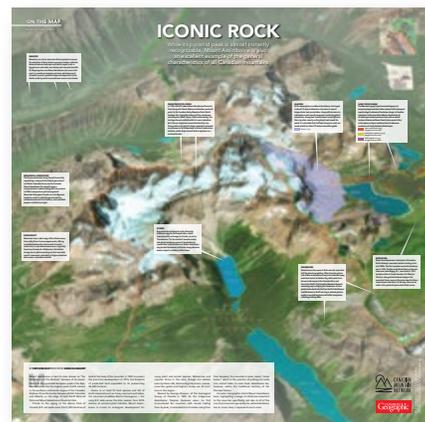


CANADIAN GEOGRAPHIC IN THE CLASSROOM

Article Why Mountains Matter

Issue Nov/Dec 2020



Time:

2 class periods

Developed by:

Canadian Geographic Education

Overview/focus question:

What role do mountains play in Indigenous and non-Indigenous communities? What anthropogenic pressures impact mountain ecosystems? How can we promote mountain stewardship as we work towards global sustainable development?

Subject/topic:

Cultural geography, Sports, History

Grade level:

Grade 7 - 10

Learning Goals

- Students will learn how mountains play a significant role in connecting Indigenous and non-Indigenous communities and land.
- Students will learn about some of the anthropogenic impacts humans have had on mountain ecosystems and biodiversity.
- Students will learn the importance of mountains to humans, animals and nature.

Materials Needed

- A copy of “Mountains Matter” by Graham McDowell and the “Iconic Rock” pull-out map from the 2020 Nov/Dec issue of *Canadian Geographic*
- Access to a computer or other digital device
- Blank pieces of paper for timeline
- Lined pieces of paper for reflection writing
- Poster paper and a digital device for concluding activity

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Connection to the Canadian Geography Framework

Concepts of Geographic Thinking

- Spatial significance
- Patterns and trends
- Interrelationships
- Geographic perspective

Inquiry Process

- Ask geographic questions
- Interpret and analyze
- Communicate
- Reflect and respond

Geospatial Skills

- Spatial representations

Lesson Description

Minds on

Students will explore the personal connections that people have with mountains by reflecting on their own experiences and popular culture. As a class, they will brainstorm examples of roles that mountains play in human societies (e.g., cultural and historical significance, economic benefits).

Action

Students will read the *Canadian Geographic* article and examine the map to learn about why mountains matter. They will then research a theme related to what they read and present what they learned.

Conclusion

Students will reflect on what they have learned and will write a letter to their local newspaper (or make a video, blog, infographic or poster) to advocate for mountain stewardship and the importance of protecting mountain areas.

Lesson Implementation

Minds on

Write the word “mountain” on the board and ask students to think of one or two words that come to mind when they think of it. Have students write their word(s) on a scrap piece of paper. If students are working virtually, create a shared document and ask students to write their words in there to create a collaborative word cloud. Alternatively, they can share pictures of mountains and words. When students are finished, ask students to share their word, creating a mind-map together as a class. Ask students to think about similarities and trends in the words that students shared.

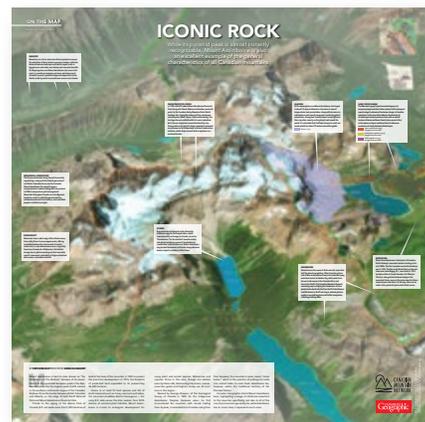
Next, ask students to think about the following questions:

- Do you live close to a mountain? If so, what is your impression of it when you see it or how do you feel looking at it? How often do you think about mountains?
- Do you have a background image of a mountain on your laptop or phone? Why?

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- Are there books, movies, or video games that come to mind where mountains are part of the setting? What kind of mood do they create?
- Have you ever gone hiking or on a family vacation to visit mountains? What stood out to you about the experience?

Ask students to think about what draws people to mountains and emotions people have that are connected to them. If students are hesitant to start, prompt them to consider topics such as: mountain climbers and famous ascents (e.g., Mount Everest), legends about mountains (e.g., Mount Olympus), fictional narratives where mountains pose challenges (e.g., *Lord of the Rings*). For virtual classrooms, find images of mountains prior to this discussion and present a few images, asking students to think about emotions that come to mind when they see the images. Once you've discussed as a class the personal and emotional connections people have with mountains, ask students to brainstorm some examples of why mountains are important for human societies. Some questions to consider:

- How do mountains influence where human settlements have formed?
- What opportunities do they have for different industries (e.g., mining, tourism)?
- What challenges might they pose for infrastructure or transportation (consider historical events such as the building of the transcontinental railway)?
- What roles do they play in our cultures (consider examples from around the world)?

Action

Explain to students that mountains are important for the development of human societies and provide many important natural resources and economic opportunities. However, mountain ecosystems are greatly affected by human actions and environmental stressors such as climate change. Mountains provide habitats for various unique species, and different elevations and geography can create microclimates, which is why mountains are high in biodiversity.

Read the *Canadian Geographic* article "Mountains Matter" and examine the pull-out map "Iconic Rock," either as a class (using a projector) or individually (distribute photocopies).

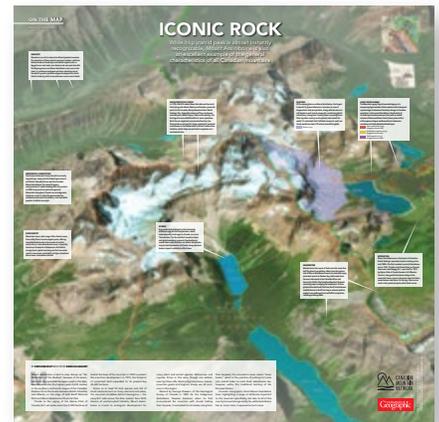
Think, Pair, Share: You can check for understanding by asking students to pick a topic covered in the article or map and have them discuss with a partner what they think this reveals about the importance of mountains. As a class, ask students to share what they learned. Next, ask them what they notice about the map. Have them consider distance, size, vegetation and other features they can identify on the map. Record the class responses on the board for students to refer to later on in the activity.

In either virtual or in-person groups, assign a theme connected to the importance of mountain ecosystems and landscapes for students to explore further (you may choose to break the themes up into smaller topics and have smaller groups of students). By analyzing the way in which physical features and habitats have changed over time, students will be able to identify the impact of human actions on mountain environments and biodiversity. Students will have a better understanding of the roles that mountains play in our lives, directly and indirectly.

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The article and map should be used as the primary resource when exploring the assigned themes. A few secondary resources have been provided to help students get started in their research (there is overlap, so students should consider resources other than the ones listed under their theme):

Glaciers and freshwater:

Natural Resource Canada: [Glaciers](#)

FAO, the United Nations: [Mountains and Freshwater](#)

Alberta Wilderness Association: [Headwaters](#)

The Canadian Encyclopedia: [Glaciers in Canada](#)

Climate change and the environment:

Environment and Climate Change Canada

Natural Resource Canada: [Climate change impacts on forests](#)

[Climate Atlas of Canada](#)

[Climate change impacts on mountain regions of the world](#)

Science and research:

University of Alberta: [Mountain Research & Initiatives](#)

Canadian Mountain Network: [Mountain Portal](#)

Biodiversity and conservation:

Mountain Partnership: [Biodiversity](#)

UNESCO: [Canadian Rocky Mountain Parks](#)

Nature Conservancy Canada: [The Canadian Rockies](#)

IUCN: [Canadian Rocky Mountain Parks](#)

[Canadian Parks and Wilderness Society](#)

[David Suzuki Foundation](#)

[World Wildlife Fund Canada](#)

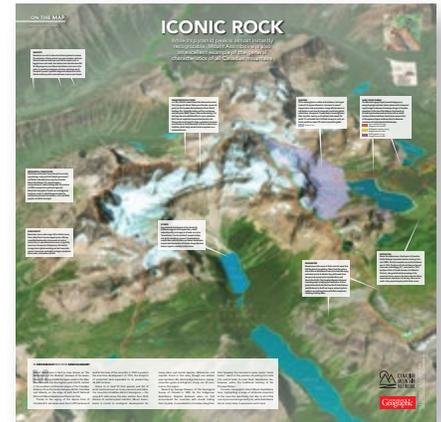
[Canadian Wildlife Federation](#)

[British Columbia Breeding Bird Atlas](#)

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Indigenous perspectives:

Indigenous Peoples Atlas of Canada: [Movement of People](#)

Indigenous Peoples Atlas of Canada: [Truth and Reconciliation](#)

Canadian Geographic: Re:Location - community relocations in Canada

The Canadian Encyclopedia: [Northwest Coast Indigenous Peoples in Canada](#)

Parks Canada: [Indigenous Connections](#)

Exploration and recreation:

The Canadian Encyclopedia: [Mountaineering](#)

Parks Canada: [Mountain Safety](#)

[Recreation and Adventure Tourism in BC](#)

[International Climbing and Mountaineering Federation](#)

Leave No Trace: [Seven Principles](#)

[BC Parks Foundation](#)

When researching their theme, students should consider the following questions:

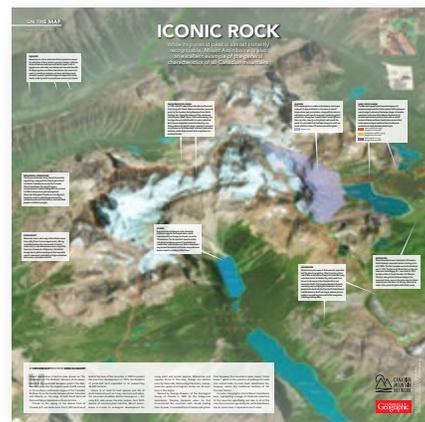
- How does their theme relate to mountains?
- How do humans impact mountain habitats and species? How have human actions transformed the landscape?
- How have our relationships/connections with mountains changed over time?
- What does the future hold? What responsibilities do we have in mountain stewardship? How can the United Nations' [Sustainable Development Goals](#) guide our actions in mountain stewardship?
- How can we adapt to or mitigate the impacts of climate change and population growth to relieve the pressure placed on mountain ecosystems?

Have students present what they learned, either in front of the class or as a project, where students can walk around the class to view the other themes. For virtual classrooms, ask students to share a link to their virtual project. Allow time for other students to review student's work and then create a group discussion where students can ask questions and comment on what they reviewed. Encourage students to find visuals to go with their research.

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Conclusion and Consolidation

We have a strong connection to mountains, whether we realize it or not, and we need to work together to protect them. Ask students to reflect back to the Minds On exercise and share how they feel now that they have completed their research. Does their learning deepen their personal connection to mountains? Has it changed how they think of mountains? Have them share their thoughts in a class discussion or in an exit slip.

Ask students: How can you promote mountain protection and sustainability in your daily lives? Have them write to a local newspaper about the importance of mountains and explain their cultural or biological significance. Given all the challenges we are facing with climate change, why should world leaders pay more attention to mountains? Encourage students to focus on a specific mountain or mountain region in Canada.

Extend your geographical thinking

- This lesson plan focuses on Mount Assiniboine and British Columbia. Using the same themes, have students learn more about other mountain ranges in Canada or around the world.
- Ask students about the significance of UNESCO, Canadian Rocky Mountain Parks and World Heritage Sites. How many mountain ranges globally are labeled as World Heritage Sites?
- Participate in International Mountain Day, which is an annual event recognized by the United Nations that takes place on December 11. This day is about raising awareness about the importance of mountains for all living creatures.
- Ask students to research Indigenous communities that live on or near mountain landscapes in Canada. What is the history of Indigenous settlement in these areas? What role do mountains play in Indigenous communities? Are there differences/similarities to non-Indigenous communities? Consider the impact of the transcontinental railway on the movement of people, how it changed the local economies and industries, its influence on westward expansion and how it has led us to where we are now in reconciliation. How did the arrival of Europeans affect the relationships of local Indigenous Peoples with the mountains? If your school is located near mountains, consider inviting an Elder in to share their community's history and perspective.
- Explore how other glaciers, sea ice, and continental ice sheets have changed over time with [Nasa's Global Ice Viewer](#).
- Using the [Google Earth Engine Timelapse](#), search for Mount Assiniboine and see what changes took place in the surrounding area since 1984. Have students use the *Canadian Geographic* article and this time lapse to create a timeline for Mount Assiniboine and have them research historical photographs to add to their timeline.
- Examine the [Breeding Bird Survey](#) results or Canadian Mountain Network's [Community Mapping Network](#) for bird studies. Mountains are known as hot spots for some bird species. Have students research why there is such diversity in bird species in mountain ecosystems. Are there citizen science projects they can get involved with?

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Modifications

- Students can work individually, in pairs or in groups to complete the activities.
- Students can choose to research a more specific topic from the theme options. They can also choose the format in which they wish to present their research.
- Instead of a letter, students can create a video, infographic, blog or any other type of media release to promote mountain protection and stewardship.
- This lesson plan can be completed for both virtual and online classrooms.

Assessment Opportunities

- Assess students' learning based on their participation in discussions.
- Assess students' learning through the completion of their research and presentations of what they have learned.
- Students' learning can be assessed through their reflection or exit slip.
- Students' learning can be assessed through their final project promoting mountain stewardship.

Sources and Additional resources

- [Mount Assiniboine Provincial Park](#)
- [Government of Canada Citizen Science Portal](#)
- [International Mountain Day](#)