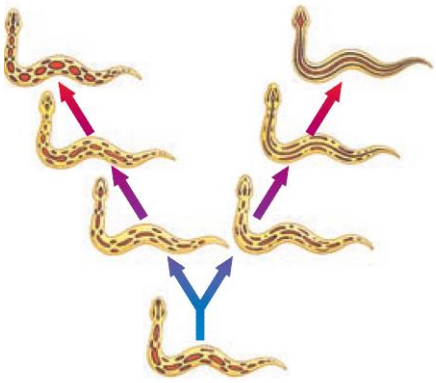
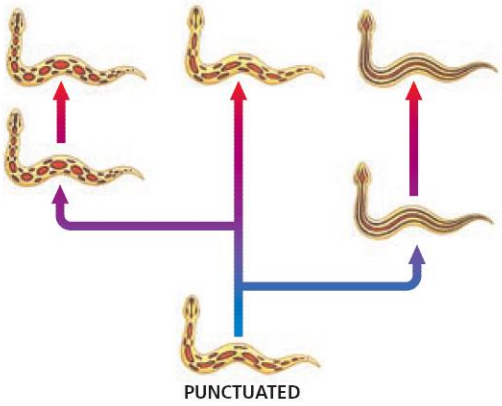
Types of Evolution: Punctuated Equilibrium vs Gradualism

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

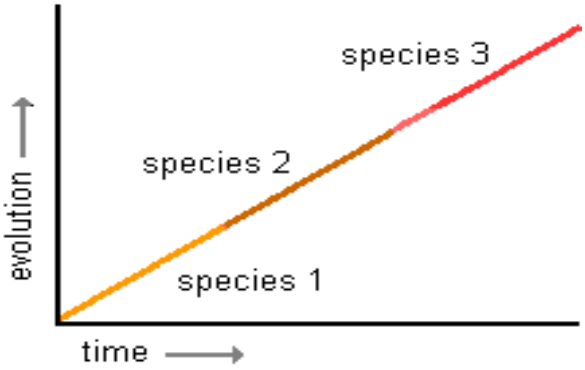


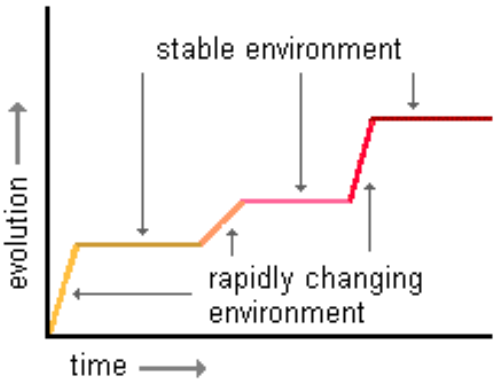
PUNCTUATED EQUILIBRIUM

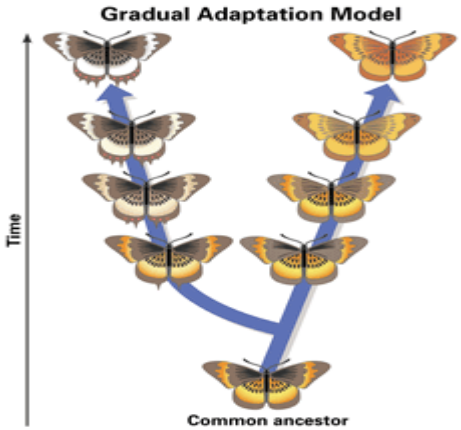


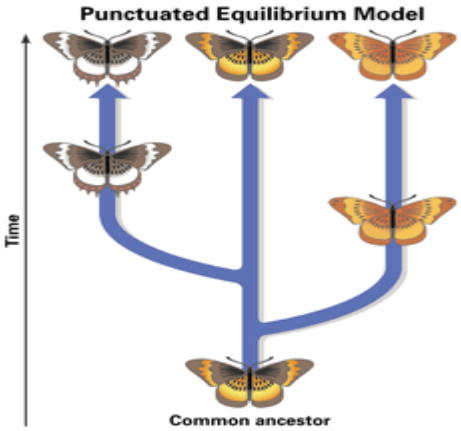
Gradualism - Natural selection gradually changes the average features of a species. This process continues for long enough for a species to change into a new species and the original species becomes extinct.

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

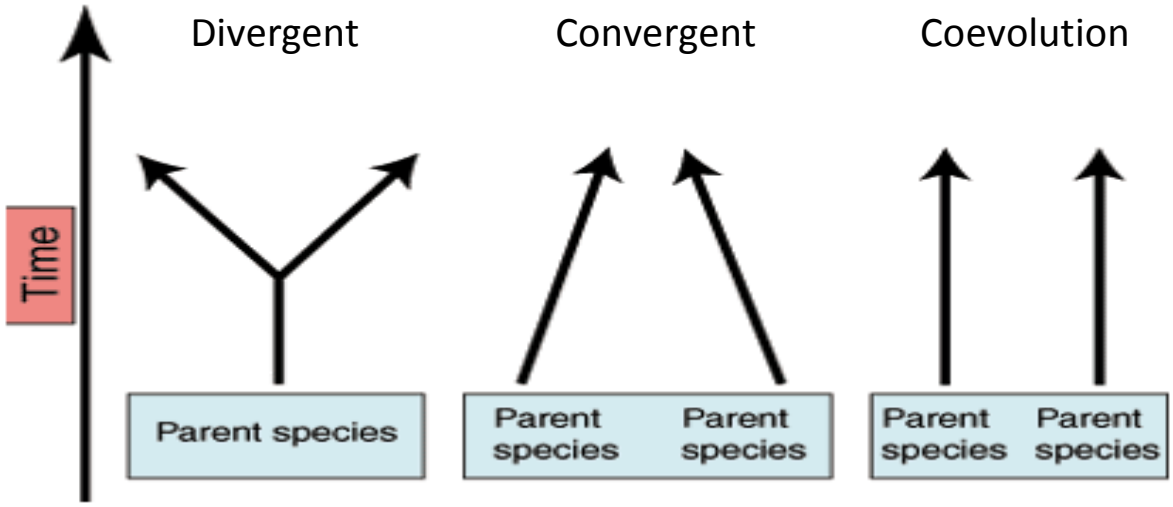






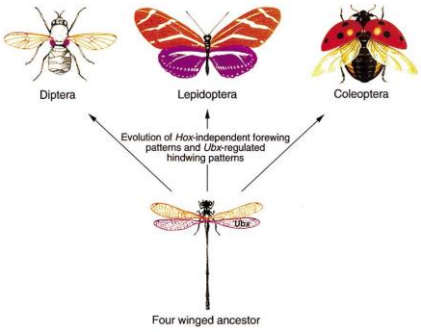


Types of Evolution: Divergent, Convergent & Coevolution



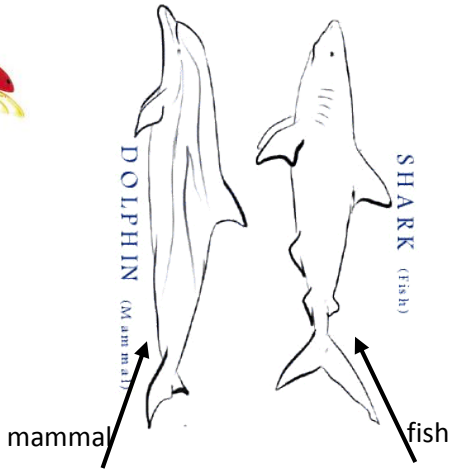
Divergent – ONE species evolves into two different species.
Convergent – TWO separate species in different areas evolve to look or behave in a similar manner
Coevolution – TWO species that have a partnership or symbiotic relationship evolve together to continue the relationship

DIVERGENT



Results in
Homologous Structures

CONVERGENT



Results in
Analogous Structures

COEVOLUTION

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

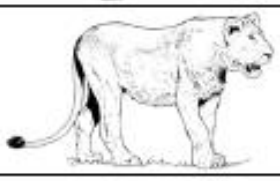
TYPES OF EVOLUTION

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.

	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				

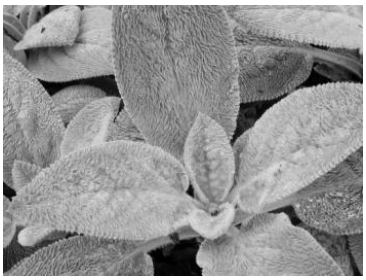
Which two types of evolution used above start off with a common ancestor?

Are the following pairs of animals examples of convergent or divergent evolution?

			Convergent	Divergent
	and		☐	☐
	and		☐	☐
	and		☐	☐
	and		☐	☐

An adaptation is any characteristic that increases fitness, which is defined as the ability to survive and reproduce. Match the following adaptations to the correct organism.

1. _____ This plant lives in a dry, temperate forest and is in danger of losing too much water through its stems. It also wants to ensure that it could survive a natural disaster like a fire or parasite infestation.
2. _____ This plant likes to grow in an upward direction and will often grow on other plants. Due to its length it must have a way to hold on as it grows so it does not fall.
3. _____This plant lives on the sand dunes of many beaches. It must be able to survive in direct sunlight by developing some type of sunscreen. It also has developed a way to collect water on it's leaves so it can use the morning dew for hydration.
4. _____ This plant grows along the muddy shores and in shallow water. It needs a way to stay upright and balanced in the waves as well as keep its trunk from becoming too saturated.


Fine hair on leaves


Thick bark


Stilt roots


Tendrils