Peace and Love for All

Peace and love starts right here right now.

This is a project that supports the Earth Pledge of Allegiance. Please visit http://www.peaceandloveforall.com to find more activities, projects that support the Earth and her inhabitants. And if you've got an idea to share, send it to us. As we work together, we support our One Planet, indivisible, with safe air, water and soil, economic justice, equal rights and peace and love for all.

Sea Animal Survival

Adapted from Discovery School, Summer Productions, Inc.

Objective

Students will learn about survival mechanisms for sea animals. Students will learn about blubber, a layer of fat beneath the skin of many sea mammals. Students will learn how blubber acts as an insulator, helping sea mammals to keep warm in cold waters.

Materials Needed

The following materials will be required for each group: rubber gloves, large bowl, water, ice, solid vegetable shortening, outdoor thermometer (optional).

Strategy

Before beginning this activity, students should have the following background information:

- Whales, seals, dolphins, and porpoises are not fish, but mammals, which means they are warm blooded.
- Warm-blooded animals' body temperatures remain constant; their body temperatures do not adjust to changes in the surrounding temperature.
- Warm-blooded animals, in order to maintain a constant body temperature, need a way to keep warm when the surrounding temperature is cold.

Ask students how they think sea mammals—such as whales, seals, dolphins, and porpoises—stay warm in cold water. Make sure students know what blubber is—a thick layer of fat beneath the skin of sea mammals. Tell them that they are going to do an experiment to find out how blubber helps sea mammals stay warm.
Divide the class into groups, giving each group a large bowl filled with cold water and ice cubes and a rubber glove.

Direct students to take turns putting on the rubber glove and submerging the gloved hand in the ice water for 30 seconds. Have each student tell the group how his or her hand feels after being submerged. (If you wish, have the student insert a thermometer into the glove and wait one minute until the temperature registers.)

Tell students to record each student's reaction (and optional thermometer reading) on a chart they devise themselves. The chart should have columns for group members' names and for members' reactions (and an optional column for thermometer readings) without "blubber." The chart should also have a column for reactions (and an optional column for thermometer readings) with "blubber."

Next, have students take turns repeating the procedure, with each group member thickly coating his or her hand with solid vegetable shortening before putting on the glove. Have each student tell the group how his or her hand feels this time. (If using a thermometer to measure the temperature, students should wait until the thermometer registers room temperature again before proceeding with this step.) Group members should add data from this step to their chart.

Discuss results with the class. Why did students' hands feel warmer when coated with solid vegetable shortening than when uncoated? What does this experiment tell them about the function of blubber in sea mammals?

Have students wash their hands with soap and water after the experiment.

ADAPTATIONS

Younger students will need help coating their hands with the shortening and with cleaning up. If students will record data on charts, you might prepare the charts for the students in advance. Rather than have students work on their own, you might have one or more volunteers perform the experiment, with your help, as a demonstration for the class.

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DISCUSSION QUESTIONS

1. Besides blubber, what are some other physical characteristics that help keep animals keep warm in cold climates?

2. Think of some animals that live in cold climates and some that live in hot climates. Compare and contrast their physical characteristics.

3. Humans have a layer of fat under the skin, but not enough to keep us warm. How do humans keep warm in cold weather?

4. Underwater mammals differ in many ways from mammals that live on land. In what ways are land mammals and underwater mammals similar? What common characteristics qualify both groups of animals to be called mammals?

Conclusion
You can evaluate groups on their charts using the following three-point rubric:
Three points: well designed; clear and carefully prepared; each group member's name and reaction (and thermometer reading) listed
Two points: adequately designed; legible and satisfactorily prepared; some data missing
One point: inadequately designed; carelessly prepared; significant data missing
You may ask your students to contribute to the assessment rubric by determining several acceptable ways the chart could be designed.

EXTENSION
Eight Things about Sharks
Invite students to brainstorm ideas and questions about sharks. Then encourage them to do research to answer any questions they have. Have each student or group of students create a storyboard for a television documentary about sharks. Each student or group should fold a large sheet of paper into eight parts and illustrate or write eight of the important ideas about sharks they would want to show. Students should write captions for all drawings.