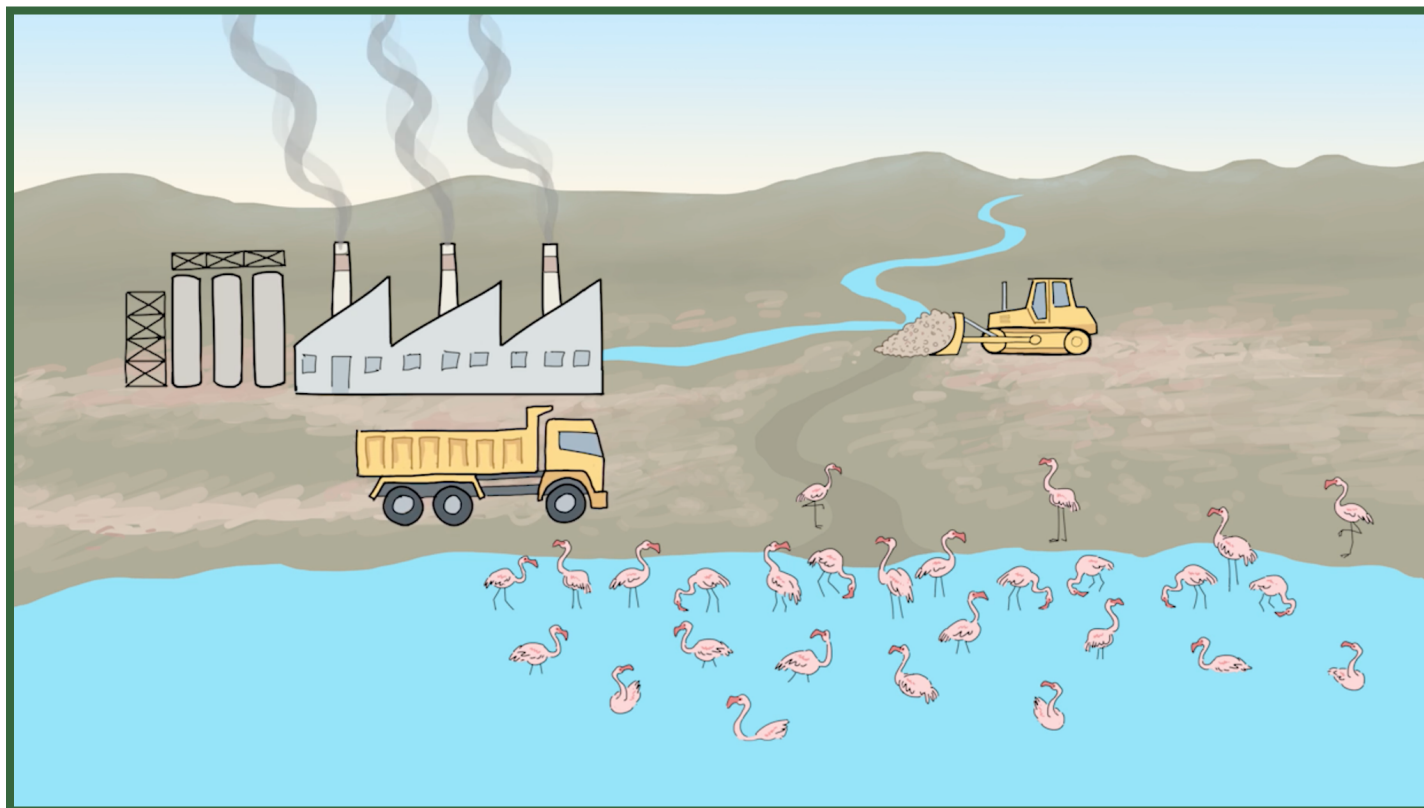


Session 1.6 (Group 2)

Deciding About Lake Natron



REVIEW LEARNING OBJECTIVES:



Science Concepts & Practices:

- Practice gathering evidence from text
- Write an argument from evidence
- Use logical reasoning and relevant scientific evidence to support or refute a claim
- Obtain, evaluate, and communicate scientific information



Language Skills & Knowledge:

- Integrate (combine or put together) information presented in words with information presented in visuals to understand science texts
- Write arguments focused on science content

PREVIEW VOCABULARY IN SESSION 1.6:

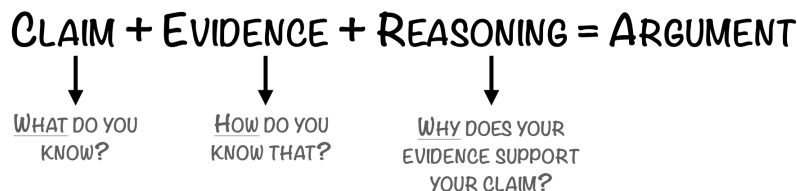


competition

conservation

ACTIVITY 1: SET THE CONTEXT

PART 1 - Directions: Listen as your teacher explains the *components (parts)* of an argument from evidence. Work individually or with a partner to write your own claim. Debrief as a class.



An argument is when a person states a claim, supports that claim with evidence, and explains how the evidence supports the claim with reasoning.

Claim

When someone makes a claim they *state (say or write)* that something is true even if it is not yet proven or accepted by people to be true.

Claim

Bicycle helmets help prevent head injuries.

Evidence

Evidence is proof that something is true. Evidence can be qualitative or quantitative.

Both qualitative and quantitative evidence should be *accurate (correct or factual)*, *relevant (related)* to the question, and *sufficient (enough to prove something)*.

Evidence

Data were collected from injured people who wore helmets and those that did not wear helmets. The data shows that wearing helmets *decreases (makes smaller)* the risk of a head injury by as much as 85%.



Qualitative evidence can be collected by observing, asking questions, or interviewing people.

An example of qualitative evidence is interviewing people who wore helmets and were injured and people who did not wear helmets and were injured and describe their different experiences.



Quantitative evidence is collected by counting or measuring.

An example of quantitative evidence is collecting data about the kinds of injuries people wearing helmets got and the kinds of injuries people without helmets got during a particular time period and place and then comparing how badly they got hurt.

Reasoning

Reasoning describes the evidence and tells how it supports your claim (makes your point).

Reasoning

Most injuries related to bicycle accidents are on the head or face. For this reason, wearing a helmet *decreases (makes less)* the risk of a serious brain injury.

Module 1: Environmental Impact
LESSON: Deciding About Lake Natron

PART 2 - Directions: Listen and follow along as your teacher reads the example and reviews the answers to questions 1-3. For **Your Turn**, read or listen to your teacher read the paragraph. Work individually or with a partner to identify the claim, evidence, and reasoning in the paragraph. Debrief as a class.

- Each sentence is labeled with a number.
- Check the box(es) beside the number or numbers that answers each question.

EXAMPLE

(1) Water that is too salty is dangerous for flamingo chicks. (2) Bracelets of salt form on flamingo chicks' legs when water is too salty. (3) Since the salt crystals are heavy, flamingo chicks have difficulty walking or moving. (4) Flamingo chicks are at risk of dying because they cannot move away from danger (like predators and floods) or get to food and fresh water. (5) For this reason, water that is too salty is dangerous for flamingo chicks.

- | | | | | | |
|---|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|
| 1. Which sentence or sentences state the claim ? | ☒ 1 | ☐ 2 | ☐ 3 | ☐ 4 | ☐ 5 |
| 2. Which sentence or sentences provide evidence ? | ☐ 1 | ☒ 2 | ☒ 3 | ☐ 4 | ☐ 5 |
| 3. Which sentence or sentences provide reasoning ? | ☐ 1 | ☐ 2 | ☐ 3 | ☒ 4 | ☒ 5 |

YOUR TURN

(1) A flamingo is more like a hummingbird than a bat. (2) Both flamingos and hummingbirds fly and lay eggs. (3) Bats fly, but do not lay eggs. (4) Since flamingos and hummingbirds lay eggs, they belong to the class *aves*, or birds. (5) Because bats do not lay eggs they belong to the class *mammalia*, or mammals. (6) Animals in the same class are more closely *related* (*like each other*) than animals that are not. (7) For this reason, flamingos and hummingbirds are more alike than flamingos and bats.

- | | | | | | | | |
|---|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| 4. Which sentence or sentences state the claim ? | ☐ 1 | ☐ 2 | ☐ 3 | ☐ 4 | ☐ 5 | ☐ 6 | ☐ 7 |
| 5. Which sentence or sentences provide evidence ? | ☐ 1 | ☐ 2 | ☐ 3 | ☐ 4 | ☐ 5 | ☐ 6 | ☐ 7 |
| 6. Which sentence or sentences provide reasoning ? | ☐ 1 | ☐ 2 | ☐ 3 | ☐ 4 | ☐ 5 | ☐ 6 | ☐ 7 |

ACTIVITY 2: WATCH A VIDEO ABOUT THE IMPACT OF THE SODA ASH FACTORY

Directions: Listen and follow along as your teacher introduces the video from Mr. Ken Mwathe. Your teacher will then play the video for the class.

Mr. Ken Mwathe works as the Policy and Advocacy Coordinator at the BirdLife International Africa Office in Nairobi, Kenya.

A wildlife policy and advocacy coordinator is someone who helps *develop policies* (*create laws or rules*) that help wild animals.

Mr. Mwathe helped convince a large private company to stop *investing in* (*putting money into*) the soda ash project at Lake Natron. This means that he got the company to stop putting money into the soda ash project.



ACTIVITY 3: CONSIDER REASONS FOR AND AGAINST THE SODA ASH FACTORY

Directions: Listen as your teacher explains how to participate in the learning stations. At each learning station, there is a packet that includes text to read and questions to answer. Watch the timer to help make sure you finish the worksheet for each station before the time is up. When the class finishes with the stations, the class will debrief.

For this activity, there are four learning stations. You will visit two stations during this activity.

- **Stations A + B:** Students will learn about the “for” position (reasons the government wants to build a soda ash factory).
- **Stations C + D:** Students will learn about the “against” position (reasons why people do not want the soda ash factory to be built).
- Then, switch stations to learn about the other side of the issue.
 - For example, if you started at Station A or B, you would go to Station C or D. If you started at C or D, you would go to A or B.

For multiple choice questions, read the question carefully and choose the best answer or answers. Read carefully because some multiple choice questions have more than one right answer.

ACTIVITY 4: SORT EVIDENCE STATEMENTS FOR BOTH SIDES OF THE ISSUE

Directions: Work individually or with a partner to sort the statements into the chart. The statements are either in support of or against building a soda ash factory at Lake Natron. Drag and drop or write the number of each statement in the correct column of the chart. Then, debrief as a class.

→ *Hint: When you are finished, you should have 4 statements in each column.*

Statement Bank

1. A soda ash factory would divert (take away) hundreds of liters of fresh water from Lake Natron each day.

5. Tanzania making its own soda ash (\$180 per ton) would cost less money than buying soda ash from Kenya (\$300 per ton)

2. Every year, the soda ash factory would *earn (make)* \$300 million for Tanzania.

6. Building and running the factory would create a lot of noise.

3. *Pollutants (harmful materials)* that the soda ash factory puts into the lake would kill blue-green algae.

7. Over 4,000 people visit Lake Natron every year to see the flamingos.

4. The soda ash factory would create 500 jobs.

8. The need for soda ash is *increasing (getting bigger)* around the world.

In support of a Soda Ash Factory Being Built

Against a Soda Ash Factory Being Built

ACTIVITY 5: WRITE AN ARGUMENT FROM EVIDENCE

Directions: Work individually or with a partner to write an argument **for or against building a soda ash factory at Lake Natron**. Use one of the templates to write your argument. Debrief as a class.

- Your argument should include three evidence statements. *The first one is completed for you.*
- **Use evidence statements from Activity 4** or think of your own!
- Each evidence statement must be supported by reasons or examples that tell how or why the evidence supports your claim. *The first one is completed for you.*
- Use what you have learned from Activity 3 and earlier in the unit to write reasons and examples.

TEMPLATE: **AGAINST** Building a Soda Ash Factory at Lake Natron

Claim	A soda ash factory <u>should not be built</u> because it would hurt the lesser flamingo population.
Evidence Statement 1	A soda ash factory would <i>divert (take away)</i> hundreds of liters of fresh water from Lake Natron each day.
Reasoning/ Examples <i>What does the evidence mean? How does the evidence support your claim?</i>	A) A population of lesser flamingos breeds at Lake Natron. For this reason, the flamingos need a source of fresh water to drink and wash their feathers. B) The factory would take a lot of fresh water away from the lake. For this reason, there is less fresh water for flamingos to drink or wash their feathers.
Evidence Statement 2	[Write one of the evidence statements from Activity 4 or write your own.]
Reasoning/ Examples <i>What does the evidence mean? How does the evidence support your claim?</i>	A) B)
Evidence Statement 3	[Write one of the evidence statements from Activity 4 or write your own.]
Reasoning/ Examples <i>What does the evidence mean? How does the evidence support your claim?</i>	A) B)

TEMPLATE: FOR Building a Soda Ash Factory at Lake Natron

Claim	A soda ash factory <u>should be built</u> because it would benefit (be good for) Tanzania's economy. <i>A country's economy is the wealth and resources of a certain country.</i>
Evidence Statement 1	The soda ash factory would create 500 jobs.
Reasoning/ Examples <i>What does the evidence mean? How does the evidence support your claim?</i>	A) People who live in Tanzania would be able to make money by working at the soda ash factory. B) People who make money by working at the soda ash factory would spend their money at businesses in Tanzania.
Evidence Statement 2	[Write one of the evidence statements from Activity 4 or write your own.]
Reasoning/ Examples <i>What does the evidence mean? How does the evidence support your claim?</i>	A) B)
Evidence Statement 3	[Write one of the evidence statements from Activity 4 or write your own.]
Reasoning/ Examples <i>What does the evidence mean? How does the evidence support your claim?</i>	A) B)

Activity-Level Extension Activity

Directions: If you have finished Activity 5 before your classmates, work individually or with a partner to read the text and write counter-arguments. An example is provided. Submit your work to your teacher.

“Counter” means “to oppose” or “go against.” A counter-argument goes against your main argument.

Discussing (talking about) a counter-argument can make *your* argument stronger. It shows a reader or listener that you have thought about other points of view and have thought carefully about your position.

To write a counter-argument: first, say what the other side believes or argues and second, tell why their argument is *weak (not strong)* or *flawed (has problems)*.

Example	Evidence Statement	Every year, the soda ash factory would earn \$300 million for Tanzania.
	Counter-Argument	<u>State what the other side might argue:</u> The other side might argue that building a soda ash factory will make a lot of money for Tanzania. <u>State why that argument is weak (not strong) or flawed (has problems):</u> That argument is weak because the money will go to the government and not to the people who live near the lake.

Counter-Argument 1	Evidence Statement	
	Counter-Argument	

Counter-Argument 2	Evidence Statement	
	Counter-Argument	