Rat Island Activity: Adaptations

Objective: You will design and illustrate a rat with adaptations that could have resulted from natural selection in a specific environment.

Materials: Drawing paper, map pencils or markers, pen or pencil

Charles Darwin referred to survival of the fittest as natural selection. Over time natural selection results in changes in the inherited characteristics of a population. These changes increase a species' fitness in its environment.

Procedure:

1. Put your name on the back of the drawing paper.
2. You will be assigned an island habitat: 1, 2, 3, or 4
3. Design a rat that has adapted to the environment of the island. Your adaptations must be something that you can find on a living organism. For example, no wheels or other nonliving objects can be used.
4. Give your rat at least **5 new adaptations**.
5. Draw the island environment and the rat on the front of your drawing paper.
6. On the back of your drawing, list the adaptations, and why they are beneficial to the rat. In other words describe the natural selection of your rat and why it is the fittest for its environment.

Island 1	**Island 2**
Fairly flat Few hills Ground is soft dirt Several species of small bushes and shrubs grow in the center of that island No animal live on land; but the water is full of fish Surrounded by a coral reef which keeps the predators out Sandy beach with no algal growth Fresh water is available	Rocky shoreline Many tide pools dot the island along the beach Wave action is somewhat sheltered by rock outcrops Tide pools contain barnacles, oysters, sea urchins and crabs Algae grows all around the island, however it is quite thin in the tide pools where the animals feed The current is quite strong along the rocky outcrops where the algae grows best Fresh water is available
Island 3	**Island 4**
Desert like A few species of cactus live on the bare rocks A large cactus-eating tortoise lives on 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.	The island is an extinct volcano Plant life 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 live on the island: One is a raptor (meat eating) which preys upon the smaller birds. The other bird fishes the waters approximately one mile offshore. Both nest in trees.