Name: \_\_\_\_\_\_\_\_\_\_\_

**Main Ideas Title: Population Genetics and Evolution** Period: \_\_\_ Seat:\_\_

The Bell Curve Traits vary and can be mapped along \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, whereas a few individuals have extreme traits.



What causes \*\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ cause variations in phenotypes

Phenotype variation? How do variations come about within the same species?

1) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2) Sexual reproduction

 -Crossing over in meiosis

 -Independent assortment

 -Fertilization

Gene Pool **Gene Pool** – \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ for every gene of a particular population

Allele Frequencies **Allele frequency-** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in a populations gene.

 Calculate allele frequencies

Geneotype Genotype Frequencies- the percent of the population \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Frequencies \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ at any given time.

 Example: Population total: 2396

AA = 910 Aa=695 aa= 791

 Calculate genotype frequencies…

Hardy-Weinberg Itis a theoretical model of a population in which no evolution occurs and the gene pool of the

 Equilibrium population is stable. Allele frequencies and genotype frequencies do not change.

 5 Conditions for Equilibrium

 1) Large Population (no genetic drift)

 2) Random mating

 3) No mutations

 4) No gene flow – no immigration or emigration

 5) No natural selection

 If \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of these conditions \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_,

then the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

5 Causes of 1) Genetic drift occurs in small populations

 2) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ occurs when certain traits increase an individual’s success at mating

 3) Mutations- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 4) Gene flow- genes move in and out of the population due to immigration and emigration

 5) Natural Selection (3 types)…

Gene Flow Movement of fertile individuals between populations (immigration and emigration

 -\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

-Reduce genetic differences between populations

Genetic Drift Genetic Drift

 2 Types:

 Bottle neck-A random event such as a fire or flood that causes change.

 It \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ —any one can die or be

 lucky enough to survive

 Founder Effect- Individuals leave a large population to establish a new population. \_\_\_\_\_\_\_\_\_

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



**3 Types of Natural Selection**

Directional Favors the formation of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Selection

Stabilizing Favors the formation of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Selection

Disruptive Favors \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Selection

 Genetic Drift vs. Natural Selection

Summary