



# **METAMORPHOSIS**

## **Transformative Experiences**

**Amy Ringwood**  
**Mary Fabian**

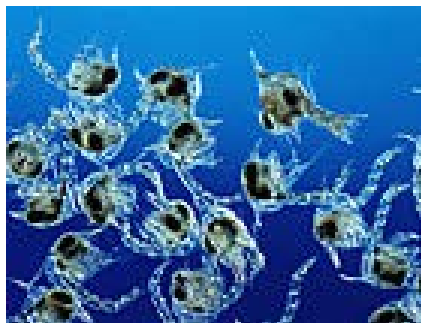
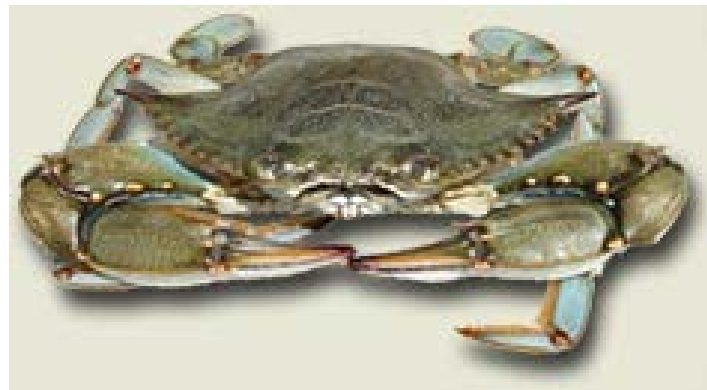




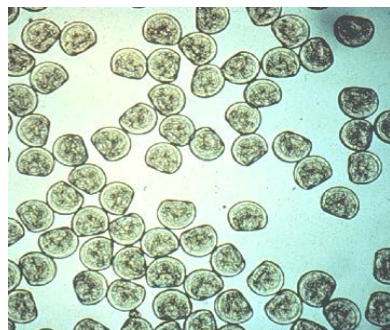
1



2



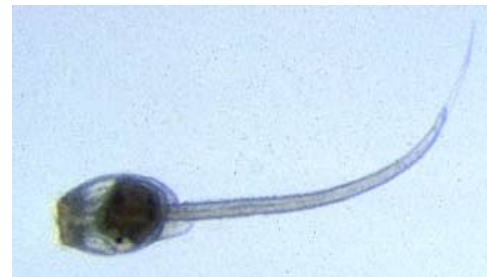
A



B

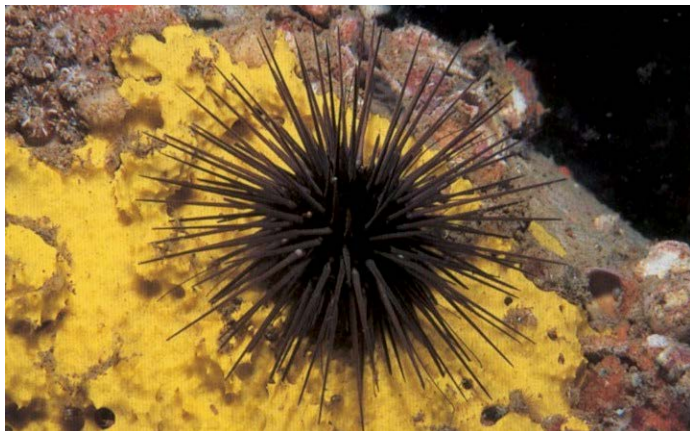


C



D

3



4

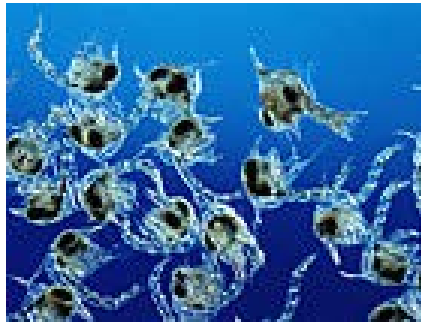
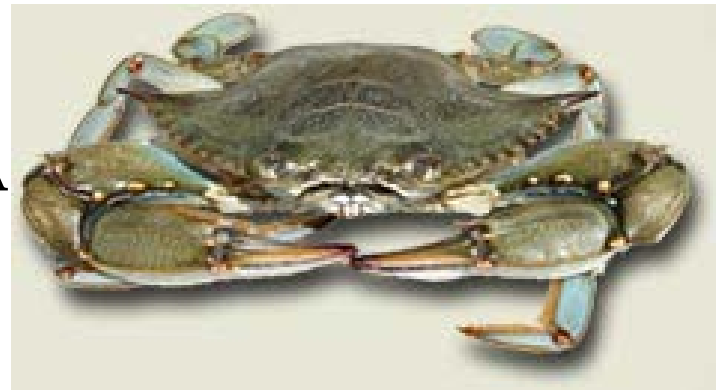




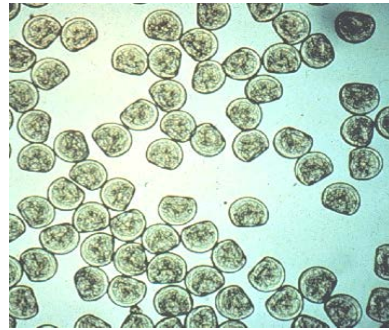
**1- B**



**2 - A**



**A**



**B**



**C**

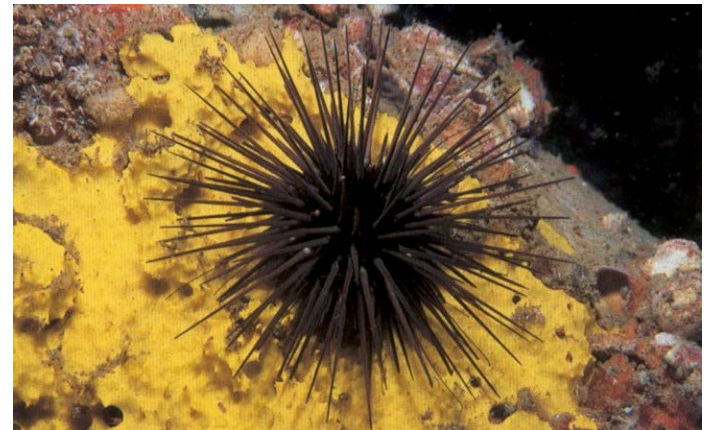


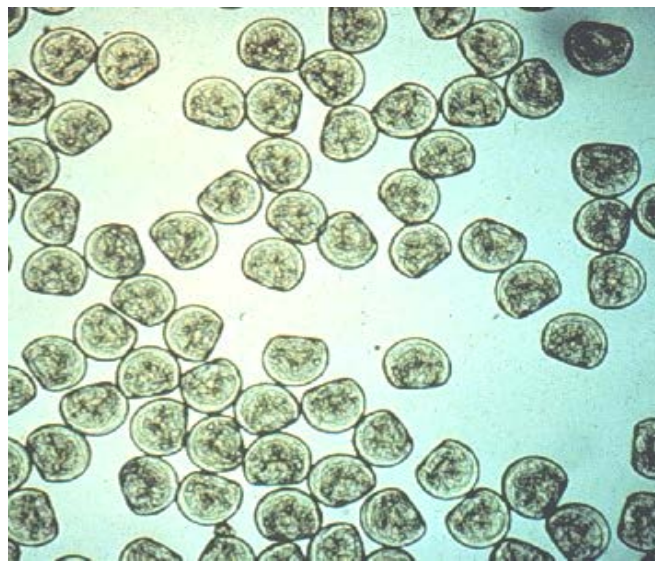
**D**

**3 - D**



**4 - C**







# Echinoderms

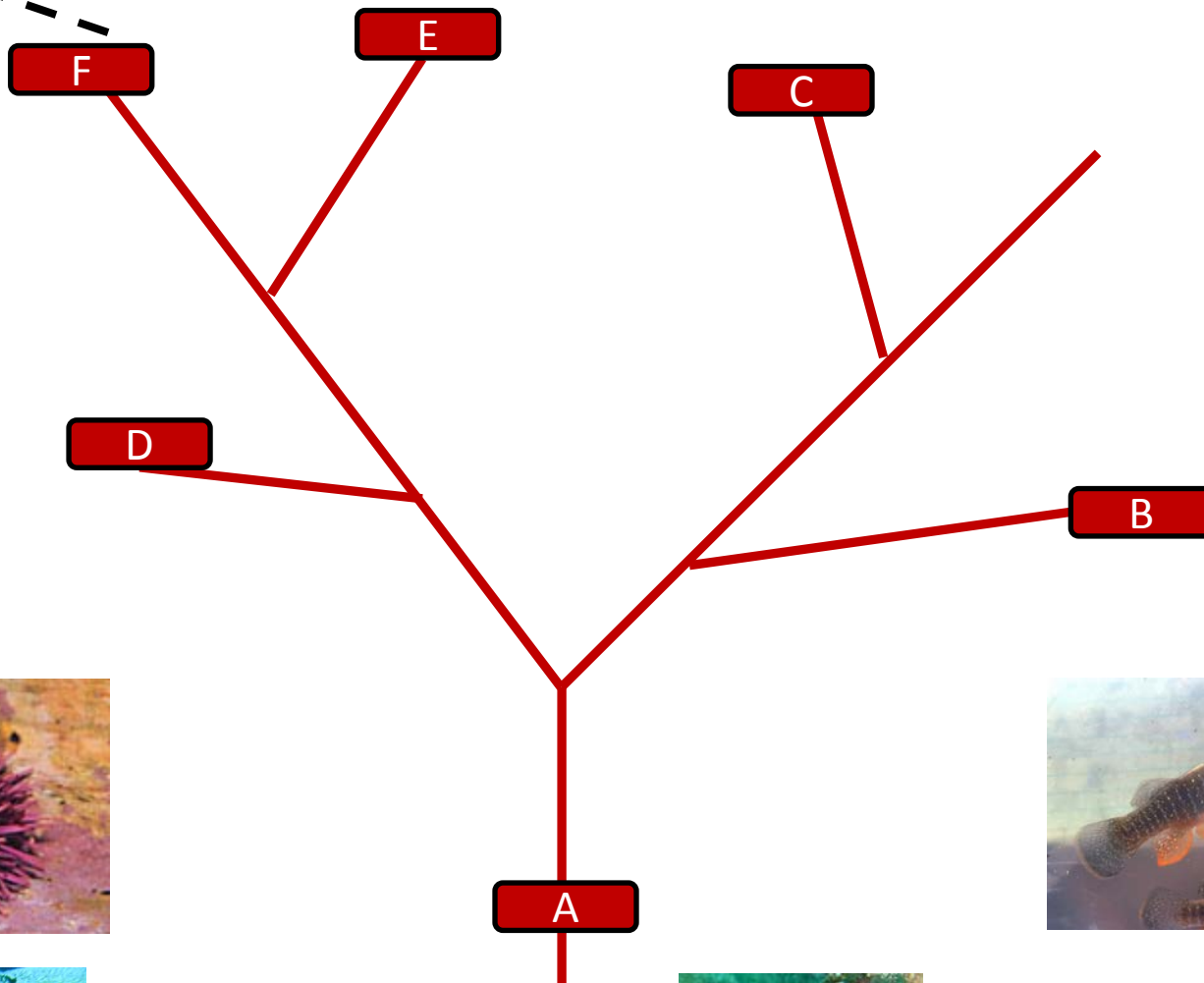




# **Ontogeny Recapitulates Phylogeny**



Vertebrate  
Lineage







**Ontogeny Recapitulates Phylogeny**



# **Who Should Be Interested?**

**(Short answer – everyone!)**

# AP Biology!

## AP Biology Concept Outline

- **Big Idea 1 – The process of evolution drives the diversity and unity of life.**





# Biology!

- **Bio.2.1.2 Analyze the survival and reproductive success of organisms in terms of behavioral, structural, and reproductive adaptations.**
- **Bio.3.2.3 Explain how the environment can influence the expression of genetic traits.**



# **AP Environmental Science!**

## **AP Environmental Science**

### **II. The Living World (10–15%)**

**A . Ecosystem Structure (Biological populations and communities; ecological niches; interactions among species; keystone species; species diversity and edge effects; major terrestrial and aquatic biomes)**

**B . Energy Flow (Photosynthesis and cellular respiration; food webs and trophic levels; ecological pyramids)**

**C . Ecosystem Diversity (Biodiversity; natural selection; evolution; ecosystem services)**

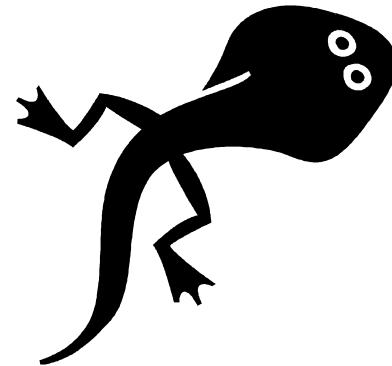
**D . Natural Ecosystem Change (Climate shifts; species movement; ecological succession)**



# North Carolina Essential Standards

## Science, K-8

- **K.L.1 Compare characteristics of animals that make them alike and different from other animals and nonliving things**
- **K.L.1.1 Compare different types of the same animal (i.e. different types of dogs, different types of cats, etc.) to determine individual differences within a particular type of animal.**
- **K.L.1.2 Compare characteristics of living and nonliving things in terms of their:**
  - **Structure**
  - **Growth**
  - **Changes**
- **2.L.1 Understand animal life cycles.**
- **2.L.1.1 Summarize the life cycle of animals:**
  - **Birth**
  - **Developing into an adult**
- **2.L.1.2 Compare life cycles of different animals such as, but not limited to, mealworms, ladybugs, crickets, guppies or frogs.**





- **4.L.1 Understand the effects of environmental changes, adaptations and behaviors that enable animals (including humans) to survive in changing habitats.**
- **7.L.1 Understand the processes, structures and functions of living organisms that enable them to survive, reproduce and carry out the basic functions of life.**
- **8.L.3 Understand how organisms interact with and respond to the biotic and abiotic components of their environment.**



# English!



**“Students should be able to explain the symbolism of Gregor’s metamorphosis moving beyond a literal view of “he turned into a bug” into the idea that society/family/stress/environment led to his abstract reaction. Students will analyze many interrelated literary elements in conjunction with discussing the universal themes presented.”**

- From a lesson plan found on LearnNC, a program of the University of North Carolina at Chapel Hill College of Education**
- Representing Common Core Standards 9-10.L.5, 9-10.RL.1, 9-10.RL.10**