West Linn–Wilsonville School District

Science Department – Course Statement

Course Title: Biology

Length of Course: Year
Number of Credits: 2
Grade Level: 9, 10, 11, 12
Prerequisites: None
CIM Work Samples Offered in Course: Scientific Inquiry

Date of Description/Revision: June 2005

Course Overview

This is a college prep course that surveys biological concepts. Emphasis is on concepts and hands-on laboratory work. Considerable time is spent in cooperative lab experiences. Students will develop skills in laboratory techniques as well as critical and logical thinking. Evaluation is based on the student's body of work including labs, classwork, projects, and tests.

Essential Questions

Concepts providing focus for student learning

- How does science ask and answer questions?
- How is structure related to function?
- What are the mechanisms of change and stability in living systems?
- How are unity and diversity integrated in living systems?
- In what way are living things interconnected with their environment?

Proficiency Statements

Upon completion of course, students will be able to:

- Describe the major biochemical groups and how they are important to living things.
- Describe and compare the structure and function of cells in organisms.
- Explain how various factors influence the structure and function of cells.
- Analyze the structure and function of DNA and its role in heredity.
- Discuss biotechnology and its implications for society.
- Describe the key components of natural selection and explain its role in evolution.
- Explain how and why mechanisms of adaptation result in biodiversity.
- Explain the role of taxonomy in the science of Biology.
- Describe the various types of microscopic life and their role in the environment.
- Describe the mechanisms of disease organisms.
- Analyze how structure is related to function in plants and animals.

- Analyze the role of living things in the cycling of matter and the flow of energy in natural systems.
- Select and use appropriate tools and categories of measurements to answer scientific questions.
- Formulate a hypothesis and design an experiment to solve a problem.

General Course Topics/Units & Timeframes

Quarter 1

A. Review: methods, measurement, observation
B. Nature of Science
C. Biochemistry
D. Cell Structure

Quarter 2

E. Cell Function
F. DNA
G. Heredity
H. Biotechnology

Quarter 3

I. Evolution
J. Classification
K. Microbiology: bacteria, viruses, protists

Quarter 4

L. Botany: fungi, plants
M. Ecology: includes invertebrates and vertebrates

Resources

- Text: *Biology: The Dynamics of Life*, Glencoe/McGraw-Hill, 2002