

QUIZ - EVOLUTION

Name the order of the evolutionary eras from earliest to latest.

Precambrian – Paleozoic – Mesozoic – Cenozoic.

What was the longest evolutionary era? **Paleozoic**

Name 2 characteristics of the evolution of fish to amphibians. **Fins strong enough to support, lungs for breathing, skin, etc**

List the order of vertebrate evolution. **Fish – amphibian – reptile – birds and mammals.**

What 2 characteristics would amphibians have to change to evolve into reptiles? **Lay eggs away from water, skin, heart, and partially divided ventricle.**

Why would there be no fossils found from before vertebrate evolution? **Soft-bodied organisms decay easier, no hard parts to fossilize.**

Name 4 characteristics of the evolution from reptiles to birds. **Lose teeth, wings, feathers, lighter bones, and beaks.**

Name 2 characteristics for the evolution of reptiles to mammals. **Live birth, 4 chambered heart, and skin/fur.**

In what era were the dinosaurs abundant? **Jurassic – Mesozoic**

Give the example of homologous structures. **Pentadactyl limb.**

What characteristic of the pentadactyl limb is similar across organisms? **Humerous, ulna, radius, carpal, metacarpals – 5 digit.**

Give your own definition for homologous structures. **Structures similar in origin and structure. They evolve to fit the animal's way of life.**

Define analogous structure using an example. **Structure in different organisms that serve the same function. They show no evolutionary relationship between organisms.**

Define comparative embryology. **The study of the development of different organisms.**

Name the order in which plants evolved. **Algae – primitive bryophyte – pteridophyta – gymnosperms – angiosperms.**

What characteristics do tracheophytes have that has allowed them to be so successful. **True leaves, roots and stems and have well developed conducting tissue that had allowed diversification and success.**

Define fossil. **Anything embedded in the earth's crust that indicates the existence of past life.**

Under what conditions is fossilization maximized? **Decay must be prevented, therefore environment with lack of oxygen.**

In what environment are fossils commonly found and why? **Aquatic – oxygen levels are low.**

Define half-life. **The set rate at which half of the radioactive element will decay forming another element.**

What is stratigraphic correlation? **Comparison of fossils in different strata of rocks in order to identify the age of fossils.**

Most fossils are found in what type of rock? **Sedimentary.**

What are the different forms of fossils? **Shells, bones, teeth, imprints, casts.**

Insects may be preserved in the hardened saps of trees that are called ____?

Amber

Give 3 examples of materials that organisms can be preserved in. **ice, amber, volcanic ash, acid bogs.**

In sedimentary rock, which layer would contain the youngest fossils? **Top layers.**

In sedimentary rock, which layers would contain the oldest fossils? **Bottom layers.**

Give example of 2 animals containing the pentadactyl limb. **Human, whale foreflipper, wing bat, bird, foreleg crocodile, foreleg frog.**

Structure within an organism that has no known function is called? **Vestigial**

Who proposed the theory of use and disuse and what does this mean? **Lamarck – structures develop and remain active as long as they are used. The unused structures eventually disappear.**

What was the first vertebrate in the evolution of vertebrates? **Fish**

This organ needed to be developed in amphibians to evolve from fish and live on land. **Lungs.**

What characteristic allowed reptiles to dominate the land? **The ability to lay eggs away from water.**

Name 3 of the 5 important factors in Darwin's theory of natural selection. **All organisms produce more offspring than can actually survive.** 2. **Each organism must face a constant struggle for survival.** 3. **The organisms best adapted to an environment will survive best in that environment.** 4. **The individuals of a given species have varying characteristics.** 5. **The organism that survives will pass their genetic traits on to their offspring.**

What factors in the environment affect a species chance of survival? **Predators, competition, environmental conditions.**

Body parts that are reduced in size, have no apparent function, and are thought to be derived from other, ancestral body parts are called _____ structures? **Vestigial structures.**

Define gene pool. **All the genes of a population – the sum of the genetic information which will be passed on to each new generation.**

What did Oparin conclude about the formation of life on earth? **Life arose due to the climatic conditions of the primitive earth.**

Explain why there was little or no oxygen on the primitive earth. **No plant to use the carbon dioxide and form oxygen through photosynthesis.**

Who were the first scientists to test Oparin's theory and what did they find? **Miller and Urey – found that amino acids and other organic compounds were formed from the chemical reaction. These molecules are found in living organisms of today.**

Why is carbon dating only valid for fossils up to a certain age? **Carbon-14 has a half-life of 5760 years; therefore, older fossils have very minute traces of carbon left and impossible to date.**

Explain the idea of spontaneous generation. **Life can arise from non-living matter.**

What is another term used for spontaneous generation? **Abiogenesis.**

The method of dating fossils that are millions of years old. **Potassium-argon dating**

Scientist that study ancient life through the fossil record. **Paleontologists.**

Who was the scientist who proved Lamarck's theory to be incorrect? And how did he do this.

August Weismann – cut off the tails of 22 generations of mice. The tails grew back generation after generation.

Name 2 sources of Natural selection.
Mutation and genetic recombination. Most variation occurs through sexual reproduction.

What is a niche? **The way of life of a particular group of organisms. Where it lives, what it eats, what eats it, and the role in the environment.**

What are the 3 factors that produce genetic change within a population?
Selection, gene flow, genetic drift.

Describe directional selection.
Environmental changes favor certain variations in the population. The change selection for one variation.

Describe disruptive selection.
Selection acts against the most common variation within the population.

Describe stabilizing selection.
Selection for the most common variation is favored. Environmental conditions remain stable over a period of time and the organisms most adapted to the environment are favored.

What does the term gene flow refer to?
That there is movement of individuals between populations.

What is genetic drift?

An accidental change in the gene frequency of a population.

What does the Hardy-Weinberg principle state?

Under certain conditions allele frequencies remain constant from generation to generation.

What are the conditions stated in the Hardy-Weinberg principle?

No natural selection

Random mating

No migration

No significant mutation.

What did Redi conclude from his experiment involving meat and flies?

Flies did not form from meat when jars were sealed, therefore flies arise from maggots.

What experiment did Pasteur perform to disprove the idea of spontaneous generation? **Bacteria in broth.**

What name was given to the hypothesis suggested by Alexander Oparin?

Chemical evolution.