



Capital School District

Biology

Curriculum – Tenth Grade

This year your child's curriculum will include the following:

Unit: Nature of Science and Experimental Design

Curricular Materials Utilized: Unit developed by the Delaware Science Coalition in conjunction with Delaware State University and University of Delaware.

Unit Overview: This designed to set the stage for scientific inquiry for the three following units. It first explores the nature of science, i.e. what science is. Then it develops the concept of a scientific theory. The second part deals with what elements are required for proper experimental design.

Essentials Questions:

What is the nature of science?

What is scientific theory?

What are the elements that a good scientific experiment includes?

Unit Two: Cell Biology: World Health

Curricular Materials Utilized: This unit was approved by the Delaware Science Coalition and developed by SEPUP (Science Education for Public Understanding Program) and supported by the work of NSF (National Science Foundation.)

Unit Overview: This unit focuses broadly on the issue of health in countries in the developed and developing worlds and the affects of disease on sustainability, while applying the basics of cell biology throughout.

Essential Questions:

What is the cellular nature of life?

What is the structure and function of cells?

How are cells specialized and why are they differentiated?

What is the life cycle of a cell?

What is the role of microbes in infectious diseases?

How does the breakdown of cellular functions lead to disease?

How do the processes of photosynthesis and cellular respiration compare?

What is the role of macromolecules in cells?

Unit Three: Genetics – Feeding the World

Curricular Materials Utilized: This unit was approved by the Delaware Science Coalition and developed by SEPUP (Science Education for Public Understanding Program) and supported by the work of NSF (National Science Foundation.)

Unit Overview: This unit focuses broadly on the issue of genetically modified organisms, while applying the basics of genetics.

Essentials Questions:

What is the difference between sexual and asexual reproduction?

How do mitosis and meiosis compare?

What are phenotype and genotype?

Why was Mendel's research important?

How do you perform genetic crosses and interpret pedigrees?

How are genes inherited?

What is the structure of DNA and how does it express genes?

Unit Four: Evolution – Maintaining Diversity

Curricular Materials Utilized: This unit was approved by the Delaware Science Coalition and developed by SEPUP (Science Education for Public Understanding Program) and supported by the work of NSF (National Science Foundation.)

Unit Overview: This unit focuses broadly on the issue maintaining biological diversity and sustainability while applying the basic concepts of evolution.

Essentials Questions:

How biodiversity related to sustainability?

How do impact ecosystems and biodiversity?

How did Darwin's research lead him to develop the theory of natural selection?

How do the key events in geologic time and fossil evidence support natural selection?

Why is phylogenetic diversity important when making conservation decisions?

How does natural selection lead to speciation?