

Marine Biotechnology and Bioinformatics

for Teachers

Mussel Ecology and Collection

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Introduction



This is a marine biology lesson that introduces students to the habitat and environment of the marine mussel. During the lesson students collect mussels using random sampling techniques at a dock and observe the mussel environment. An emphasis is put on human factors that may affect the mussel habitat.

Field Experience



Field Observations



Instructional Goals

- Students will conduct field research and use random sampling techniques to collect mussel specimen.

- Students will make connections between the mussel as an intermediate species in the food chain and the affects of being a filter feeder in a marine environment that is surrounded by human influences.

- Students will use technology such as digital and video cameras to document their field research and experiences.

- Students will have field experiences in two biologically diverse environments that are populated by mussels.

- Through field observations students will build schema for understanding the interconnectedness of diverse organisms in an ecosystem.

- Students will work collaboratively to express their understanding of a marine ecosystem.

Lesson Plan

- Students are pre-assessed on their mussel knowledge.

- Teacher led KWL chart fill-in.

- Students are brought to the designated dock area to complete random sampling and observe one mussel habitat.

- Students are brought to a second site, the local beach, which is connected to the "sampled" area. Here students observe and collect data on the living and non-living factors that affect the mussels' environment.

- Students complete a "Mussel Ecology" field guide

- Students are presented with two PowerPoint presentations on mussel external anatomy and local mussel ecology.

- Students use their field research to convey their experiences and knowledge gained in the field.

Learning Outcomes/Assessment

Students were asked to create: a rap, poem, PowerPoint presentation, iMovie, poster, or an essay to address one of the following questions:

"What impacts do humans have on mussels" or
"What role does the mussel have in the environment?"



Save the mussels
Mussels are filter eaters
They have no eyes so they are not modern
Mussels have byssal threads
Sea stars eat them and then learn from them dead
They tend to live on docks
When hit on head they feel like rocks
They live in fresh water and the sea
So when around them let them be
Mussels are black, hard, and one
So save the mussels never forget
They are part of nature.

Each group of students delivered a presentation to the class. There were a range of presentations from posters and poems to collages. The results demonstrated that the instructional goals were met. The student projects showed that they had gained knowledge on mussel ecology and were able to make connections to the influences on ecological communities.

Conclusion

Overall the lesson gave students a variety of ways to explore mussel ecology from field collection to online research. The diverse methods of instruction gave all students access to the curriculum and allowed them to use many different resources to guide their learning. The assessment questions gave students the opportunity to express their understanding in a variety of ways so that they could apply their experiences and knowledge from the lesson. In conclusion, the lesson gave all learners the schema for understanding mussel ecology.

