

Course: Vertebrate Zoology	Teacher: Girard				Draft updated: September 1, 2009
Month	September	October	November	December	January
Essential Questions	What is evolution & how does it create diversity among animals?	What are vertebrate animals made of? How are vertebrates classified? What is taxonomy? What is cladistics and how are phylogenetic trees constructed? What are chordates? What are species? What are agnathans?	What are Chondrichthyes? What are Osteichthyes? What are amphibians?	What are reptiles? What are birds? What are mammals?	Which vertebrate characters evolved in which order? What is the evolutionary importance of those characteristics?
Objectives	*Describe Darwin's theory of evolution & the evidence available to support it *Describe the contributions made by Hutton, Malthus, Lamarck, Lyell, & Wallace to Darwin's theory of evolution *Describe natural selection & its importance in Darwin's theory & its effect on polygenic traits	*Differentiate tissue types and functions *Compare/contrast symmetry in animal body plans *Describe body planes & body orientation *Compare/contrast protostomes & deuterostomes *Compare/contrast body acoelomates, coelomates, &	*Compare/contrast cartilaginous & ossified skeletons *Describe chondrichthyes characteristics *Compare/contrast chondrichthyes fins *Compare/contrast chondrichthyes scales *Describe physics of swim propulsion *Compare/contrast teleost, ray finned, lobe finned, & lung fish anatomical structures	*Compare/contrast anapsids, synapsids, & diapsids *Describe anatomical & physiological characteristics of reptiles *Explain significance of amniotic eggs *Compare/contrast turtles, lizards, snakes, & crocodilians *Describe anatomical & physiological characteristics of	*Create a phylogenetic tree depicting the evolution of selected characters through the vertebrates *Describe the evolutionary importance of the selected characters

	<ul style="list-style-type: none"> *Define genetic drift & genetic equilibrium *Describe speciation & why it occurs *Compare/contrast adaptive radiation, convergent evolution, co-evolution, & punctuated equilibrium 	<p>pseudocoelomates</p> <ul style="list-style-type: none"> * Differentiate organisms by characteristics utilizing a dichotomous key *Define species *Classify organisms based on characteristics *Describe chordate characteristics *Identify & dissect agnathan body structures 	<ul style="list-style-type: none"> *Describe structures & functions of a perch *Compare/contrast oviparous, viviparous, & ovoviviparous reproduction *Describe anatomical & physiological adaptations for migration from water to land *Compare/contrast single & double circulation *Compare/contrast frogs, toads, salamanders, & caecilians *Describe the life cycle of a frog 	<p>birds</p> <ul style="list-style-type: none"> *Describe the physics of flight *Compare/contrast types of feathers *Compare/contrast bill types *Compare/contrast toe arrangements in birds * Describe anatomical & physiological characteristics of mammals *Compare/contrast monotremes, marsupials, & placental mammals *Compare/contrast artiodactyls & perissodactyls 	
<p>Reading Integrated Principles of Zoology Hickman et. al. 2006</p>	Chapter 6	Chapter 9 Chapter 10 Chapter 23 Chapter 24	Chapter 24 Chapter 25 Fish & Amphibian reading packets by Mark Twain publishers	Chapter 26 Chapter 27 Chapter 28 Chapter 36 Reptiles, Birds, & Mammals reading packets by Mark Twain publishers	
<p>Writing</p>	Chapter 1 essay test	Lamprey dissection reflection	Dog shark dissection summary reflection, Perch dissection summary reflection, frog dissection summary reflection	Turtle Dissection summary reflection, Pigeon dissection summary reflection, Rat dissection summary reflection	Cladistics of vertebrates project with written description of the evolutionary importance of each character

Assessments	Chapter 1 essay test	Tissue identification quiz, cladistics web-quest, lamprey dissection	Dog shark, perch, & frog dissections, Perch anatomy web-quest, Fish reading packet, amphibian reading packet, amphibian PowerPoint presentation	Reptile, birds, & mammals reading packets, Turtle, Pigeon & Rat dissections	Cladistics Project Final Exam
Instructional Strategies	Linguistic - Oral Lecture, Reading aloud in class Logical / Mathematical - Calculate Hardy-Weinberg Spacial - PowerPoint Presentation Kinesthetic - Interpersonal - Jigsawing, Cooperative Groups Intrapersonal - Independent Class Work	Linguistic - Oral Lecture, Reading aloud in class Logical / Mathematical - Differentiate body plans, Tissues, and Embryonic Development Cladistics, Spacial - PowerPoint Presentation Kinesthetic - Dissection Interpersonal - Jigsawing, Dissection Intrapersonal - Independent Class Work	Linguistic - Oral Lecture, Reading aloud in class Logical / Mathematical - Comparative Anatomy Spacial - PowerPoint Presentation Kinesthetic - Dissection Interpersonal - Jigsawing, Dissection Intrapersonal - Independent Class Work	Linguistic - Oral Lecture, Reading aloud in class Logical / Mathematical - Dichotomous Keys Spacial - PowerPoint Presentation Kinesthetic - Dissection Interpersonal - Jigsawing, Dissection, Herpetology Project Intrapersonal - Independent Class Work	Linguistic - Oral Lecture, Reading aloud in class Logical / Mathematical - Dichotomous Keys Spacial - PowerPoint Presentation Kinesthetic - Cladistics Project Interpersonal - Jigsawing, Dissection Intrapersonal - Independent Class Work