

Reading Public Schools

Instilling a joy of learning and inspiring the innovative leaders of tomorrow



Science Curriculum Guide

AP Biology

Course Description

As stated by the College Board, Advanced Placement Biology is designed to be the equivalent of a two semester college introductory biology course. This rigorous course “aims to provide students with the conceptual framework, factual knowledge and analytical skills necessary to deal critically with the rapidly changing science of biology.” It differs from high school biology courses in range, depth, pace and types of labs covered. More information about the requirements of the College Board AP Biology course can be found at: <https://apcentral.collegeboard.org/courses/ap-biology?course=ap-biology>.

Content Standards

BIG IDEA 1: EVOLUTION-The process of evolution drives the diversity and unity of life.

BIG IDEA 2: ENERGETICS- Biological systems use energy and molecular building blocks to grow, reproduce, and maintain dynamic homeostasis.

BIG IDEA 3: INFORMATION STORAGE AND TRANSMISSION- Living systems store, retrieve, transmit, and respond to information essential to life processes.

BIG IDEA 4: SYSTEMS INTERACTIONS-Biological systems interact, and these systems and their interactions exhibit complex properties

Science and Engineering Practices

Science Practice 1—Concept Explanation: *Explain biological concepts, processes, and models presented in written format.*

Science Practice 2—Visual Representations: *Analyze visual representations of biological concepts and processes*

Science Practice 3—Questions and Methods: *Determine scientific questions and methods*

Science Practice 4—Representing and Describing Data: *Represent and describe data*

Science Practice 5—Statistical Tests and Data Analysis: *Perform statistical tests and mathematical calculations to analyze and interpret data.*

Science Practice 6—Argumentation: *Develop and justify scientific arguments using evidence*

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Science Curriculum Guide Overview

Curriculum Guide

Curriculum guides are public documents aligned with the Massachusetts Department of Education Curriculum Frameworks. They focus on the set of standards that students will learn within certain disciplines at appropriate grade levels. Each area of the curriculum is divided into general strands (broad categories) under which the standards fall. When we discuss “standards-based education” we mean that students are measured against their proficiency and growth towards meeting these standards. Curriculum Guides are intended for teachers, parents, and the wider school community as an overview document of the course of study for the year.

Content Standards

The content standards for Advanced Placement classes at Reading Memorial High School are set by the College Board. For more information please refer to: <https://apcentral.collegeboard.org/courses/ap-biology?course=ap-biology>.

Science and Engineering Practices

The integration of science and engineering practices in high school science courses gives students dynamic and relevant opportunities to refine and communicate science understandings to be well prepared for civic life, postsecondary education, and career success.

Essential Questions

Essential questions are questions that are not answerable with an easy answer or a simple instruction. The purpose of essential questions is to provide opportunities for inquiry into the learning and act as an umbrella to anchor the unit/lesson.

Key Activities

Key Activities identified in Curriculum Guides are not intended to be exhaustive, nor are they intended to be prescriptive. The activities identified may function as a menu of curriculum resources from which educators identify the most appropriate tools to utilize in their classrooms.