

Name: _____ Date: _____ Per: _____

Evolution and Taxonomy Study Guide

Part 1: **Matching** - On the line provided, write the letter of the definition that best matches each term on the left

- e 1. Fossil
- j 2. Mutation
- h 3. Adaptation
- f 4. Natural selection
- c 5. Homologous structure
- b 6. Evolution
- d 7. Linnaeus
- k 8. Darwin
- a 9. Vestigial structure
- i 10. Analogous structure
- g 11. Variation

- a. Structures that have no use and are evidence of an organism's past
- b. Species change over time
- c. Similar structures that share a common ancestor
- d. Is known as the father of taxonomy
- e. Preserved remains of an ancient organism
- f. Survival of the fittest
- g. Differences among individuals within a species
- h. A feature that has become common in a population because it provides a selective advantage
- i. Insect and bird wings
- j. A change in DNA that is one source of new variations within a gene pool
- k. Conducted many studies in the Galapagos Island
- l. Proposed a theory of evolution by means of acquired traits - Lamarck

Part 3: **Interpreting charts /diagrams** – Study the charts and diagrams below and answer the following questions

Diagram A:

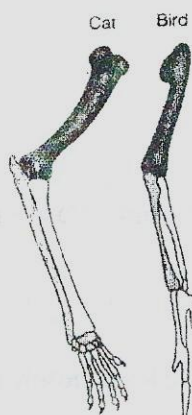
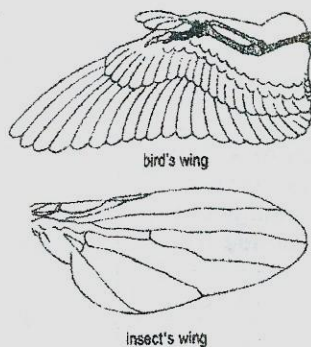


Diagram B:



1. Which diagram (s) shows evidence of evolution? Explain.

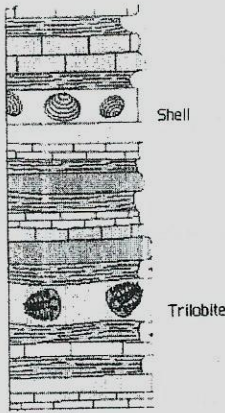
A - homologous structures - similar structures in upper limbs

2. Which diagram shows homologous structures? Analogous structures? Explain.

A →

B →

Diagram C:



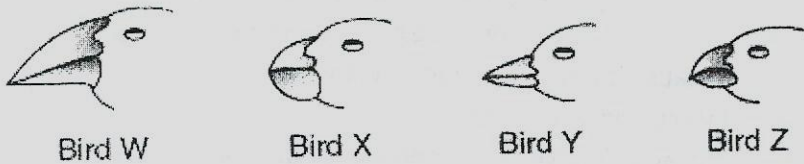
3. Which fossil is oldest? Explain.

trilobite - fossils located in lower strata.

4. What law does this demonstrate?

Law of Superposition

Diagram D:



Dichotomous Key to Representative Birds	
1. a. The beak is relatively long and slender.....	<i>Certhidea</i> - Y
b. The beak is relatively stout and heavy.....	go to 2
2. a. The bottom surface of the lower beak is flat and straight.....	<i>Geospiza</i> - W
b. The bottom surface of the lower beak is curved.....	go to 3
3. a. The lower edge of the upper beak has a distinct bend.....	<i>Camarhynchus</i> - Z
b. The lower edge of the upper beak is mostly flat.....	<i>Platyspiza</i> - X

5. What is the identity of bird X? What about bird W?

Diagram E:

Species	Sequence of Amino Acids in the Same Part of the Hemoglobin Molecules
Human	Lys-Glu-His-Iso
Horse	Arg-Lys-His-Lys
Gorilla	Lys-Glu-His-Lys
Chimpanzee	Lys-Glu-His-Iso
Zebra	Arg-Lys-His-Arg

6. Which species are the most closely related? Why?

Human - Chimp; least # of differences in AA sequences

7. Which species are the least closely related? Why?

Zebra & Horse / Human, Goullin Chimp

Most # of differences in AA sequences

Diagram F:

Organism	Kingdom	Phylum	Class	Order	Family	Genus	Species
Red tail Hawk RTHA	Animalia	Chordata	Aves	Falconiformes	Accipitridae	Buteo	jamaicensis
Peregrine Falcon	Animalia	Chordata	Aves	Falconiformes	Falconidae	Falco	peregrinus
Bald Eagle BAEA	Animalia	Chordata	Aves	Falconiformes	Accipitridae	Haliaeetus	leucocephalus
Barn Owl	Animalia	Chordata	Aves	Strigiformes	Tytonidae	Tyto	alba

8. Which organisms are most closely related? Why?

RTHA & BAEA; Are both in Accipitridae family.

9. What do all 4 birds species have in common?

Class Aves

10. What is the scientific name for a bald eagle?

Haliaeetus leucocephalus
— not found in N Am.

11. You were watching birds in your back yard and saw a *Tyto tenebricosa*. What bird do you think this is and what else can you tell about this bird?

Owl species; owl that is ^{closely} related to barn owl.

Part 2: Short answer – Answer the following questions

1. Explain the relationship between evolution, natural selection and adaptation.

Evolution is the change in the genetic makeup of a population over time that occurs as a result of natural selection which is when individuals w/ favorable adaptations survive & reproduce.

2. Compare and contrast the theories of Charles Darwin and Lamarck.

Darwin - over long periods of time
1. descent with modification
2. natural selection

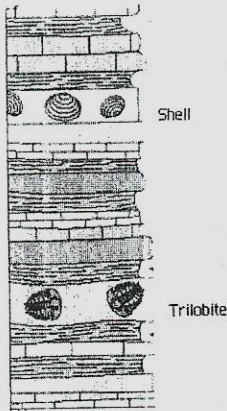
Lamarck - in an organism's lifetime
1. Use & disuse
2. Transmission of acquired traits

3. Describe the difference between homologous features and analogous features. Give an example of each.

homologous
• common skeletal structures
• different functions
• share common ancestor

analogous
• different structures
• similar functions
• do not share recent ancestor

Diagram C:



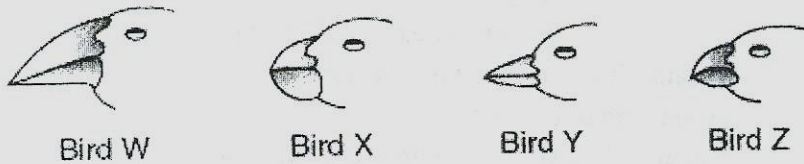
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Most # of differences in AA sequences