

## Microevolution Test

Define evolution.

What are the conditions of Hardy-Weinberg? How would you determine if a population is in Hardy-Weinberg equilibrium?

Explain Natural Selection.

Explain how antibiotic resistance in bacteria and peppered moths are examples of natural selection.

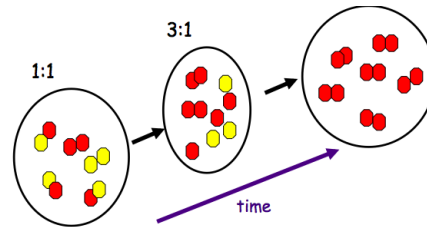
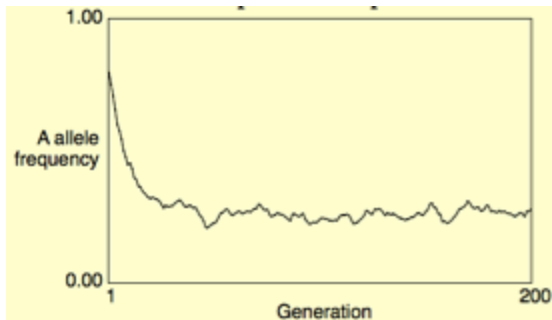
Draw graphs that depict directional selection, disruptive selection and stabilizing selection.

Give real examples for each type of selection.

Which of the three types of selection will mostly show that a population is evolution? Explain.

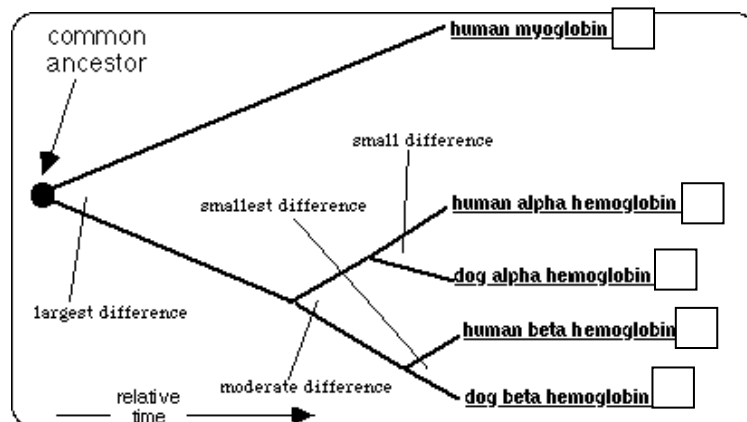
What is genetic drift? How are bottlenecks and colonization (founder effect) means by which genetic drifts occur?

Explain what is happening in the following graphs and diagrams.



Using the following amino acid sequence information, explain the phylogenetic tree.

	1	2	3	4	5
1					
2	8				
3	27	29			
4	28	27	13		
5	38	49	47	47	

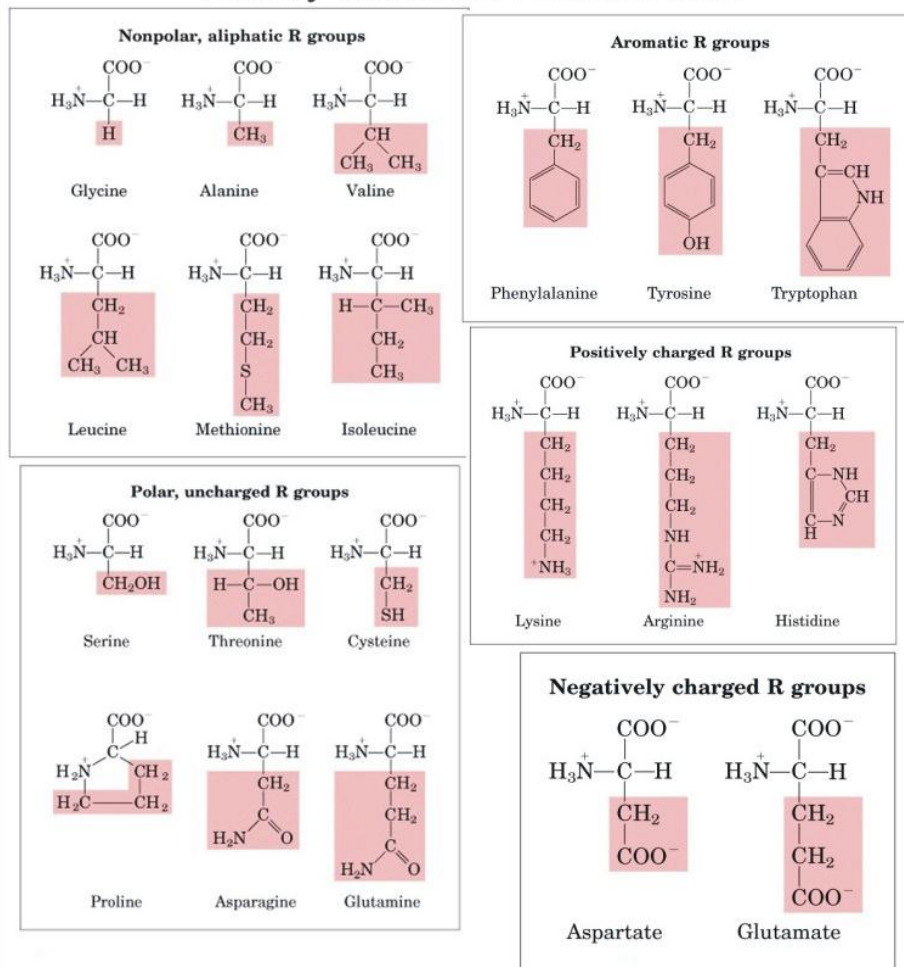


Explain heterozygous advantage.

What is balanced polymorphism?

What is monoculture?

## Twenty standard Amino Acids



Why would a DNA substitution that causes serine to be substituted with aspartate cause improper folding of the polypeptide chain?

Give an example of an amino acid substitution that may cause a neutral mutation.

How can amino acid sequences help scientists establish rates for molecular evolution?

Which genotype is necessary to ensure both the dominant and recessive allele stay in the gene pool? Why?

Consider the following three data sets A, B and C.

A = {9,10,11,7,13}

B = {10,10,10,10,10} Find

C = {1,1,10,19,19}

a) Calculate the mean of each data set.

b) Calculate the standard deviation of each data set.

Discuss genetic variation in a gene pool. What provides the raw material for evolution? Give examples.

Give some examples of harmful and beneficial mutations. What role does the environment play in determining if mutations are beneficial or harmful?