



Crittercam Educator Activities

Whales



20 -60 minutes,
depends on number
of variables tested

SCIENCE STANDARDS A, B, C

Students conduct a series of experiments to test the effectiveness of blubber as insulation.

Background on the Critters:

Whales, along with dolphins and porpoises, comprise the group of mammals known as cetaceans. Whales range in size from seven to over 90 feet long and can weigh up to 200 tons, as much as 25 African elephants.

Most whales have a thick layer of blubber—up to one foot thick—that helps keep their bodies at a toasty 100-102 degrees, even in chilly oceans and at depths of up to 3,280 feet. Because blubber is lighter than water, it also helps whales remain buoyant.

Extensive hunting in the 19th and 20th centuries led to the large-scale decline of whale populations. Today, they are threatened by ocean noise, pollutants, and accidental drownings in commercial fishing nets. Many whale populations are at all-time lows.

ACTIVITY

Benefits of Blubber

1. Discuss the science of blubber—how and why it helps animals like whales stay warm in icy conditions and how it helps animals remain buoyant.
2. Cool online video option! Consult Crittercam video footage online at: <http://channel.nationalgeographic.com/channel/crittercam/> for videos of humpback whales breathing, herding, and feeding.
3. Divide students into teams of three and give each team a copy of the whale worksheet. Students take turns as recorder, timer, and researcher.
4. The researcher puts on a pair of tight-fitting latex gloves and, on top of those, a pair of large rubber dishwashing gloves. One dishwashing glove is empty. The other is full of blubber in the form of Crisco.
5. Students use a thermometer to measure the temperature in a bucket of ice cold water. The researcher plunges both hands into the bucket. A student with a stopwatch times how long the researcher leaves each hand in the water before removing it due to cold. Another student records the times. Which hand gets colder first? How much sooner?

ACTIVITY

6. Students take turns putting their hands in the water, and calculate the average times in ice water for the blubber-protected and unprotected hand. Discuss the results as a class.
7. Students could also experiment with other variables: e.g., water of different temperatures, varying amounts of Crisco, or other kinds of insulating material. Make sure they test only one variable at a time.

FOLLOW-UP ACTIVITIES

1 Language Arts: Books About Critters

Tracking Animal Migrators, by Rebecca L. Johnson—nonfiction

Publisher: National Geographic

Grades: 3 – 8

Join real-life researchers, photographers, and writers on assignment, following whales, butterflies, and other animals as they migrate thousands of miles each year.

The Whale Rider, by Witi Ihimaera—fiction

Publisher: Harcourt Paperbacks

Grades: 5 - 8

The book opens with the tale of the original whale rider, immersing readers in the sweep of Maori culture at the heart of this remarkable story; and tells the story of the new young whale rider who takes her rightful name, Kahu.

2 Science:

Fill two, six-inch tall glasses about two-thirds of the way with hot water, and stir one-third cup of salt into one until the salt dissolves. Put an egg into each glass of water. How much of the egg remains above water in the salt versus fresh water? Because salt water is denser than fresh water, it allows objects to float higher and more easily than in fresh water. Relate the density and buoyancy of salt water to why large animals—like whales, sharks, seals, and sea turtles—live in salt water rather than in fresh water.



Whales

Benefits of Blubber

Blubber vs. No Blubber

Variable # _____

Water temperature: _____

TRIAL	Unprotected Hand Immersion Time	Blubber Protected Hand Immersion Time	Notes
Researcher #1			
Researcher #2			
Researcher #3			
Average Time			

Variable # _____

Water temperature: _____

TRIAL	Unprotected Hand Immersion Time	Blubber Protected Hand Immersion Time	Notes
Researcher #1			
Researcher #2			
Researcher #3			
Average Time			