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5. EGG CARTON CORAL

Egg cartons can be used to construct models of coral colonies showing many aspects of the coral's natural history - including the structure of coral polyps and the coral colony's colonial life style.

Materials: Egg cartons, paper, tape, scissors, markers (especially green)

To make the model:

Begin by cutting a sheet of paper into three strips horizontally. Each strip will become a coral polyp. Roll each strip into a tube about the diameter of your finger. Tape the bottom to keep the tube from unrolling. Tape the bottom of the tube shut.

To make the tentacles of the polyp, make several cuts from the top of the tube, 3/4 of the way to the bottom of the tube.

Get the tentacles to curl by running each fringe over the blade of a scissor or a metal ruler.

To make the shell of the coral, cut the top and closing flap off an egg carton, leaving just the section with the twelve egg cups. Place this upside down on a table and punch a hole in the bottom of each egg cup with scissors.

Insert one polyp tube in each egg cup, pulling it partway through the hole. Tentacles should be on the top of the egg carton.

Using markers you can add small dots on the polyp to symbolize the zooxanthellae. Although they all have chlorophyll, like other plants, zooxanthellae can have a variety of other pigments giving them different overall colors. It is the zooxanthellae that give reef building corals their color; the lime skeleton is white, and the coral polyp itself is largely colorless.

Using the models:

You can talk about many aspects of coral as you construct the models with students. Some important concepts you can illustrate with the models follow.

The large reef is built by the shells of thousands of individual polyps. Although each polyp is a separate animal, the polyps are linked in a colony. The shape of the egg carton suggests the channels that link neighboring polyps. Polyps in the colony share food.

Corals get food in two ways. Small zooplankton are captured by stinging cells on the tentacles. They are then brought into the polyp where they are digested. You can simulate this with the model. The simple digestive cavity of the polyp is basically a hollow cavity, with one open end (surrounded by the tentacles). Coral also get food from their symbiotic algae, the zooxanthellae, which live in their tissue.

During daylight hours, coral polyps pull back as far as possible into their shells, though, of course, they have no way of closing these shells, and living tissue always covers the coral colony. You can show this by pulling the tube back. During the night the tentacles extend to feed.

Extensions:

The egg carton corals can be arched and taped, and added to a coral reef model activity.

Correlation to National Standards from McREL (http://www.mcrel.org) :

Life Sciences

5. Understands the structure and function of cells and organisms
6. Understands relationships among organisms and their physical environment