1.) Wolves are sometimes observed to have black coats and blue eyes. Assume further that normal coat color (N) is dominant to black (n) and brown eyes (B) are dominant to blue (b). Suppose the alpha male that is black with blue eyes and a female that is heterozygous normal colored with heterozygous brown eyes, mate. What percent of the offspring will be normal colored with blue eyes?

2.) Carrion beetles lay their eggs in dead animals and then bury them in the ground until they hatch. Assume that the preference for fresh meat (F) is dominant to the preference for rotted meat and that the tendency to bury the meat shallow (S) is dominant to the tendency to bury the meat deep. Suppose a female carrion beetle homozygous dominant for fresh meat and homozygous recessive for burying it mates with a male homozygous recessive for both traits. What percent of the offspring will bury rotted meat deep?

3.) In the breeding season, Anole lizards court each other by bobbing their heads up and down while displaying a colorful throat patch. Now, suppose that anoles prefer to mate with lizards who bob their heads fast (F) and have red throat patches (R) and that these two alleles are dominant to their counterparts, slow bobbing and yellow throats. A male lizard heterozygous for head bobbing and homozygous dominant for the red throat patch mates with a female that is also heterozygous for head bobbing but is homozygous recessive for yellow throat patches.

- i) What percent of the offspring have the preferred fast bobbing / red throat phenotype?
- ii) What percentage of the offspring will lack mates because they have both slow head bobbing and yellow throats?
- iii) What percentage of the offspring will have trouble finding mates because they lack one of the dominant traits?