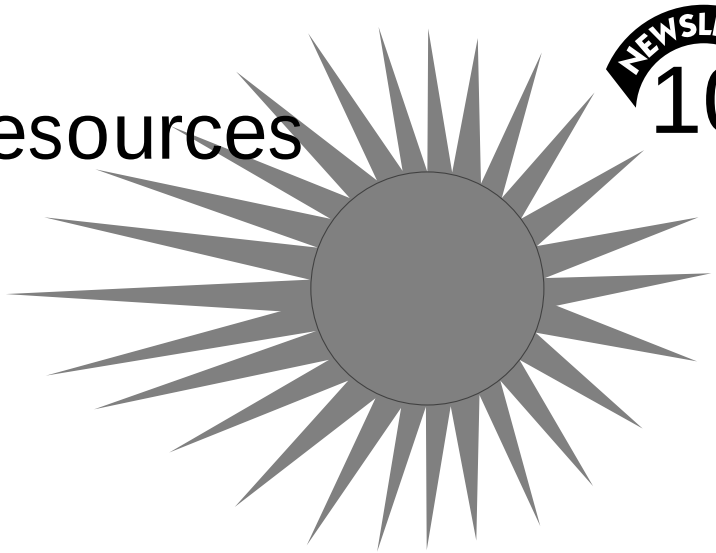
Renewable and Non-renewable Resources

NEWSLETTER 10



Objectives

- understand the difference between renewable and non-renewable resources
- understand that renewable resources must survive long enough to reproduce or they become non-renewable
- identify resources that reef animals need to survive
- understand that renewable resources need protection

Vocabulary

renewable resource
non-renewable resource

Background

Renewable resources can be harvested or collected over and over again. They are living resources, like farm crops and trees, that grow back or renew themselves, cycle after cycle. Non-renewable resources can be harvested or collected only once. They don't renew themselves or grow back. Once used, they are gone forever.

The lobsters, conch and fish of South Caicos Island are renewable resources. But renewable resources like these can quickly become non-renewable resources if they are not cared for properly. To keep their fisheries healthy, the South Caicos fishermen must leave enough lobster, conch and fish behind to reproduce and start the next generation. They must also protect the habitats and foods these animals need to grow to a harvestable size. The information that SFS students at the research site are collecting about conch and lobster will help the fishermen of South Caicos understand and manage their valuable renewable resources.

Materials

Lobster Bingo Worksheets
game pieces such as pennies or paper clips (9 per student)
17 index cards

Activity

Explain that the fish and shellfish of South Caicos are renewable resources. Use the lobster as an example to discuss how these resources are renewed: Lobster babies hatch. With clean water, food and shelter they grow to adults. Fishermen take some of the adults but leave others on the reef to mate and lay eggs. Lobster babies hatch and the cycle begins again.

Ask students to predict what would happen if: fishermen took too many of the adult lobsters, the lobsters could not find clean water, food and shelter, fish ate all the baby lobsters, or sharks ate all the adult lobsters. The Lobster Bingo game (see directions on page 37) will demonstrate how human activities and natural events affect lobsters by impacting three of the things they need to survive: the shelter of the reef, food, and clean water. To play, follow these directions:

1. In advance, label the index cards with the 17 categories described on the bingo worksheet: Reef 1, Reef 2, Reef 3, Clean Water 1-3, Food 1-3, Hurricanes, Anchors, etc. These cards will be used to call the bingo game.

2. Give each student a bingo worksheet and game pieces. Review the instructions for play with them. Emphasize that to get "BINGO!" students must have at least one game piece in each of the three columns. They do not need three in a row.

3. To demonstrate how the game works, call out the following resources and impacts: Food 1 (see Figure 1), Clean Water 2 (see Figure 2), Oil Spill (see Figure 3), Food 2 (see Figure 4), Reef 1, Grass Gone, Shark, Food 3, Reef 2, Hurricane, Clean Water, Sewer, Reef 3, and Clean Water. Discuss each step with students.

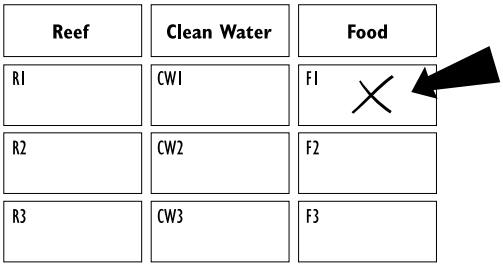


Figure 1

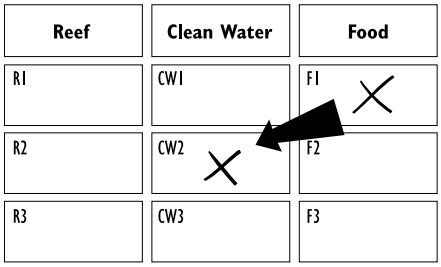


Figure 2

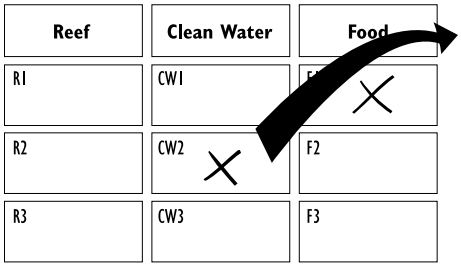


Figure 3

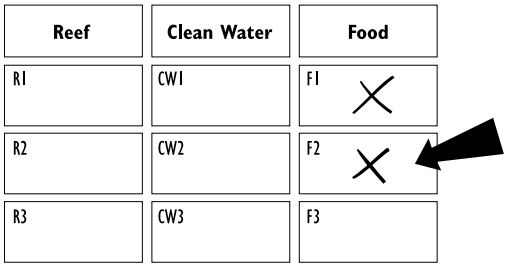


Figure 4

4. Continue to call cards while students place and remove game pieces.

5. When students call "BINGO!" (all students should at the same time), discuss the game. Ask students: Why did it take several tries to get all three of the resources the lobster needs for survival? What calls would you need to play the fastest game (all resources, no impacts)? Would it be possible to never win (run out of resource cards)? In the real world, what can humans do to help lobsters survive? Are there things we can't control?

6. Shuffle cards. Play again. Ask students to describe this game. Was it different from the first? Why?

   Variation: Divide older students into teams of three. Choose a caller, a player and a note taker to record events for each team. Give each team a bingo worksheet and set of call cards. Ask each team to shuffle its cards then start all teams at once. Stop when the first team gets "BINGO!" Ask the winning team to report on the events leading to its win. What events did other teams experience that slowed them down? Could similar situations occur on the real reef?

Extend the Activity

Discuss the concepts of threatened, endangered and extinct. Can students name any animals that fall into these categories? Discuss the habitats, foods, and other survival needs of these animals. Why did some become extinct? Why are others in danger? Is there anything humans can do to save them?

Have students research several world fisheries using library resources. Where are these fisheries located? What is the natural history of each fishery? What fishing methods are used? Is the fishery healthy or in danger? How is it managed? Discuss results. Are there similarities in issues between the various fisheries worldwide?

Lobster Bingo

You are a lobster living in the waters surrounding South Caicos. To survive you need the shelter of the Reef, Clean Water and Food. Get all three and "BINGO!"—you win!

Reef	Clean Water	Food
R1	CW1	F1
R2	CW2	F2
R3	CW3	F3

Directions:

Each time one of the things lobsters need for survival is called, place a game piece in the matching space on your worksheet. For example: When you hear "Reef 1", place a game piece on space R1. "Clean Water 2" would be space CW2, Food 3 would be F3, and so on.

If something that impacts you or the things you need to survive is called, take away pieces as follows:

Hurricanes and **Anchors:** These damage the reef where you live. Take away one piece from the Reef column.

Oil Spills and **Sewers:** These dirty your clean water. Take away one piece from the Clean Water column.

No Grass or **Another Hungry Fish:** There goes your lunch. Take away one piece from the Food column.

Shark or **Fishermen:** You're caught! Take away all pieces.

To win, you must have at least one game piece in each column. You do not need three in a row.