

## MCS Zoology Subject Group Overview

Fall Semester: Unit 1-3 (18 weeks)

Spring Semester: Unit 4-6 (18 weeks)

Unit Name	Unit 1:	Unit 2: Invertebrates Part 1:	Unit 3:	Unit 4 : Invertebrates Part 2:	Unit 5: Vertebrates:	Unit 6:
	Introduction to Classification and Evolution	Porifera, Cnidaria, Platyhelminthes, Nematoda, Annelida, and Mollusca	Midterm	Arthropoda and Echinodermata	Chordata	Human Impact and Invasive Species
Time Frame	8 weeks	8 weeks	2 weeks	6.5 weeks	8.5 weeks	3 weeks
Standards	<p><b>SZ1a:</b> Construct an explanation of the relationships among animal taxa using evidence from morphology, embryology, and biochemistry.</p> <p><b>SZ1c:</b> Develop a model using data to place taxa in a phylogenetic context to support hypotheses of relationships</p> <p><b>SZ2a:</b> Construct an explanation of the geological history of earth and the effects of major environmental changes</p> <p><b>SZ2b:</b> Construct an explanation of how evolution allows species to adapt to environmental changes.</p>	<p><b>SZ1b:</b> Analyze and interpret data to explain patterns in structure and function and construct a classification of representative animal taxa</p> <p><b>SZ3a:</b> Plan and carry out investigations to determine patterns in morphology</p> <p><b>SZ3b:</b> Construct an explanation of life functions at appropriate level of organization for representative taxa</p> <p><b>SZ3c:</b> Construct an explanation based on evidence to relate important structural changes across evolutionary history to key functional transitions.</p> <p><b>SZ4a:</b> Construct explanations to relate structure and function of animals to ecological roles, including morphological, physiological, and behavioral adaptations</p> <p><b>SZ4b:</b> Develop a model to explain patterns in various life cycles found among animals</p>	<p><b>SZ1a:</b> Construct an explanation of the relationships among animal taxa using evidence from morphology, embryology, and biochemistry.</p> <p><b>SZ1c:</b> Develop a model using data to place taxa in a phylogenetic context to support hypotheses of relationships</p> <p><b>SZ4a:</b> Construct explanations to relate structure and function of animals to ecological roles, including morphological, physiological, and behavioral adaptations</p> <p><b>SZ5a:</b> Ask questions and define problems identifying the cause and effect of human activities on the biodiversity of organisms</p>	<p><b>SZ1b:</b> Analyze and interpret data to explain patterns in structure and function and construct a classification of representative animal taxa</p> <p><b>SZ3a:</b> Plan and carry out investigations to determine patterns in morphology</p> <p><b>SZ3b:</b> Construct an explanation of life functions at appropriate level of organization for representative taxa.</p> <p><b>SZ3c:</b> Construct an explanation based on evidence to relate important structural changes across evolutionary history to key functional transitions.</p> <p><b>SZ4a:</b> Construct explanations to relate structure and function of animals to ecological roles, including morphological, physiological, and behavioral adaptations</p> <p><b>SZ4b:</b> Develop a model to explain patterns in various life cycles found among animals</p>	<p><b>SZ1b:</b> Analyze and interpret data to explain patterns in structure and function and construct a classification of representative animal taxa</p> <p><b>SZ3a:</b> Plan and carry out investigations to determine patterns in morphology</p> <p><b>SZ3b:</b> Construct an explanation of life functions at appropriate level of organization for representative taxa</p> <p><b>SZ3c:</b> Construct an explanation based on evidence to relate important structural changes across evolutionary history to key functional transitions.</p> <p><b>SZ4a:</b> Construct explanations to relate structure and function of animals to ecological roles, including morphological, physiological, and</p>	<p><b>SZ5a:</b> Ask questions and define problems identifying the cause and effect of human activities on the biodiversity of organisms</p> <p><b>SZ5b:</b> Design a solution to preserve species diversity in natural and captive environments with regard to conservation, habitat restoration, breeding programs and management of genetic diversity at local and global levels.</p> <p><b>SZ5c:</b> Construct an argument based on evidence of the short-term and long-term impacts of legal, societal, political, ethical, and economic decisions on animal diversity.</p>

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					behavioral adaptations <b>SZ4b:</b> Develop a model to explain patterns in various life cycles found among animals <b>SZ4c:</b> Construct an explanation based on evidence of the effects of symbiotic relationships between animals and between animals and other organisms	
<b>Content Specific Information (texts, documents, methods)</b>	<p><b>Statement of Inquiry</b> The geological history of Earth has influenced the form and function of organisms through geologic time.</p> <p><b>Phenomenon:</b> Fossils from the Cambrian have representatives of almost all animal groups identified today.</p> <p><b>Crosscutting Concepts</b></p> <ul style="list-style-type: none"> <li>● Stability and Change</li> <li>● Scale, Proportion, and Quantity</li> </ul>	<p><b>Statement of Inquiry</b> Animal form and function within invertebrate animal phyla and across key taxa influence how animals interact with their environment.</p> <p><b>Phenomenon:</b> Animal variety in form and function is still a field of discovery.</p> <p><b>Crosscutting Concepts</b></p> <ul style="list-style-type: none"> <li>● Systems and Systems Model</li> <li>● Stability and Change</li> <li>● Scale, Proportion, and Quantity</li> <li>● Cause and Effect</li> <li>● Patterns</li> </ul> <p><b>CORE IDEAS</b> Distinguishing characteristics of animal groups with emphasis on evolution of transitional body structures and comparison of body systems as well as human and animal interactions,</p>			<p><b>Statement of Inquiry</b> Animal diversity is influenced by human activities.</p> <p><b>Phenomenon:</b> Humans share many structures with other vertebrate classes</p> <p><b>Crosscutting Concepts</b></p> <ul style="list-style-type: none"> <li>● Systems and Systems Model</li> <li>● Stability and Change</li> <li>● Scale, Proportion, and Quantity</li> <li>● Cause and Effect</li> </ul>	<p><b>Statement of Inquiry</b> How does human activity impact the biodiversity of life on earth?</p> <p><b>Phenomenon:</b> Humans transport invasive species that impact local species</p> <p><b>Crosscutting Concepts</b></p> <ul style="list-style-type: none"> <li>● Systems and Systems Model</li> <li>● Stability and Change</li> <li>● Cause and Effect</li> <li>● Patterns</li> </ul> <p><b>CORE IDEAS</b> Research and discuss the economic and</p>

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	<ul style="list-style-type: none"> <li>and Quantity</li> <li>● Structure &amp; Function</li> <li>● Cause &amp; Effect</li> <li>● Patterns</li> </ul> <p><b>CORE IDEAS</b> Characteristics of Animals; Classification and Taxonomy; Earth History; Evolution</p>				<ul style="list-style-type: none"> <li>● Patterns</li> </ul> <p><b>CORE IDEAS</b> Distinguishing characteristics of animal groups with emphasis on evolution of transitional body structures and comparison of body systems as well as human and animal interactions,</p>	ecological role of invasive species in an environment
<b>Common Assessments/ Major Projects</b>	<p><b>CFA X 2</b> <b>CSA</b></p> <p>Geological History mini project</p> <p>Evidence of evolution activity</p> <p>Classification/ cladogram activity</p> <p>Animal behavior introduction lab #1</p>	<p><b>CSA X 2</b> <b>CFA X 3</b></p> <p>Sponge Investigation</p> <p>Planaria Investigative lab</p> <p>Earthworm Dissection</p> <p>Worm speed dating activity</p> <p>Animal behavior introduction lab #2</p> <p>Mollusk dissection</p> <p>Hydra lab (if time permits)</p>	<b>Midterm practical</b>	<p><b>CSA X 1</b> <b>CFA X 2</b></p> <p>Grasshopper Dissection</p> <p>Modeling an arthropod activity</p> <p>Animal behavior introduction lab #3</p> <p>Cladogram characteristics project (summative)</p> <p>Echinoderm dissection</p>	<p><b>CSA</b> <b>CFA X 2</b></p> <p>Dissections Skeletal comparisons</p> <p>Skin, scales vs fur comparison lab (microscope lab)</p> <p>Symbiotic relationships activity</p>	<p><b>Final project (2 parts)</b></p> <p>Final exam presentation</p>

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	Introduction to dissection lab					
<b>Level Specific Differentiation</b>	<ul style="list-style-type: none"> <li>● SWD/504 – Accommodations Provided as appropriate for student</li> <li>● ELL – Reading &amp; Vocabulary Support</li> <li>● Intervention Support – Some options for alternative assignments as well as test remediation</li> <li>● Extensions – Enrichment Tasks and Projects can include Case Studies, Data Nuggets, project choice, additional dissection opportunities</li> </ul>					<ul style="list-style-type: none"> <li>● SWD/504 – Accommodations Provided as appropriate for student</li> <li>● ELL – Reading &amp; Vocabulary Support</li> <li>● Scaffolded project template</li> <li>● Presentation can be video, whole class, small group or individual</li> </ul>
<b>Resources</b>	<ul style="list-style-type: none"> <li>- <a href="http://marietta.schoology.com">marietta.schoology.com</a></li> <li>- <a href="http://www.ck12.org">www.ck12.org</a></li> <li>- Miller and Levine Biology Textbook 2009, (Dragonfly book) workbook, text, and test bank</li> <li>- Holt Biology Interactive Reader study guide</li> <li>- Pearson online Biology Textbook</li> <li>- Argument Driven Inquiry NSTA activity book</li> <li>- Shape of Life website videos and activities</li> <li>- Youtube videos of Dissections of specific animals</li> <li>- Bilogyjunction.com;</li> <li>- Biologycorner.com;</li> <li>- Ms Maria Knowles course sites (dissection resources)</li> <li>- Eyewitness videos</li> <li>- Preserved specimens slides for observation and dissection</li> <li>- BBC nature documentaries</li> </ul>					