Invertebrate Zoology Standards and Benchmarks

**Standard 1: Understands and applies principles of scientific inquiry**

*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

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| A. Formulates and revises scientific explanations and models | • scientific explanation  
• scientific model  
• data  
• within tolerance  
• scientific method | • Knows scientific explanations and models are based on data  
• Know new data may lead to the modification of scientific explanations and models | • Analyzes data with respect to scientific explanations and models (ACT, SAT, ITED, AP BIO)  
• Adjusts scientific explanations and models based on data (ACT, SAT, ITED, AP BIO) | Invertebrate Zoology Curriculum Guide  
Emphasized throughout the entire curriculum |
| B. Understands how scientific knowledge changes with new evidence | • scientific knowledge  
• evidence  
• influence  
• ethics | • Knows examples of scientific knowledge that changed when new evidence was presented  
• Knows that science is an ongoing process and is always open to new ideas | • Describes how science concepts have evolved with the discovery of new evidence  
• Hypothesizes how current science concepts and practices will influence future societies | |
| C. Uses technology and mathematics to perform accurate scientific investigations and communications | • technology  
• mathematics  
• probability  
• ratio  
• accuracy  
• scientific investigations  
• scientific communication  
• spreadsheet and graphs | • Knows how technology can help scientific investigations and communications  
• Knows mathematical computations and formulas are essential to scientific investigations | • Determines tools most appropriate to use given a particular situation  
• Uses the necessary mathematics for a particular situation (ACT, SAT, ITED, AP BIO)  
• Calculates results with a given degree of accuracy  
• Formulates graphic representation of data (ACT, SAT, ITED, AP BIO) | Technology: use of science to solve everyday problems |
| D. Demonstrates safe handling procedures | • OSHA  
• EPA  
• MSDS  
• Right to Know  
• hazardous  
• safety procedures | • Knows appropriate safety procedures for a given situation  
• Knows where safety devices are located in the classroom  
• Understands the process of waste disposal | • Follows required safety procedures  
• Recognizes, reports, and corrects safety problems  
• Follows waste disposal procedures | |
# 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

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**Continuity of Life**
- natural selection
- change over time
- evolve
- homologous structures
- adaptation

**Diversity of Life**
- classification system
- reproduction
- respiration
- assimilation
- locomotion
- ingestion
- digestion
- elimination
- excretion
- secretion
- nervous

**Continuity of Life**
- Knows animals with homologous structures share common ancestry
- Knows adaptation is the process which animals become better suited to their environments
- Knows species evolve in response to other living members of their ecosystems

**Diversity of Life**
- Describes how the classification of animals reflect their evolutionary history
- Recognizes the progression of life activities from simple to complex animals
- Describes how life activities are accomplished by each animal group
- Applies learned life activities information to other animals

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