Name _____ Date _____ Class _____

Enrichment **LESSON 2**

The Benefits of Hurricanes

Hurricanes can be destructive, but they have been around as long as Earth has had an atmosphere. They are a natural part of the interactions of the atmosphere and oceans.

Rainfall

As much as 25 percent of the available rainfall in Japan, Southeast Asia, India, and the southeast United States is brought in by tropical storms and hurricanes. Hurricanes can carry enormous amounts of water. Although flooding can be associated with hurricane rains, the precipitation is vital for industries, farming, and drinking water that comes from lakes and groundwater.

Barrier Islands

Barrier islands are strips of sand that form long, narrow islands parallel to the mainland. Over time, wave action forms and changes these islands. Just as dunes of desert sand move with the wind, barrier islands also move with the waves. Even as a hurricane erodes the beaches on the ocean front, it deposits sand on the back side of the island with the storm surge.

Thermal Energy Relief

Earth receives solar radiation most directly along the equator and in the tropics, where most hurricanes are born. Some of this thermal energy is moved around by ocean currents, but most is distributed by movements in the atmosphere, such as hurricanes. A hurricane is fed by evaporation from the surface of a warm sea. When the water vapor rises, it cools and condenses, releasing thermal energy into the atmosphere. A hurricane acts like an enormous chimney, pulling thermal energy up and out.

Coral Reefs

Hurricanes and coral reefs occur in roughly the same latitudes. Coral reefs thrive in sunlit shallow waters. Hurricanes can destroy a reef, but it is thought that a hurricane can also benefit a coral reef community in several ways.

A hurricane can clear away dead organisms and wash debris outward to deeper water. It also sand-scours algae and breaks off fan and branched coral. These actions accomplish two things. First, they create available habitat in a teeming, crowded ecosystem. After a hurricane, colonization can occur where there was no room before. Second, it spreads broken coral to other areas where it can reproduce and colonize new areas.

An effect of overly warm tropical waters on coral reefs is called bleaching. The algae in the coral die, and this destroys the symbiotic relationship corals and algae have. A hurricane stirs deeper, cooler, restorative waters to the coral and helps prevent bleaching.

Applying Critical-Thinking Skills

Directions: *Respond to each statement.*

1. **Predict** one possible pathway of ecological succession on a coral reef that has recently undergone some severe scraping and breakage by a hurricane.
2. **Describe** how a newspaper might report the effects of a massive hurricane going ashore in an unpopulated part of the world.