

Pre AP Biology

Evolution of Populations (7.2)

Part 1

Population

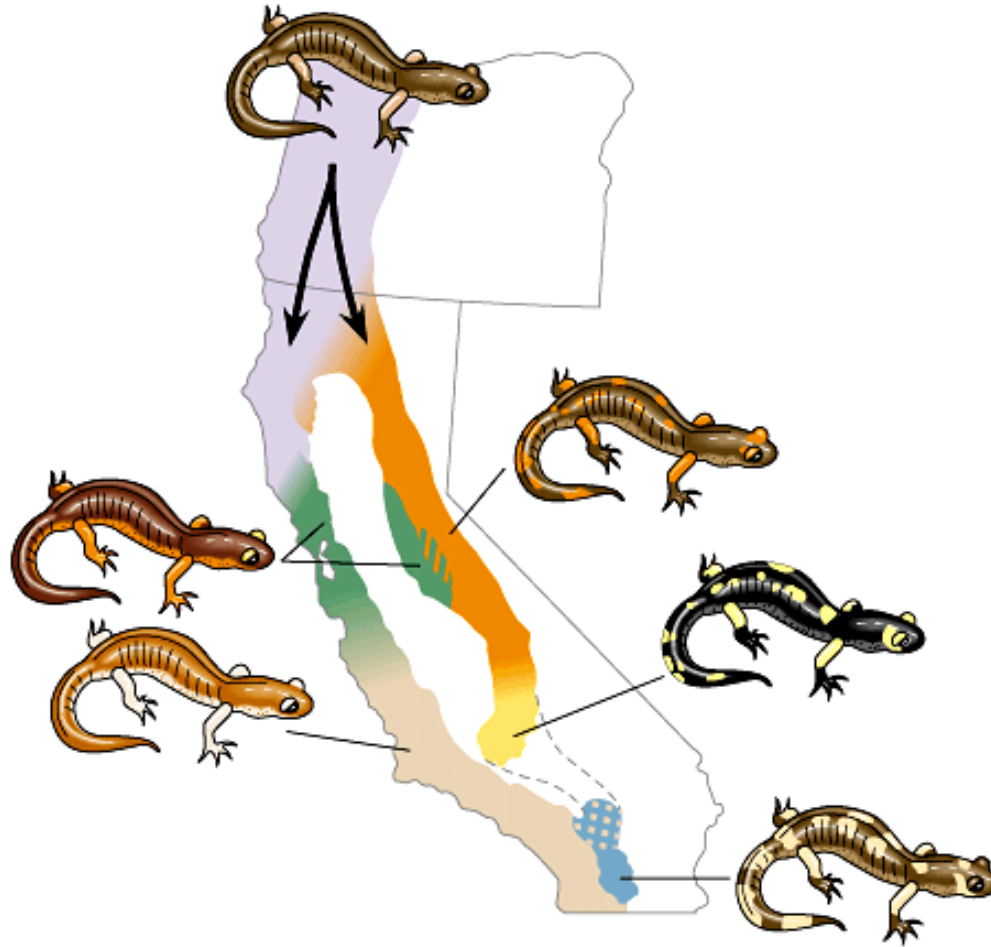


Species

Male and Female Blue Footed Boobies

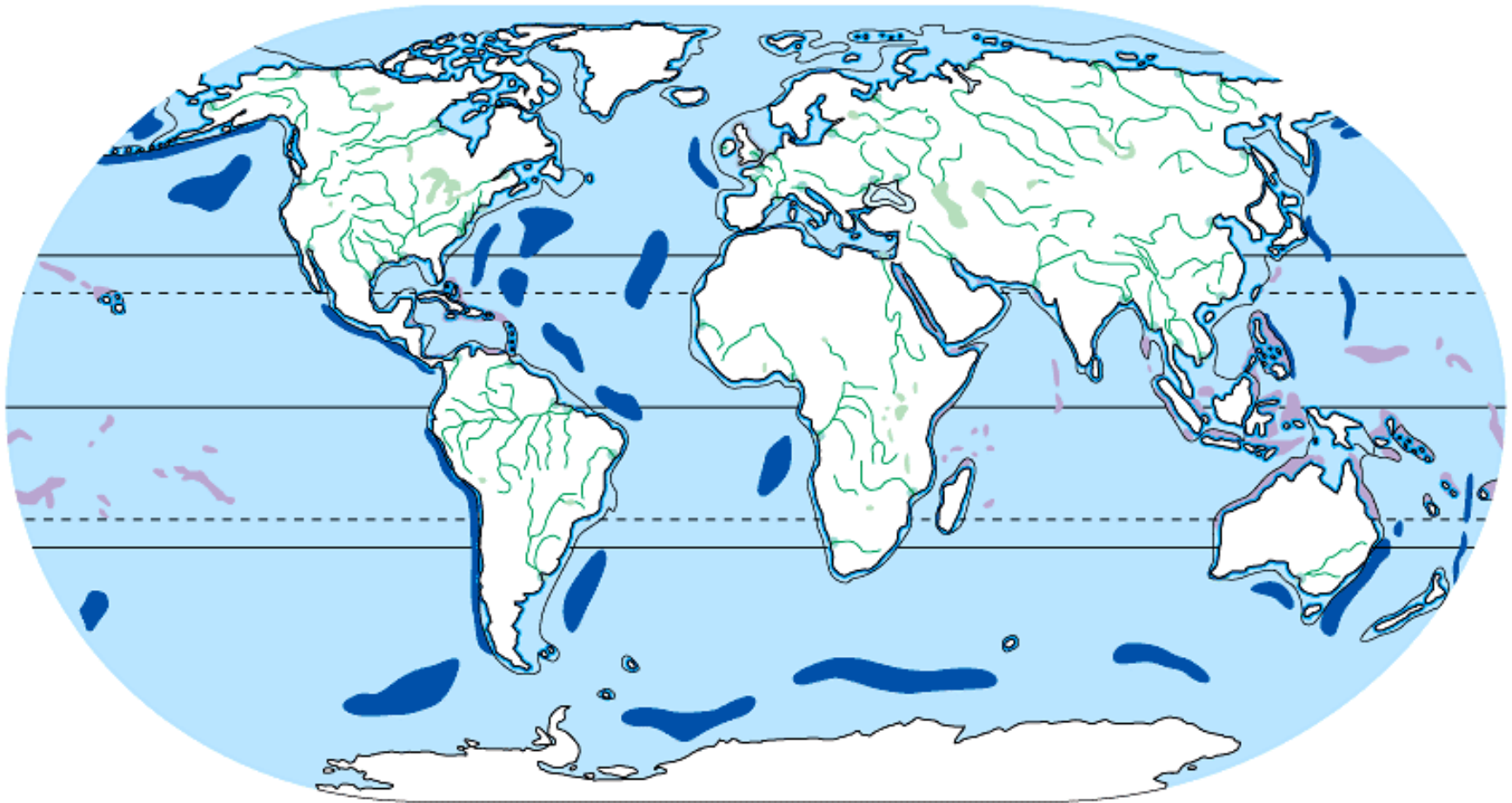


Geographic Range of west coast salamanders



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Geographic Range of Humans



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Part 2

Hardy – Weinberg Theorem

Equation 1

Parent population:

Phenotypes



Genotypes

RR

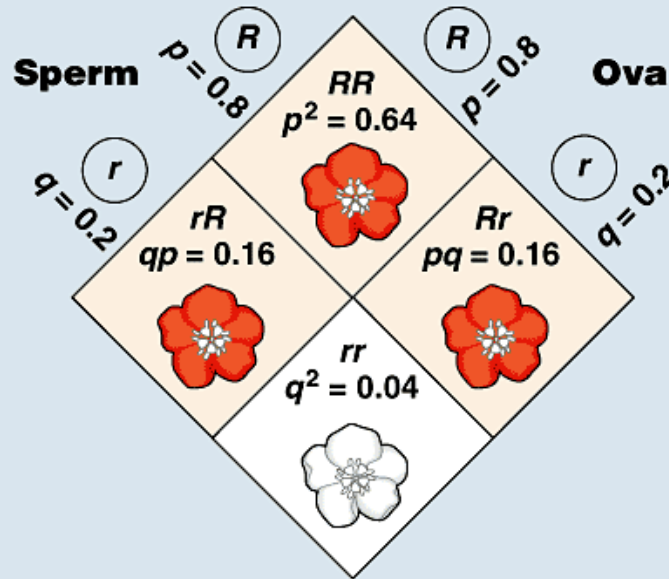
Rr

rr

Hardy – Weinberg Theorem

Equation 2

Combination
of gametes from
first generation
(parents)



Next generation:

Genotype
frequencies

$$p^2 = 0.64 \text{ } RR \quad 2pq = 0.32 \text{ } Rr \quad q^2 = 0.04 \text{ } rr$$

Allele frequencies

$$p = 0.8 \text{ } R \quad q = 0.2 \text{ } r$$

(b) Gene pool of next generation

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Part 3

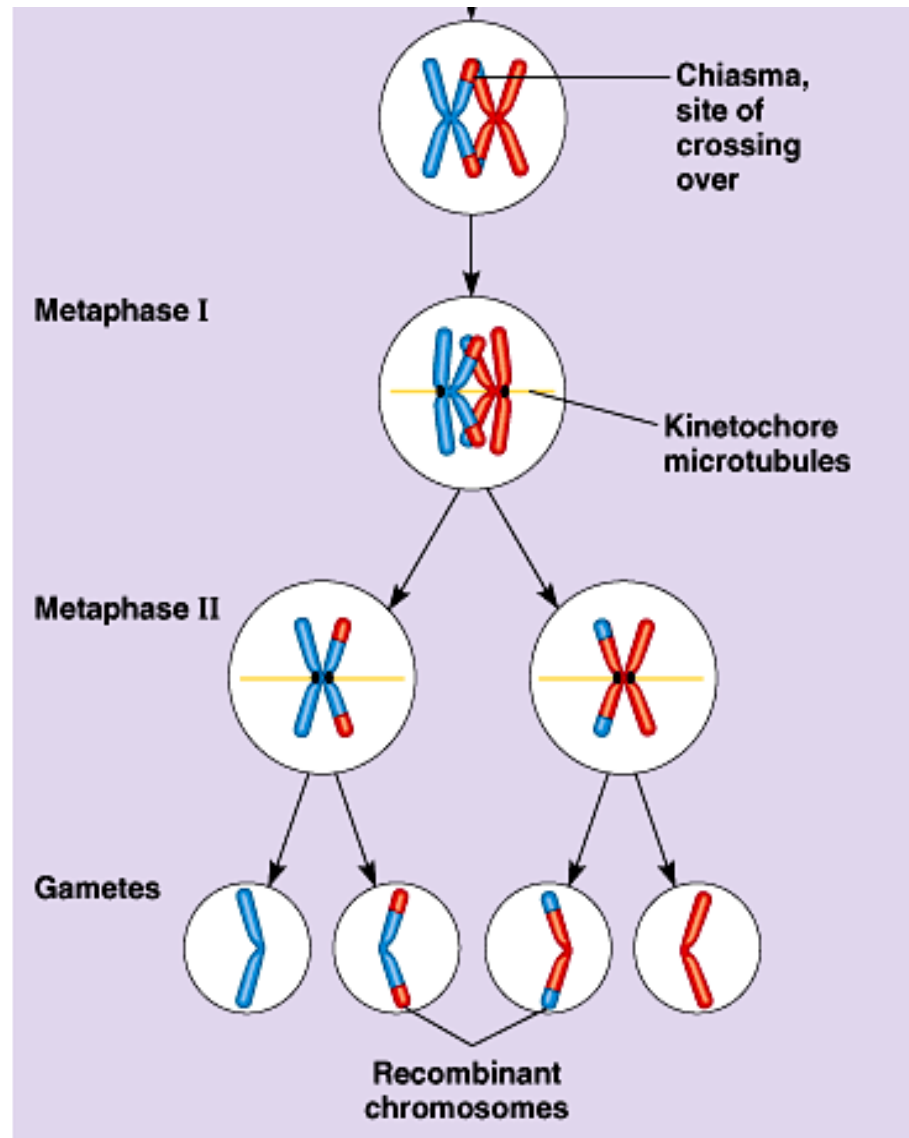
Variation Exists



Variation Exists



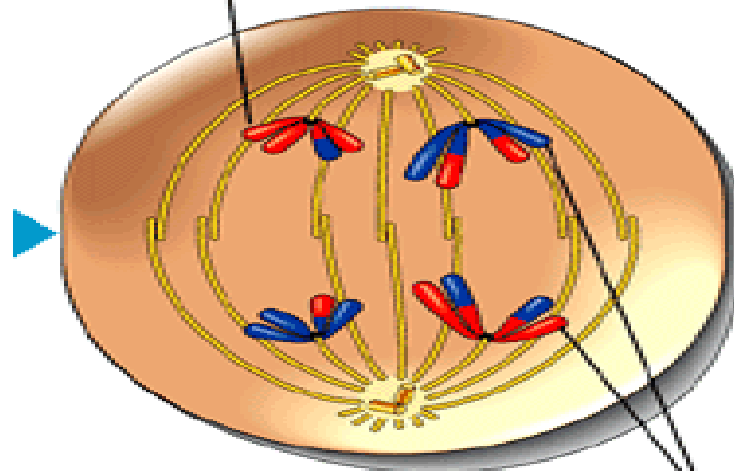
Variation in Crossover



Variation in Anaphase I

ANAPHASE I

Sister chromatids remain attached

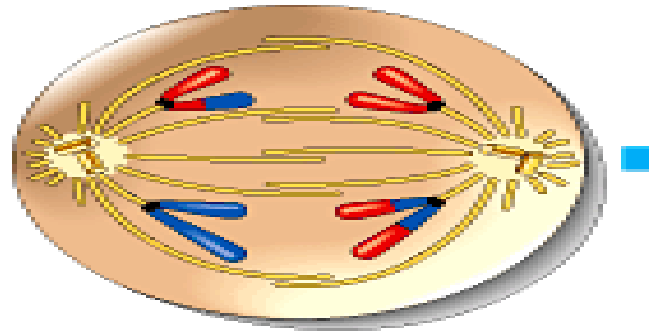


Homologous chromosomes separate

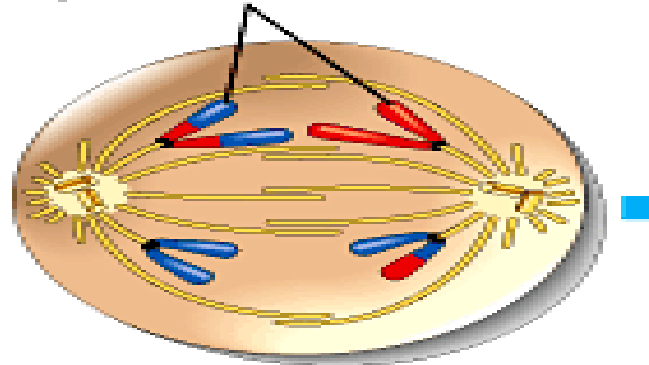
Pairs of homologous chromosomes split up

Variation in Anaphase II

ANAPHASE II

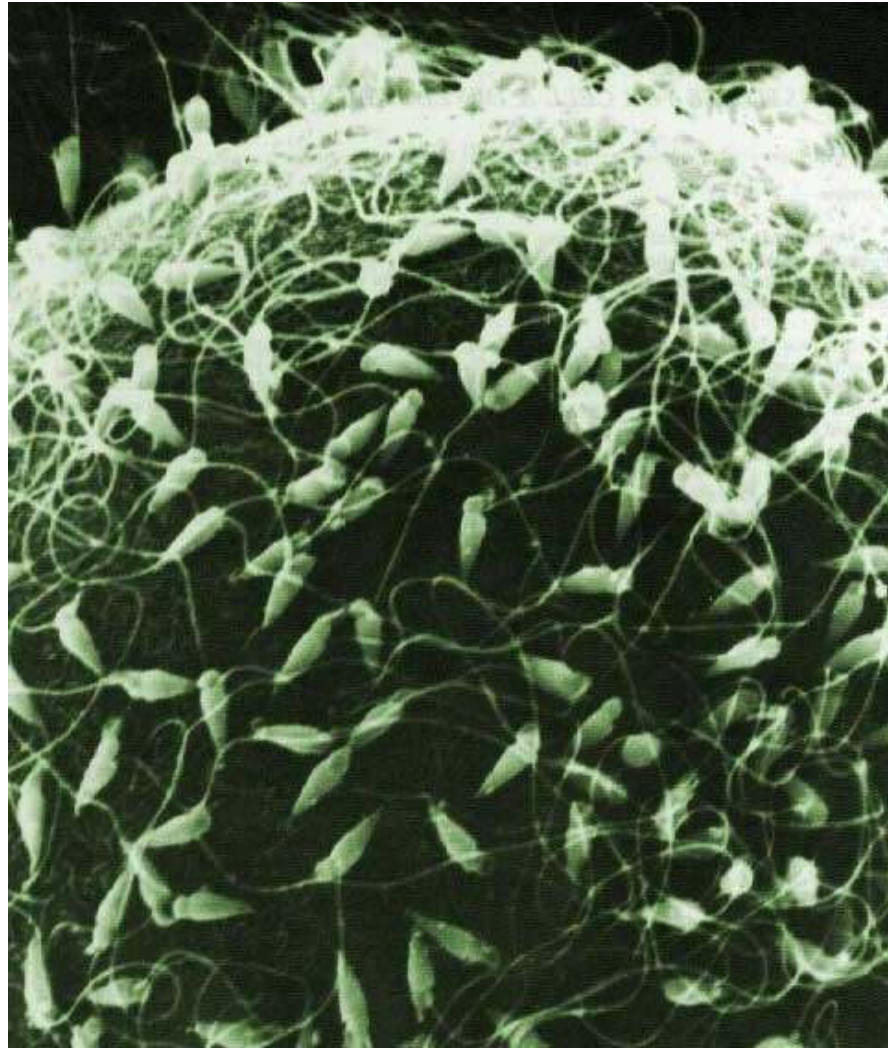


Sister chromatids separate



As a result, the sister chromatids separate, and two daughter cells result, each containing two single-chromatid chromosomes.

Variation in Egg and sperm (Which sperm will it be?)



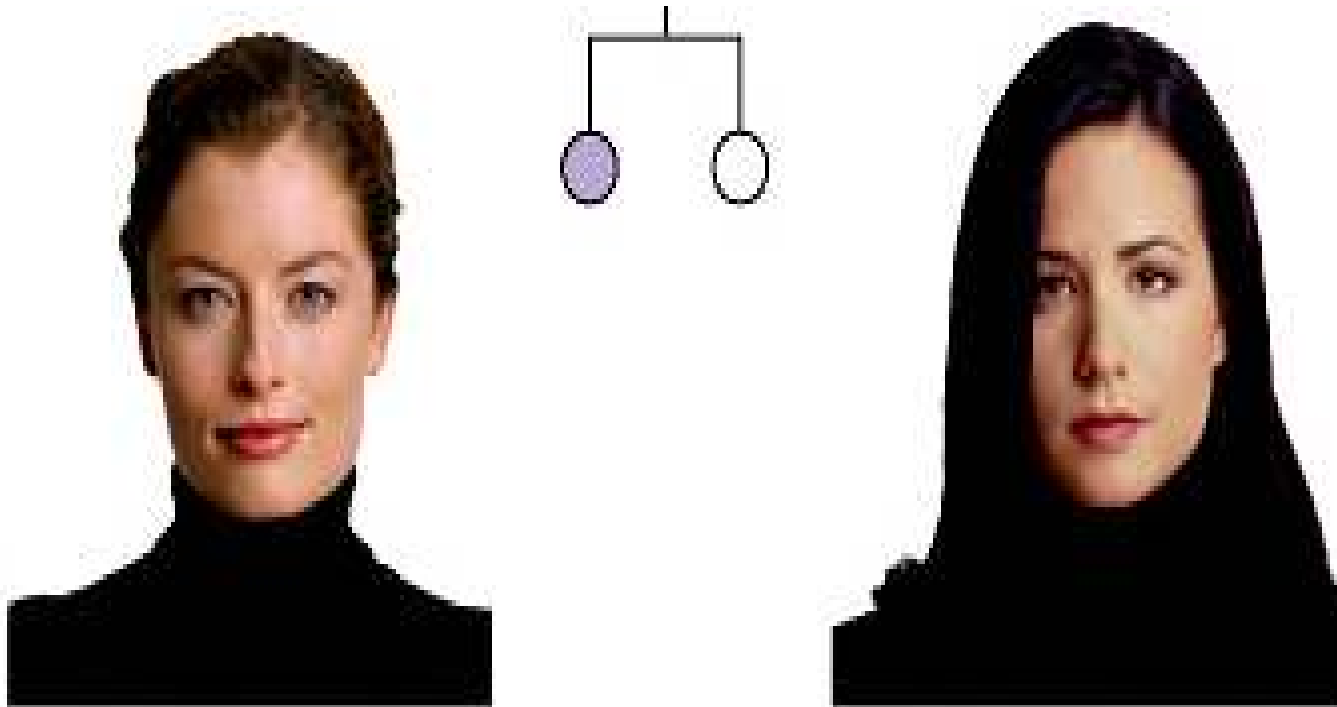
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Part 4

Phenotypic Polymorphisms

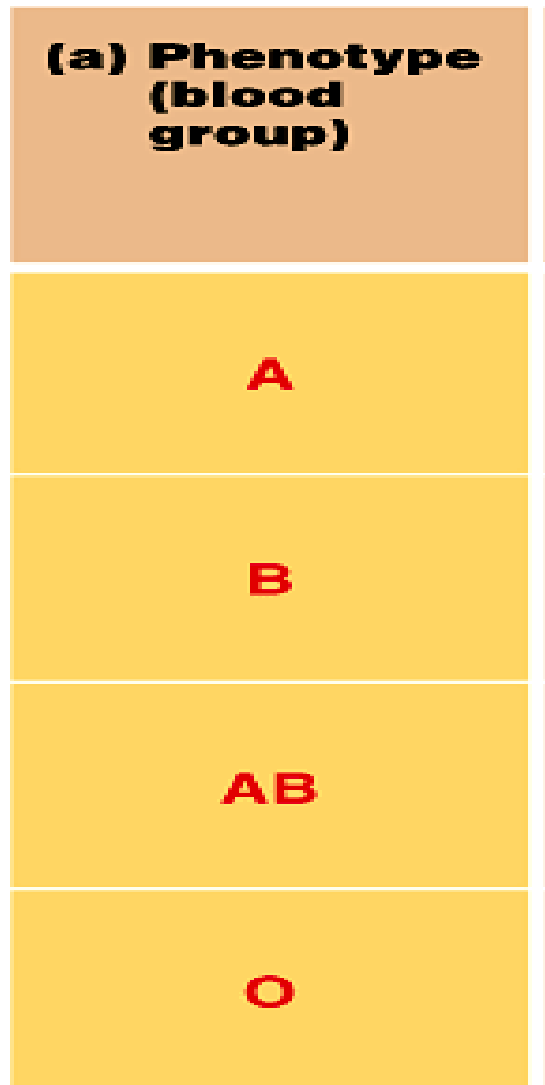
Witches Peak (forehead)



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Phenotypic Polymorphisms

Blood Types



Genotypic Polymorphisms

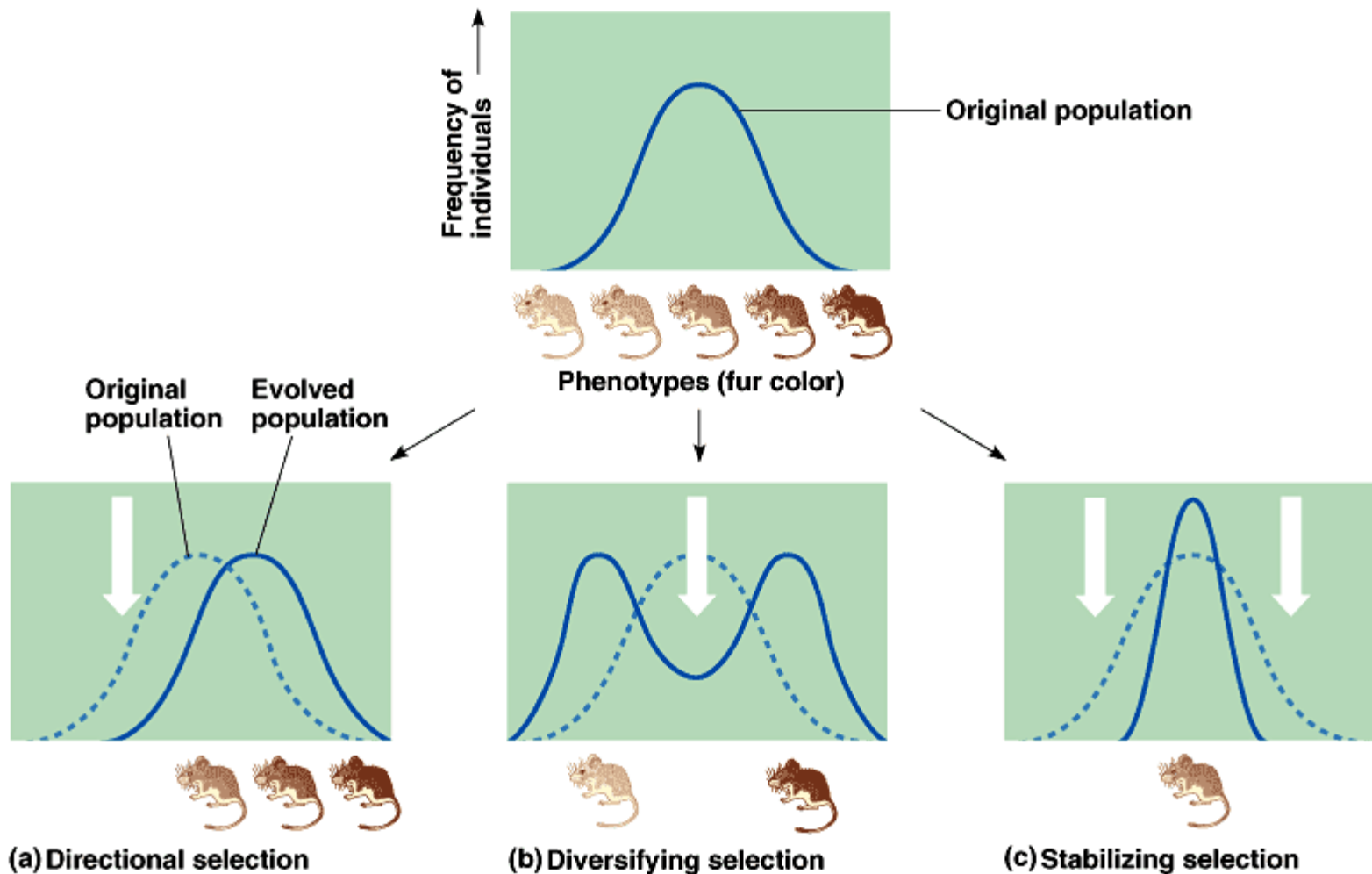
Skin Coloration



Albinism



Evolutionary Flow Modes



Neutral Variation



Sexual Dimorphism



Intra^{sexual} competition



Intersexual competition

