**Biology Spring Semester Review**

**Cellular Respiration**

1. **A cell has enough available ATP to meet its needs for about 30 seconds. What is likely to happen when an athlete exhausts his or her ATP supply?**
2. **Name the energy-containing products of glycolysis.**
3. **Name the electron carriers in the citric acid cycle.**
4. **Where are the proteins of the electron transport chain located?**
5. **During aerobic respiration, what molecule directly donates electrons to the electron transport chain at the lowest energy level?**
6. **What process generates a proton-motive force in mitochondria?**
7. **How many molecules of ATP are produced from one molecule of glucose in aerobic cellular respiration?**

**DNA/RNA PROTEIN SYNTHESIS**

1. **Each organism has a unique combination of characteristics encoded in molecules of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**
2. **Explain the significance of each of the following scientists:**
	1. **Watson and Crick:**
	2. **Fredrick Griffith:**
	3. **Rosalind Franklin:**
	4. **Erwin Chargaff**:
3. **Describe the function of DNA.**
4. **Describe the function of tRNA.**
5. **What are the base pairing rules in DNA?**
6. **What would be the complementary strand to CCTAGCTA in DNA?**

**CELL CYCLE**

1. **Define each of the following words:**

**Chromatids** –

**Centromere** –.

**Crossing over** –

**Tetrad** –

**Diploid cell** –

1. **Human Chromosomes numbers?**

**Diploid number:**

**Haploid number:**

**Sex chromosomes:**

**Autosomes:**

**GENETICS**

1. **Who is the “father” of genetics?**
2. **Define the following words:**

**Heredity** –

**Punnett Square** –

1. **Purple flowers in pea plants are dominant to white flowers in pea plants. Write the genotype for**:

**Homozygous Dominant flower pea plant**

**Heterozygous flower pea plant**

**Homozygous Recessive flower pea plant**

1. **Cross a heterozygous tall pea plant with a heterozygous tall pea plant and give the genotype and phenotype of the offspring.**

|  |  |
| --- | --- |
|  |  |
|  |  |

1. **According to the law of incomplete dominance, if R is red and W is white, what would flower with the genotype RW look like?**

**EVOLUTION**

1. **What do scientists believe that the first cells resembled?**
2. **Define the following words:**

**Adaptation –**

**Divergent evolution** –

**Theories** –

1. **The picture below shows Darwin’s finches. What drove the speciation of these finches?**



1. **Who developed the system of classifying organisms by assigning them a genus and species name?**
2. **What is the correct order of the biological hierarchy from kingdom to species?**
3. **A domestic dog is also known as *Canis familiaris.***

**What is this organism’s genus?**

**What is this organism’s species?**

**What is the scientific name?**

1. **Define derived character**.

**ECOLOGY**

1. **Define the following words:**

**Ecology** –

**Community** –

**Ecosystem**

**Habitat** –

**Producers** –

**Ecological succession**

**Primary Succession**

**Secondary succession**

**Commensalism**

**Competition**

**Mutualism**

**Parasitism**

**Carrying capacity**

**Exponential growth pattern**

**Pioneer species**