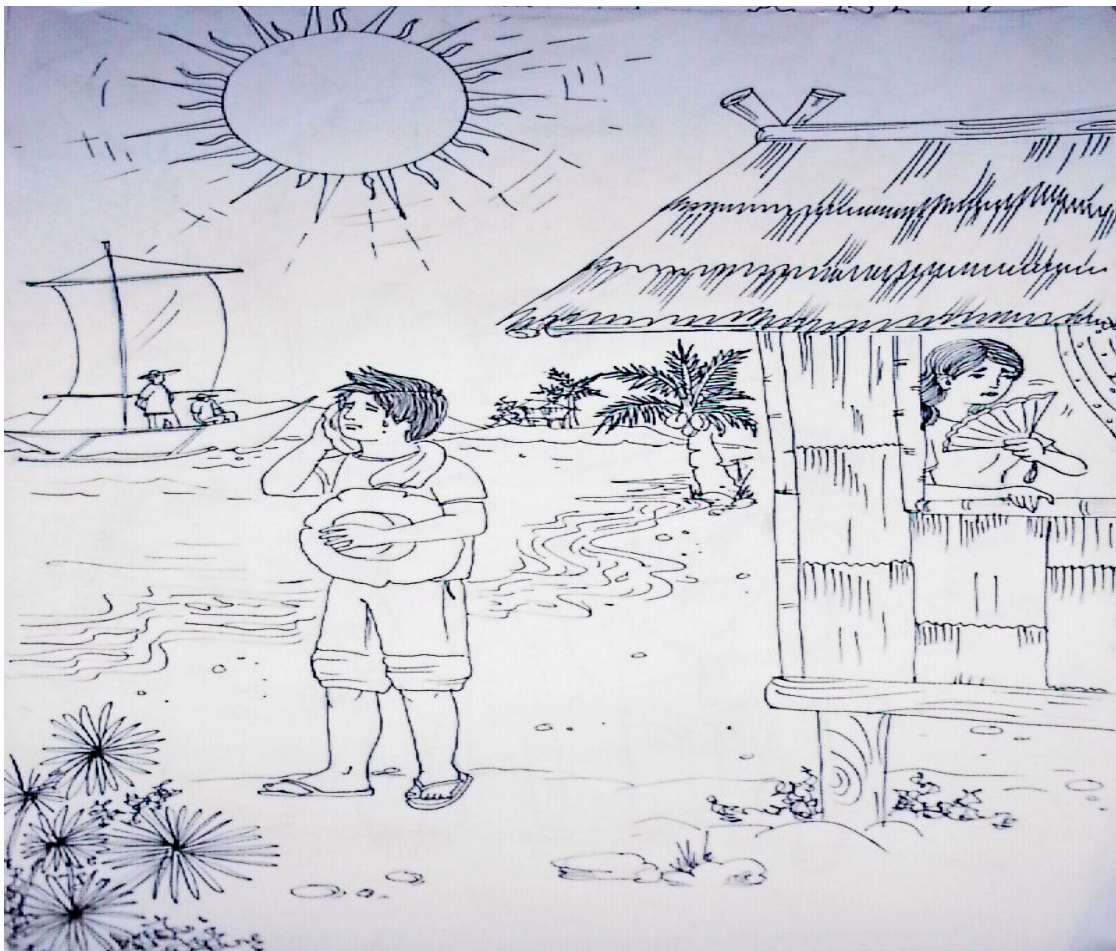


Science and Health

EFFECTS OF HEAT ON LAND AND WATER





To the Learner

The sun releases light and heat energy which warm up the Earth's surface. How does the sun's heat affect our land and water parts? Which do you think is heated faster? Which cools faster? This module will help you find out why some parts of the earth heated faster and cool faster.



Let's Learn This

Observe the effects of heat on land and water. Compare the ability of land to absorb and release heat.



Let's Try This

Encircle the letter that has the correct answer.

1. Which takes a longer time to cool at night?
a. land b. water c. both d. none of these
2. Which heats up faster by day?
a. land b. water c. both d. none of these
3. Why does land heat up faster than water?
 - I. Land particles are arranged not so close to one another as water.
 - II. Land is solid and transfer heat transfer.
 - III. Land evaporates when heated.
 - IV. Land reflects all the light.

a.) I & II b.) II & III c.) III & IV d.) I & III

4. Why does water take a longer time to heat?

- I. Body of water slowly release heat.
- II. Warm water is found several metres down.
- III. Bodies of water reflect all the light.
- IV. Heat is distributed in large area.

- a.) I, II & III b.) II, III & IV c.) I, II & IV d.) III, II, IV

5. Which statement is true.

- I. Land and water absorbs heat equally.
- II. Land absorbs heat faster than water.
- III. Water absorb heat faster then lead.
- IV. Land cool faster than water.

- a.) I & II b.) II & III c.) III & IV d.) II & IV



Let's Do This



SOIL WITH THERMOMETER



WATER WITH THERMOMETER

ACTIVITY - Teacher-assisted activity.

1. Put 20 tablespoons of sand water in two identical plates separately.
2. Get the initial temperature using a thermometer.
3. Place both plates of sand and water under the sun at noontime for 3 hours.
4. Record the temperature every after 30 minutes in each plate.
5. After recording, place both plates of sand and water in a dark corner of the room for another 3 hours.
6. Record the temperature reading every after 30 minutes. Your observations in the table given below.

TABLE 1. TEMPERATURE READING

MATERIAL	INITIAL READING	UNDER THE SUN AFTER 30 MINUTES						IN THE DARK ROOM AFTER 30 MINUTES						
		1st	2nd	3rd	4th	5th	6th	1st	2nd	3rd	4th	5th	6th	
1. Plate with soil														
2. Plate with water														

QUESTIONS:

1. Which is heated faster? Why do you think?
2. Which is heated slow? Why?
3. Which cools faster? Why?



Let's Study This

Why does land heat faster and cool faster?

Land and water absorbed heat. However, land absorbs heat faster than water and it also cools faster.

During daytime, the sun's rays heat only a portion of land about a few centimeters deep. Since soil particles are arranged closely to one another it absorbs heat immediately. Land, being solid, transfer heat faster. Heat however, warms the body of water down to several metres below so heat spreads slowly over the body of water.

During nighttime, land releases heat faster than water. Warmed body of water slowly releases heat because warm water is found several metres down and is distributed in large area that is why it takes longer time for water to cool off than land.



Let's Do More

1. Which is heats faster?
2. Why does land heat faster?
3. Why does water take longer time to heat and cool?



Let's Remember This

- Land is heats faster than water.
- Land cools faster than water.



Let's Test Ourselves

Encircle the letter that has the correct answer.

1. Which takes a longer time to cool at night?
a. land b. water c. both d. none of these
2. Which heats up faster by day?
a. land b. water c. both d. none of these
3. Why does land heat up faster than water?
I. Land particles are arranged close to one another.
II. Land is solid and transfer heat faster.
III. Land evaporates when heated.
IV. Land reflects all the light.
a.) I & II b.) II & III c.) III & IV d.) I & III
4. Why does water take a longer time to heat?
I. Body of water slowly release heat.
II. Warm water is found several metres down.
III. Bodies of water reflects all the light.
IV. Heat is distributed in large area.
a.) I, II & III b.) II, III & IV c.) I, II & IV d.) III, II, IV
5. Which statement is true.
I. Land and water absorb heat equally.
II. Land absorbs heat faster than water.
III. Water absorbs heat faster then lead.
IV. Land cools faster than water.
a.) I & II b.) II & III c.) III & IV d.) II & IV



Answer Key

Let's Try This

- 1.) b
- 2.) a
- 3.) a
- 4.) c
- 5.) d

Let's Do This

- 1.) Land (answer may vary)
- 2.) Water (answer may vary)
- 3.) Land (answer may vary)

Let's Do More

- 1.) Land
- 2.) Its particles are cloudy arranged. It is solid.
- 3.) Heat penetrated the water deeply and distributed in larger area.

Let's Test Ourselves

- 1.) b
- 2.) a
- 3.) a
- 4.) c
- 5.) d