Worksheet for Labs One and Two
Evolution – Natural Selection and Morphological Change in Green Algae

Questions from Manual (each answer is worth 0.5 pts, 12 points total)

1. a. How many aliens are present for this particular trait?
   →2

   b. How many of the total beads are colored and how many are white?
   →[30] black, [30] white

   c. What color fur do (0) individuals have?
   →Black

   d. How many beads represent the population?
   →[60] beads * [2] alleles

2. a. Consider the Hardy-Weinberg equations. If the frequency of a recessive allele is 0.3, what is the frequency of the dominant allele?
   →0.7

   b. If the frequency of the homozygous dominant genotype is 0.49, what is the frequency of the dominant allele?
   →.70

   c. If the frequency of the homozygous recessive genotype is 0.36, what is the frequency of the homozygous dominant allele?
   →.64

   d. If the frequency of the homozygous dominant genotype is 0.49, what is the frequency of the homozygous recessive genotype?
   →.51

   e. Which Hardy-Weinberg equation relates the frequencies of the alleles at a particular gene locus?
   →$P + q = 1$

   f. Which Hardy-Weinberg equation relates the frequencies of the genotypes for a particular gene locus?
   →$P + q = 1$

   g. Which Hardy-Weinberg equation relates the frequencies of the phenotypes for a gene?
   →$P^2 + 2pq + q^2 = 1$

3. a. The Hardy-Weinberg Principle predicts that genotypic frequencies of offspring will be the same as those of the parental generation. Were they the same in your simulation?
   →yes

   b. If the frequencies were different, then one of the assumptions of the Hardy-Weinberg Principle was probably violated. Which one?
   →The via selection pressure

4. a. Did the frequency of white individuals decrease with successive generations?
   →yes