

Name: _____ Date: _____ Period: _____

Evolution Review Worksheet | Chapters 10 -12

Early Ideas about Evolution and Darwin's Observations

1. What do scientists call the process of biological change, by which descendants come to differ from their ancestors? _____

2. A horse and a donkey can produce a mule, therefore horses and donkeys are of the same species.

Circle one: True or False

Explain your answer: _____

3. For the following choose either: VARIATION or ADAPTATION

- a. _____ The difference in the physical traits of an individual from those of other individuals in the group to which it belongs.
- b. _____ A feature that allows an organism to better survive in its environment.
- c. _____ A tortoise population lives in an area with tall grass. These tortoises have longer necks than tortoises that live in other areas. Having a long neck is an example of this.
- d. _____ One fish in a population has slightly darker scales than its relatives. The difference in color of scales is an example of this.

4. What observations did Darwin notice between the finches on Equator and those on the different islands of the Galapagos? _____

The Theory of Natural Section

5. Fill in the blanks: Artificial selection is where certain traits are manipulated by _____, while in natural selection, _____ is the selective agent.

6. Natural selection explains how evolution can occur. Match the 4 main principles of natural selection with the correct definition: *Variation Overproduction Adaptation Descent with Modification*

- a. _____ Producing many offspring, some of which may not survive.
- b. _____ Heritable differences that make an individual unique.
- c. _____ An advantageous trait; one well-suited for the environment.
- d. _____ A heritable, advantageous, trait becoming more common in a population.

7. Circle one: Natural selection acts on existing traits or Natural Selection works directly on DNA

8. Complete the sentence: In biology, an organism is said to have a high fitness if...

9. Fill in the blanks: Sexual selection occurs when certain traits increase mating success.

_____ selection involves fighting (competition) among males for a female, whereas _____ selection involves males displaying traits to impress females.

10. What are the 5 factors that can lead to evolution?

- a. _____ d. _____
- b. _____ e. _____
- c. _____

Evidence for Evolution

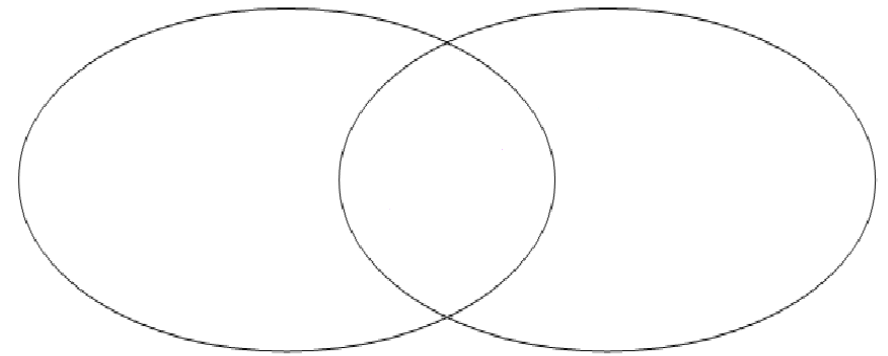
11. Match the type of evidence to its description.

Fossils Geography Embryology Anatomy Biochemical

- a. _____ Different organisms share similar structures that have very different functions, or have remnants of structures/organs that had a function in the past.
- b. _____ In DNA sequencing, the more closely related two organisms are, the more similar their DNA.
- c. _____ Fossil organisms found in bottom (older) layers are more primitive than those in the upper (newer) layers; often times, these extinct fossils resembled modern life.
- d. _____ During the early stages of life, embryos of very different organisms appear to be very similar. As they continue to develop, they become increasingly different.
- e. _____ Different habitats favor different traits and can establish separate populations that have a common ancestor.

12. Which types of structures in organisms have evolved separately and are **NOT** evidence of a common ancestor? _____ (hint: wings of a bat and of a fly would be an example of this)

13. Compare and Contrast: Radiometric Dating and Relative Dating



Speciation through Isolation

14. Define: Gene Flow

15. Name the three barriers than can isolate populations & list an example of this barrier:

- a. _____
- b. _____
- c. _____

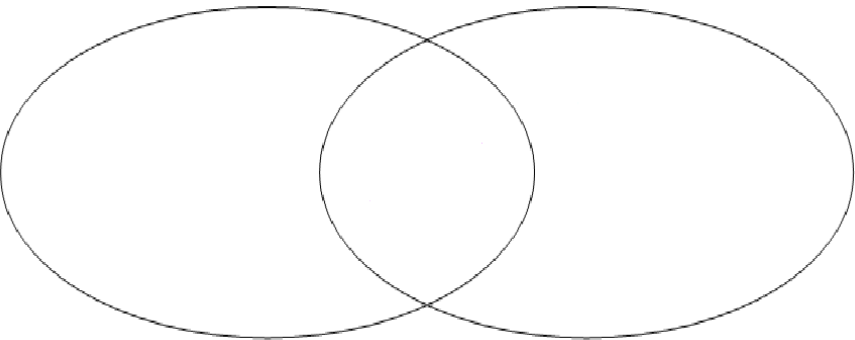
16. Fill in the blanks with the words below:

Speciation Environment Gene Flow Mutation Species Mate Genetic Drift

Two populations are said to be isolated if there is no longer any _____ between them. Over generations, the members of isolated populations may become more and more different. Isolated populations may become genetically different as those that are better adapted to the new _____, survive and reproduce. Random processes such as mutations & _____ can also affect evolution. When members of two isolated populations can no longer successfully _____, the populations are said to be reproductively isolated. Reproductive isolation is the final step prior to _____, which is the evolution of a new _____.

Patterns in Evolution

17. Compare and Contrast: Background Extinction and Mass Extinction



18. Describe convergent evolution using an example. Would structures in this example be homologous or analogous?

19. Describe divergent evolution using an example. Would structures in this example be homologous or analogous?

20. In the table below, fill in the spaces about the two ways in which species can co-evolve.

Type of Coevolution	How it works	Example
Beneficial Relationship		
Evolutionary Arms Race		

21. Mammal evolution exploded after the age of dinosaurs. This rapid period of growth was followed by a slow period of speciation. Circle the letter of the **TWO** patterns that explain this.
- a. Convergent evolution
 - b. Divergent evolution
 - c. Adaptive radiation
 - d. Coevolution
 - e. Mass extinction
 - f. Punctuated equilibrium
 - g. Gradualism
 - h. Background extinction

Origin of Life

22. Match the correct term to the proper hypothesis:

- Ribozymes Miller-Urey Iron-sulfide bubbles Meteorite Endosymbiosis Lipid Membrane
- a. _____ Demonstrated organic compounds could be made by passing electrical current (simulate lightening) through a closed system that held a mixtures of gases (early atmosphere).
 - b. _____ Amino acids may have arrived on Earth through meteorite/asteroid impacts.
 - c. _____ A relationship in which one organism lives within the body of another, and both organisms benefit from the relationship.
 - d. _____ Biological molecules combined in compartments of chimney like structures on the ocean floor. The compartments acted as the first cell membranes.
 - e. _____ Lipid spheres, or liposomes, could form around a variety of organic molecules, acting as early cell membranes.
 - f. _____ RNA molecules that can catalyze specific chemical reactions without the use of additional enzymes. May have been the first genetic material of cells.