What is Life Science?

A. Life science is a major field of science that studies living things.

B. The life sciences are divided into two major groups:

1. BIOLOGY
   a. Zoology: study of animal life
   b. Botany: study of plant life
   c. Mycology: study of fungi
   d. Microbiology: study of bacteria and protists
   e. Cellular Biology: study of living cells
   f. Anatomy: study of parts of the body
   g. Physiology: study of how the body functions
   h. Taxonomy: classification of living thing

2. ECOLOGY
What is Ecology?

A. **ECOLOGY:** the study of organisms’ interactions with their environment or ecosystem.

B. **ECOSYSTEM:** all the living and non-living things in an environment and how they interact

1. **BIOTIC:** all the living and dead elements of an ecosystem
   a. Biotic elements come from the 5 kingdoms of life
   b. All biotic elements are or were made of living cells

2. **ABIOTIC:** all the non-living elements of an ecosystem
   a. Abiotic elements are not made of cells
What is Ecology?

C. There are many different types of ecosystems all over the planet.

D. Ecosystems are grouped according to the following characteristics:

1. Geographical location
   a. Polar Climate Region
   b. Temperate Climate Region
   c. Tropical Climate Region

2. Climate
   a. Average temperature
   b. Average precipitation

3. Soil composition & quality

4. **Topography:** *the look, shape, and elevation of the land*

5. Plant life

6. Animal life
What is Ecology?

E. **BIOMES:** the largest types of ecosystems that cover huge areas of the planet
RAINFORESTS
Forest biomes found in temperate and tropical climate regions

TAIGA
A forest biome found in northern temperate and polar climate regions

GLOBAL FOREST BIOMES

DECIDUOUS FORESTS
Forest biomes found in temperate climate regions
GLOBAL GRASSLAND BIOMES

SAVANNA
A grassland biome found in tropical climate regions

STEPPE
An arid grassland biome found in temperate climate regions

PRAIRIE
A grassland biome found in temperate climate regions
GLOBAL ARID BIOMES

DESER T
An arid biome found in temperate & tropical climate regions

TUNDRA
An arid biome found in northern polar regions
ALPINE
A mountainous biome found at high elevations

GLOBAL MOUNTAIN BIOMES
GLOBAL AQUATIC BIOMES

FRESHWATER
Aquatic biomes composed of freshwater

MARINE
Aquatic biomes composed of saltwater
A. All organisms in an ecosystem are adapted to live in the environment of their ecosystem

1. **ADAPTATIONS**: anything an organism has or does to help it survive in its environment
   
a. **PHYSICAL CHARACTERISTICS**: adaptations that an organism has to help it survive
   
b. **BEHAVIORAL CHARACTERISTICS**: adaptations that an organism does to help it survive

How Do Organisms Survive in their Ecosystems?

2. Adaptations allow for the success of an organism in its habitat to meet its basic needs.

a. **HABITAT**: the part of an ecosystem an organism is adapted to live and find its basic needs

b. **BASIC NEEDS**: the necessary needs of an organism in order to remain alive

i. Basic needs of an animal can include:
   - Food
   - Water
   - Shelter
   - Oxygen
   - Space