Evolution and Ecology

1. Define **ecology -**
2. Ecologists organize life into these categories. Define each one.
	1. **Organism –**
	2. **Population –**
	3. **Biological Community –**
	4. **Ecosystem –**
	5. **Biosphere –**
3. Define **habitat –**
	1. Give two examples of factors that can define a habitat.
4. Define **critical factor –**
5. Label the **optimal range, zones of physiologic stress (x2), and zones of intolerance (x2)** in the figure below.



**Evolution**

1. There are three types of adaptations seen in living organisms. Define each:
	1. **Physical adaptations –**
	2. **Behavioral adaptations –**
	3. **Physiologic adaptations –**
2. Define **evolution -**
3. Define **natural selection -**
4. What is the primary source of the genetic variety behind natural selection and evolution?
5. Describe the three forms of evidence of evolution:
	1. Physical similarities –
	2. Comparing DNA –
	3. Vestigial Structures –
6. How is Sickle-cell anemia an example of natural selection in the human race? What advantage does it provide?
	1. What geographic areas tend to have more people with the disease?
7. How long has life existed on Earth?
8. Define **divergent speciation –**
	1. Describe an example:
9. Describe the four factors that will favor natural selection and speciation:
	1.
	2.

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1. Define **convergent speciation –**
	1. Describe an example:
2. Define **artificial selection** –
	1. Describe an example:
3. Within the biodiversity of the Earth, how many species are actually discovered? How many are hypothesized to exist?
	1. The majority of known species are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Classification**

1. List the taxon that humans belong in for each of the different levels of classification. Give at least one reason why they are placed in each taxon.

|  |  |  |
| --- | --- | --- |
|  | **Taxon** | **Reason** |
| **Domain** |  |  |
| **Kingdom** |  |  |
| **Phylum** |  |  |
| **Class** |  |  |
| **Order** |  |  |
| **Family** |  |  |

1. The final two taxa are used to determine scientific name. What is the scientific name of the modern human? (Use the correct format)
2. Two animals with many classification levels in common are considered to be \_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Population Growth Patterns**

1. What shape does a **logistic growth** pattern take? Draw it on the graph to the right.
2. What causes the population growth to slow down?

**Density-Dependent Factors –**

**Density-Independent Factors –**

1. At what point do logistic growth curves eventually stabilize?
2. What shape does an **exponential growth** pattern take? Draw it on the graph to the right.
	1. What is missing that allows the population to grow so rapidly?
3. Define and label **overshoot**.
4. Define and label **dieback**.

**Community Interactions**

1. Describe and give an example of each of the following types of community interactions:
	1. Predator-Prey
	2. Intraspecific competition
	3. Interspecific competition
2. How do plants and animals avoid competing with their own species? Give an example.
3. Define and give an example of each of the following types of symbiosis:
	1. Mutualism –
	2. Commensalism –
	3. Parasitism –