



Marvelous Manatees

4-8 Classroom Activities

Manatee Migration

OBJECTIVE

Students will learn many threats to manatee survival and work together to complete a successful manatee migration.

ACTION

1. Print a copy of the statement cards on the following pages, cut them apart and attach each to an index cards. On the other side of the index card write the statement's number.
2. Measure and mark a 25 x 35 foot rectangle in an open field or parking lot. Using the rectangle, develop a grid that has seven rows and five columns (each grid square will be 5 feet by 5 feet) as shown to the right.
3. Place the index cards face down in the center of the appropriate spaces.
4. Ask the students to break up into two equal-sized groups. Each group will represent a manatee. While one group is playing the game, the other group shouldn't watch.
5. Tell the students that manatees face many obstacles in their environment. Students in each group will take turns trying to find the appropriate migration pathway through the maze. A student in the group will read the card aloud and follow the directions at the end of the card. After each move, a different student in the group will choose. Teams can choose to start at box numbers 1, 2, 3, 4, or 5.
6. If a student selects an obstacle, the team's turn is over and it's the other group's turn to select. If a team selects an -obstacle, they must start from the beginning on their next turn. Students must find the most direct path so they should pay attention and learn from the mistakes of their teammates.

31*	32	33	34	35
26*	27	28	29	30
21	22*	23	24	25
16	17	18*	19	20
11	12	13*	14	15
6	7	8	9*	10
1	2	3	4*	5

Sequence for placing cards in the grid.
* shows the most direct path.

DEEPER DEPTHS

After the game, have the students develop their own board game or activity that emphasizes conservation or human-related threats to manatees.

MATERIALS

- chalk or string
- 35 index cards
- copy of statement cards below

MANATEE MIGRATION STATEMENT CARDS

1. Brrrr. The water temperature has dropped quickly and you're experiencing hypothermia. In 1990, 47 Florida manatees died due to cold weather. Lose your turn!

2. Slow-speed signs are in the area you're going to move through. Boaters are following the speed limit. Take another turn! Move one space in any direction.

3. As you begin your migration, you encounter a closed flood gate. The flood gate won't let you migrate any farther. The water is getting colder and you experience hypothermia. Lose your turn!

4. Disease and parasites have plagued you all summer long. You're too weak to make the long journey back to your winter habitat. Lose your turn!

5. The water temperature is getting colder so you start your migration to warmer waters. You prefer water temperatures above 70F. Take another turn! Move one space in any direction.

6. Industry by-products have been dumped into the river, making the water too acidic for plant life. Since there are no plants to eat, you starve. Lose your turn!

7. You begin your migration too late and fall victim to hypothermia. Lose your turn!

8. As you attempt to swim through a drainage pipe, you get stuck. You'll starve unless someone rescues you. Lose your turn!

9. A school group is cleaning the edge of the river. By cleaning up the fishing line and plastics, there is less chance that you'll become entangled. Take another turn! Move one space in any direction.

10. People are observing you from a distance. They don't disturb you. Take another turn! Move one space in any direction.

11. As you travel through a flood gate, it closes and crushes you. Most flood gates are remotecontrolled and can crush a manatee passing through it. Lose your turn!

12. Poachers hunting for manatee hides and meat spot you. Unfortunately you're no match for their powerful guns. Lose your turn!

MANATEE MIGRATION STATEMENT CARDS

13. You reach an area in the river where most boaters use propeller guards to protect manatees from being injured by the propeller. Take another turn! Move one space in any direction.

14. Someone has dumped pesticides into the water. The pesticides are absorbed into the vegetation you eat and make you very sick. Lose your turn!

15. You've reached an area with boat speed limits. Boaters will now be able to see you more easily which reduces your chance of being hit. Take another turn! Move one space in any direction.

16. A speeding boat passes overhead as you come up to breathe. The propeller blades accidentally hit you and you're severely injured. There were no slow-down signs to warn boaters. Lose your turn!

17. You accidentally ingest fishing line discarded in the river. The fishing line doesn't break down and causes digestion problems. Lose your turn!

18. Someone has accidentally left his/her hose on near the shoreline. You enjoy the drink of fresh water. Take another turn! Move one space in any direction.

19. You have become entangled in a crab trap. The nylon cord has wrapped around your pectoral flippers making it impossible to reach the surface to breathe. Lose your turn!

20. Someone has discarded used motor oil in the river. You accidentally eat some plants with oil on them and become very sick. Lose your turn!

21. Toxic chemicals used as pesticides have been sprayed on vegetation you have eaten. Your body can't get rid of the toxins and you become very ill. Lose your turn!

22. You have been released after successful rehabilitation from an injury. A rescue team from SeaWorld took care of you as you regained your health. Take another turn! Move one space in any direction.

23. Development along the river has altered the environment. Vegetation you need for food no longer exists. You can't continue your migration until you find food. Lose your turn!

24. You have found a large growth of water hyacinth, one of your favorite plants. You eat 100 lb. of the tasty vegetation and continue your migration. Take another turn! Move one space in any direction.

25. The river has been dammed and you can no longer pass upstream. You won't be able to reach your refuge. Lose a turn!

26. You swim into a manatee sanctuary. Sanctuaries are areas free from human-related threats (such as boats) to your survival. Take another turn! Move one space in any direction.

MANATEE MIGRATION STATEMENT CARDS

27. Swimmers in the river harass and scare you. As you swim to escape, you become disoriented and don't follow your normal migration route. Lose your turn!

28. You observe a boater driving slowly and wearing sunglasses to help spot manatees. The boater's thoughtful driving has prevented your injury. Take another turn! Move one space in any direction.

29. The power plant that supplies the warm water for your winter refuge has closed down. Soon the water will be too cold and you'll have no place to live. Lose your turn!

30. You have become entangled in fishing line. The fishing line is wrapped around your pectoral flippers and is cutting into your skin. A serious infection is soon to follow. Lose your turn!

31. CONGRATULATIONS! You've successfully completed the migration to your winter refuge. Over 200 manatees may congregate at one refuge.

32. While you're eating in a shallow area, a speeding boat accidentally hits you. Unless you receive medical attention, you will not survive the injury. Lose your turn!

33. A speeding boat accidentally hits you while you surface to breathe. Although the propeller doesn't cut you, the impact breaks your ribs and punctures your lung, which makes you sink. Lose your turn!

34. Your refuge has been destroyed by human development. You have no place to spend the cold winter months. Lose your turn!

35. A scuba diver harasses you. In an attempt to flee, you become disoriented and lose your normal migratory route to the refuge. Lose your turn!



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4-8 Classroom Activities

Manatee Awareness Survey

OBJECTIVE

Students will conduct a survey to investigate the public's manatee awareness and interpret the results in graph form.

ACTION

1. Have your students bring graphs from newspapers and magazines to class. Discuss with your students what graphs are and what information they give us.
2. Conduct a sample survey with your class by asking them to vote for their favorite ice cream flavor: a) chocolate b) strawberry c) other
3. Create a simple bar graph on the board showing the results of the class survey.
4. Divide students into groups of four to five. Have them create four survey questions to investigate how much people know about manatees (review and approve questions). It will be easier for students to graph results if people are given three ways to respond: two answers and a "don't know" category. For example: How many manatees do you think live in Florida? a) more than 2,000 b) less than 2,000 c) don't know
5. Have students survey people at school, home, and in their neighborhood. Encourage them to poll at least 10 people of different ages, and record the ages as they collect their data.
6. Let the students tabulate and graph the responses using the bar graph method. Ask them to make separate charts for each question, showing how people in different age categories answered (they might use 0-15 years, 16-30 years, 31-50 years, and over 50 years as categories).
7. Have the groups create colorful, final graphs to present to the class. As each group makes its presentation, try to track which age group knew the least and which age group knew the most about manatees.
8. Have each group develop a manatee awareness plan for the age group they surveyed that knew the least about the manatee. Posters, flyers, newspapers, or audio-visual presentations can be created to educate the group that scored the lowest on the survey.

DEEPER DEPTHS

Using a computer spreadsheet package, have each student create graphs using the information they have gathered. Bar graphs, line graphs, or pie graphs can be created on most software spreadsheet packages. Submit the graphs and an article about the data to the school or local newspaper.

Using a bulletin board, have the students develop a graph that compiles all the data they collected on all the groups. Discuss the variation of data between groups.

MATERIALS

- paper
- pencils