

*Where Did the Lake Go?*

**Handout #1 Vocabulary**

Area (A): The measure, in square units, of the interior region of a 2-dimensional figure or the surface of a 3-dimensional figure.

Basin: A depression in Earth's surface. Some basins are filled with water; others are dry some or most of the time.

Condensation: The changing of a gas into a liquid, for example, when water vapor changes to liquid water.

Drought: A prolonged period of greatly reduced precipitation.

Evaporation: The changing of a liquid into a gas, for example, when water turns into water vapor.

Fresh Water: Water that is not salty.

Irrigation: How farmers bring water to plants; along channels or by using machines.

Lake: A body of water surrounded by land.

Precipitation: Water that falls from the atmosphere to the Earth's surface in the form of rain, snow, sleet, and hail.

Rain: Liquid precipitation.

Volume (V): The number of cubic units it takes to fill a figure.

Water Cycle: The circular journey of the Earth's water from sea to the air and back again. The movement of water between earth and the air in three stages: evaporation, condensation, and precipitation.

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Handout #2 Draw a diagram of the water cycle.

Diagram of the Water Cycle

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**Handout # 3**

**Lake Chad Data Sheet**

Lake Chad is located on the southern edge of the Sahara. It borders the countries of Chad, Niger, Nigeria, and Cameroon.

In the 1960s Lake Chad was larger than the state of Vermont. Vermont is 24,900 sq. km. (9,614 sq. mi.).

In 1963 Lake Chad was 25,000 sq. km.

In 2003 Lake Chad was only 1/20 the size it was in 1963 and has continued to decrease.

From 1966-1975 there has been a 30% decrease in size, only 5% was due to irrigation. The rest was due to drier weather conditions.

From 1983-1994 irrigation accounted for 50% of decrease in area of the lake. This shows a direct cause and effect. Drier conditions result in a need for more irrigation to water crops.

Recent data states that Lake Chad has shrunk to about 500 km<sup>2</sup> and is very shallow (1.5m deep).

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**Handout # 4**

List all of the lakes that you have visited or just heard of.

Where are these lakes located?

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**Handout # 5**

Write a list of how people, animals, and plants use lakes.

People:

Animals:

Plants:

Draw a picture of a lake and show people, animals, and plants in and around it.

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Handout # 6

How would people, animals, and plants be affected if a lake started to dry up and eventually disappear?

The effect on people:

The effect on animals:

The effect on plants:

Draw a picture showing one of these effects.

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Handout # 7

Use the Lake Chad Basin 1963-1997 (4 maps) to determine how Lake Chad has been shrinking.

<b>Year</b>	<b>Number of Cells in Lake Chad</b>	<b>Area in Sq. Kilometers (cells x 10)</b>	<b>Change from Previous Map (Sq. Kilometers)</b>	<b>Rate of Change from Previous Map (Decimal)</b>	<b>Rate of Change from Previous Map (Percent)</b>
1963			-----	-----	-----
1973					
1987					
1997					

When counting the cells, be sure to estimate. Some cells will be 1/2 or 1/4 of a cell. Add these together to get a total of whole cells.

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Handout # 7 **Answer Key**

Use the Lake Chad Basin 1963-1997 (4 maps) to determine how Lake Chad has been shrinking.

<b>Year</b>	<b>Number of Cells in Lake Chad</b>	<b>Area in Sq. Kilometers (cells x 10)</b>	<b>Change from Previous Map (Sq. Kilometers)</b>	<b>Rate of Change from Previous Map (Decimal)</b>	<b>Rate of Change from Previous Map (Percent)</b>
<b>1963</b>	237.75	2377.5	-----	-----	-----
<b>1973</b>	96.5	965	1412.5	.59	59%
<b>1987</b>	20.25	202.5	762.5	.79	79%
<b>1997</b>	17.75	177.5	25	.12	12%