Milstein Hall of Ocean Life

BACKGROUND FOR EDUCATORS

Overview of Student Worksheets: A WHALE OF A FOOD TALE

Using worksheets, students explore a blue whale's food chain to see how energy and matter is transferred among marine organisms.

- **Part 1: What feeds a whale?** To explore the food chain of "Sun → krill → algae → blue whale," students observe the Polar Seas ecosystem exhibit (upper level) and the blue whale model (middle of the hall). Based on their observation, students answer the question: How does a blue whale get so massive?
- **Part 2: What does a whale feed?** Next, students visit the Sea Floor ecosystem exhibit (upper level; opposite side of the Polar Seas exhibit) to explore a whale fall—carcass of a dead whale—and the organisms that feed on it. Based on their observation, students answer two questions: How does a whale fall support an ecosystem? How does the energy from a whale fall connect back to the Sun?

These observations help students experience a **natural phenomenon**—that the blue whale is really big. This phenomenon can serve as an anchoring point in exploration and discussion as students explore the **investigation questions**: How does a blue whale get the energy to grow so big? And where does the energy go when a whale dies?

Extension Ideas

Back in the classroom, students can investigate the huge role that small creatures like krill can play in food webs: Why is krill a keystone species? What is its importance to food webs? How might climate change disrupt these food webs? Students can then construct an explanation of how krill is both critical and vulnerable.

Correlation to Standards

This activity supports the following Next Generation Science Standards:

Disciplinary Core Ideas	**LS2.B: Cycle of Matter and Energy Transfer in Ecosystems** Algae forms the lowest level of the food web. At each link upward in a food web, only a small fraction of the matter consumed at the lower level is transferred upward, to produce growth and release energy in cellular respiration at the higher level. Given this inefficiency, there are generally fewer organisms at higher levels of a food web.
Crosscutting Concepts	**Systems and System Models** Models can be used to simulate systems and interactions—including energy, matter, and information flows—within and between systems at different scales.
Science and Engineering Practices	**Obtaining, Evaluating, and Communicating Information** Critically read scientific texts to determine the central ideas and/or obtain scientific information to describe patterns in and/or evidence about the natural world.