

Activity Title: Growing up in the ocean

Learning Objectives

In this lesson students learn about complex life cycles using crab larvae and adult crabs. This lesson allows students to compare and contrast body plans while learning about adaptations the larvae and adults have made to their respective habitats. Throughout the lesson, students practice skills important for scientific inquiry: making observations, drawing what they see, asking and answering questions, and learning to use scientific tools such as microscopes.

Ocean Literacy Principles:

5. The ocean supports a great diversity of life and ecosystems.
 - d. Ocean biology provides many unique examples of life cycles, adaptations and important relationships among organisms (such as symbiosis, predator-prey dynamics and energy transfer) that do not occur on land.
 - e. The ocean is three-dimensional, offering vast living space and diverse habitats from the surface through the water column to the seafloor. Most of the living space on Earth is in the ocean.

Supplies and Materials

- 1–2 microscopes per group, for observing larvae
- 1–2 hand lenses per group, for observing adult organisms
- One crab per group (easily obtained at seafood market)
- Prepared slides of crab zoea and megalopa, one slide of each per group (see Additional Resources)
- Worksheet 1 for drawing newborn marine invertebrates
- Pictures of marine invertebrate larvae
- Teacher copy of basic anatomy of crab and larvae
- Trays and ice, to keep crabs from getting too smelly

Duration

This lesson takes 1.5 hr or can be broken down into two 45-min sessions.

Audience

This lesson was developed for grades 5-6 but a simplified version can be taught to earlier grades.

Procedure

For the full lesson, please see:

[http://pages.uoregon.edu/oimb/Academics/GK12/published_lessons/Bennett & Hiebert.pdf](http://pages.uoregon.edu/oimb/Academics/GK12/published_lessons/Bennett_&_Hiebert.pdf)

Assessment

Assessment of this lesson is based primarily on the students' observational drawings and their participation in the class discussion. We have also included a life cycle puzzle in which students put the life stages of the crab in order and specify each stage's habitat.

Additional Resources

Invertebrate larvae: Carolina Biological Supply, www.carolina.com, Keywords: *zoea*, *megalops*, *plutei*

Video clips of crabs in their habitat: www.arkive.org, Keyword: *cancer pagurus*

Video clip of a crab releasing zoeae: www.arkive.org, Keyword: *carcinus maenas*

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