

Aquarius Mission Field Guide

for middle and high school students

activities to accompany “Science Under
the Sea: Philippe Cousteau Live from
Aquarius,” webcast August 25–26, 2005

Student _____

Class _____

Credits

This student field guide for the “Science Under the Sea: Philippe Cousteau Live from Aquarius” was developed by Melinda Fitzgerald and Kelly Sears of Smith Middle School, Chapel Hill, North Carolina, and produced by LEARN NC at the University of North Carolina at Chapel Hill.

This publication is intended for students in grades 6–12 participating in live webcasts scheduled for August 25–26, 2005. It may be freely reproduced for noncommercial use.

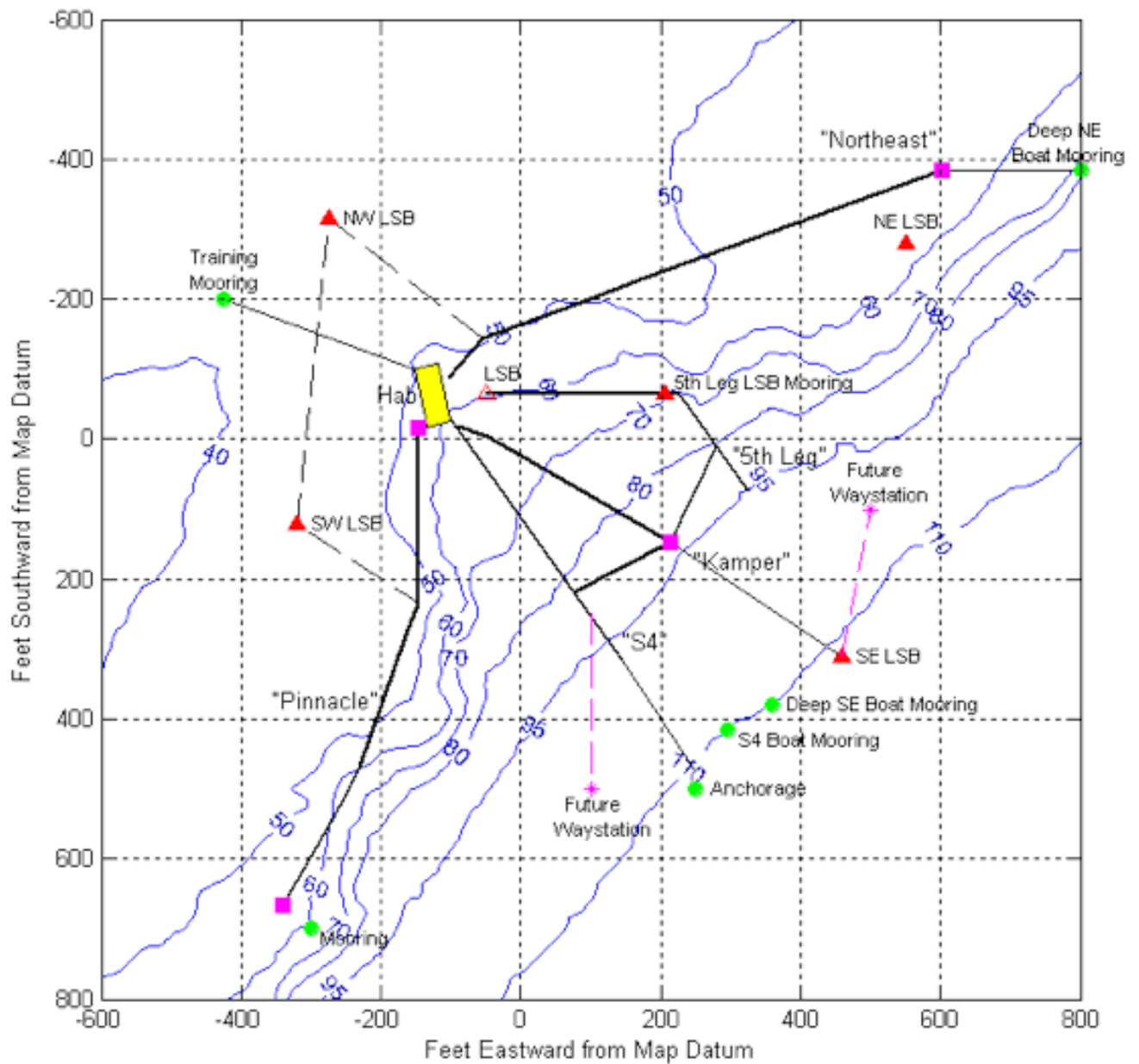
Learn more about Science Under the Sea at www.scienceunderthesea.org.

Marine Ecology Vocabulary

Aquarius	
benthic	
biodiversity	
climate change/ global warming	
coloniality	
coral	
coral bleaching	
coral reef	
ecosystem	
filter feeder	
food chain	
food web	
foundation species (ecosystem engineer)	
habitat destruction	
herbivory	

mangrove forest	
marine ecologist	
marine ecology	
non-point source pollution	
point source pollution	
salinity	
sea level rise	
seagrass community	
sediment	
sponges	
sustainable practices	
symbiosis	
transect	
turbidity	
zooxanthellae	

Map of Aquarius Habitat



Organisms and Habitat Field Notes

Name of organism	Location where it was found	Qualitative (five senses)	Quantitative (number found)

<p data-bbox="251 1024 735 1129">Sketches of habitat and organisms</p>	<p data-bbox="966 1024 1356 1071">Questions for later</p>
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Journal prompts

1. How has your knowledge of coral reefs changed since we began this unit?
2. You are a scientist on Aquarius. Create a journal of your day's work and activities.
3. Choose an organism that you identified living around Aquarius. Writing as that organism, describe how your home has changed in the past few years.
4. Create your own journal prompt. (See the teacher for approval prior to writing your prompt.)

Sustainable Practices Ad

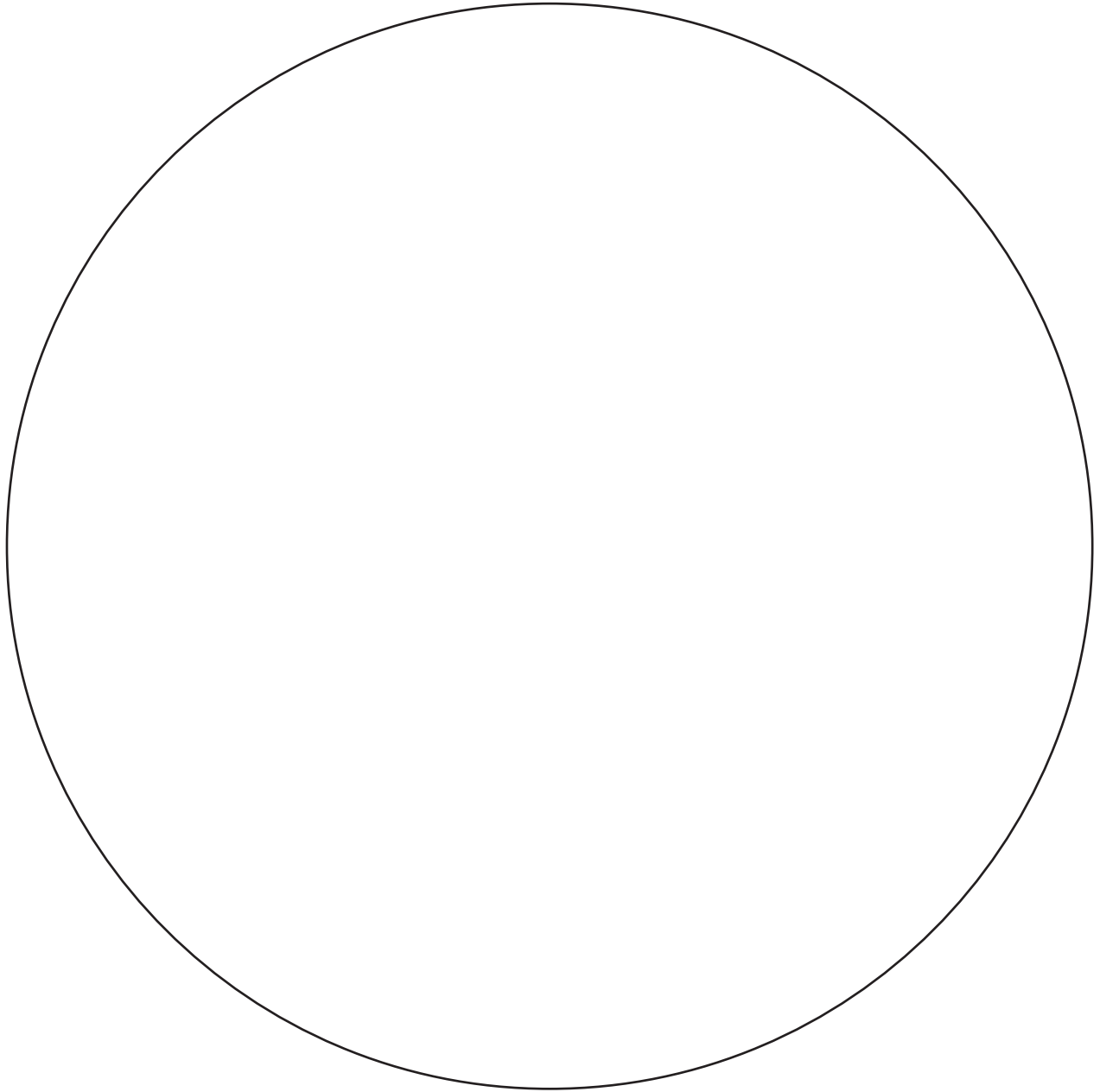
Make an advertisement to encourage sustainable practices. This should include a creative educational message that promotes practices that protect our environment.

Family Graffiti Page

Step #1. Develop 4 questions to ask your family about coral reef habitat destruction. Write your questions in the circle below.

Step #2. Share what was discussed in today's seminar.

Step #3. Have each family member respond to your questions below.



Observations

Qualitative data

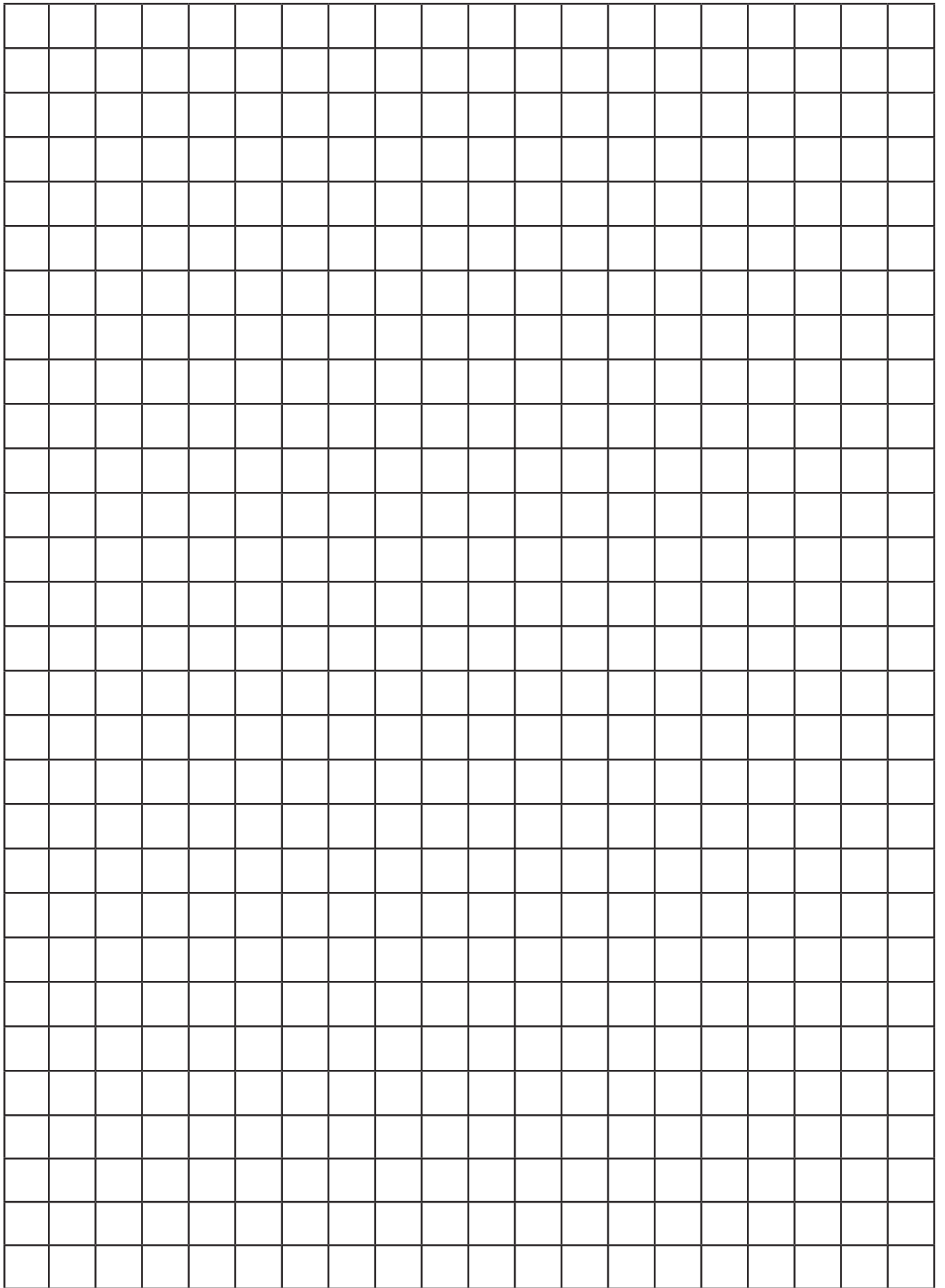
What do you observe with your five senses?

Quantitative data

Using a ruler, draw a data chart below to organize your data collection. Label all rows and columns so it is clear what you will write in each box. Attach separate pages if necessary.

Conclusion

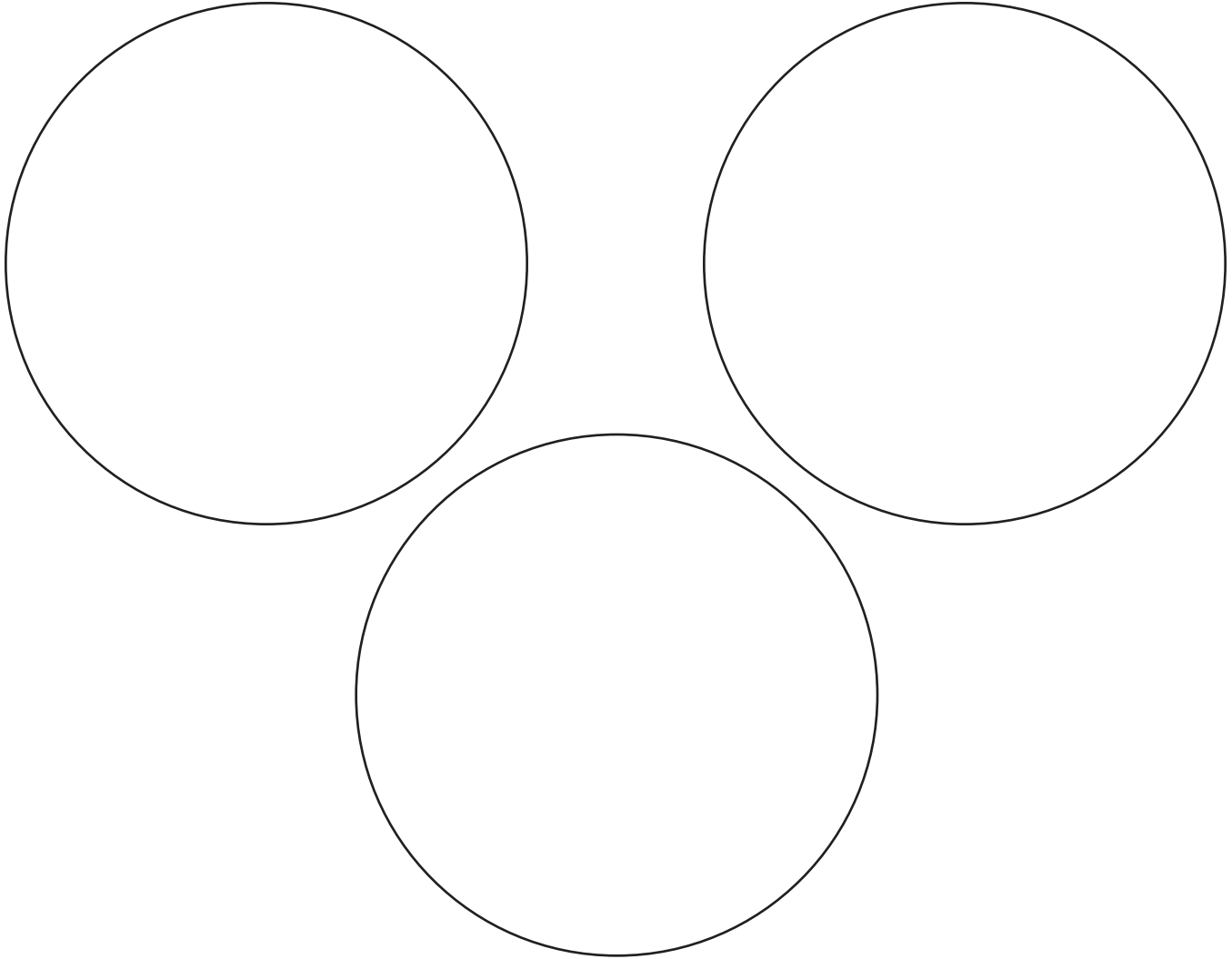
Carefully analyze your data to determine what it is telling you. How can you answer your question?



Journal Activity

Create a marine ecology question that you would like to discuss with others. Ask three other students to respond to your question in each circle and reflect on their responses below.

Question _____



Reflect on the other students' responses. Use the back of this sheet if necessary.

Marine Ecology Crossword

Across

9. The variability of organisms located in a ecosystem.
11. The interrelationship between two different species in which both species benefit
12. Small ant sized marine organism that often live in colonies. Hard coral species produce calcite skeletons that make up the foundation of the coral reef.
13. Simple multicellular filter feeding marine organisms.
14. The pathway that transfers energy from the producers(plants) to the consumers(predators)
15. Earth materials deposited by erosion. Sediment being dumped into the ocean by fresh water runoff have an adverse affect on the coral.
19. A person who studies marine organisms and the marine environment in which they are found.
21. An unknown source of pollution (fertilizer runoff from lawns)
22. Melting of glaciers due to global warming causes the Earth's oceans to expand.
23. The study of the relationship between the organism and the environment as well as the relationship between organisms.
24. A biogenetic structure built over thousands of years by tiny coral polyp that make up colonies. This complex structure allows thousands of other plants and animals to thrive in an otherwise hostile marine tropical desert.
25. A line crossing an area of study on which data is be collected.
27. Shallow sea bottom areas covered by lush growth of flowering plants that have adapted to live submerged in seawater.
28. Single-celled microalgae that have a symbiotic relationship, living within the tissues of coral (They use the coral waste products as nutrients and provide energy to the coral.)

Down

1. The organism that is the major builder of a habitat in an ecosystem. Coral is the foundation species for a coral reef ecosystem.
2. Destruction of the places where animals live through human impact or natural disasters
3. A known source of pollution that can be identified (leak from sewage plant)
4. The study of marine environments and the organisms found in these environments
5. The amount of dissolved salts in water.
6. The interaction of all food chains in an ecosystem
7. The process by which a species lives or grows together.
8. An underwater research facility where scientist can conduct research on the marine ecosystem
10. People live within an environment without over taxing its resources.
14. Animals that obtain their food by filtering particles out of the water.
16. Condition of reduced visibility in water due to the presence of suspended particles.
17. The area of the sea bottom, and all the organisms that live on the sea bottom
18. The process of animals (herbivores) grazing on autotrophic organisms.
19. A tropical inshore community that is dominated by several species of trees or shrubs that grow in salt water.
20. Increase in average global temperature due to building up of gases such as CO₂, NO₂, and chlorofluorocarbons in the atmosphere.
26. Expelling of zooxanthellae from the tissues of reef building corals. Prolonged bleaching can result in coral mortality.

