



Course Overview

High School | Biology - Last Updated on April 4, 2025

DESCRIPTION

K-12 Content Area | Mission & Philosophy Statement

- Young people are born investigators, with natural curiosities about the physical, biological, and social worlds they experience. Anchoring science learning in real-world phenomena connects curiosities to core conceptual understandings.
- Students actively construct understanding through inquiry, experimentation, and analysis to develop science and engineering practices such as asking questions, planning and carrying out investigations, and constructing explanations.
- Integration of crosscutting concepts such as patterns, cause and effect, and systems thinking promote interdisciplinary understanding and sense-making of the natural world.
- Science learning occurs alongside other disciplines to foster holistic understanding and application of knowledge.

Course Description

The college preparatory course is a comprehensive study of the biotic and abiotic factors, how they work, how they interact and how they change over time. The course incorporates detailed descriptions of concepts and topics pertaining to: cellular biology, biochemistry, genetics, biotechnology and ecology while exploring scientific inquiry and honing scientific communication skills. Student mastery of biological concepts will be demonstrated through an assortment of exercises including but not limited to: laboratory activities and reports, projects, online activities, quizzes, exams, and other forms of assessment. Biology is a Keystone course where students are required to take the Keystone Biology exam at the end of the course.

STANDARDS

Pennsylvania - High School - Keystone Biology

BIO.A.1.1.1	BIO.A.1.2.1	BIO.A.1.2.2	BIO.A.2.1.1	BIO.A.2.2.1	BIO.A.2.2.2	BIO.A.2.2.3
BIO.A.2.3.1	BIO.A.2.3.2	BIO.A.3.1.1	BIO.A.3.2.1	BIO.A.3.2.2	BIO.A.4.1.1	BIO.A.4.1.2
BIO.A.4.1.3	BIO.A.4.2.1	BIO.B.1.1.1	BIO.B.1.1.2	BIO.B.1.2.1	BIO.B.1.2.2	BIO.B.2.1.1
BIO.B.2.1.2	BIO.B.2.2.1	BIO.B.2.2.2	BIO.B.2.3.1	BIO.B.2.4.1	BIO.B.3.1.1	BIO.B.3.1.2
BIO.B.3.1.3	BIO.B.3.2.1	BIO.B.3.3.1	BIO.B.4.1.1	BIO.B.4.1.2	BIO.B.4.2.1	BIO.B.4.2.2



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BIO.B.4.2.3

BIO.B.4.2.4

BIO.B.4.2.5

COURSE OBJECTIVES

Specific objectives for this course are aligned to the Pennsylvania Academic Standards for Science and Technology and Engineering Education, the Pennsylvania Standards for Environment and Ecology, the Pennsylvania Standards for Keystone Biology and the Pennsylvania Core Standards for Reading and Writing in Science and the Technical Subjects.

ASSESSMENT TYPES

The following assessment types will be used during the course:

- Curriculum-based measures
- Benchmark Assessments
- Formative Assessments
- Summative Assessments
- Performance-Based Assessments

SUGGESTED METHODS OF INSTRUCTION

A science program demands the use of a variety of instructional strategies to foster scientific thinking. Below is a list of suggested strategies for high-quality instruction:

- Instructional components outlined in the *Framework for Teaching* by Charlotte Danielson
- Hands-on learning
- Posing questions for investigation
- Cooperative learning and collaboration
- Inquiry, engineering, and design

RESOURCES

District Approved Program Resources	District Approved Supplemental Resources	District Approved Technology Resources
Student Text Resource: Miller and Levine (2008). <i>Biology</i> . Prentice Hall • Student Edition Printed Version Teacher Text Resource: Miller and Levine (2008). <i>Biology</i> . Prentice Hall • Teacher Edition Printed Version	<ul style="list-style-type: none"> • Teacher Created Resources • District approved supplemental resources and labs 	<ul style="list-style-type: none"> • District approved supplemental technology • Explore Learning Gizmo Virtual Labs