

PATTERNS OF EVOLUTION

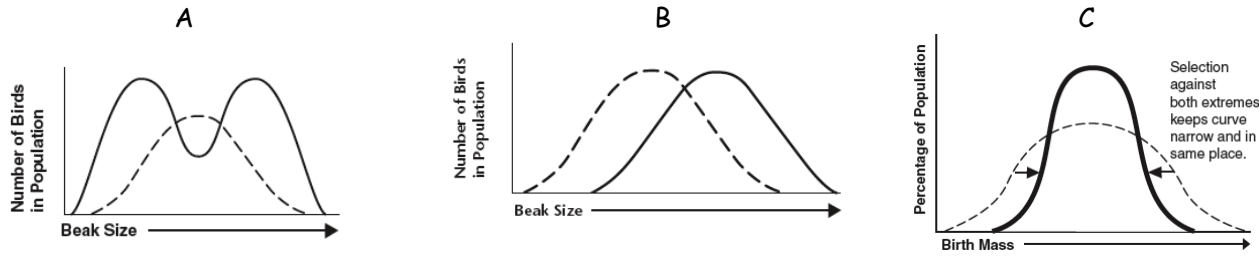
NAME _____

Read each story and use words from the word bank to label the type of evolution described

CONVERGENT EVOLUTION	DIVERGENT EVOLUTION	COEVOLUTION	PUNCTUATED EQUILIBRIUM
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Fish in the ocean surrounding Antarctica survive cold water by making a molecule 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.	
Ants are the correct size and weight needed to open the peony flowers. The peony plant provides food for the ant and the ant fertilizes the peony flowers.	
Horse evolution shows long stable periods of when little evolution happens interrupted by short periods of rapid change.	
A desert kit fox has large ears with greater surface area to prevent overheating. The red fox lives in the forest and has a coat color that keeps it camouflaged.	
Cardinal flowers have a shape and length that matches a hummingbird's beak. As the birds feed their foreheads bump against the pollen structures allowing them to fertilize the flowers.	
<i>Gallotia galloti</i> and <i>Gallotia atlantica</i> lizards share a common ancestor but over time have evolved to look different because they live on different islands with different ecosystems.	
Whales, sharks, and penguins all have streamlined bodies and fins/flippers for moving in water even though they belong to different classes of animals (mammals, fish, and birds)	
The Galapagos tortoises share a common ancestor, but have different sizes of necks to best reach the food they need in their environments	
Adaptive radiation is also called this	
Abrupt appearance of a new species in the fossil record	
Ostriches (birds) & giraffe (mammals) are both native to the savannahs of Africa. They share the same characteristic of a very long neck.	
The North American beaver and the South American capybara share a common ancestor but have evolved over time to look different	
Ostriches from the African savannahs and penguins from the polar regions are both species of bird but look very different.	
Bees can see blue and yellow and ultra-violet, but not red. Flowers pollinated by bees are mainly colored blue and yellow with ultra-violet nectar guides (landing patterns) on their petals and flowers shaped to fit the tongue-length of the species of bee that pollinates them.	
One species of coral-like sea organisms called bryozoans first appeared about 140 million years ago and remained unchanged for its first 40 million years. Then there was an explosion of diversification, followed by another period of stability for vast amounts of time.	

LABEL THE THREE GRAPHS BELOW SHOWING PATTERNS OF SELECTION:



MATCH THE GRAPH ABOVE WITH THE POPULATION DESCRIPTION:

_____ In which of these is the fitness of individuals at one end of the normal distribution curve higher than that of individuals in the middle or at the other end of the curve

_____ In which of these is the fitness of individuals in the middle higher than that of individuals at the extreme ends

_____ In which of these is the fitness of individuals at the extreme ends higher than that of individuals in the middle

_____ Human babies born smaller than average are likely to be less healthy and less likely to survive. Larger than average babies are likely to have difficulty being born. The fitness of these larger or smaller weight babies is lower than average-sized babies so human babies tend to be born of average size.

_____ Birds with bigger, thicker beaks can feed more easily on larger, harder seeds. A food shortage causes the supply of small and medium seeds to run low, leaving only larger seeds. Birds with bigger beaks show greater fitness than birds with medium or small beaks. Over time more birds with bigger beaks survive and reproduce.

_____ The orange and black pattern of a Monarch butterfly serves as a warning to sharp-eyed birds that the Monarch is poisonous to eat and tastes bad. Individuals with the brightest color pattern were more likely to warn off birds and survive to reproduce than those with a dull or medium color pattern. Over time and many generations, the Monarch population became more brightly-colored.

_____ In birds, feather color among males is more likely to attract a mate, but also more likely to attract a predator. Over time and many generations, the highest frequency color is for males with medium colors, while males with very dull colors and males with very bright colors became increasingly rare.

_____ A population of birds lives in an area where plants with medium sized seeds are wiped out by a fungal infection. Birds with unusually large or small beaks would have higher fitness than those with medium sized beaks. Over time the population splits into two subgroups; one that eats small seeds and one that eats large seeds.