

Dolphins and Whales of Abaco Island

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Lesson Title: Understanding How Researchers Study Dolphins

Grade Level: 11-12th grade

Content Area: Marine Science

Time Allotment: 3 classes 55 minutes each

1. lecture about dolphins characteristics– PowerPoint
2. brainstorm how students could study dolphins in class
3. student computer activity

Academic Standards Addressed

California High School Science Standards

Experimentation and Investigation 1a and 1m

Abstract

During the Cetacean unit students will participate in a focused section that demonstrates how scientists study dolphins. Students will learn about the bottlenose dolphin, *Tursiops truncatus*, its habitat, feeding behavior, population issues and lifestyle. The class will discuss how a scientist can study marine mammals followed with small group research about discussed techniques which are shared the next day in class. The students will then go through a computer activity where dolphins are identified by their dorsal fins.

Goal:

Students will be able ...

1. Understand ecology of the bottlenose dolphins
2. To learn about ways to study marine mammals
3. to understand survival issues facing marine mammals
4. to practice identifying dolphins from a population of known animals

Performance indicators

Students will demonstrate....

1. knowledge of the bottlenose dolphin
2. knowledge of how to study dolphins
3. how to identify bottlenose dolphins by their dorsal fins

Background information

Students will need to know about marine mammal and different types

Materials

Bottlenose dolphin ecology PowerPoint

How to identify a bottlenose dolphin worksheet

Technology

LCD projector to show PowerPoint

Computer to develop PowerPoint

Computer lab so each student can do research and identify dolphins

Instructional procedure

1. Introduction

- a. What is a bottlenose dolphin? List and discuss their characteristics
- b. Basic bottlenose dolphin ecology lecture
 - i. how do they feed
 - ii. Habitat
 - iii. Social behavior
 - iv. Myths
 - v. human impacts

2. Activities

- a. in small groups brainstorm how a scientist could study dolphins
- b. Share each group's ideas about how to study dolphins
- c. present to class
 - i. pictures of dorsal fins
 - ii. why study dolphins
- d. computer activity
 - i. students use a website to learn about techniques to study dolphins.

3. Closure

- a. students will take a quiz that assesses what a bottlenose dolphin is, ecology and how to study these animals

Assessment

Computer activity is graded for completion and quiz in overall correctness

Connection to other content areas

English- Students could write a persuasive essay explaining how humans impact dolphins through research

Math- students could study population numbers and graph changes

Extensions

Students could study all dolphin species to develop their own ideas about how the species compare and contrast through student presentations

Acknowledgements

Website: Cardigan Bay Marine Wildlife Center, <http://www.cbmwc.org/home.asp>

Textbook: Castro and Huber. Marine Biology.

How are Dolphins Studied?



Expectation Question:

What do you expect to learn from this activity?

Procedure:

1. Go to <http://www.cbmwc.org/home.asp> to start learning about how scientists study dolphins and other marine mammals
 - A. Click on *Research Tab* answer question 1
 - B clicks on *Photo ID* tab under Research Methods and answer 2-3
 - C. Under Photo ID tab do click on the *interactive game* to practice Identifying a dolphin. Then answer number 4
 - D. Click on Research Tab and go to Research methods and click on *Line Transect*. Answer questions 5-6
 - E. Click on Research but this time do look under Interactive and click on *Wildlife survey*. Answer questions 7-12
 - F. click on Research and click on Sound recordings. Answer questions 13-16
 - G. Click on Research and then click on *T pod* under research methods. Answer question 17

Questions

1. What are the 5 research methods techniques mentioned under the Research tab
 - A
 - B
 - C
 - D
 - E
2. Researches study the _____ on dolphins because it shows _____ and _____
3. The data gathered from photo ID can be used for estimations of _____ and in many different studies, including _____ and _____, _____ and _____.
4. The dolphin number in Red was _____. Describe the steps you need to do to photo identify a dolphin.

5. What do line transects useful for?

6. Compare Effort and Sighting data recording

Effort	sighting
What is recorded here?	What is recorded here?

7. How is the line transect chosen? _____

8. During the transect event from reef buoy to Ynys-lochtyen buoy. Define sea state.

9. What occurs at the second event during transect?

10. What occurs at the third event? Why do you record this type of data?

11. What did you learn about the species in the fourth event?

12. Describe how the seals are studied during the transect? Is this the same or different from dolphins?

13. Sound plays a vital role in the lives of dolphins and porpoises. They use echolocation to _____ and to find objects, such as _____ and _____. In addition, bottlenose dolphins use signature whistles, which are _____ unique signals, used to _____, especially important for mother-calf pairs

14. Why is sound pollution a problem for dolphins?

15. What is a spectrogram?

16. How are the 3 spectrograms different?

17. How are T pods an important new change in how dolphins are studied?

Conclusion:

1. Did you learn what you expected? _____
2. Explain what new understanding about studying dolphins you learned in a paragraph.