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Good Blubber

Blubber is a thick, oily fat which helps whales stay warm in cold waters. This experiment will help you understand how it works.

Materials

small water balloons	water	ice cubes or freezer	bowl (to hold water)
resealable plastic bags	vegetable oil	thermometer	

Directions

1. Fill a small bowl with water about $\frac{2}{3}$ full.
2. Fill two small water balloons with water and tie them so that they can be untied later. They should be about the size of golf balls.
3. Fill one resealable plastic bag with 4 ounces of vegetable oil.
4. Set one water balloon inside the plastic bag of vegetable oil. Seal the bag.
5. Set the bag with the vegetable oil in the bowl.
6. Set the other water balloon in the bowl. Fill the bowl with ice cubes. (Instead of ice cubes, you can set the bowl in a freezer.)
7. Leave the tray undisturbed for 30 minutes.

Recording Results

1. Stand a thermometer in the bowl of water. Leave it one minute. Record the temperature of the water in the bowl.
(water temperature in the bowl) _____
2. Place a thermometer in the water balloon that was alone in the water. (You can pour the water in a small cup if the thermometer doesn't easily fit in the balloon.)
(water temperature in the balloon) _____
3. Place a thermometer in the water balloon that was inside the bag of oil. (You can pour the water into a small cup if the thermometer doesn't easily fit in the balloon.)
(water temperature in the balloon in the oil) _____

Explaining Results

1. Which balloon had the warmest temperature? Why? _____

2. How does blubber help a whale? _____

Sea Otters and Sea Urchins Game #1

Sea otters help keep the kelp beds healthy by controlling the number of sea urchins that can destroy the kelp beds when they become too numerous. This is a simulation game that illustrates what happens when nature gets unbalanced.

Materials: Game labels (page 47), masking tape, and a large open space

Directions

1. Choose 2 fast runners to be human fur traders. Give these 2 students HUMAN labels.
2. Choose 4 good runners to be sea otters. Give these 4 students SEA OTTER labels.
3. Choose 10 students to be sea urchins. Give these 10 students SEA URCHIN labels.
4. Label any additional students SEA URCHIN. (These students will join the game when a sea otter or another sea urchin gets tagged.)
5. Attach the labels to students' shirts with strips of masking tape. You may want to reproduce two labels for each student—one to tape to the front of the shirt and one to tape to the back. This way the students playing can easily see each other's labels.

Rules of the Game

1. Students labeled HUMAN will chase and try to tag the sea otters and ignore the sea urchins.
2. Students labeled SEA OTTER will chase and try to tag the sea urchins while trying to avoid the humans.
3. Any sea otter who gets tagged by a human must leave the game and is then replaced by 2 other students labeled SEA URCHIN.
4. Any sea urchin who gets tagged is replaced by another student labeled SEA URCHIN.
5. The game continues for 15 minutes or until all of the sea otters are tagged.



What Happened?

- Discuss the results of the game with your classmates.
- What happens to the ocean environment when too many sea otters are killed by hunters or pollution?
