Norwood Public Schools

Biology CP Curriculum Overview

Description

This course aims to give each student a basic understanding of biological sciences and building scientific literacy. All levels of life are included: cells, tissues, organs, organ systems, organism, species and populations. The course topics are directly correlated with the state's biology standards. As such, the students will be prepared to take the Biology MCAS exam. Laboratory work is used to enhance the learning objectives. Students will learn how observations support the major biological concepts. Students are required to complete daily homework assignments which could be reading, a hand out or worksheet or both.

Learning Experiences:

- Students make observations, raise questions and formulate hypotheses.
- Students conduct scientific investigations: observing cells, use of the compound light microscope, cellular respiration.
- Students follow complex multi-step procedures carrying out a scientific investigation.
- Students communicate and apply the results of a scientific investigation: completion of lab hand-outs and creation of formal lab reports.
- Students know and recognize the 8 characteristics of life.
- Students write informative content specific essays using appropriate vocabulary: Carbon cycle essay, Animal and plant cell essay, Mitosis and Meiosis essay.
- Students complete projects based on course content throughout the year: Cell project, genetics project.
- Students read and take notes from the textbook.

Content Outline:

Term 1
Skills of Iquiry: Use the scientific method, demonstrate mathematical skills.
Ecology: Levels of organization, transfer of energy in an ecosystem, ecological relationships, biogeochemical cycles.

Term 2
Chemistry of Life: Organic chemistry and life, 4 organic compounds, importance of enzymes to living things.
Cell biology: Prokaryote vs. eukaryote, animal and plant cell structure and function, viruses, cellular transport, cellular division.
Taxonomy: Know the 3 Domains and 6 kingdoms.
Cellular Energy: Photosynthesis, cellular respiration, ATP.

Term 3
Cellular Energy (cont): Photosynthesis and cellular respiration reactants and products.
Genetics: Mendellian and non-Mendellian genetics, cause and effect of genetic disorders.
DNA: Structure and function of DNA and RNA, mutations.

Term 4
Evolution: Natural selection and genetic variation.
Anatomy: The human body and its systems.

Resources Used:

Biggs, Hagins, Holliday, Kapicka, Lundgre, MacKenzie, Rogers, Sewer, Zike, National Geograpic. Glencoe Science Biology. McGraw-Hill, 2009.

Fisher, Douglas. Science Notebook, Biology. McGraw-Hill, 2009

Massachusetts Department of Education, Massachusetts Science and Technology/Engineering Curriculum Framework, 2006

Videos

As of (3/21/2012)