

**Science Standards**

**Zoology**

**Course Overview:** Zoology is an elective course intended for students who are interested in the study of the diversity of animals. Students will study the most simple to complex groups of animals in the Kingdom. Throughout the course students investigate the characteristics that make each phyla unique and compare them to other groups of animals.

**Zoology Essential Questions (Essential standards are the standards all students will learn as they complete the course.)**

* Students can identify systems and organs of the human body.
* Students appreciate the function of the systems and organs of the human body.
* Students understand how the human body changes throughout its life.
* Students know major disorders that effect major systems and organs of the human body.
* Students will understand that their choices affect the world around them.

**Unit 1: Introduction to Zoology (5 days)**

**Description:** Unit 1 will introduce the basic ideas and principles of Zoology will review proper lab safety and techniques. The evidence and origins animals will be discussed, as well as the ecology and basic make up animals.

**Standards**

1. The students will identify and understand the format of the metric system. Including base units, prefixes, and the process of converting from one unit to another.
2. The students will understand the steps of the scientific method will be able to apply it when solving a problem.
3. The students will study the theory of evolution and the evidence that supports it. (HS-LS4-1, HS-LS4-2, HS-LS4-3, HS-LS4-4, HS-LS4-5, HS-LS4-6)
4. The students will investigate the different ecosystems of Earth and appreciate the diversity of our animal kingdom. (HS-LS2-3, HS-LS2-4, HS-LS2-5, HS-LS2-8)
5. The students will learn about the body plans of animals and the biological terminology associated with them. (HS-LS1-1, HS-LS1-2)

**Unit 2: Classification of Animals (5 days)**

**Description:** Unit 2 will study how animals are organized and categorized. The kingdom of Protista will be studied and its ancestry to animals recognized.

**Standards**

1. The students will learn about taxonomy and the processes used to classify animals into their biological groups. (HS-LS1-1, HS-LS1-2, HS-LS3-1, HS-LS4-4)
2. The students will explore how to use dichotomous keys and other techniques for classifying animals. (HS-LS1-1, HS-LS1-2, HS-LS3-1, HS-LS4-4)
3. The students will investigate the six kingdoms of life and compare the animal kingdoms to them. (HS-LS1-1, HS-LS1-2, HS-LS3-1, HS-LS4-4)

**Unit 3: Simple and Radiate Animals (10 days)**

**Description:** Unit 3 will investigate the examples and characteristics of the Phylum Porifera, Cnidaria, and Ctenophora. These phyla will be compared and contrasted with each other and the Kingdom Protista.

**Standards**

1. The students will study characteristics, taxonomy, and examples of the sponges. (HS-LS1-1, HS-LS1-2, HS-LS3-1, HS-LS4-4)
2. The students will study characteristics, taxonomy, and examples of the cnidarians. (HS-LS1-1, HS-LS1-2, HS-LS3-1, HS-LS4-4)
3. The students will study characteristics, taxonomy, and examples of the ctenophorans. (HS-LS1-1, HS-LS1-2, HS-LS3-1, HS-LS4-4)

**Unit 4: Worms (10 days)**

**Description:** Unit 4 will investigate the examples and characteristics of the Phylum Platyhelminthes, Rotifera, and Nematoda. These phyla will be compared and contrasted with each other and to previous phyla studied.

**Standards**

1. The students will study characteristics, taxonomy, and examples of the flat worms. (HS-LS1-1, HS-LS1-2, HS-LS3-1, HS-LS4-4)
2. The students will study characteristics, taxonomy, and examples of the rotiferans. (HS-LS1-1, HS-LS1-2, HS-LS3-1, HS-LS4-4)
3. The students will study characteristics, taxonomy, and examples of the round worms. (HS-LS1-1, HS-LS1-2, HS-LS3-1, HS-LS4-4)

**Unit 5: Mollusks and Segmented Worms (10 days)**

**Description:** Unit 5 will investigate the examples and characteristics of the Phylum Mollusca and Annelida. These phyla will be compared and contrasted with each other and to previous phyla studied.

**Standards**

1. The students will study characteristics, taxonomy, and examples of the mollusks. (HS-LS1-1, HS-LS1-2, HS-LS3-1, HS-LS4-4)
2. The students will study characteristics, taxonomy, and examples of the segmented worms. (HS-LS1-1, HS-LS1-2, HS-LS3-1, HS-LS4-4)

**Unit 6: Arthropods and Echinoderms (10 days)**

**Description:** Unit 6 will investigate the examples and characteristics of the Phylum Arthropoda and Echinodermata. The classes of this phylum will be compared and contrasted with each other and to previous phyla studied.

**Standards**

1. The students will study characteristics, taxonomy, and examples of the arthropods. (HS-LS1-1, HS-LS1-2, HS-LS3-1, HS-LS4-4)
2. The students will study characteristics, taxonomy, and examples of the echinoderms. (HS-LS1-1, HS-LS1-2, HS-LS3-1, HS-LS4-4)

**Unit 7: Chordate Introduction (5 days)**

**Description:** Unit 7 will investigate the examples and characteristics of the Subphylum Urochordata, Cephalochordata, and Vertebrata. These subphyla will be compared and contrasted with each other and to previous phyla studied.

**Standards**

1. The students will study characteristics, taxonomy, and examples of the urochordates. (HS-LS1-1, HS-LS1-2, HS-LS3-1, HS-LS4-4)
2. The students will study characteristics, taxonomy, and examples of the cephalochordates. (HS-LS1-1, HS-LS1-2, HS-LS3-1, HS-LS4-4)
3. The students will study characteristics, taxonomy, and examples of the vertebrates. (HS-LS1-1, HS-LS1-2, HS-LS3-1, HS-LS4-4)

**Unit 8: Fishes (10 days)**

**Description:** Unit 8 will investigate the examples and characteristics of fish. The classes of the fish will be compared and contrasted with each other and to previous phyla studied.

**Standards**

1. The students will study characteristics, taxonomy, and examples of the jawless fish. (HS-LS1-1, HS-LS1-2, HS-LS3-1, HS-LS4-4)
2. The students will study characteristics, taxonomy, and examples of the cartilaginous fish. (HS-LS1-1, HS-LS1-2, HS-LS3-1, HS-LS4-4)
3. The students will study characteristics, taxonomy, and examples of the bony fish. (HS-LS1-1, HS-LS1-2, HS-LS3-1, HS-LS4-4)

**Unit 9: Amphibians and Reptiles (10 days)**

**Description:** Unit 9 will investigate the examples and characteristics of amphibians and reptiles. The classes of these animals will be compared and contrasted with each other and to previous phyla studied.

**Standards**

1. The students will study characteristics, taxonomy, and examples of the amphibians. (HS-LS1-1, HS-LS1-2, HS-LS3-1, HS-LS4-4)
2. The students will study characteristics, taxonomy, and examples of the reptiles. (HS-LS1-1, HS-LS1-2, HS-LS3-1, HS-LS4-4)

**Unit 10: Birds and Mammals (10 days)**

**Description:** Unit 10 will investigate the examples and characteristics of birds and mammals. The class of the birds and mammals will be investigated and compared and contrasted with previous phyla studied.

**Standards**

1. The students will study characteristics, taxonomy, and examples of the birds. (HS-LS1-1, HS-LS1-2, HS-LS3-1, HS-LS4-4)
2. The students will study characteristics, taxonomy, and examples of the mammals. (HS-LS1-1, HS-LS1-2, HS-LS3-1, HS-LS4-4)