

School District of Marshfield Course Syllabus

Course Name: 7th grade Life Science advance Length of Course: Year Credits: 1

Course Description:

Students investigate scientific inquiry and life processes of all living organisms. Many new vocabulary terms will be introduced and applied to learning. Students will perform activities on line and research life science topics to be presented to the class in a multimedia format. Students will be expected to read and evaluate current event issues and reflect on the impact of their learning and the world. They will be asked to work in small groups to problem solve life science issues. Students will also be expected to discuss in class and defend the issues being studied.

Learning Targets:

- Understand the structure and function of cell, organs, tissues, organ systems, and whole organisms.
- Show how organisms have adapted structures to match their functions, providing means of encouraging individual and group survival within specific environments.
- Differentiate between single and multiple-celled organisms through investigations, comparing the cell functions of specialized cells.
- Investigate and explain that heredity is comprised of the characteristics found in genes within the cells of organism.
- Describe how knowledge and concepts have changed over time in the earth, space, life, and environmental sciences.
- Explain how some of the changes on earth are contributing to changes in the balance of life and affecting the survival or population growth of certain species.

First Quarter – 9 Weeks

- 1. Exploring Life (5 Weeks)
 - A. Scope of Biology
 - B. Exploring Life in its diverse forms
 - C. Themes unify the study of Life
 - D. Scientific method
 - E. Basic Animal Behaviors
- 2. Organic Chemistry (5 Weeks)
 - A. Required Chemicals of Life
 - B. Basic Atomic structure and Chemical Bonds
 - C. Properties of Water
 - D. Carbons the element of life
 - E. Organic Compounds

Second Quarter – 9 Weeks

- 3. Basic Cellular Biology (8 Weeks)
 - A. Microscopic Skills
 - B. Comparing Animal and Plant Cells
 - C. Materials Moving into and out of the Cell
 - D. Structure and Functions of the Cell
 - E. The Flow of Energy in Cells
- Third Quarter 9 Weeks
- 4. Cellular Basis of Inheritance (2 Weeks)
 - A. Reproduction of Cells (Mitosis)
 - B. Uncontrolled Reproduction Caner
 - C. Meiosis of Cells and passing of traits
- 5. Patterns of Inheritance (4Weeks)
 - A. Mendelian Genetics
 - B. Probability of Passing of traits
 - C. Variation of inheritance patterns
 - D. Sex Linked Traits
- 6. DNA and the production of Proteins (2 Weeks)
 - A. DNA replication
 - B. Making of Proteins
 - C. Mutations
- 7. Human Genetics (2 Weeks)
 - A. Human Genome Project
 - B. Genetic Disorders
 - C. Frontiers of Genetics

Fourth Quarter – 9 Weeks

- 8. Evolution and History of Changing patterns (5 Weeks)
 - A. Darwin's Theory of Change and adaptations

- B. Evidence of Change
- C. Evolutionary Biology
- D. Origins Of biological Diversity
- 9. Environmental Science (4 Weeks)
 - A. Biosphere
 - B. Population and Community Ecology
 - C. Biomes and the flow of biotic and abiotic materials

Required Core Resources:

- School approved text bookSupporting internet resources