

9-12 Marine Mammal Debate Activity



Overview

Focus Question

What marine mammal topics are popular in debates?

Activity Synopsis

Students will participate in small group debates. Students will learn how to research current controversial topics, find scientific and professional research that supports their side of the issue, organize arguments into a logical structure, and effectively communicate their point of view to the rest of class. Students will also have to listen objectively and vote on other topics presented during class.

Time Frame

Three to five 60 minute sessions

Objectives

The learner will be able to:

- Find credible articles to support their role
- Critically think through their topic
- Orally present their arguments in an organized and logical manner
- Successfully work within a team setting to present their position to the class
- Objectively analyze the positions presented

Student Key Terms

- Credibility
- Debate
- Dolphin encounter
- Human care
- Marine mammal
- Offshore drilling

Teacher Key Terms

- Argument

Standards

South Carolina College- and Career-Ready Science Standards 2021

Biology: B-LS2-7, B-LS4-5, B-LS4-6

* **Bold standards are the main standards addressed in this activity**

2014 Academic Standards and Performance Indicators for Science

Biology: H.B.1A.1, H.B.1A.4, H.B.1A.6, **H.B.1A.7**, **H.B.1A.8**, H.B.1C.1, H.B.6D.1

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South Carolina College- and Career-Ready Science Standards 2021

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Biology Performance Expectations

B-LS2-7 Design, evaluate, and refine a solution for reducing the impacts of human activities on biodiversity and ecosystem health.

B-LS4-5 Evaluate the evidence supporting claims that changes in environmental conditions may result in (1) increases in the number of individuals of some species, (2) the emergence of new species over time, and (3) the extinction of other species.

B-LS4-6 Create or revise a simulation to test a solution to mitigate adverse impacts of human activity on biodiversity.

2014 Academic Standards and Performance Indicators for Science

Biology Performance Indicators

H.B.1A.1 Ask questions to (1) generate hypotheses for scientific investigations, (2) refine models, explanations, or designs, or (3) extend the results of investigations or challenge scientific arguments or claims.

H.B.1A.4 Analyze and interpret data from informational texts and data collected from investigations using a range of methods (such as tabulation, graphing, or statistical analysis) to (1) reveal patterns and construct meaning, (2) support or refute hypotheses, explanations, claims, or designs, or (3) evaluate the strength of conclusions.

H.B.1A.6 Construct explanations of phenomena using (1) primary or secondary scientific evidence and models, (2) conclusions from scientific investigations, (3) predictions based on observations and measurements, or (4) data communicated in graphs, tables, or diagrams.

H.B.1A.7 Construct and analyze scientific arguments to support claims, explanations, or designs using evidence and valid reasoning from observations, data, or informational texts.

H.B.1A.8 Obtain and evaluate scientific information to (1) answer questions, (2) explain or describe phenomena, (3) develop models, (4) evaluate hypotheses, explanations, claims, or designs or (5) identify and/or fill gaps in knowledge.

Communicate using the conventions and expectations of scientific writing or oral presentations by (1) evaluating grade-appropriate primary or secondary scientific literature, or (2) reporting the results of student experimental investigations.

H.B.6C.1 Construct scientific arguments to support claims that the changes in the biotic and abiotic components of various ecosystems over time affect the ability of an ecosystem to maintain homeostasis.

H.B.6D.1 Design solutions to reduce the impact of human activity on the biodiversity of an ecosystem.

Cross Curricular Standards

South Carolina College and Career Standards for ELA

Inquiry (I) – 1.1, 2.1, 3.3, 3.4

Reading (RI) – 11.1, 11.2, 12.1, 12.2, 12.3

Writing (W) – 1.1, 2.1, 3.1

Communications (C) – 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 2.1, 2.2, 2.4, 4.2, 5.1, 5.3

Background

Key Points

Key Points will give you the main information you should know to teach the activity.

- **Marine mammals** are a large topic for concern with many issues.
- Dolphins, and other marine mammals, are common **debate** topics because of many controversial issues such as intelligence, space needed, rehabilitation potential and more.
- According to the American Debate League, "A debate is an organized **argument** or contest of ideas in which the participants discuss a topic from two opposing sides".
- **Credibility** is defined by Dictionary.com as the "quality of being believable or worthy of trust."
- The debate topics for this activity are: (1) should marine mammals be kept in **human care**, (2) should **dolphin encounters** (swimming with the dolphins) be allowed and lastly (3) should **offshore drilling** be allowed.

Detailed Information

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Detailed Information gives more in-depth background to increase your own knowledge, in case you want to expand upon the activity or you are asked detailed questions by students.

Marine mammals can be found in all of the world's oceans and in all types of water. They are vertebrates (have a backbone) with the following characteristics:

- Warm-blooded
- Breathe air
- Give live birth
- Nurse young with milk
- Have hair

What separates marine mammals from other mammals is that they live in or by the ocean.

Marine mammals are endothermic or warm-blooded. This means that their body temperature is kept at a constant and not controlled by its environment. They are air breathers, using a lungs to breathe. Some species of marine mammals have a blow hole/s, an adaptation that allows them to breathe more efficiently at the surface of the water. Marine mammals have internal fertilization, resulting in a baby through live birth that was nourished by a placenta while in the womb. Mother marine mammals will nurse their young and take care of them for up to a few years depending on the species. All marine mammals live in the ocean with a few exceptions, such as the river dolphins. Some species, like the bottlenose dolphin, also have the ability to live in brackish water, where salt and fresh water mix. Some marine mammals like those within the order Carnivora have hair for their entire life, while others like order Cetacea may only have hair as a newborn that quickly falls out.

Taxonomy

Marine mammals include animals from three orders: Cetacea, Carnivora, Sirenia. The order Cetacea includes the whales, dolphins and porpoises which includes about 89 living species. This order is divided into two suborders: Mysticeti and Odontoceti. Mysticeti are baleen whales such as humpback and North Atlantic right whales. Odontoceti are toothed whales such as dolphins and orcas. Order Carnivora is divided into many suborders including over 280 placental mammal species. Two of the Carnivora suborders have marine mammals including about 35 species. Those are Pinnipedia or 'flipper-footed' that includes seals and sea lions and Fissipedia or 'paw/pad-footed' including polar bears and sea otters. The order Sirenia or 'sea cows' is comprised of two aquatic, herbivorous families, the Dugongs and Manatees, and there are just 4 living species.

Debates

Marine mammals have forever been a huge topic for debate. (1) Should marine mammals be kept under **human care**, (2) Should **dolphin encounters** (swimming with the dolphins) be allowed and lastly (3) Should **offshore drilling** be allowed? These are just 3 of the major topics that can be talked about with marine mammals. The goal of this activity is to introduce students to current controversial topics, teach students how to research for unbiased sources of information and for students to objectively listen to both sides of a topic to make an informed decision.

According to the American Debate League, "A **debate** is an organized **argument** or contest of ideas in which the participants discuss a topic from two opposing sides". The groups is divided into a "Pro", or supporting, side and a "Con", or opposing, side. Both sides will need to work within their group to develop an organized way to present the evidence and examples that support their side of the argument. Each side is working toward the same goal, which is to provide the most convincing arguments to win the debate. In a formal debate, the winner is chosen by a mediator, a person who is neither Pro or Con, and in our case the teacher of the class.

One important term to define for debates is **credibility**. Dictionary.com defines credibility as the "quality of being believable or worthy of trust". As students research their debate topic, they may find themselves asking, 'what is a credible source?' Many students, and even professionals, can have a hard time finding credible sources. This activity will serve as an introduction to finding credible sources. The following information, based on Kathy Schrock's 5 W's of Web Site Evaluation (<http://www.schrockguide.net/information-literacy.html>), describes what a credible source should contain:

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The Five Ws of Source Evaluation

Who? Who is the author of this source?

- Is the author's name listed?
- What are the author's qualifications? How do they relate to this topic?
- Is this information published by an organization or company?

What to look for online: An author credited on the page; information about the author (or search for further information outside the site); an "About" page or something similar to learn more about the publisher of the site.

What? What is the purpose of this source?

- Is the information accurate and free of bias?
- Is the source objective?
- Does the author provide a list of sources of works cited?

What to look for online: An "About" page or something similar can give insight into purpose; unprofessional language; links to outside sources.

When? When was this published?

- Is this source current enough for your topic?
- On the web, has the site been updated?

What to look for online: Date of publication or last update, sometimes found at the bottom of the page. Note that the copyright date is not an indication of when the page was published or updated. Look for current links to outside sources.

Where? Where is this source from?

- Is it from a scholarly, popular or trade or other type of publication?
- On the web, is this source from the government or educational institution?
- Where can I find more information about the sponsors or publishers of this source?

What to look for online: Domain name can help you identify government or educational pages (.gov, .edu). The "About" page or something similar should give information about the sponsors or publishers. It would be good to do some outside searches to learn more.

Why? Why use this source?

- Does this source add something new to your research?
- Does it seem like a credible and reliable source based on the other criteria?

Remind students that finding credible sources is vital to understanding all sides of an issue and that this is a skill they will use in all fields of work.

Debate Rules

The goal of a debate is to introduce students to controversial topics, how to research unbiased sources of information, and for students to objectively listen to both sides of a topic. During this activity, the debate will be a blend of several types, mainly the Lincoln-Douglas debate and a tag-team debate. In this type of debate the opposing sides will have a chance to counter arguments presented by the other team in an organized way but each person of the group will have the opportunity to speak before the end of the debate. Here are the steps:

Step 1: The Presentation (3-5 minutes)

The beginning of the debate is for each side to present their take on the topic. Both groups will have a turn and every student in each group will speak. The affirmative side will start first. One student will introduce the affirmative side by starting with one argument and talk for no more than a minute. Before their minute is up, the student will need to 'tag' a teammate to continue the presentation. This will continue until all students in the group present their stance on the topic. This process will then be repeated for the Opposing side. The presentation is designed in this matter to ensure all group members have an equal chance to talk.

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Step 2: The Debate (5-10 minutes)

During this section, the affirmative team has a chance to pick one topic from the Opposing team's presentation to argue. The affirmative team will be given two minutes to discuss with the team members what evidence they have against the chosen topic and how they would like to proceed. One student will speak for the group, presenting their thoughts.

The Opposing side will then gather as a group to decide how to counter the affirmative group's topic. They will work as a team to gather evidence from their research and have one student to will speak for the group.

This procedure will go back and forth until time is up. One thing to note is that a student cannot be chosen to present their team's view a second time until every team mate has spoken for a first time. Once all students have spoken, a student can be chosen again if time allows. This ensures that all students are given the chance to speak for their team. It is also helpful to remind students during their preparation time to work as a team and share their research so all can effectively defend their stance.

Step 3: The Verdict (3-5 minutes)

After the debate finishes have the opposing teams shake hands and then take a minute to decide as a group one thing the other side did well during the presentation/debate. Then the class (comprised of the other 2 debate groups) will vote on which side gave the more persuasive argument and a verdict will be issued.

The whole process for one topic should take 15-20 minutes so all three topics should be able to be debated within the last class session. If all stays within time, there should be a few minutes at the end of class for questions, comments and self-evaluations. Part of the self-evaluation is the pre and post-debate stances for each student. Poll students to see if their viewpoint changed from the beginning of the assignment.

The teacher's role is to moderate the debate, make sure everyone has a chance to speak, be in charge of the time but also to give the students the freedom to come to their own decision on each topic. The teacher will also enforce the debate rules. Here are common debate rules:

- Do not interrupt the other team and speak only when it is your turn
- Speak clearly and slowly
- Do not use inappropriate language
- Refrain from using accusatory language or making arguments personally
- Present information in a professional manner

Debate Topics

Each topic below will have some principle arguments for each side. Students can use these arguments as a starting point. They may use these arguments or create their own.

Topic 1: Should marine mammals be kept in human care?

Affirmative	Negative
Many come in with injuries due to humans. Need a facility to care for them or stranded marine mammals would be euthanized.	Needs more space
Learn more about species	Needs mental stimuli
Educate public on best behavior when interacting in the wild with marine mammals	Family separated
Inspire next generation	Shouldn't be made to perform
Enrichments to stay healthy	What about sea pens/sanctuaries?

The above arguments introduce both sides of the topic and were taken from articles listed under the Resource section. Students can start with these arguments but should further research their specific side. Remind students to find credible sources while also anticipating questions from the opposite side.

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Topic 2: Should dolphin encounters (swimming with the dolphins) be allowed?

Affirmative	Negative
Emotional connection to animals (especially if no longer in zoos/aquariums) so people will protect what they love	Disturbs animals when sleeping
Education on ecosystems	Animals become accustomed to boats and teaches illegal behavior to guests
Umbrella species: If you protect an apex predator you protect all the species that support it	Dangerous to the animals

The above arguments introduce both sides of the topic and were taken from articles listed under the Resource section. Students can start with these arguments but should further research their specific side. Remind students to find credible sources while also anticipating questions from the opposite side.

Topic 3: Should offshore drilling be allowed?

Affirmative	Negative
Creates domestic jobs	Destructive to environment and animals
Self-sustainable/not relying on international trade	Amount of oil available not worth the energy and risk
Society needs current fuel type	Should look into alternative energy sources

The above arguments introduce both sides of the topic and were taken from articles listed under the Resource section. Students can start with these arguments but should further research their specific side. Remind students to find credible sources while also anticipating questions from the opposite side.

Procedure

Materials

Class Period 1- Debate Introduction

- [Intro Presentation](#)
- [Debate Worksheet](#) (one per student)
- [Debate Topic Cards](#)
- Paper
- Writing utensils

Class Period 2-4 – Debate Preparation

- [Debate Worksheet](#) (same as above)
- Computers with internet access
- Paper
- Writing utensils

Class Period 5 - Debate

- [Debate Worksheet](#) (same as above)
- Timer (www.online-stopwatch.com)
- Writing utensils
- 6 [Debate Grading Rubrics](#) (one per group)

Procedures

Class Period 1 – Debate Introduction

1. Pass out the Debate Worksheet.

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2. Start by using the Intro Presentation to go over general debate information and introduce the activity.
 - Make sure students know and understand what a debate is (slide 2).
 - Have students respond the Journal Prompt on the presentation (slide 3) “what is a credible source and how do you know?” and record their answer on the Debate Worksheet (Worksheet #1).
 - Talk about credible sources and how to find them. More info in detailed background section (slide 4).
 - Introduce the debate topics and ask students to record their stance as pro or con on each debate topic in the Debate Worksheet (slide 5, Column 1 on Worksheet #6).
 - Go over the rules of debate, making sure students have a clear understanding of acceptable debate behavior (slide 6).
3. Divide the class into 6 groups and assign topics and roles (3 topics, 2 argument sides per topic = 6 groups). Students should list their topic and circle Pro or Con on their Debate Worksheet (Worksheet #2)
4. If time allows, let students talk through their topic and come up with a research plan.

Commented [CL1]: RO: Reflective Observation

Class Period 2-4 – Debate Preparation

1. Break class into assigned groups for planning and research time. They should fill out their Debate Worksheet as they research and plan (Worksheet #3-5)
2. Make sure to check-in with each group to assess how they are handling the assignment.
3. Let groups practice their introductions and arguments with the teacher so all group members understand and feel comfortable presenting the arguments.

Commented [CL2]: AC: Abstract Conceptualization

Commented [CL3]: AE: Active Experimentation

Class Period 5 – Debate

1. Make sure to have 6 Debate Grading Rubrics so you can grade as you watch and monitor debates.
2. Review the rules of debate with the students (*the debate rules are found in the detailed information section*).
3. Be sure students have their Debate Worksheets in front of them as well as a writing utensil. During the debates, students should record on their worksheet (Worksheet #6):
 - Pro arguments
 - Con arguments
 - Final stance
4. Each debate topic should have 15 minutes to debate. Monitor the debates to keep them on pace and following the debate rules.
5. Be sure each group shakes hands at end of debates.
6. Have students turn in their Debate Worksheet for a grade.

Follow up Questions

- Similar to researching a credible source, how can you tell when a business or organization is responsible?
- What is your favorite restaurant and why? (*do they provide good customer service and reliability?*)
- What can you do if you feel that you need to speak out on a topic?
 - At school?
 - At home?
 - In life?

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Assessment

Assessment #1:

Grade the student Debate Worksheets submitted at the end of the activity.

Scoring rubric out of 100 points

Correctly define a credible source:	10 points
Correctly lists debate topic and circles pro/con:	5 points
Lists 5 arguments to support topic:	10 points
Lists 5 statements to argue opposition:	10 points
Lists sources:	5 points
Completes table throughout debate:	60 points (5 points per box)

Assessment #2:

Use the Debate Grading Rubric to assess each group/student during debate.

Scoring rubric out of 100 points

The presentation:	25 points
The debate:	25 points
The verdict:	25 points
Group work:	25 points

Cross-Curricular Extensions

Science Extension

Have students look into ways to make their voice heard on environmental issues of their choice. Here are some good places to start are

- Shedd Aquarium- Make Your Voice Heard: <https://www.sheddaquarium.org/Conservation--Research/raise-your-voice/raise-your-voice-thank-you/>
- Bow Seat- Ocean Awareness Programs: <https://bowseat.org/programs/advocacy-competition/overview/>
- Coastal Conservation League

Social Studies Extension

Have students look into the history of presidential debates and decide whether or not this method of communication is effective.

English Extension

Find 3 news articles that present a topic of debate. One article can be in support of the topic, another in opposition to it, while the third article should present both sides. The students can use the articles to choose if they will support or oppose the topic of debate and should back their stance with evidence presented in the articles.

Resources

Debate Topic Reference Websites

Topic 1: Should marine mammals be kept in human care?

<https://www.animallaw.info/article/detailed-discussion-dolphins-under-mmpa#id-24>

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<https://www.leisurepro.com/blog/scuba-diving-stories-news/against-keeping-captive-cetaceans/>
<https://www.leisurepro.com/blog/scuba-diving-stories-news/for-keeping-captive-cetaceans/>
<https://thetylt.com/culture/is-it-wrong-to-keep-dolphins-captive>

Topic 2: Should dolphin encounters (swimming with the dolphins) be allowed?

<https://www.animallaw.info/article/detailed-discussion-dolphins-under-mmpa#id-24>
<https://www.fisheries.noaa.gov/feature-story/six-reasons-why-you-should-not-swim-wild-spinner-dolphins>
<https://www.travelandleisure.com/articles/should-you-or-shouldnt-you-swim-with-the-dolphins>
<https://thetylt.com/culture/should-swimming-with-dolphins-be-banned-in-hawaii>

Topic 3: Should offshore drilling be allowed?

<https://thetylt.com/politics/should-offshore-drilling-be-banned>
<https://www.washingtonpost.com/energy-environment/2018/11/30/trump-administration-approves-seismic-tests-that-could-harm-many-thousands-atlantic-dolphins-whales/?noredirect=on>