The Evolution of *Canis pedatus*

Introduction: In this activity you will imagine that 800 years ago an international expedition discovered a previously unknown dog-like creature (*Canis pedatus*). The expedition's leaders, all from different Islands of the world, each took several hundred of the species on board their ships and returned to their own lands. The animals were originally held in captivity and allowed to mate randomly. Their numbers increased and eventually most of them were set free to roam. You are to decide if the animals could have survived in their new habitat and then, if they had survived, how the animals could have changed over 800 years as they adapted to their new environments.

Objectives*:* The purpose of this activity is to decide:

- If a population of the species *Canis pedatus* would survive being relocated to a new environment
- If the species *Canis pedatus* would show adaptations to its new environment over a period of eight hundred years
- Whether the animals with those adaptations still belong to the species *Canis pedatus*

Background information on the species *Canis pedatus:*

Height: medium, similar to a spaniel
Hair: medium length, brown, white, black mix
Tail: bushy, hangs down to its heels
Snout: long, similar to a collie, with medium-sized teeth
Ears: short and pointed
Feet: unusually large, with small sharp claws
Poor night vision
Moderate runner: runs at speed of the average house cat
Omnivorous, but has a particular liking for small birds

Environments:

Island A
The island is fairly flat, with an occasional hill. The ground is soft dirt, and several species of shrubs grow towards the center of the island. There is no animal life on land, but the water is teaming with fish. The island is surrounded by a coral reef, which keeps the predators out. The shore is sandy with no algal growth. Fresh water is available.

Island B
The island has a rocky shoreline. Numerous tide pools dot the island along the shore where the wave action is somewhat sheltered by rock outcrops. The tide pools host barnacles, abalone, sea urchins and crabs. Algae grows all around the island; however, it is quite sparse in the tide pools where the various animals feed. The current is quite strong along the rocky outcrops where the algae grows best. Fresh water is available.

Island C
The island is somewhat barren. A few species of cactus thrive on the bare rocks. A large cactus-eating tortoise inhabits the island. A species of very large bird nest on the island annually. They build their nests on the rocks, and protect their eggs from the sun by standing over the nests with outspread wings. The nests are always found on the windy side of the island which is somewhat cooled by offshore breezes.

Island D
The island is an extinct volcano. Vegetation on the island changes with the altitude moving up the volcano. Grasses grow at the base. Further up the slope the grasses give way to low shrubs. Half way up, the island becomes quite lush; tropical plants and trees dominate the landscape. At this altitude, the island experiences frequent rain showers. There are two species of birds that inhabit the island. One is a raptor, which preys upon the smaller birds. The other fishes the waters approximately one mile offshore. Both nest in trees.