school calendar. It is

intended as a broad class overview and is not inclusive of all topics and issues to be discussed in class.

Unit 1 Laboratory Safety and Scientific Inquiry

Unit 2: Biochemistry

- a. chemistry review
- b. lipids
- c. proteins
- d. carbohydrates
- e. nucleic acids

Unit 3: Cell Biology

- a. Cellular structure and organelles
- b. Transport
- c. Energy
- d. Division

Unit 4: Protein Synthesis

- a. DNA (synthesis)
- b. RNA (transcription)
- c. Protein synthesis (translation)

Unit 5: Genetics

- a. Heredity and probability (Mendelian)
- b. Inheritance
- c. Human Genetic Disorders
- d. Population Genetics

Unit 6: Evolution

- a. Evidence
- b. Microevolution
- c. Macroevolution

Unit 7: Ecology

- a. Cycles of Matter
- b. Biomes/Climate
- c. Ecosystems

Unit 8: Population Dynamics

- a. Population Biology
- b. Human Population

Science Process Skills and Practices (Embedded throughout the year)

- a. Asking Questions and Defining Problems
- b. Developing and Using Models
- c. Planning and Carrying Out Investigations

- d. Analyzing and Interpreting Data
- e. Using Mathematical and Computational Thinking
- f. Constructing Explanations and Designing Solutions
- g. Engaging in Argument from Evidence
- h. Obtaining, Evaluating, and Communicating Information

Course Policies

Policies regarding tardies, absences, dress code, makeup work and behavior are outlined in the Student Handbook. Note that electronics and food/drink are not allowed in the science lab. Electronics will be confiscated and returned at the end of class. Repeat offenders will be referred as appropriate.

Proficiency Scale

4 = Advanced Outstanding level of performance

The student consistently demonstrates excellence in his/her work and has mastered course objectives. The student has evidenced depth of thought beyond stated expectations and contributed positively to all areas of the classroom. In addition to being able to complete tasks at level 3, the student will be able to evaluate information and make predictions.

3 = Proficient High level of performance

The student has done above average work and mastered nearly all of the course objectives. The student applied knowledge gained to new situations and participated meaningfully in classroom discussions. In addition to being able to complete tasks at level 2, the student will be able to analyze data and make calculations.

2 = Developing Satisfactory level of performance

The student has done average work, mastered many course objectives, and participated satisfactorily in class. In addition to being able to complete tasks at level 1, students will be able to describe.

1 = Emerging Needs improvement in performance

The student has done below average work and has mastered few of the objectives of the course. The student will demonstrate the ability to recall basic terms and concepts.

0 = Unsatisfactory level of performance

The student's work fell below a level of acceptance for the course. The student failed to meet minimum expectations; no credit is earned.

Lab Investigations and Field Work- Approximately 25% of class time will be spent on laboratory or field work. All lab activities will heavily employ scientific skills such as data collection, analysis and interpretation of results. Experimental data will be collected by the student or collected from professional scientific sources. Analysis will commonly include mathematical calculations and applications.

Class Activities - Class activities will be designed to allow students to investigate and apply the concepts in class. These activities may include, but are not limited to: discussions, hands-on tasks that allow students to explore topics and demonstrate mastery of concepts, virtual simulations or group problem solving.

Binder- Students will be required to build and maintain a portfolio (3 ring binder). Artifacts of learning will be collected along with thoughtful reflections about their understandings of each of the topics covered.

Participation- Students are expected to engage in robust discussions regarding the content, readings and videos. Social construction of knowledge and the collaborative work of students is considered a vital component in the learning process. Students should collaborate and support peer learning while in class.

Unit Assessments - Exams will be given at the end of each unit. Exams will consist of combination of multiple choice, essay questions and performance/lab practical sections. Unit assessment may also include projects rather than a formal exam. Unit assessment scores may replace lower scores on unit assignments if mastery is demonstrated at a higher level.