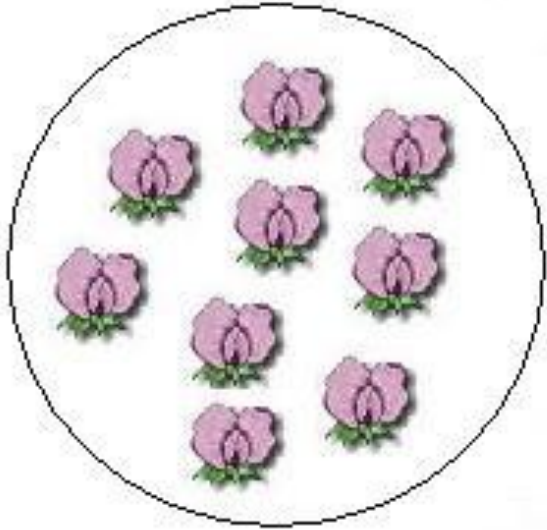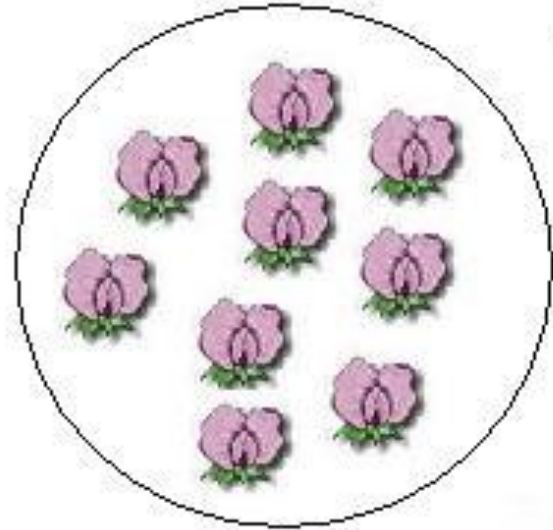**Genetic equilibrium**: situation in which allele frequencies remain constant.



1st Generation
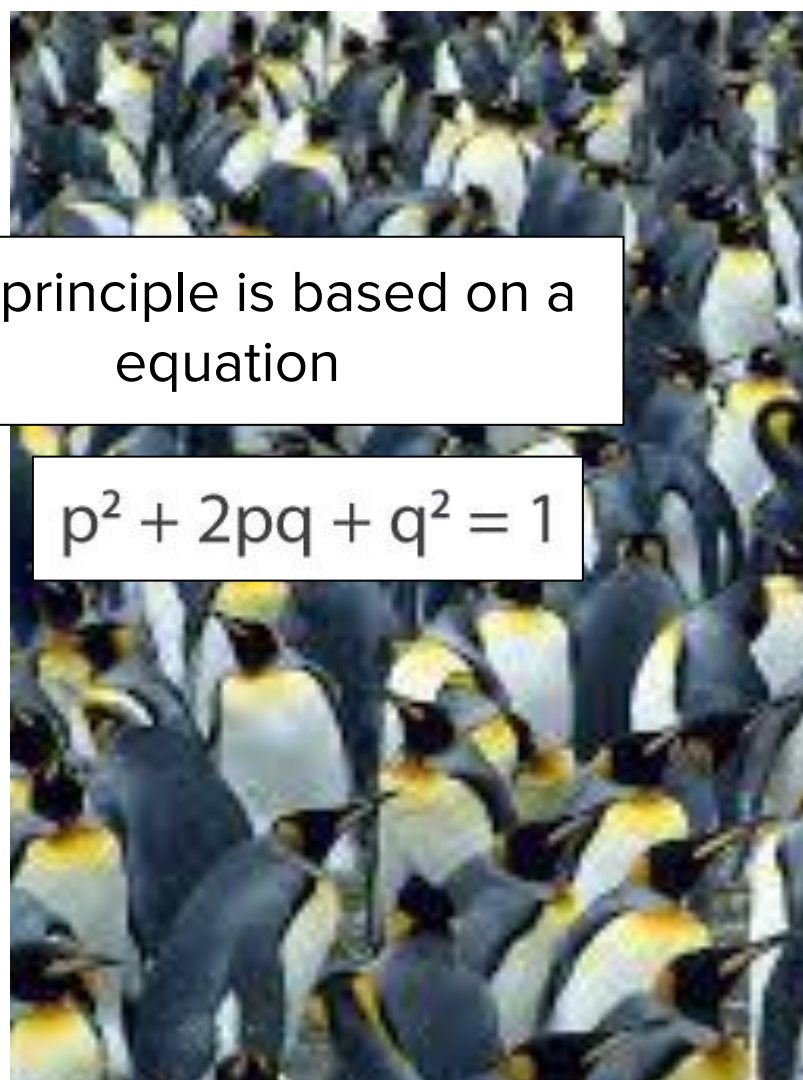
2nd Generation

**5 conditions required to maintain equilibrium:**

1. Random mating must occur

2. Population must be large

3. NO movement in or out of population

4. NO Mutations

5. NO Natural selection

This principle is based on a equation

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

# This is called the Hardy-Weinberg equation

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

**p²**= the *frequency* of dominant homozygous individuals (AA)

**2pq**= The *frequency* of dominant heterozygous individuals (Aa)

**q²**= the frequency of recessive homozygous individuals (aa)

The sum of the frequencies always equals the whole population (1= 100% of the population)