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 phylogenic trees constructed? What are chordates? What are species? What are agnathans?	What are Chondricthyes? 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 & it's 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 chondricthyes characteristics *Compare/contrast chondricthyes fins *Compare/contrast chondricthyes 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

	*Define genetic drift & genetic equilibrium *Describe speciation & why it occurs *Compare/contrast adaptive radiation, convergent evolution, co-evolution, & punctuated equilibrium	pseudocoelomates * Differentiate organisms by characteristics utilizing a dichotomous key *Define species *Classify organisms based on characteristics *Describe chordate characteristics *Identify & dissect agnathan body structures	*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	birds *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	
Reading Integrated Principles of Zoology Hickman et. al. 2006	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	
Writing	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