

## Invertebrate Zoology Standards and Benchmarks

<b>Standard 1: Understands and applies principles of scientific inquiry</b>				
<i>Power Benchmarks: Identifies questions and concepts that guide science investigations Uses technology and mathematics to improve investigations and communications Formulates and revises scientific explanations and models using logic and evidence Recognizes and analyzes alternative explanations and models</i>				
<b>Course Level Benchmarks</b>	<b>Vocabulary</b>	<b>Knowledge</b>	<b>Skills</b>	<b>Classroom Resources</b>
A. Formulates and revises scientific explanations and models	<ul style="list-style-type: none"> <li>• scientific explanation</li> <li>• scientific model</li> <li>• data</li> <li>• within tolerance</li> <li>• scientific method</li> </ul>	<ul style="list-style-type: none"> <li>• Knows scientific explanations and models are based on data</li> <li>• Know new data may lead to the modification of scientific explanations and models</li> </ul>	<ul style="list-style-type: none"> <li>• Analyzes data with respect to scientific explanations and models (ACT, SAT, ITED, AP BIO)</li> <li>• Adjusts scientific explanations and models based on data (ACT, SAT, ITED, AP BIO)</li> </ul>	Invertebrate Zoology Curriculum Guide  Emphasized throughout the entire curriculum  <u>Technology:</u> use of science to solve everyday problems
B. Understands how scientific knowledge changes with new evidence	<ul style="list-style-type: none"> <li>• scientific knowledge</li> <li>• evidence</li> <li>• influence</li> <li>• ethics</li> </ul>	<ul style="list-style-type: none"> <li>• Knows examples of scientific knowledge that changed when new evidence was presented</li> <li>• Knows that science is an ongoing process and is always open to new ideas</li> </ul>	<ul style="list-style-type: none"> <li>• Describes how science concepts have evolved with the discovery of new evidence</li> <li>• Hypothesizes how current science concepts and practices will influence future societies</li> </ul>	
C. Uses technology and mathematics to perform accurate scientific investigations and communications	<ul style="list-style-type: none"> <li>• technology</li> <li>• mathematics</li> <li>• probability</li> <li>• ratio</li> <li>• accuracy</li> <li>• scientific investigations</li> <li>• scientific communication</li> <li>• spreadsheet and graphs</li> </ul>	<ul style="list-style-type: none"> <li>• Knows how technology can help scientific investigations and communications</li> <li>• Knows mathematical computations and formulas are essential to scientific investigations</li> </ul>	<ul style="list-style-type: none"> <li>• Determines tools most appropriate to use given a particular situation</li> <li>• Uses the necessary mathematics for a particular situation (ACT, SAT, ITED, AP BIO)</li> <li>• Calculates results with a given degree of accuracy</li> <li>• Formulates graphic representation of data (ACT, SAT, ITED, AP BIO)</li> </ul>	
D. Demonstrates safe handling procedures	<ul style="list-style-type: none"> <li>• OSHA</li> <li>• EPA</li> <li>• MSDS</li> <li>• Right to Know</li> <li>• hazardous</li> <li>• safety procedures</li> </ul>	<ul style="list-style-type: none"> <li>• Knows appropriate safety procedures for a given situation</li> <li>• Knows where safety devices are located in the classroom</li> <li>• Understands the process of waste disposal</li> </ul>	<ul style="list-style-type: none"> <li>• Follows required safety procedures</li> <li>• Recognizes, reports, and corrects safety problems</li> <li>• Follows waste disposal procedures</li> </ul>	

## Invertebrate Zoology Standards and Benchmarks

### Standard 2: Understands and applies principles of life science

*Power Benchmarks: Understands and applies knowledge of the molecular basis of heredity  
Understands and applies knowledge of the behavior of organisms*

Course Level Benchmarks	Vocabulary	Knowledge	Skills	Classroom Resources
<p>A. Analyzes the continuity and diversity of life in terms of structure and function of the major phyla</p> <ul style="list-style-type: none"> <li>• <b>Continuity of Life</b> <ul style="list-style-type: none"> <li>- History of Life on Earth</li> <li>- Natural Selection</li> <li>- Interrelationships</li> </ul> </li>   <li>• <b>Diversity of Life</b> <ul style="list-style-type: none"> <li>- Classification</li> <li>- Animal Body</li> <li>- Life Activities</li> <li>- Water → Land                             <ul style="list-style-type: none"> <li>- Invertebrates</li> <li>- Adaptation to Land</li> <li>- Vertebrates</li> </ul> </li> </ul> </li> </ul>	<p><b>Continuity of Life</b></p> <ul style="list-style-type: none"> <li>• natural selection</li> <li>• change over time</li> <li>• evolve</li> <li>• homologous structures</li> <li>• adaptation</li> </ul> <p><b>Diversity of Life</b></p> <ul style="list-style-type: none"> <li>• classification system</li> <li>• reproduction</li> <li>• respiration</li> <li>• assimilation</li> <li>• locomotion</li> <li>• ingestion</li> <li>• digestion</li> <li>• elimination</li> <li>• excretion</li> <li>• secretion</li> <li>• nervous</li> </ul>	<p><b>Continuity of Life</b></p> <ul style="list-style-type: none"> <li>• Knows animals with homologous structures share common ancestry</li> <li>• Knows adaptation is the process which animals become better suited to their environments</li> <li>• Knows species evolve in response to other living members of their ecosystems</li> </ul> <p><b>Diversity of Life</b></p> <ul style="list-style-type: none"> <li>• Knows scientists classify organisms into a hierarchical system of groups within groups</li> <li>• Knows how various animal groups carry on life activities</li> </ul>	<p><b>Continuity of Life</b></p> <ul style="list-style-type: none"> <li>• Explains how comparisons of animals can reveal evidence of evolution</li> <li>• Describes how natural selection can lead to the formation of new species</li> <li>• Recognizes the global diversity and interrelationship between animals</li> </ul> <p><b>Diversity of Life</b></p> <ul style="list-style-type: none"> <li>• Describes how the classification of animals reflect their evolutionary history</li> <li>• Recognizes the progression of life activities from simple to complex animals</li> <li>• Describes how life activities are accomplished by each animal group</li> <li>• Applies learned life activities information to other animals</li> </ul>	<p>Invertebrate Zoology Curriculum Guide</p>