

Look Who Lives in the Ocean!

Fish vs. Mammal Science Project

This project is about how animals regulate body temperature. Marine mammals (whales, seals, dolphins, otters) naturally keep a consistent body temperature. Humans are mammals too. Our body temperature remains around 98.6 degrees Fahrenheit. If we are cold, we shiver to warm up and if we are hot, we sweat to cool off.

Fish are ectotherms, meaning they cannot regulate their own body temperature. Their bodies are generally the same temperature as the water around them. So to warm up or cool off they must rely on external sources, like sunshine and shallow water.

This project can be done as a whole class or by smaller groups.

WHAT YOU WILL NEED:

Sponges
Water
Scissors
Thermometers
Timer
Heating pad in a plastic bag
Refrigerator

HUMAN BODY TEMPERATURE

In the classroom, have one or more volunteers take their body temperature. Use another thermometer to note the ambient temperature of the room.

Have the same volunteers go outside for 10 minutes and take a second reading. Note the outside temperature.

Have the volunteers hold the heating pad for 10 minutes (and/or do several pushups, jumping jacks or other calisthenics until they feel physically heated) and take a third and final temperature. Place the thermometer on the heating pad and note the temperature.

Record the findings.

ECTOTHERMIC BODY TEMPERATURE

Dampen the sponges with water (remember, living organisms are made up largely of water). The teacher should cut a small but deep slit in the thin edge of each sponge; be sure it is deep enough to fully insert a thermometer.

Place one damp sponge in the classroom, one outside, one on the plastic wrapped heating pad and one in a refrigerator and leave them for 10 minutes.

Take the temperature of each sponge and record the findings. Discuss the differences between the human temperatures and the sponge temperatures.

Body Temperature in Relation to Ambient Temperature

Record all temperature readings in the corresponding boxes below.

	Classroom	Outside	Heating Pad	Refrigerator
AMBIENT TEMP.				
HUMAN BODY TEMP. (endothermic mammal)				Never shut a living thing in a refrigerator! Using the other data obtained, <i>speculate</i> what a human's body temperature would be after 10 minutes in a refrigerator:
If more than one...	Average: _____	Average: _____	Average: _____	_____
SPONGE TEMP. (ectothermic fish)				
If more than one...	Average: _____	Average: _____	Average: _____	Average: _____

Based on the findings, how much/little does the temperature of a human body vary as the ambient temperature changes?

Based on the findings, how much/little does sponge temperature vary as the ambient temperature changes?
