

Third Grade Manatee Curriculum—Lesson 13: Manatee Migration Activity¹

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Description

Students will learn about factors that can affect manatees in their migration to find warm water in the fall and winter months. Students will work together to complete a successful manatee migration.

Standards Addressed

Florida—SC.3.L.17.1 ; SS.3.C.2.1

Objective

By the end of the activity, students will be able to list at least three threats to manatees and at least two actions that can help protect manatees.

1. This document is VM216, one of a series of the Veterinary Medicine—Large Animal Clinical Sciences Department, UF/IFAS Extension. Original publication date July 2015. Revised October 2018. For more lessons in the *Third Grade Manatee Curriculum* series, go to http://edis.ifas.ufl.edu/topic_series_third_grade_manatee_workbook. Visit the EDIS website at <http://edis.ifas.ufl.edu>.
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Vocabulary (definitions from Merriam-Webster's School Dictionary)

Word	Definition
Acid	a compound that usually dissolves in water, has a sour taste, reacts with a base to form a salt, and turns litmus paper red
Acidic	acid-forming
By-products	products or results produced in addition to the main product or result
Digestion	the process of digesting something; especially food
Discard	to get rid of as useless or unwanted (throw away)
Disease (illness)	an abnormal bodily condition of a living plant or animal that interferes with functioning and can usually be recognized by signs and symptoms
Entangled	Tangled up; wrapped up in something that prevents normal movement
Floodgate	a gate (as in a canal) for controlling a body of water
Harass	to annoy persistently
Hide (skin)	the skin of an animal
Hypothermia	reduction of the body temperature to an abnormally low level
Impact	to hit or cause to hit with force
Migration	passing from one region or climate to another usually on a regular schedule for feeding or breeding or because of temperature requirements
Parasite	A living thing that obtains benefits from another living thing (the host) which is usually harmed in some way
Pectoral flipper	either of a pair of flippers that correspond to the front limbs of a four-footed animal
Pesticide	a substance used to destroy pests such as insects that damage plants
Propeller	a device consisting of a hub fitted with blades that is made to turn rapidly by an engine and is used especially for propelling airplanes and ships
Propeller guard	A device that fits over a propeller to prevent the sharp edges of the blades from being able to cut anything
Refuge	a place that provides shelter or protection
Rehabilitate	to restore to a condition of health
Sanctuary	a place that provides shelter or protection
Toxin	a substance (produced by a living organism) that is very poisonous to other organisms
Vegetation	plant life

You Will Need

- Area of floor approximately 10 feet wide and 20 feet long
- *Optional:* 2' × 2' foam mat pieces and masking tape
- Manatee migration cards—printed on card stock, with the number written on the back of the card stock (after the Strategy section of this lesson)

Strategy

1. Clear a large floor area
2. Connect 35 foam mat pieces to make a grid that is five squares wide by seven squares tall. (See picture below; note that numbers in bold are those which will allow students to take another turn.) Alternately, use masking tape to mark off a grid on the floor, or simply use floor tiles to set up the grid—in these cases, each square in the grid should be 2' x 2'.

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

3. Place the appropriately-numbered Manatee Migration Card on each square so the number is facing upwards. (If you need to print out these cards, print them on card stock, if available, and cut the sheets in half. On the blank side, write the number that corresponds to the statement on the other side of the card.)

4. Break the students into two equal-sized groups. Each group represents a manatee.
5. Explain to the students that they represent manatees that are getting ready to start their winter migration. Ask the students why the manatees might need to migrate in the winter. (Answer: to get to warmer water). Tell the students that manatees face many obstacles in their environment. Explain that students in each group will take turns trying to find the appropriate migration pathway through the maze. Teams can choose to start at box 1, 2, 3, 4, or 5.
6. The first student from the first team will select the card 1, 2, 3, 4 or 5. They will stand on that square, turn the card over, and read it aloud. The student should return the card, number upwards, to the mat. If the card directs the student to take another turn, they can move one square in any direction (including diagonally). They will repeat the process until they “miss a turn.” At that point, the student must replace the card, leave the mat, and the other team will take a turn. Teammates can help each other by suggesting which direction the player should move.
7. Each student will start at the very beginning (i.e., at square 1, 2, 3, 4, or 5). Everyone will need to pay attention so they can remember which the “safe” squares are, and which ones to avoid when it is their turn to choose. There are some “dead ends” in the game.
8. Teams will take turns until one of the teams manages to end up at the card that says, “CONGRATULATIONS!”
9. At the end of the game, provide an opportunity to review some of the good and bad things that happened to the manatees. Ask students to think of ways that some of the bad things could have been prevented (especially if they were related to human actions).

Manatee Migration Game

1. Brrr! The water temperature has dropped quickly, and you are experiencing hypothermia. Between 2000 and 2009, an average of 31 manatees per year died due to cold weather. In January 2010, 77 manatees died from the cold! Lose your turn!
2. Slow-speed signs are in the area you are 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 floodgate. The floodgate won't let you migrate any further. 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!

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 will 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 will 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 remote-controlled and can crush a manatee passing through them. Lose your turn!

12. Poachers spot you when they are hunting for manatee hides and meat. Unfortunately, you are no match for their powerful guns. Lose your turn!

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 plants that you eat, making you very sick. Lose your turn!

15. You have 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 are severely injured. There were no “slow speed” signs to warn boaters. Lose your turn!

17. You accidentally eat fishing line discarded in the river. The fishing line does not break down in your stomach and causes digestion problems. Lose your turn!

18. A small creek drains into the coastal waterway. You enjoy a 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 (side) 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 plants you have eaten. Your body cannot 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 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. Plants you need for food no longer exist. You cannot 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 pounds of these tasty plants 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 will not be able to reach your refuge. Lose a turn!

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

27. Swimmers in the river harass and scare you. As you try to escape, you become confused and do not 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 will have no place to live. Lose your turn!

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

31. CONGRATULATIONS! You have successfully completed the migration to your winter refuge. Over 200 manatees may gather at one refuge.

32. While you are 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 when you surface to breathe. Although the propeller does not 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 confused and lose your normal migratory route to the refuge.
Lose your turn!