

## STUDY GUIDE

### CHEMISTRY

#### **DEFINE THESE TERMS**

Atom

Element

Bond

Compound

Molecule

Hydrogen bond

Solution

#### **ANSWER THESE QUESTIONS**

How are all living things based on atoms and their interactions?

How are elements different from compounds?

How do water's unique properties allow life to exist on earth?

### BIOGEOCHEMICAL CYCLES

#### **DEFINE THESE TERMS**

Water cycle

Biogeochemical cycle

Carbon Cycle

Nitrogen cycle

Nitrogen fixation

Phosphorus Cycle

#### **ANSWER THESE QUESTIONS**

How do elements cycle through an ecosystem?

If the total amount of water on Earth does not change, why are there concerns about a global water shortage?

#### **BE ABLE TO**

Draw the biogeochemical cycles that we learned about in class (Carbon, Nitrogen, and Phosphorus)

## **ECOLOGY**

### **DEFINE THESE TERMS**

Ecology

Organism

Population

Community

Ecosystem

Biome

Biotic

Abiotic

Producers/ autotrophs

Consumers/ heterotrophs

Food chain

Herbivore

Carnivore

Omnivore

Detritivore

Decomposer

Trophic levels

Food web

Energy pyramid

### **ANSWER THESE QUESTIONS**

How do ecologists study the relationships among organisms and their environments?

What are the biotic and abiotic factors in an ecosystem?

How does life in an ecosystem acquire energy?

How do a food chains and food webs show feeding relationships and energy flow in an ecosystem?

How might the introduction of a new predator affect the flow of energy through a food web?

Why do ecologists use pyramid models to show the distribution of energy and matter in ecosystems?

### **BE ABLE TO**

Estimate the population in an area using random sampling.

Draw a food web and identify the different trophic levels

Draw an energy pyramid.