

A Chance Of Success



Objective

Students will learn about the physical factors that limit where coral reefs develop.

Materials

For each student group or class:

- 1 die
- Copy of score card

Action

1. Lead students in a discussion about what things might limit where coral reefs develop. Ask them to name some of the conditions they know reef-building corals need in order to survive such as right water temperature; clear, shallow water; strong wave action to bring in nutrients. Write these on the board. Explain to students that a site must meet these criteria for a reef to successfully establish and thrive.
2. Show students the die and explain that they'll be playing a game in which they'll all be coral planula (immature coral polyp) in search of a settling site. Each student will roll the die three times, once for each survival factor.
3. Explain that to survive, they must roll one of these numbers when casting the die for that condition: Temperature = 2,3,4,5 (1 too cold, 6 too hot) Substrate/depth = 1,2,3,4 (5,6, too deep) Wave action = 4,5,6, (1,2,3, too weak to bring in nutrients)
4. Place the score sheet on an overhead, or have a student keep score on the board.
5. Invite students up one at a time to roll the die. (Or to shorten time, students can work in student groups.) Be sure to state what factor they're rolling for each time. If they get a good number for all three rolls, they qualify for the next round.
6. Gather the qualifying planulas in front of the class for the final round. Ask each student the following questions:
 - What are coral temperature requirements?
 - What are depth requirements?
 - Why do reef-building corals need strong wave action?

Those students that can answer the questions are the winning polyps.

7. Remind your students that corals release thousands of eggs and sperm, some which develop into planula. Do they think all the planula survive? Why not? Explain that the reproductive process leans toward high numbers to allow for high mortality. Many planula are eaten by marine animals before they settle and attach to the bottom. By producing hundreds of thousands of eggs at a time, a coral polyp increases the chance that one of its offspring will mature and reproduce, the measure of a species' survival success.

Deeper Depths

Calculate the percentage of planulas that survive each round.

