

Activity#5 - Temperature Changes: Atmosphere & Ocean

Concepts #1 & 2

#1 The sun warms the Earth's surface, which controls global currents and climate, keeping the earth habitable.

#2 Water and air behave in similar ways as fluids.

Objective:

Students observe temperature differences of water and air in sunlight and darkness.

Materials:

- 2 thermometers
- 2 quart- size jars with lids
- water

Procedures:

1. The teacher puts a thermometer in each jar, fills one jar with water and caps both jars. Label the water jar "ocean" and the empty jar "atmosphere." Record the temperature of each on the board. Place the jars next to each other in the sunlight for about ½ an hour.
2. Ask the students: What do they think will happen in each jar? (write in journal)
3. Which thermometer will rise quicker? Why?
4. After ½ hour record the temperatures on the board next to the first temperatures.
5. Ask the students : Which jar is hotter?
6. Which jar showed the greatest change in temperature?
7. The teacher now places the jars in the shade for about ½ hour.
8. Ask the students: Which container will cool the fastest? What do you think? Why? Chart data in journal.
9. After ½ hour record the temperatures. Find the difference between the new and previous high temperature of each jar. Have students generalize about what is happening to the atmosphere and ocean. (Water heats and cools slower than air.)

	Temperature in Average Light	Temperature in Sunlight	Temperature in Shade
Water in Jar			
Air in Jar			

Evaluation:

Students answer questions:

- In the winter, would the average temperature of the ocean or the air be warmer? Why? (Winter has warmer ocean temperatures than air temperature).
- How would the summer ocean temperature differ from the air temperature? (Summer has warmer air temperature than the cooler ocean temperature.)