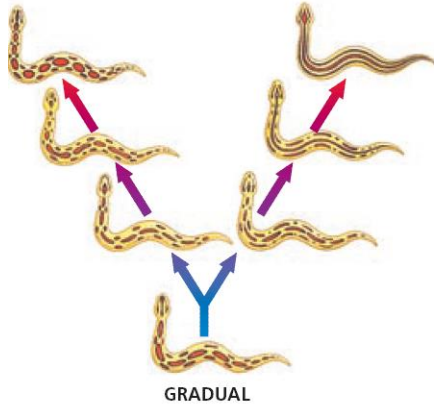


Types of Evolution: Punctuated Equilibrium vs Gradualism

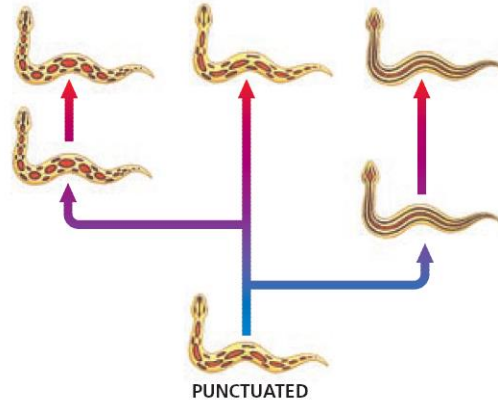
Use the information below AND YOUR NOTES to answer the questions that follow. READ the information before attempting to do the work. You may need to refer to this information often.

GRADUALISM



GRADUAL

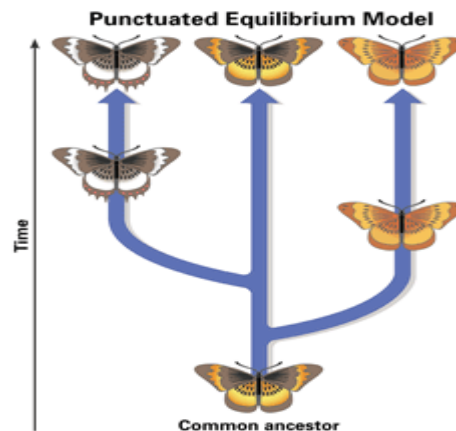
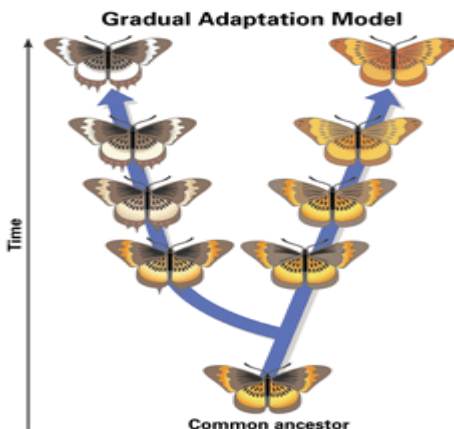
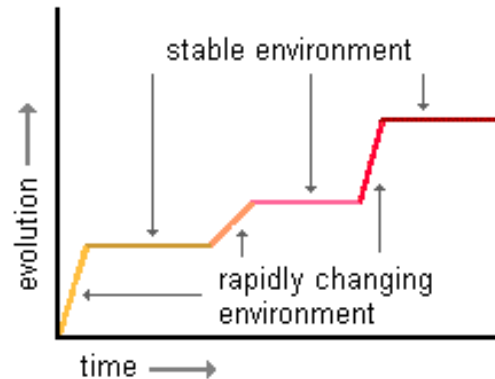
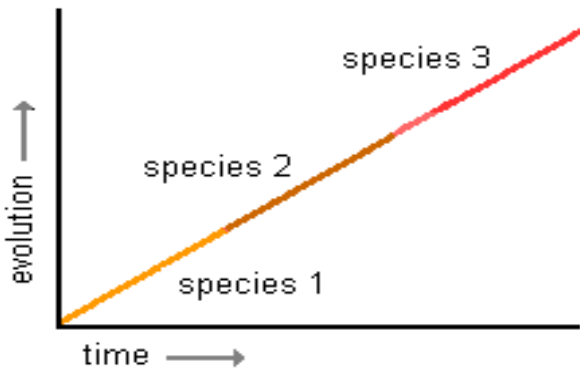
PUNCTUATED EQUILIBRIUM



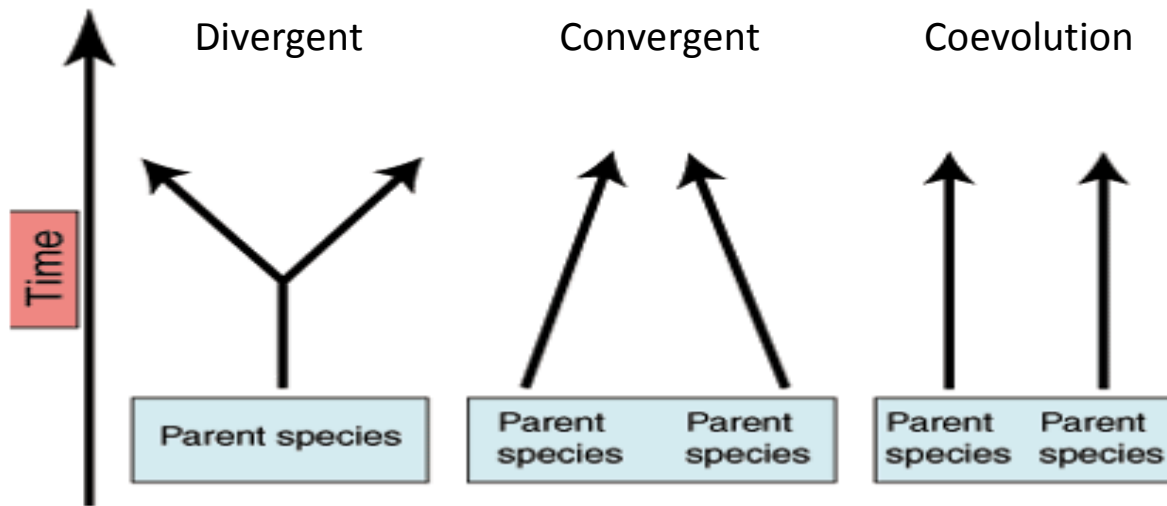
PUNCTUATED

Gradualism - Natural selection gradually changes the average features of a species. This process continues for long enough for a species to change into a new species and the original species becomes extinct.

Punctuated Equilibrium - periods of rapid speciation followed by long periods of stasis –no change.



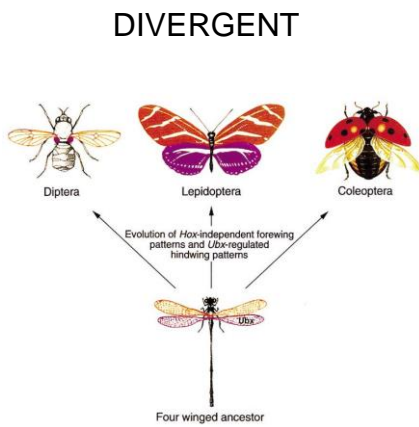
Types of Evolution: Divergent, Convergent & Coevolution



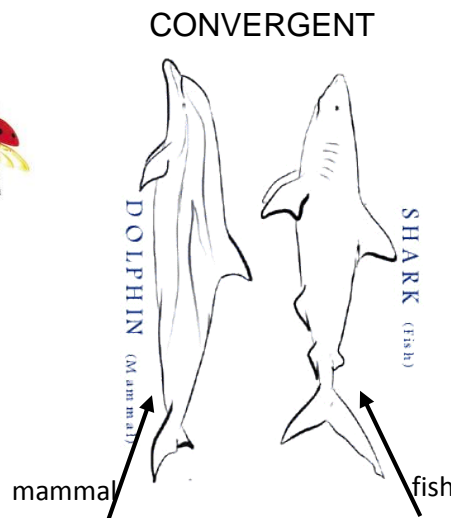
Divergent – ONE species evolves into two different species.

Convergent – TWO separate species in different areas evolve to look or behave in a similar manner

Coevolution – TWO species that have a partnership or symbiotic relationship evolve together to continue the relationship



Results in Homologous Structures



Results in Analogous Structures

COEVOLUTION



As the flower evolved over time, the pollinating partner the fly, evolved along with it to maintain the relationship.

Keep this page for notes and to study for your test

TYPES OF EVOLUTION

Directions: Read each description below and choose which of the four types of evolution it is by placing an X under the correct answer for each description.

For convergent evolution and divergent evolution ONLY, use the key to record if the scenario is describing a homologous, vestigial, or analogous structure. Record in the box under the "X".

H = Homologous structure

V = Vestigial structure

A = analogous structure

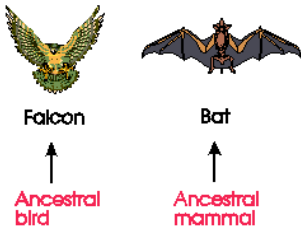
	Description	Convergent evolution	Divergent evolution	Coevolution	Punctuated equilibrium
1	In the ocean surrounding Antarctica, there are fish that survive the cold water by using a molecule made of glycoproteins that circulates the blood and keeps it from freezing. Certain kinds of worms that live in the Arctic ocean also make antifreeze proteins that help them live in icy water.				
2	Horse evolution shows long stable periods of little evolution interrupted by brief periods of rapid change.				
3	The Galápagos tortoises share a common ancestor, but have necks of different lengths to best reach different food in their environment.				
4	This kind of evolution is proven by DNA analysis and results in organisms with different ancestors becoming more alike as they adapt to similar environments.				
5	Abrupt appearance of new species in the fossil records				
6	Ants are the correct size and weight needed to open the flowers for the peony plant. The peony plant provides food for the ant and the ant fertilizes the peony's flowers				

Label each image below with the following terms:

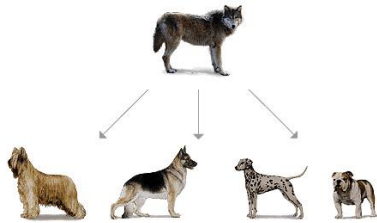
Divergent

Convergent

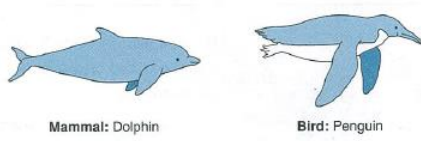
Coevolution



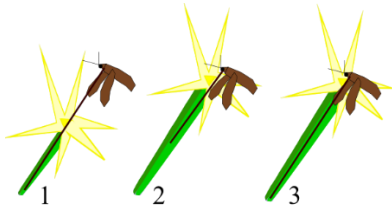
1 _____



2 _____



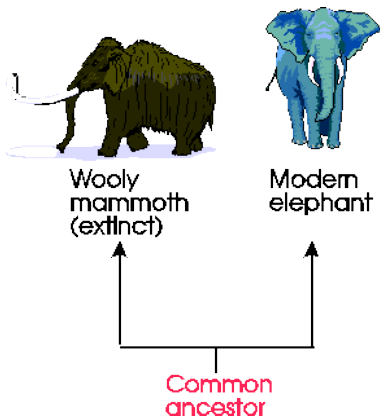
3 _____



4 _____








5 _____








6 _____

Speciation and Adaptations

Below are images of finches Darwin studied in the Galapagos islands. Each finch was found on a different island but all evolved from a common ancestor.

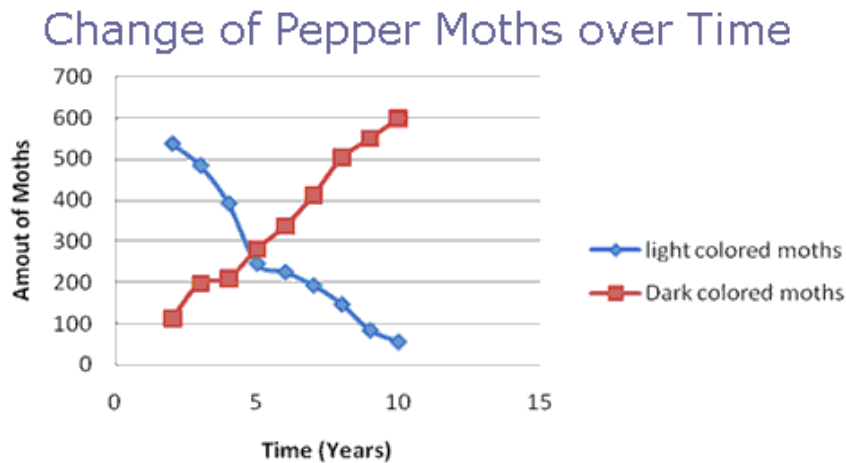
I. Large Ground Finch	II. Large Tree Finch	III. Warbler Finch	IV. Small Ground Finch	V. Cactus Finch
				
large strong crushing beak	strong sharp beak for grabbing and cutting	small pointed beak for probing into cracks	strong crushing beak	long tough beak for probing

Write the Roman numeral in the space above the food item to match the correct finch to the food it eats.

A. Small insects in cracks and crevices. 	B. Large hard seeds. 	C. Cactus seeds and nectar. 	D. Large insects such as beetles. 	E. Small hard seeds. 
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Describe how competition and limited resources aided speciation in the Galapagos Island finches.

Use the graph below to answer the questions that follow.



1. What adaptation proved to be beneficial for the population of Pepper Moths over the last 10 years?
2. Explain what likely happened to cause the results shown in this graph.

Get signed off before moving on. _____