



Southmoreland School District

Introduction to Biotechnology Curriculum Overview

Overview

Introduction to Biotechnology provides a broad overview of bio-related technologies as it relates to industry and the consumer. Agriscience and how it is addressing the impact of a growing population on a limited food supply will be discussed as well as the medical applications of scientific advancements in biopharmaceuticals. Students will explore topics such as genetically modified organisms, plant science, ecology and DNA. The greenhouse will be utilized to give students an extended classroom to develop various laboratory and research activities throughout the year.

Module Titles:

Module 1: Biotechnology's Potential

Module 2: Horticulture

Module 3: Cells and Genetics

Module 4: Plant Science and GMOs

Module 5: Reproduction and Cloning

Module Overviews:

Module 1:

Students will be introduced to the phenomena of biotechnology and explore the historical development of how humans are developing the biological sciences that support the field.

Module 2:

Students will develop a working knowledge of horticulture by learning about soil management, plant diseases, pests, growing plants from seeds and seedlings, ornamentals, and how to maintain a greenhouse or home garden.

Module 3:

Students will examine the structure of DNA and how cells perform functions for the sustenance of plant and animal life via organelle function and cellular systems. Students will also discuss heredity and form an understanding of how genetic traits are expressed.

Module 4:

Students will gain an understanding of plant sciences and how biotechnology is being used to develop new strains of plants which are adapted to ever changing environments. Specifically, students will understand the various processes for creating GMOs used in both the food and medical industries.



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Module 5:

Propagation of plants and the cloning of animals will allow students to form an understanding and appreciation for how biotechnology is allowing humanity to create and recreate specific expressions of plants and animals for human use.