

Source: Corals and Coral Reefs 4 - 8 Teacher's Guide. A Sea World Education Department Publication. Used with permission.

14. GROWING CORAL

Objective:

Students will observe the growth of crystals that develop in a way similar to how coral polyps create their calcium carbonate cups.

Materials:

plastic bowls (have students bring from home)
pieces of charcoal, porous brick, tile, cement, or sponge
water
table salt (iodized or plain)
liquid bluing (found with bleaches at grocery stores)
food coloring
measuring tablespoons
masking tape
pens
ammonia (to be handled by an adult)
sugar
clear glass

Action:

1. Ask students to label their bowl with pieces of masking tape with their names on them. Have them put some pieces of charcoal, brick tile, sponge, or cement into their bowls.
2. Students should pour two tablespoons of water, two tablespoons of salt, and two tablespoons of liquid bluing over the base material (charcoal, etc.). Set bowls on a table or counter top. Formations need free air circulation to develop.
3. The next day have them add two more tablespoons of salt.
4. On the third day, pour in the bottom of the bowl (not directly on the base material) two tablespoons each of salt, water, and bluing; then add a few drops of food coloring to each piece of base material.
5. A crystal formation should appear by the third day. If not, it may be necessary to add two tablespoons of household ammonia to aid the growth. **(Only teachers or other adults should handle and add the ammonia)**. To keep your formation growing, just add more bluing, salt, and water from time to time.
6. Ask students to describe what they think happened between the bluing, water, and dissolved salt to create the formation. Explain to students that when the three materials combined, a chemical reaction took place and formed a new substance. Tell them that coral polyps, with the help of zooxanthellae, remove dissolved calcium carbonate from seawater and use it to create the stony cup that protects their soft bodies.
7. Demonstrate the concept of a dissolved substance by pouring some sugar into a glass of water. Ask the students if they can see the sugar. Stir the water vigorously for about five seconds. Ask the students if they can see any of the sugar in the water. Stir the solution again, this time for about one minute, or until all the sugar has dissolved. Ask the students if there is still any sugar in the water. Stress that although they can't see the sugar, it's still there, in dissolved form.

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

Life Sciences

5. Understands the structure and function of cells and organisms