Name: _____   Section: _____

Part I - Natural Selection Evolution Lab

General Overview:

Charles Darwin is universally associated with evolutionary theory. His major contribution was to describe the primary mechanism by which it worked: **natural selection**. Darwin said that it is the forces of nature that select species to survive that are best adapted to the environment. These species in turn produce offspring and their numbers increase. Darwin proposed four tenets by which natural selection operates:

1. Genetic variation.
2. Overproduction of offspring.
3. Struggle for existance.
4. Differential survival and reproduction.

In this lab, you will complete two exercises that illustrate natural selection.

I. Mimicking Natural Selection

Introduction:

We know from the fossil record that species evolve over time. Darwin argued that the primary mechanism of evolutionary change is the process of **natural selection**. Natural selection occurs because individuals with certain traits or adaptations have greater survival and reproduction than individuals who lack those traits or adaptations. Selection that favors one extreme characteristic over the other is known as *directional selection*. When selection favors an intermediate characteristic rather than one of the extremes, it is known as *stabilizing selection*. Selection that operates against the intermediate characteristic and favors the extremes is called *disruptive selection*.

In this exercise, you will use a simulation to study how natural selection works by looking at the survival rate of differently colored "prey" in a pond.   The prey will be represented by different colored beads. Dark green and clear colored beads represent the two extreme characteristics, while light green colored beads represent the intermediate characteristic. The "predator" will be represented by forceps used to catch the prey.

Materials:

Dishpan
dark green/light green/clear beads
blue, red, and green food coloring,
forceps