

Source: Coral Forest Teacher's Guide. Coral Forest, 400 Montgomery Street, Suite 1040, San Francisco, California 94104 Tel: (415)788-REEF FAX: (415)398-0385 e-mail: coral@iqc.apc.org Used with permission.

40. CORAL REEF COMPARISONS

Objective: Students use compiled data to create a variety of graphs and use these graphs to draw conclusions about coral reef populations.

Interdisciplinary Index: Math, Science

Vocabulary: data, species, population, herbivore, carnivore, omnivore

Materials: graph paper, colored pencils or markers, overhead projector and transparencies (optional)

Presentation:

1. Tell students that they are going to compare the number of various coral reef species found on an Australian reef and a Caribbean reef.
2. Put the following data on an overhead or the chalkboard for everyone to see.

% of Total Community		
Species	Australia	Caribbean
Damselfish (herbivore)	18%	20%
Parrotfish (herbivore)	8%	5%
Giant clam (herbivore)	7%	0%
Barracuda (carnivore)	3%	3%
Grouper (carnivore)	10%	15%
Shark (carnivore)	2%	3%
Angelfish (omnivore)	12%	9%
Hard coral (omnivore)	31%	35%
Sea star (omnivore)	9%	10%

(Note: The percentages given here are fictional, and are presented for the sake of comparison only.)

3. Discuss and describe the species listed.
4. Have students construct a bar graph comparing the percentage of herbivores, carnivores, and omnivores which dwell on the Australian reef.
5. Once the graphs are completed, discuss the following questions.
 - Which group accounts for the largest population in the Australian reef? Smallest?
 - What percentage of coral reef life eats plants? (Include both herbivores and omnivores)
 - Predict what would happen to the number of carnivores if the number of herbivores decreased.
 - Predict what would happen to the number of herbivores if the number of carnivores decreased.
6. Repeat steps 4 and 5 using data from the Caribbean reef.
7. Have students construct a bar graph comparing the percentage of each species of herbivore in the Australian reef to the percentage of that species in the Caribbean reef.
8. Repeat this process for the carnivores and omnivores, and discuss any similarities or differences that may occur.

Follow-up/Extension:

Have students average the two percentage figures for each species. Once students have calculated the average, have them graph it on a large piece of paper. Students can then draw pictures of each species represented and arrange pictures and graphs on a bulletin board.

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

Geography

8. Understands the characteristics of ecosystems on Earth's surface

Mathematics

6. Understands and applies basic and advanced concepts of statistics and data analysis