



BRITISH COLUMBIA
FireSmart™

Education Program

(Grades 7-9)



Lesson Three

In this lesson, students will learn to assess the strength of evidence used to support conclusions. They will rate the strength of evidence used to support the conclusion that human actions are the main cause of the current climate crisis.



Lesson Question:

What is the strongest evidence that the current climate crisis is a product of human actions?

Lesson Challenge:

Choose strong evidence that supports the conclusion that the current climate crisis is a product of human actions.

Suggested Materials

- **Activity Sheet A:** How Strong Is the Evidence? (one copy for each group)
- **Activity Sheet B:** Assessing the Evidence (one copy for each group)
- **Activity Sheet C:** Assessing the Evidence (blank template)

Big Ideas

- Evolution by natural selection provides an explanation for the diversity and survival of living things. (Grade 7 Science)
- Earth and its climate have changed over geological time. (Grade 7 Science)
- The biosphere, geosphere, hydrosphere, and atmosphere are interconnected, as matter cycles and energy flows through them. (Grade 7 Science)
- Exploring stories and other texts helps us understand ourselves and make connections to others and to the world. (Grades 4–9 English Language Arts)
- Questioning what we hear, read, and view contributes to our ability to be educated and engaged citizens. (Grades 4–9 English Language Arts)



Before Starting the Lesson



Learning about the dramatic impacts of harm to the planet, including climate change, can be distressing for learners. We encourage educators to support students in expressing their complex emotions about these realities by not shying away from them, yet focusing on what is possible to mitigate dramatic ecological change. In particular, learning about how to support community actions can be very helpful. It is also important to remember that our sadness, anger, and grief are normal responses to climate crises, and loss is important. It can be helpful to frame these emotions as indicators of our deep sense of care and connection to the planet and the land.

Start the Thinking



1. Organize students into pairs or small groups and provide each group with a copy of How Strong Is the Evidence? (Activity Sheet A). Invite students to read the scenario and to note the evidence that they would expect to see if a bear wrecked a campsite.
2. After comparing the expected and actual evidence, ask groups to rate the strength of the evidence used to support the conclusion that a bear had wrecked the friends' campsite.
3. Invite groups to share their decision and thinking with the class. As they share, invite students to suggest what pieces of evidence were the strongest and which may have been the weakest. Use their ideas to co-develop or present the criteria for strong evidence. Strong evidence is
 - **accurate:** correct in all details, given the context of the conclusion
 - **relevant:** closely related to the conclusion
 - **specific:** includes detailed examples or statistics
4. Prompt groups to revisit their decision, this time using the criteria to examine each piece of evidence. Invite students to share their thinking with the class.
5. Introduce the lesson question and challenge. Explain to students that they will learn how to use criteria to judge the evidence used to conclude that human actions are the main cause of the current climate crisis.

Grow the Thinking



1. Provide each group with a copy of Assessing the Evidence (Activity Sheet B). Guide students' attention to the short paragraph at the top of the activity sheet. Briefly explain that the paragraph was written by a Grade 9 student and that their challenge is to rate the strength of the evidence used by the student.
2. Read the paragraph aloud with the class or have groups read it quietly. Ask groups to decide what conclusion the writer is attempting to draw (that human activity is the main cause of the current crisis). Prompt groups to note the conclusion on the activity sheet.
3. Ask groups to note any evidence used to support the conclusion in the left-hand column of the activity sheet. Direct groups to use the criteria and the rating scales to assess the strength of each piece of evidence.
4. Invite groups to share their evidence and ratings with the class. As they share, invite them to make a decision: how strong is the evidence used to support the conclusion that human activity is the main cause of the current climate crisis? Prompt groups to note their decision on the rating scale found on the second page of the activity sheet.
5. Encourage groups to share their rating and thinking with the class. As they share, invite them to suggest whether there might be stronger evidence that could be used to support the author's conclusion.
6. Ask groups to find at least two pieces of stronger evidence to support the conclusion. This evidence can be noted on the second page of the activity sheet. Additional evidence can be found in sources such as the following:
 - Government of British Columbia resources on how humans are contributing to climate change:
 - **About Climate Change**
<https://cleanbc.gov.bc.ca/about-climate-change/>
 - **Drivers of Climate Change**
<https://cleanbc.gov.bc.ca/about-climate-change/drivers/>
 - **Impacts of Climate Change**
<https://cleanbc.gov.bc.ca/about-climate-change/impacts/>
 - **The Canadian Encyclopedia: Climate Change**
<https://www.thecanadianencyclopedia.ca/en/article/climate-change>
 - **Climate Atlas of Canada: Climate Change: The Basics**
<https://climateatlas.ca/climate-change-basics>



- **NASA: The Causes of Climate Change**
<https://climate.nasa.gov/causes/>
- **The Globe and Mail: Humans are, beyond any reasonable scientific doubt, the primary cause of climate change, UN report says**
<https://www.theglobeandmail.com/canada/article-humans-to-blame-for-acceleration-in-climate-change-report/>

Reflect on the Thinking



1. Invite groups to share any stronger evidence that could be used to support the conclusion that human actions are the main cause of the current climate crisis. As students share, guide the class in using the criteria: which pieces of evidence are the strongest?
2. Encourage students to suggest how their evidence could be used to guide how we act to protect the environment.
3. Possible extensions to this lesson include
 - asking students to use their evidence to develop their own argument
 - assessing the evidence used in other situations. Assessing the Evidence (blank template) (Activity Sheet C) could be used to assess the evidence used to support other conclusions and claims.

Activity Sheet A: How Strong Is the Evidence?

The Situation

A group of four friends is on an overnight camping and hiking trip. Once their tents and camp have been set up, they decide to go for a hike to explore the trails around their campsite. After a very long day, they begin the long hike back to camp. During the return hike, they meet a hiker who shares some shocking news. The hiker tells them that their entire camp, including the tent, equipment, and food, has been badly damaged by a bear. Though a bear was not actually seen doing the damage, the hiker is confident that a bear was responsible.

As the group nears their campsite, they grow increasingly curious about what really happened: had a bear wrecked their campsite, or was there another explanation?

Conclusion

A bear is responsible for wrecking the camp and all the equipment.



Location of Damage	Expected Evidence	Actual Evidence
Tent		One big hole in the tent
Cooler		The cooler was open and a bag of bread was torn open. Two slices of bread were partially eaten.
Ground around campsite		Small footprints coming from the trail and leading to the tent
Other evidence		Sleeping bags were still in the tent. Three library books that were in the tent were missing.

How strong is the evidence that a bear wrecked the camp and all the equipment?



Activity Sheet B: Assessing the Evidence

Paragraph by a Grade 9 Student

I think the current climate crisis is a result of human actions. Humans have been burning a lot of fossil fuels in the past 100 years. Burning fossil fuels creates greenhouse gases. Greenhouse gases cause a greenhouse effect that warms the Earth. This causes climate change. People are reluctant to stop burning fossil fuels. Today we have a climate crisis. Studies show that changes in the sun played a role in past climate changes. For example, a decrease in solar activity combined with increased volcanic activity helped trigger the "Little Ice Age." But several examples of evidence show that current global warming cannot be explained by changes in energy from the sun. Therefore, the current climate crisis must be due to the actions of humans.

Conclusion



Evidence

Assessing the Evidence

Inaccurate _____ Accurate
 Irrelevant _____ Relevant
 Too general _____ Very specific

Inaccurate _____ Accurate
 Irrelevant _____ Relevant
 Too general _____ Very specific

Inaccurate _____ Accurate
 Irrelevant _____ Relevant
 Too general _____ Very specific

Inaccurate _____ Accurate
 Irrelevant _____ Relevant
 Too general _____ Very specific

How strong is the evidence that human actions are the cause of the current climate crisis?



What stronger evidence could help support the conclusion that human actions are the main cause of the current climate crisis?

Evidence

Assessing the Evidence

	<p>Inaccurate _____ Accurate</p> <p>Irrelevant _____ Relevant</p> <p>Too general _____ Very specific</p>
	<p>Inaccurate _____ Accurate</p> <p>Irrelevant _____ Relevant</p> <p>Too general _____ Very specific</p>
	<p>Inaccurate _____ Accurate</p> <p>Irrelevant _____ Relevant</p> <p>Too general _____ Very specific</p>
	<p>Inaccurate _____ Accurate</p> <p>Irrelevant _____ Relevant</p> <p>Too general _____ Very specific</p>



Activity Sheet C: Assessing the Evidence

Conclusion

Evidence	Assessing the Evidence
	Inaccurate _____ Accurate Irrelevant _____ Relevant Too general _____ Very specific
	Inaccurate _____ Accurate Irrelevant _____ Relevant Too general _____ Very specific
	Inaccurate _____ Accurate Irrelevant _____ Relevant Too general _____ Very specific
	Inaccurate _____ Accurate Irrelevant _____ Relevant Too general _____ Very specific

