

## **HONORS BIOLOGY (LAB SCIENCE)**

Grade Level: 9, 10, 11, 12

Credit: 0.5 or 1.0

Prerequisite: None

Biology is the study of life – the basic characteristics and functions of living organisms and their place in our environment. Laboratory and field investigations are the primary means for developing problem-solving skills and for developing knowledge and understanding of biological concepts. Topics include the history of biology; the cell and cell processes; genetics and heredity; cycles in nature; photosynthesis and respiration; ecology; plants, animals, and microorganisms; continuity of life; and the interaction of science, technology, and society. The honors level course covers the same basic topics in biology as the regular level course, but includes more rigorous labs and projects to deepen students' engagement with the scientific process.

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### **Biology Honors Lessons**

#### **Teacher Message**

#### **Unit 1: Molecules**

##### **Lesson 1: Introduction**

##### **Lesson 2: Atoms and Bonding**

##### **Lesson 3: Water**

##### **Lesson 4: Bio-Molecules**

##### **Lesson 5: Enzymes**

##### **Lab 1 – Curdled Milk**

##### **Project 1 – Food Diary**



## **Unit 2: The Cell**

**Lesson 6: Cell Theory**

**Lesson 7: Inside Cells**

**Lesson 8: Cell Transport**

**Lesson 9: Photosynthesis**

**Lesson 10: Cell Respiration**

**Lab 2 – Plant Pigments**

**Project 2 – Cell Size**

## **Unit 3: Genetics**

**Lesson 11: DNA and RNA**

**Lesson 12: Cell Cycle**

**Lesson 13: Meiosis**

**Lesson 14: Basic Genetics**

**Lesson 15: DNA Technology**

**Lab 3 – Extracting DNA**

**Project 3 - Heredity**

## **Unit 4: Evolution**

**Lesson 16: Concepts of Evolution**

**Lesson 17: Morphology**



**Lesson 18: Taxonomy**

**Lesson 19: Fossils and Time**

**Lesson 20: Human Evolution**

**Lab 4 – Natural Selection Simulation**

**Project 4 - Viruses**

## **Unit 5: Humans and the Environment**

**Lesson 21: Ecology**

**Lesson 22: Biogeochemical Cycles**

**Lesson 23: Artificial Selection**

**Lesson 24: Global Disruption**

**Lesson 25: Sustainability**

**Lab 5 – Ecosystem Disruption**

**Project 5 – Green Roof Design**

