

Speciation Worksheet #3

Name _____ Date _____ Period _____

Read each of the following examples of speciation/evolution and determine which type of speciation (convergent evolution, geographic isolation, coevolution or adaptive radiation) is best being described.

1. Porcupines in the United States have quills (spines) that are attached to their skins. When they feel threatened, they can tense up their bodies causing the quills to “shoot out”. These spiny quills can pierce the skin of attacking animals, causing injury and pain. Although not closely related to the porcupine, hedgehogs that live throughout parts of Europe also have protective spines that they use to defend themselves from attacking animals.
2. Kingsnakes are a family of snakes that usually eat other snakes, in the wild. Even though many of the snakes they eat are very poisonous, kingsnakes have adapted the ability to not be affected by their poisons. Some of these poisonous snakes, like rattlesnakes have adapted other defensive behaviors (other than biting) to try and “scare off” the kingsnakes.
3. River otters that live in South American rivers eat fish and other smaller creatures they can capture. These animals have become reproductively isolated from the closely related sea otter, who live in the ocean waters along the Pacific coast, many thousands of miles away.
4. The flowers that bloom from the saquaro cactus have evolved a bright, white coloration to attract many of the bats they rely on to pollinate (fertilize) their flowers. Since they rely on the bats, they have also adapted to opening their flowers at night, when the bats are active. The bats have also adapted to the cactus by developing the ability to hover (slightly) above the flowers and a long tongue that can reach deep inside the flower.
5. Chameleons are lizard-like reptiles. Each of their two eyes can move in completely different directions, so they can see all the way around themselves. Sand lances are a type of fish that can also move their eyes like the chameleon, even though they are not at all related to one another.
6. In the United States, there are several species of poisonous scorpions that all evolved from one common ancestor. Although most of these scorpion species occupy similar niches, none of them can reproduce with one another.
7. Humans and most bird species have adapted the ability to see their worlds in color vision.
8. Birds like parrots have evolved strong, thick beaks that they use to open and eat tough fruits and nuts. The fruits and nuts they eat are among the strongest and hardest to open in the world.
9. Octopus and squid live in seas throughout the world. Both have mouths with beaks, like parrots, that they use to cut and eat their prey with. These beaks are much like a parrot’s, which are birds that live among the trees of tropical forests.
10. In South America lives an alligator-like animal called a caimen. These animals have lifestyles and niches very similar to the American alligator, but have been reproductively isolated from them for millions of years.