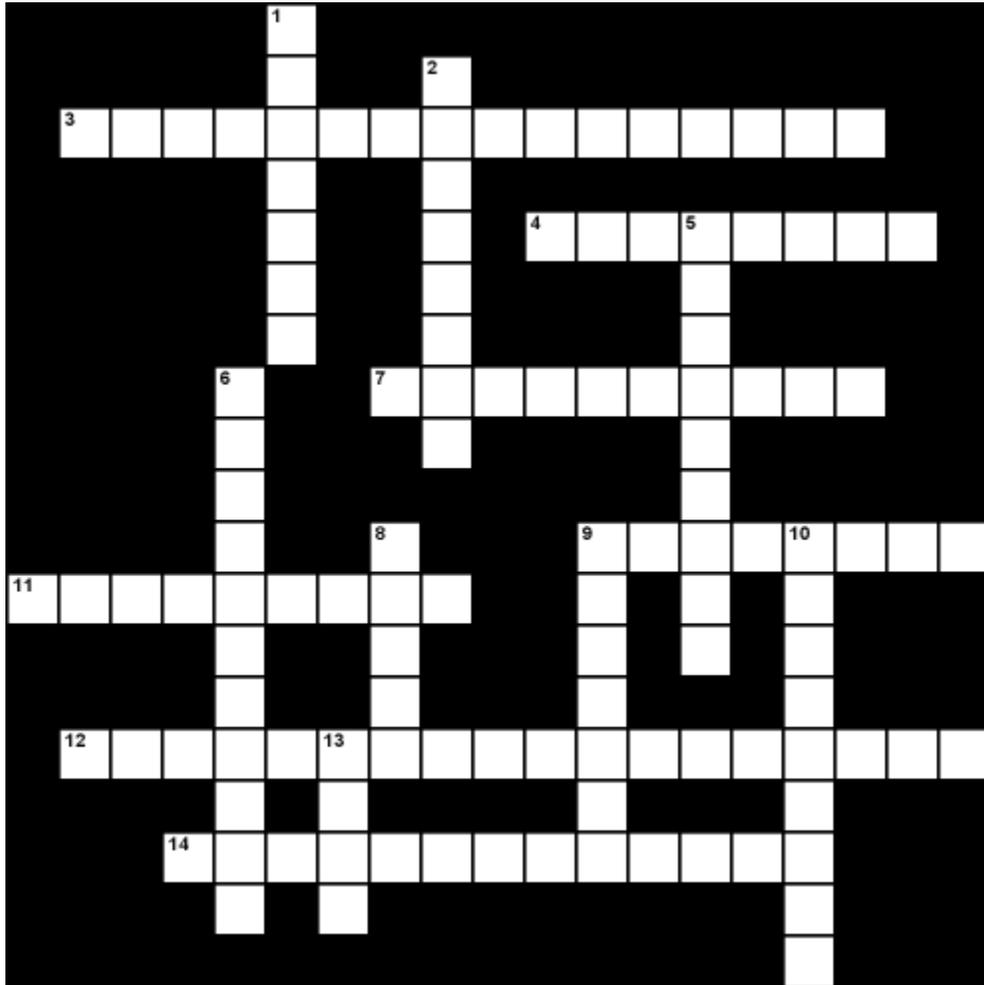


Crossword Puzzle for Synthetic Theory of Evolution

Topics 1-4: Overview, Hardy-Weinberg Equilibrium Model, Mutation, and Natural Selection



Across

3. A genetically inherited recessive condition in which red blood cells are distorted resulting in severe anemia and related symptoms that are often fatal in childhood. People who are homozygous for this disease are immune to malaria but die of the disease. Those who are heterozygous for it have a high degree of immunity to malaria and have only minimal symptoms of the disease.
4. An inherited metabolic abnormality that is fatal in early childhood. Eastern European Jews have an unusually high frequency of this harmful recessive allele in their population.
7. A more or less distinct group of individuals within a species who are reproductively isolated from other groups.
9. An alteration of genetic material (DNA) such that a new variation in a gene is produced.
11. The sum total of the genetically inherited changes in the individuals who are the members of a population's gene pool. In other words, change in frequencies of alleles in the gene pool of a population.
12. The study of biological inheritance patterns and changing gene pool frequencies in populations largely through the determination of allele frequencies. Researchers in this area of study are also involved in identifying processes resulting in evolution.
14. The name of the equation ($p^2 + 2pq + q^2 = 1$) used by population geneticists to determine genotype frequencies of a population for specific traits.

Down

1. A life threatening disease found mostly in tropical and subtropical regions of the world. It is caused by single-celled microorganisms that are transmitted from person to person by mosquitoes as they extract blood. Symptoms of include chills, high fever, and sometimes fatal irregularities of the brain, liver, kidney, and/or blood.
2. The term that encompasses all of the genes in all of the individuals in a breeding population.
5. The term for the modern theory of evolution being caused by a number of complex and often interacting processes. This is essentially a combination of Darwin's concept of natural selection, Mendel's genetics, along with the facts and theories of population genetics and molecular biology.
6. A term for a kind of evolution in which there is a mutual, interactive effect of biology and culture. This term was developed to describe the effect our culture has on natural selection.
8. A mutation that occurs as an error in a single codon of a DNA molecule.
9. A general term for an agent in the environment that can cause a mutation to occur.
10. A general term for a mutagen that can cause a mutation in a sex cell.
13. A usually fatal, slow acting disease caused by the Human Immunodeficiency Virus (HIV). Important disease-fighting white blood cells are destroyed resulting in a weakened immune system. Death usually comes as a result of cancer and other diseases that are normally fought off by healthy immune systems.

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