

Media Activity

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Santa Barbara Coastal Long Term Ecological Research Project



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California Department of Education Science Standards

6th Grade

- Investigation and Experimentation
 7. Scientific progress is made by asking meaningful questions and conducting careful investigations.
 - e. Recognize whether evidence is consistent with a proposed explanation.

7th Grade

- Investigation and Experimentation
 7. Scientific progress is made by asking meaningful questions and conducting careful investigations.
 - b. Use a variety of print and electronic resources (including the World Wide Web) to collect information and evidence as part of a research project.
 - c. Communicate the logical connection among hypotheses, science concepts, tests conducted, data collected, and conclusions drawn from the scientific evidence.

8th Grade

- Investigation and Experimentation
 9. Scientific progress is made by asking meaningful questions and conducting careful investigations.

Media Coverage Activity

This lesson explores the ideas of biases and the differences between fact and opinion while helping the students to better understand when material that they are reading, listening to or watching is reliable. Students discuss the normality of having biases and the importance of being able to recognize your own biases as well as those of other people. They will practice identifying statements as fact or opinion and will apply these skills to a critical reading of an article. Being able to identify credible sources is crucial to good research skills; and with the increasing access to the internet, knowing which material to trust is more important than ever. Students will gain skills that will help them throughout this unit as well as in the rest of their subjects.

Objectives:

- * The students will be able to read a newspaper, magazine, or internet article critically.
- * The students will discuss biases and understand that everyone has them. The students will learn to identify the interests of the different people involved in an issue.

Specification: At the end of this lesson, the students should be able to:

- a. Identify who the author is (what is their job, qualifications, company, etc).
- b. Identify what the author's position on the subject is.
- c. Pick out which parts of the article are facts and which are opinions.
- d. Explain what bias is.
- e. Describe the possible biases of two authors or people involved in the topic of an article that they read.

Introduction:

I'm not biased!

Actually, most people have certain biases; a bias is "an attitude that always favors one way of feeling or acting over any other". In other words, if you have ever felt partial to something, had a preconceived notion, or played favorites- you have probably experienced what it is like to feel a bias towards something. It is normal that people will favor a certain way of acting or feeling; it may be what you have learned at home, at school, or through different experiences in your life. For example, if you have had a science class that you didn't like in the past, you may have come into this one expecting not to like it. That would be a preconceived notion, or a bias towards science! It is important to figure out what your own biases are so that you can be aware of them and realize when they are and aren't appropriate. In recognizing your own biases, you will become better at picking out other people's biases as well.

Fact or Opinion?

When you are reading a newspaper article, a magazine article, information on the internet, or even a book; how do you know what is fact and what is opinion? Can you tell from reading one of these if the author has any biases or if they are being completely

objective? It is good for people to express their own opinions, but they need to make it clear what is opinion and what is actual fact. So how do you tell?

One way may be the language that they use. For example, if I were to say “everyone loves the ocean, the ocean is great” would that be a fact or an opinion? It would be an opinion; not everyone loves the ocean and not everyone thinks the ocean is great. I love the ocean and am therefore a little biased towards it and may not understand how anyone wouldn’t like it. Alternatively, if I were to say “many people enjoy the ocean and think that it is great” that would be a fact. It would be even more accurate if I gave proof of my fact and said “I conducted a survey of all of the students in my class and found that 25 of 30 students enjoy the ocean and think its great”.

Another way would be to look at the author’s credentials, what qualifies the author to make certain statements? This can be a little difficult sometimes, especially with all of the information that we can access so easily through the internet- how do you know what to trust? Usually the information that you get from big, well-known agencies is reliable (for example, information from a museum or a city office). If you are ever in doubt, try to double check the information by looking at another source or ask someone! When you are reading an article, it usually tells you who the author is, it may say that the author is a researcher at UCSB, or a government official, or it may not say much. You can also look at the company that the author, or the people who are quoted in the article, work for. If you read something in the LA Times it’s a safe bet that it will be more reliable than something you read in the National Enquirer. You need to learn how to judge when you are reading information from a reliable source, and when you may not be. This takes practice.

Activity: (approximate time: 30-45 minutes)

Materials: Newspaper articles and Opinion vs. Fact Worksheet

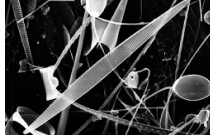
- Start by going over the information in the introduction (*on the student worksheet*) with the students. Ask the students to share (only if they feel comfortable) any of their own biases. (*Remind the students to be respectful and not to say anything that will offend other class members*). Share 1 or 2 of your own biases with the class to make them feel more comfortable. This can also be done as a journal writing activity or in small groups.
- Ask the students if they have ever read an article or book where the author seemed biased to them? How could they tell? Discuss some of the ways that you can figure out an author’s biases from their writing and how it can help you distinguish opinion from fact. (*Language, credentials, company, others?*) This can also be done as a journal writing activity or in small groups. *If you would like to give the students a real example, this one makes for a good (and funny) story. One of my college biology professors came into our class one day very excited about this great new marine biology website that he had found. The following week he came into class looking a little bit embarrassed and told us that he had researched the great new website he*

had found and he had discovered that it had been created by a 12 year old boy! It just goes to show that you really need to be careful about what information you trust; and how important it is to figure out the source of the information, especially on the internet!

- Tell the students that as a class you are going to read an article and that as you read it everyone needs to figure out what the qualifications of the author or people interviewed are, what company they work for, what possible biases the author or interviewees might have, and what clues students see that might help them distinguish facts from opinions. Are there any definite facts? Are there any definite opinions? *(Use the sample article with all of this outlined for you to guide the students)*
- Tell the students that they are each going to read an article *(you can pass out copies of the articles provided or have the students find an article on the topic on the internet, in a magazine, or in the newspaper as homework)* and that it is their job to analyze it just as you did as a class. Have them use the Opinion vs. Fact Worksheet, first to practice with selected quotations and then to guide them as they read an article. *(Tell the students that some articles are easier to analyze than others and to do their best and ask for help if they need it).* This piece could be homework instead of an in-class activity.
- After the students have read their articles, open up a class discussion. All of the articles are going to be on the same topic, but may be written from different perspectives. Ask the students to share what they found when they analyzed their article, what was the general topic of their article, what clues helped them figure out pieces of information about the author and the author's opinion? This can also be done as a journal writing activity.

Activity 1: Teacher's Sample

The 4 quotations below are taken from articles about marine mammals getting sick and, in some cases, dying. Scientists think that these illnesses and deaths may be due to a toxin that some types of algae produce called domoic acid.



This is a picture of the diatom (an algae) Psuedonitzschia, which can produce the toxin domoic acid.

For each quotation below you need to decide if it is fact or opinion. If you think that it is a fact highlight it yellow, if you think that it is an opinion, highlight it blue.

#1: “One possible reason for the large number of pregnant sea lions coming in is that during pregnancy the mothers have to eat more to sustain themselves along with their unborn pups- and by eating more, they also take more domoic acid into their systems.”

#2: “In 2002, 685 California Sea lion deaths were documented, as were the deaths of 75 dolphins”.

#3: “Common effects of domoic acid seen in animals washed ashore include head weaving and seizures, which may lead to permanent brain damage and eventual death if not treated”.

#4: “Why are domoic cases confined to coastal waters? Several researchers suspect connection with human activities.”

Activity 2:

As you read your article highlight fact in yellow and opinion in blue just like you did in activity 1. Also as you read, try and figure out (not all articles provide the following information, so just do your best!):

1. Who is the author? Jane Kay
2. What are the author's qualifications? She is the environment writer for the SF Gate.com, I can't tell anymore from the information provided.
3. What company or organization does the author work for? She works for the San Francisco Chronicle.
4. What possible biases might the author have about the topic of the article? Why? She doesn't seem to have any biases in her writing; everything she writes is pretty objective. However, because she is the environment writer, she might really like the environment and have a bias in that way, maybe she wants to protect it.
5. Does the author interview anyone? Yes/No (circle)
If yes, what are the qualifications of the person who was interviewed? She interviewed Dr. Micheal J. Murray, he is a veterinarian; Dana Micheals, who is a spokesman, and Lilian Busse, a post-doctoral researcher.
Who do they work for? Dr. Murray works for the Monterey Bay Aquarium, Micheals works for the State Department of Fish and Game, and Dr. Busse works for the Scripps Institution of Oceanography.

What possible biases might they have? Why? Dr. Murray might be biased towards sea otters since he works with them and wants to make sure that sea animals are healthy. In the article he says how sad it is to see them dying, but some people (like fisherman who compete with the sea otters) might not think that is sad. Michaels might be biased to the issue because if people are scared to eat fish because of possible poisoning, then it would be a concern for the DFG, also depending on Micheal's background which wasn't apparent from the article, she might have a personal interest of attachment to marine life. Busse might be biased because she studies toxic algae and so an outbreak of sick animals might be exciting for her since it would provide a chance to study it and learn more about HAB's.

Teacher's Example

[Sick, dying sea otters turn up in Morro Bay](#)

[Scientists suspect naturally occurring algae bloom poison](#)

- Jane Kay, Chronicle Environment Writer

Thursday, April 15, 2004

More than 20 California sea otters, nearly 1 percent of the wild population, have turned up dead or sick around Morro Bay over the past week, most likely the victims of a natural marine toxin, scientists said Wednesday.

The animals have been discovered suffering from seizures or muscle tremors, or comatose. Wildlife experts believe they may have eaten mussels, clams and scallops contaminated with a naturally occurring toxin sometimes found in algae blooms at this time of year.

"It's really, really sad. Everybody loves the sea otters," said Dr. Michael J. Murray, staff veterinarian at the Monterey Bay Aquarium. "It's sad to read about it. It's said to hear about it. It's even sadder to see seizing and comatose sea otters, and to see them lying out on that stainless steel autopsy table."

State and federal agencies are waiting for results of post-mortem examinations on 12 otters and tests on tissue samples to confirm whether to blame the toxin, called domoic acid.

The state Department of Health Services has issued a health advisory, alerting the public not to eat sport-caught shellfish in San Luis Obispo County.

"Unfortunately, we think it's probably a naturally occurring substance, and there's nothing we can do about it," said Dana Michaels, a spokeswoman for the state Department of Fish and Game.

Other marine mammals, such as sea lions and dolphins, as well as birds and humans, are susceptible to nervous system damage from consuming shellfish and fish containing domoic acid.

The southern sea otter is protected as a threatened species under federal law. A 2003 census counted only 2,505 otters between Santa Barbara and Half Moon Bay, its current range. Biologists say the population must exceed 3,000 for the government to consider it no longer threatened.

Southern sea otters were once plentiful. But the otter has been hunted for its fur, shot by fishermen, hit by boats, snagged by nets, eaten by sharks and contaminated by PCBs, pesticides, sewage and other pollutants.

A year ago this month, 48 otters died, the highest short-term mortality rate in modern times. Those deaths were attributed to marine toxins; parasites, including one linked to cat waste; and shark bites.

But in just one week this year, the Monterey Bay Aquarium and the Marine Mammal Center have been receiving calls from upset beach-goers around Morro Bay who have found more than 20 sick or dead animals.

"The big thing that is alarming is that we're having so many animals dying in such a short time period. We're seeing in the post-mortems very similar changes, suggesting that the same thing is killing the animals," said Murray, the veterinarian.

"We suspect a marine biotoxin, but we're not sure yet. We need to get confirmation on this. We've got the best minds working on it, and we're searching for answers."

Domoic acid is produced by algae called diatoms that collect in algae blooms on the coast. Lilian Busse, a Scripps post-doctoral researcher, said it's unclear what makes algae produce domoic acid.

In recent years, domoic acid has been found in sea water in Monterey Bay, Santa Barbara and Los Angeles.

On Friday, researchers at the Scripps Institution of Oceanography in La Jolla reported that domoic acid was found in sea water as far south as San Diego. The toxin may be responsible for sea lion strandings in Southern California this year, they said.

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URL: [http://sfgate.com/cgi-](http://sfgate.com/cgi-bin/article.cgi?file=/chronicle/archive/2004/04/15/MNGF9651U433.DTL)

[bin/article.cgi?file=/chronicle/archive/2004/04/15/MNGF9651U433.DTL](http://sfgate.com/cgi-bin/article.cgi?file=/chronicle/archive/2004/04/15/MNGF9651U433.DTL)

Media Coverage Activity References

Images:

All images without a reference are from Microsoft Clipart.

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Thomas-Anderson, M. 2003. Domoic acid sickens sea mammals. *Daily Nexus*. Volume 83, Issue 130, Wednesday May 21st.**

Articles Provided:

1. Student Worksheet Example:

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2. Recommended:

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Sewage in urban runoff may spur growth of harmful algal blooms. 2000. *UC Santa Cruz Press Releases*. February 24th.

**These articles are available on the HAB-TrAC webpage:

<http://www.habtrac.ucsb.edu/News.html>