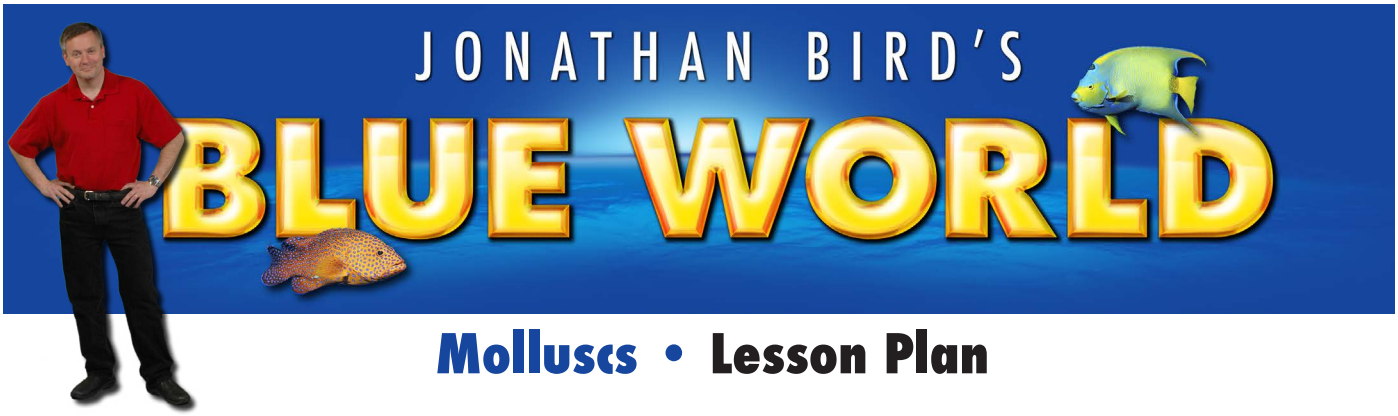

Molluscs • Lesson Plan

Exploring the Diversity of Molluscs

Grade Level: Middle School (6th-8th grade)

Video: www.blueworldtv.com/webisodes/watch/what-are-molluscs

Duration: Two 45-minute sessions

Objectives:

- Students will be able to define and identify molluscs and their common characteristics.
- Students will understand the diversity within the phylum Mollusca, including gastropods, bivalves, and cephalopods.
- Students will explore the ecological roles of different molluscs in marine environments.

Materials:

- Whiteboard and markers
- Visual aids (images of various mollusc species)
- Internet access for research (optional)
- Mollusc identification cards (created by the teacher)

National Science Standards:

- **Next Generation Science Standards (NGSS):**
  - MS-LS4-1: Analyze and interpret data for patterns in the fossil record that document the existence, diversity, extinction, and change of life forms throughout the history of life on Earth under the assumption that natural laws operate today as in the past.
  - MS-LS1-4: Use argument based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants.
- **Common Core State Standards (CCSS):**
  - CCSS.ELA-LITERACY.RST.6-8.7: Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).
  - CCSS.ELA-LITERACY.SL.8.5: Integrate multimedia and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest.

Session 1: Introduction to Molluscs

Introduction (10 minutes)

- Begin by showing images of various mollusc species (e.g., snails, clams, squid) to pique students' interest.
- Ask students if they can identify any of these creatures and what they know about them.
- Introduce the concept of the phylum Mollusca and its diversity.

Main Lesson (25 minutes)

1. Explain the basic characteristics of molluscs:
    - Three main body regions: head, visceral mass, and foot.
    - The presence of a shell (in many but not all molluscs).
    - The role of the mantle in shell formation.
    - The use of the radula for feeding.
2. Highlight the diversity of molluscs by discussing the classes:
    - Gastropoda (snails, limpets, nudibranchs)
    - Bivalvia (clams, mussels, oysters)
    - Cephalopoda (squid, octopods, cuttlefish, nautiluses)
3. Show images of specific examples from each class and discuss their unique features.

Activity (10 minutes)

- Distribute mollusc identification cards to students, each with the name and image of a different mollusc species.
- In pairs or small groups, have students research and present the characteristics and ecological roles of their assigned molluscs.

Session 2: Exploring Mollusc Diversity

Recap (10 minutes)

- Review the basic characteristics of molluscs and the three main classes.
- Ask students to share what they've learned about the mollusc species they researched in the previous session.

Main Lesson (25 minutes)

1. Dive deeper into the ecological roles of molluscs within their respective classes:
    - Gastropods as scavengers and predators.
    - Bivalves as filter feeders and their adaptations.
    - Cephalopods' advanced nervous systems, eyesight, and hunting strategies.
2. Discuss the importance of molluscs in marine ecosystems and their roles in the food chain.

Activity (10 minutes)

- Show videos or animations that illustrate the behaviors and adaptations of different mollusc species.
- Engage students in a discussion about how the diverse characteristics and behaviors of molluscs contribute to their survival and ecological significance.

Conclusion (5 minutes)

- Summarize the key points about molluscs' diversity and ecological roles.
- Encourage students to appreciate the fascinating world of molluscs and their unique adaptations.

Assessment:

- Students will be assessed based on their participation in class discussions, the quality of their mollusc identification cards and presentations, and their engagement in the session activities.

Homework/Extension (optional):

- Have students research and create a presentation on a specific mollusc of their choice, exploring its habitat, behavior, and adaptations. They can present their findings in the next class.

Note: Depending on the availability of technology and resources, teachers can adapt this lesson plan to include more interactive elements, such as virtual field trips to marine environments or hands-on activities like dissecting mollusc specimens.