Live Labs & Virtual Labs Using Sea Urchins

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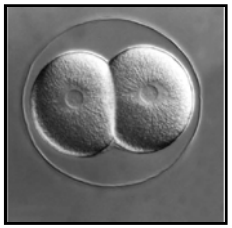
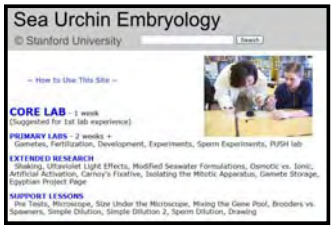
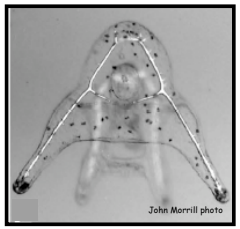
http://virtualurchin.stanford.edu





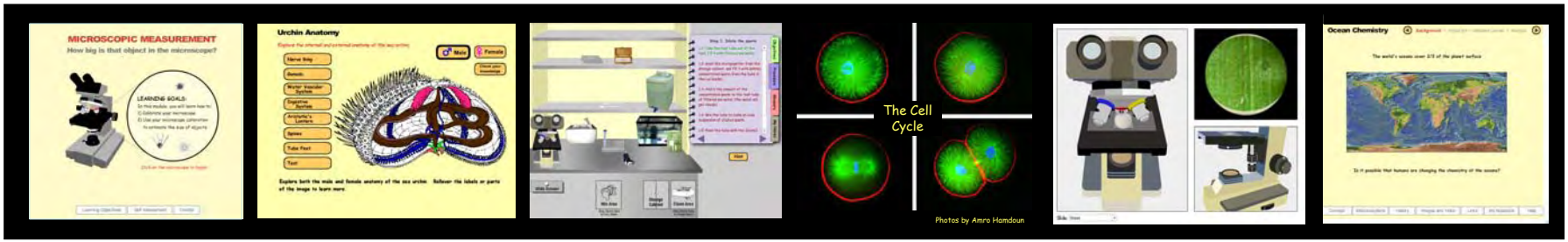
Implementation of Inquiry-based Biology Using Sea Urchin Fertilization & Development

- The project posted at virtualurchin.stanford.edu investigates core biological principles, supports acquisition of essential laboratory skills and recreates classic labs in developmental and cell biology.
- The lab activities present inquiry-based virtual lab experiences using sea urchin embryos and larvae, and include animations, simulations, and virtual labs.
- Activities and virtual labs posted on the open-access website are structured for classroom, small group, or independent student use and are aimed at the high school and introductory college level.
- This National Science Foundation project complements the first Stanford Sea Urchin Embryology site www.stanford.edu/group/Urchin that was designed to provide lab support for teachers with live lab modules, classroom activities, and teacher resources.

Why Focus On Sea Urchins?

- Sea urchin development provides inquiry-based wet laboratory experiences that support both 'Biology' and 'Science As Inquiry' National Science Content Standards.
- The visually riveting laboratory experiences stimulate student interest and the acquisition of a variety of essential lab skills.
- Sea urchin gametes are easy to use in the classroom and provide significant research opportunities.
- Urchins are important organisms from both environmental and developmental biology viewpoints.
- As Deuterostomes, they are relatively close invertebrate relatives to humans, and share many features of development, physiology and cell biology.

Interactive virtual lab modules and website under development
Designed to support National Science Education Standards: Life Science & Science & Science As Inquiry



Microscope measurement Size & Scale

Urchin Anatomy & System Function

Lab Bench-Student Scientists in the Lab

The Cell Cycle: Control, Aging, & Cancer

Microscopes: Function, Use, & Images

Climate Change & Ocean Acidification