**Viborg-Hurley Zoology Curriculum Plan**

Course Description

* Zoology is an upper level course designed for juniors and seniors. Biology is a prerequisite for this course. Zoology is a thorough field of biology that focuses on animal life. Topics covered include evolution, development, taxonomy, animal behavior, animal distribution, and animal ecology. The course is designed to be a class that preps students for college course rigor. Students are expected to be challenged via exams, projects, and dissections.

Unit Standards and Objectives

* Unit 1: Biology Review
  + Textbook Chapters: Intro to Zoology (Ch. 1), Biodiversity and Evolution and Principles of Development (Ch. 8), and Patterns of Animals(Ch. 9) and Taxonomy (Ch. 10).
  + Standards
    - HS-LS4-1: Communicate scientific information that common ancestry and biological evolution are supported by multiple lines of empirical evidence.
    - HS-LS4-2: Construct and explanation based on evidence that the process of evolution primarily results from four factors: the potential for a species to increase in number, the heritable genetic variation of individuals in a species due to mutation and sexual reproduction, competition for limited resources, and the proliferation of those organisms that are better able to survive and reproduce in the environment.
    - HS-LS4-3: Apply concepts of statistics and probability to support explanations that organisms with an advantageous heritable trait tend to increase in proportion to organisms lacking this trait.
    - HS-LS4-4: Construct an explanation based on evidence for how natural selection leads to adaptation of populations.
    - HS-LS4-5: Evaluate the evidence supporting claims that changes in environmental conditions may result in increases in the number of individuals of some species, the emergence of new species over time, and the extinction of other species.
    - HS-LS4-6: Use a simulation to research and analyze possible solutions for the adverse impacts of human activity on biodiversity.
    - HS-LS4-7: Analyze displays of pictorial data to compare patterns of similarities in the embryological development across multiple species to identify relationships not evidence in the fully formed anatomy.
  + Skills
    - Students will apply biological principles to the field of zoology.
    - Students will identify and explore the evolutionary principles of life on Earth.
    - Students will identify and examine various stages of animal development.
    - Students will examine various patterns that are exhibited in animals.
    - Students will utilize taxonomic information to explore the evolutionary relatedness of various life forms.
  + Assessment
    - Dissection Quiz
    - Unit Skill Assessments
    - Chapter Assessments: Ch. 1, Ch. 8/9, Ch. 10 \*\* (If chapter assessment grades are over 85%, there will be no unit assessment)
* Unit 2: Simple Eukaryotes
  + Textbook Chapters: Chapters 11-17 (\*\*15, 18, and 19 if time allows)
  + Same standards as listed above.
  + Skills
    - Students will explore the various classes of species of simple eukaryotes.
    - Students will explore the anatomy of simple eukaryotes through dissection practices.
    - Students will research and present information regarding simple eukaryotes throughout the local region, country, and globe.
    - Students will explore conservation efforts relating to simple eukaryotes.
  + Assessments
    - Unit Practical (Summary of all dissections)
    - Dissection write-ups and quizzes
    - Unit Skill Assessment
    - Chapter Assessments: Ch. 11-17
* Unit 3: Complex Eukaryotes
  + Textbook Chapters: Ch. 20-28
  + Same standards as listed above
  + Skills
    - Students will explore the various classes of species of complex eukaryotes.
    - Students will explore the anatomy of complex eukaryotes through dissection practices.
    - Students will research and present information regarding complex eukaryotes throughout the local region, country, and globe.
    - Students will explore conservation efforts relating to complex eukaryotes.
  + Assessments
    - Unit Practical (Summary of all dissections)
    - Dissection write-ups and quizzes
    - Unit Skill Assessment
    - Chapter Assessments: Ch. 20-28
* Unit 4: Activity of Life
  + Textbook Chapters: Ch. 36-38
  + Standards
    - HS-LS2-1: Use mathematical and/or computational representations to support explanations of factors that affect carrying capacity of ecosystems at different scales.
    - HS-LS2-2: Use mathematical representations to support and revise explanations based on evidence about factors affecting biodiversity and populations in ecosystems at different scales.
    - HS-LS2-3: Construct and revise an explanation based on evidence for the cycling of matter and flow of energy in aerobic and anaerobic conditions.
    - HS-LS2-4: Use mathematical representations to support claims for the cycling of matter and flow of energy among organisms in an ecosystem.
    - HS-LS2-5: Develop a model to illustrate the role of photosynthesis and cellular respiration in the cycling of carbon among the biosphere, atmosphere, hydrosphere, and geosphere.
    - HS-LS2-6: Evaluate the claims, evidence, and reasoning that the complex interactions in ecosystems maintains relatively consistent numbers and types of organisms under stable conditions; however, moderate to extreme fluctuations in conditions may result in new ecosystems.
    - HS-LS2-7: Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity.
    - HS-LS2-8: Evaluate the evidence for the role of group behavior on individual and species’ chances to survive and reproduce.
  + Skills
    - Students will analyze the complex behaviors of animals through observations and studies.
    - Students will explore the factors that affect the distribution of animals.
    - Students will explore the complex interactions of animals in an ecosystem.
    - Students will develop models and make observations to study complex interactions.
  + Assessments
    - Unit Skill Assessment
    - Chapter Assessment Ch. 36-38

Semester Assessments

* 1st Semester: Semester Test or Research Paper
* 2nd Semester: Zoo Project

\*\*Zoo Portfolio will be kept throughout the year!

Timeline

* Unit 1: 4 weeks
* Unit 2: 10 weeks
* Unit 3: 12 weeks
* Unit 4: 5 weeks