Types of Reproductive Isolation

- Behavioral examples courtship dances
  mating displays
  songs
- Geographic physical separation
  examples canyons mountains
  oceans
- Temporal separation of peak mating seasons
  ex: frogs

Hardy-Weinberg Equilibrium = NO EVOLUTION

(aka Genetic Equilibrium)

Must have the five following conditions:

1) No mutations may occur.
2) No migration of individuals in or out of population.
3) Random mating must occur - no sexual selection.
4) No genetic drift or chance change in allele frequency.
5) No natural selection occurs.

Hardy Weinberg Equation

$$p + q = 1$$

$$p^2 + 2pq + q^2 = 1$$

p = frequency of dominant allele

q = frequency of recessive allele

p^2 = frequency of homozygous dominant genotype

$2pq$ = frequency of heterozygous genotypes

q^2 = frequency of homozygous recessive genotypes

Example: B = black b = white

1000 cats 840 black cats (BB & Bb) 160 white cats (bb)

$\frac{160}{1000} = 0.16 = q^2$ $q = \sqrt{0.16} = 0.4$

$p = 1 - q = 0.6$ $(1 - 0.4) = 0.6$ $p^2 = (0.6)^2 = 0.36$

$(0.36)(1000) =$ 360 black BB cats

$2pq = 2(0.6)(0.4) = 0.48$ 480 black Bb cats

$(0.48)(1000) = \nearrow$