

# Biogeochemical Cycles

## **BACKGROUND:**

Although energy moves in a one-way direction through an ecosystem, nutrients are recycled. All organisms require certain essential nutrients in order to grow. Plants need water, carbon dioxide, phosphorus, potassium, and many other elements. Animals require complex compounds (such as proteins and amino acids), several types of vitamins, and many of the same elements plants do.

As members of each trophic level eat members of the level beneath them, they acquire the complex organic molecules and elements they need in addition to energy. Although energy and nutrients move together from one trophic level to the next, they move through the biosphere differently.

Nutrients move through the biosphere in a series of physical and biological processes called *biogeochemical, or nutrient, cycles*. They are called cycles because nutrients, unlike energy, may be used over and over again by living systems. The three cycles are: The *Water Cycle*, *Nitrogen Cycle*, and the *Carbon and Oxygen Cycles*

**DIRECTIONS:** Complete the 3 diagrams detailing the three Biogeochemical Cycles. Your drawings should show arrows that indicate the movement of nutrients as they move through the biosphere. (see pages 1023-1026 in your textbook) Make your drawings as detailed as possible and add a little color please!

## The Water Cycle

## The Nitrogen Cycle

## The Carbon and Oxygen Cycle