

HOW POPULATIONS EVOLVE

CHAPTER 13 EXERCISE 4 ANSWERS

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How do populations evolve? Populations (or gene pools) evolve as gene frequencies change; individual organisms cannot evolve. Variation in populations is determined by the genes present in the population's gene pool, which may be directly altered by mutation.

Does a population of bacteria contains no members with resistance to penicillin? A population of bacteria contains no members with resistance to penicillin. Several generations pass with the bacteria reproducing. A researcher adds penicillin to the population of bacteria and discovers a few bacteria remain after the application of the antibiotic.

Would a jellyfish be likely to leave behind a fossil? Fossil jellyfish are rare because they have no bones or other hard parts to turn into fossils. Instead, scientists have to look for so-called "soft fossils," when organisms are quickly buried in sediment, leaving an imprint in the rock.

How do populations evolve over time in response to selection? Natural selection, genetic drift, and gene flow are the mechanisms that cause changes in allele frequencies over time. When one or more of these forces are acting in a population, the population violates the Hardy-Weinberg assumptions, and evolution occurs.

What are the 4 factors for population to evolve? Natural selection occurs if four conditions are met: heredity, reproduction, variation in physical characteristics, and changes in the number of offspring per person.

What causes population evolution? Natural selection is considered the main mechanism that causes populations to evolve. However, there are several other mechanisms of evolution, including mutation, genetic drift, and gene flow.

How does antibiotic resistance evolve in bacterial populations? Through mutation and selection, bacteria can develop defense mechanisms against antibiotics. For example, some bacteria have developed biochemical “pumps” that can remove an antibiotic before it reaches its target, while others have evolved to produce enzymes to inactivate the antibiotic.

How did bacteria become resistant to penicillin? Intrinsic Resistance: Bacteria might survive an antibiotic due to intrinsic resistance through evolution by changing their structure or components. For example, an antibiotic that affects the wall-building mechanism of the bacteria, such as penicillin, cannot affect bacteria that do not have a cell wall.

What are two ways a population of bacteria can acquire antibiotic resistance? There are two main ways that bacterial cells can acquire antibiotic resistance. One is through mutations that occur in the DNA of the cell during replication. The other way that bacteria acquire resistance is through horizontal gene transfer.

How rare is fossilization? Approximately only 1/10 of 1% (0.001) of living things ever become fossilized. In order for a fossil to form, the organism's remains must not be significantly disturbed by a scavenger, rotted away by decomposers like bacteria, or destroyed by natural forces such as weathering which are all very common.

Why do fossils not decay? For a fossil to form, sediment must cover the organism quickly. The sediment protects the remains from scavenging animals, erosion and decay. Most often, fossils include hard tissue like bones, teeth, shells and wood, since soft tissue rarely preserves.

What are the five evidences of evolution? Five types of evidence for evolution are discussed in this section: ancient organism remains, fossil layers, similarities among organisms alive today, similarities in DNA, and similarities of embryos.

Does genetic drift change allele frequencies? Genetic drift describes random fluctuations in the numbers of gene variants in a population. Genetic drift takes place

when the occurrence of variant forms of a gene, called alleles, increases and decreases by chance over time. These variations in the presence of alleles are measured as changes in allele frequencies.

What information do analogous and homologous structures provide about evolution? Homologous structures provide evidence for common ancestry, while analogous structures show that similar selective pressures can produce similar adaptations (beneficial features). Similarities and differences among biological molecules (e.g., in the DNA sequence of genes) can be used to determine species' relatedness.

Why do populations continue to evolve? Populations evolve. Because individuals in a population vary, some in the population are better able to survive and reproduce given a particular set of environmental conditions. These individuals generally survive and produce more offspring, thus passing their advantageous traits on to the next generation.

What is the smallest unit that can evolve? Populations. A population is a group of organisms of the same species that are found in the same area and can interbreed. A population is the smallest unit that can evolve—in other words, an individual can't evolve.

What is another word for gene flow? In population genetics, gene flow (also known as migration and allele flow) is the transfer of genetic material from one population to another.

What is the main driving force behind genetic drift? Genetic drift, the stochastic fluctuation of allele frequencies in the population, occurs in all finite populations as a result of sampling error from generation to generation (Dolan et al., 2018).

What is the best description of natural selection? The reproductive success of the members of a population best adapted to the environment.

How do things evolve? Natural selection is a mechanism of evolution. Organisms that are more adapted to their environment are more likely to survive and pass on the genes that aided their success. This process causes species to change and diverge over time.

How does evolution occur? Evolution reflects the adaptations of organisms to their changing environments and can result in altered genes, novel traits, and new species. Evolutionary processes depend on both changes in genetic variability and changes in allele frequencies over time. The study of evolution can be performed on different scales.

How do populations grow and change? Overall, population grows or shrinks through two very basic components: natural change (births minus deaths) and migration (domestic plus international).

How does evolution operate on population? Evolution is a process that results in changes in the genetic material of a population over time. Evolution reflects the adaptations of organisms to their changing environments and can result in altered genes, novel traits, and new species.

How do we know if a population is evolving? To understand how organisms evolve, scientists can track populations' allele frequencies over time. If they differ from generation to generation, scientists can conclude that the population is not in Hardy-Weinberg equilibrium, and is thus evolving.

How do communities evolve? The evolution of communities is generally considered to occur by processes of individual selection acting within the individual community. From this perspective, community evolution can occur by the gain and loss of species, and by genetic changes occurring within species.

What is the summary of the letter from Thailand? Letters from Thailand is the story of Tan Suang U, a young man who leaves China to make his fortune in Thailand at the close of World War II, and ends up marrying, raising a family, and operating a successful business. The novel unfolds through his letters to his beloved mother in China.

What is Thailand famous literary piece? These include the Ramakian, a Thai version of the Indian Ramayana, which was composed during the reign of Rama I (1782–1809); Khun Chang Khun Phaen, an epic poem full of martial and amatory exploits, which took its title from the two main protagonists; and Phra Aphaimani, named after its hero.

What was the main purpose of the letter? The main purposes of letters were to send information, news and greetings. For some, letters were a way to practice critical reading, self-expressive writing, polemical writing and also exchange ideas with like-minded others.

What is the brief summary of Thailand? Thailand, officially the Kingdom of Thailand and historically known as Siam (the official name until 1939), is a country in Southeast Asia on the Indochinese Peninsula. With a population of almost 66 million, it spans 513,115 square kilometres (198,115 sq mi).

What religion is in Thailand? Religious Demography In December 2021, the Department of Religious Affairs reported that the population is 92.5 percent Buddhist, 5.4 percent Muslim, and 1.2 percent Christian. Other groups include animists, Confucians, Hindus, Jews, Sikhs, and Taoists.

What is the most famous thing of Thailand?

What is Thailand holy book? Answer and Explanation: The national book of Thailand is Ramakien. The name of the book translates to "the glory of Rama." It is an epic and mythical tale of divine beings and humans divided into three parts. There are numerous similarities to the Ramayana, an epic tale from ancient India.

What is the summary of the letter? This is an emotional story of an old man, Ali. He is all alone and waiting for a letter from his daughter Miriam. But unfortunately, he got that letter only at his grave. Ali was a brilliant hunter who derived pleasure from the scared faces of the young ones of the dying birds.

What is the explanation of the Thai alphabet? It is an abugida and brahmic script, which means that vowel markings must be attached to a consonant letter. The consonants are always written in order from left to right, but vowels have rules where it must be written to the left, right, top, or bottom of the first consonant in each syllable.

What is the significance of the letter written by Sam to Charley? In the letter Sam had informed Charley that he was living on the third level. He had also told Charley and his wife to keep looking for the third level. Clearly the letter was a product of Charley's imagination.

What is a short paragraph about Thailand? Thailand is home to Buddhist temples, exotic wildlife and spectacular islands. It is also known for its fascinating history, unique culture and delectable local food. The tourism industry plays an important role in the Thai economy and contributes an estimated 18.4 percent to the national GDP.

Teori Kritik Sastra Semiotik: Pertanyaan dan Jawaban

1. Apa itu semiotika?

Semiotika adalah teori yang mempelajari tanda dan simbol, bagaimana mereka menciptakan makna, dan bagaimana mereka digunakan dalam komunikasi. Dalam kritik sastra, semiotika digunakan untuk menganalisis bagaimana teks sastra menghasilkan makna melalui tanda-tanda yang digunakannya.

2. Bagaimana semiotika digunakan dalam kritik sastra?

Dalam kritik sastra semiotik, teks dipandang sebagai sistem tanda yang menghasilkan makna. Tanda-tanda ini dapat berupa kata, gambar, suara, atau bahkan struktur teks itu sendiri. Kritikus semiotik menganalisis bagaimana tanda-tanda ini berinteraksi dan menciptakan makna bagi pembaca.

3. Apa saja konsep utama semiotika?

Konsep utama semiotika meliputi:

- **Tanda:** Sesuatu yang mewakili sesuatu yang lain.
- **Penanda:** Bagian material dari tanda (misalnya, kata atau gambar).
- **Petanda:** Konsep atau ide yang diwakili oleh penanda.
- **Kode:** Sistem aturan yang mengatur penggunaan tanda.

4. Apa manfaat menggunakan teori semiotik dalam kritik sastra?

Semiotika menawarkan perspektif unik untuk menganalisis makna dalam teks sastra. Ini memungkinkan kritikus untuk:

- Mengungkap makna tersembunyi atau tidak disadari dalam teks.

- Memeriksa bagaimana bahasa dan struktur digunakan untuk menciptakan makna.
- Mengeksplorasi hubungan antara teks dan pembaca.

5. Bagaimana saya bisa menerapkan teori semiotik dalam kritik sastra?

Untuk menerapkan teori semiotik dalam kritik sastra, ikuti langkah-langkah berikut:

- Identifikasi tanda-tanda dalam teks.
- Analisis hubungan antara penanda dan petandanya.
- Tentukan kode yang mengatur penggunaan tanda.
- Jelaskan bagaimana tanda-tanda ini menghasilkan makna bagi pembaca.

Scroll Saw Woodworking Crafts Magazine: A Guide for Beginners

What is scroll saw woodworking?

Scroll saw woodworking is a type of woodworking that involves using a scroll saw to cut intricate designs and shapes. Scroll saws are powered tools that use a thin, flexible blade to cut through wood, allowing for precise and detailed cuts.

What are the benefits of scroll saw woodworking?

Scroll saw woodworking offers several benefits, including:

- Precision: Scroll saws allow for highly accurate and detailed cuts.
- Versatility: They can be used to cut a wide variety of shapes and designs, from simple to complex.
- Portability: Scroll saws are relatively compact and portable, making them easy to use in small spaces.

How can I get started with scroll saw woodworking?

To get started with scroll saw woodworking, you will need the following:

- A scroll saw
- Scroll saw blades (different sizes and types)

- Wood (hardwood or softwood)
- Safety glasses
- Earplugs

Where can I find free scroll saw woodworking crafts magazine?

There are several online resources where you can find free scroll saw woodworking crafts magazine, including:

- Scroll Saw Woodworking & Crafts (scrollsawwoodworking.com/free-magazines/)
- Woodworking Magazine (woodworking.org/free-issues/)
- American Woodworker (americanwoodworker.com/free-issues/)

What types of projects can I make with a scroll saw?

Scroll saws can be used to make a wide variety of projects, including:

- Intricate cutouts
- Puzzle pieces
- Wall art
- Jewelry
- Boxes
- Toys
- Decor

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