SOUTHERN LEHIGH SCHOOL DISTRICT
5775 Main Street
Center Valley, PA 18034

Planned Course for Science

Course: Applied Biology

Standards:
This course is aligned to standards within the following categories of the Pennsylvania Academic Standards for Science and Technology and Engineering Education and the Pennsylvania Academic Standards for Environment and Ecology:

3.1	Biological Sciences
3.2	Chemistry
4.1	Ecology
4.2	Watersheds and Wetlands
4.3	Natural Resources
4.4	Agriculture and Society
4.5	Humans and the Environment

Course Description:
The K-12 science program within Southern Lehigh School District will foster the development of scientific thinking and logical reasoning. A rigorous curriculum will provide opportunities for students to learn how to ask questions and define problems in order to plan and carry out investigations. Students will be challenged to construct explanations and design solutions through collaborative experiences where they engage in arguments that are based on evidence. Teachers will provide students with hands-on and authentic experiences aligned to a coherent progression of learning.

In APPLIED BIOLOGY students will explore the study of life. The following topics are addressed: Scientific Method, Scientific Tools, Metric System, Characteristics of Living Things, Chemistry of Living Things, Cell structure and function, Photosynthesis, Cellular Respiration, Cell Cycle, Meiosis, Genetics, DNA, RNA and Protein Synthesis, Human Heredity, Genetic Engineering, Evolution, Evolution of Populations, and Ecology & Human Impact on the Environment. Students will perform experiments that will enhance and supplement concepts studied throughout this course. Students will then apply learned concepts in lab reports and other assessments. **APPLIED BIOLOGY is a Keystone course where students are required to take the Keystone Biology exam at the end of the course.** Throughout the course, students will be enrolled in a mandatory Spartan Period for Keystone Biology exam preparation.

Measurable objectives to be attained by students:
Specific objectives for this course are aligned to the Next Generation Science Standards, the Pennsylvania Academic Standards for Science and Technology and Engineering Education, the Pennsylvania Standards for Environment and Ecology, and the Pennsylvania Core Standards for Reading and Writing in Science and the Technical Subjects as outlined in the Scope and Sequence for Biology.

Instructional Strategies:
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

Estimated Instructional Time:
77 minutes per day on an alternating A/B block schedule for one school year

Forms of Assessment to Measure Attainment of Course Objectives:

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

Resources:

Student Text Resources:
Miller, Kenneth R., and Joseph S. Levine. *Biology*. Pearson, 2019.

- Student Edition Printed Version
- Student Edition Online Version
- Foundations Reading and Writing Book

Teacher Resources:
Miller, Kenneth R., and Joseph S. Levine. *Biology*. Pearson, 2019.

- Teacher Edition Printed Version with Online Access

Technology:
District approved supplemental technology

Other Resources:
Teacher created resources
District approved supplemental resources and labs