

Title:**What the Warming Future Holds for Our Alaskan Animals****Completion Time:**

- About a week

Permission:

- Download share and remix

Grade Level:

- Elementary and up

Overview:

This interactive lesson introduces students to a number of animals and individuals that will be affected by climate change in Alaska. It allows students to grapple with the complexities that face both humans and animals who face an uncertain future due to an uncertain climate. Students will connect how changing climates affect animal habitats; and in turn, how some animals will likely adapt, while others may go extinct.

Teachers will want to explain to students that no one knows the future. The animal roles are educated predictions, but that is all they are. This activity is meant to break down complex relationships in a meaningful way.

Objectives:

- Describe an animal's habitat, diet, predator/prey status, and behavior.
- Hypothesize how a warming climate may affect their animals' habitat, diet, predator/prey status, and behavior.
- Synthesize animal descriptions with climate change predictions.
- Assess possible outcomes for their animals.
- Communicate their findings during a class discussion.
- Reflect on their own communities' possible changes due to a warmer earth.

Materials:

Tea Party Roles, cut up. One for every student in the class.

Blank nametags. Enough for every student in the class.

Copies of "What the Warming Future Holds for Our Alaskan Animals: Tea Party Questions" for every student.

Copies of "Get to Know Your Animal" Internet search questions for every student.

Internet computers available for research.

Lesson Preparation:

Prior to the lesson, students will need to understand the following:

- Basic knowledge of the carbon cycle,
- General understanding of animal habitats, animal adaptation, predator/prey relationships, and animal behaviors.

- Vocabulary: habitat, environment, adapt/adaptation, predator, prey, migration, and hibernation.
- Awareness that the vast majority of scientists agree that climate change is happening—ideally students would be presented with climate change evidence from time-lapse photos, tables, graphs, etc.
- Explanation that whether climate change is due to human activity or not (perhaps avoiding confrontation) is not relevant to this lesson.

Day 1: Pick an animal from the Tea Party roles and do Internet research on the animal (one class period). *Three of the roles are human animals. Students who draw these roles will need to do a modified assignment.

Day 2: Tea party activity with follow-up discussion.

* Follow-up writing assignment can be done as homework or as a Day 3 activity.

Procedure:

1. Explain to students that they are going to be participating in an activity about climate change and its impact on Alaskan animal habitats. Each student is assigned an animal (only use animals that are part of the tea party). They spend one class period researching that animals' habitat, food, predator/prey status, and behavior. After doing a general round of research, they should search for their animals name and climate change. For example, a student assigned Alaskan wolf will Google "Alaskan wolf and climate change". This will help prepare them for their role in the tea party the following day.
2. Each student will receive a tea party role. There are only 12 so in most classes, some students will be assigned to the same animal.
3. Have students fill out their nametags including the name they pick for their animal and the type of animal. Tell the students that in this activity they are to become the voice of this animal. Ask students to read their roles several times and to memorize as much of the information as possible. Remind them of the research they did the day before and to incorporate that information with their role sheet. Encourage them to underline key points.
4. Distribute a copy of "What the Warming Future Holds for Our Alaskan Animals: Tea Party Questions" to every student. Explain their assignment: Students should circulate in the classroom, meeting other animals and complete the questions as fully as possible. They must use a different animal for each of the questions. With younger students, a teacher and volunteer may want to role-model how to do a "meet and greet". Remind students that they must *talk* to one and another—they should not be simply passing their paper to another student and saying "sign somewhere"....
5. Afterwards have students share some of their findings with the class. Possible discussion questions:
 - a. What surprised you about this activity?
 - b. Who found an animal that might do well from climate change?
 - c. Who met an animal that is in danger of being extinct with climate change?

- d. Did anyone find that solutions to climate change were actually causing more problems for some species?
 - e. How does money or economics play a role in climate change? Does anyone stand to make money from a warmer climate? *Only use these questions if you keep the three human roles in the activity.*
6. Either for homework or the following day in class, have students reflect and write about how their lives may change due to climate change. Remind students that climate change doesn't mean only warmer temperatures, but less predictable weather, more severe storms, . Encourage them to think about

Extension:

Invite a scientist (or a panel of experts) to visit your classroom in person or via Skype to talk to your students about local climate change challenges and/or any efforts to curb climate change in your area.

The class, school, or student government could create a climate change action team to increase education and action (green initiatives) around climate change.

Create a climate change information night for families and the community. Students make tri-fold boards, PowerPoints, pamphlets, models etc. on a variety of aspects of climate change. The students share what they've learned with the community.

Resources:

The animal roles were researched from the following list of Internet articles:

http://www.nytimes.com/2008/05/20/science/20count.html?_r=0

http://www.adfg.alaska.gov/index.cfm?adfg=wildlifeneews.view_article&articles_id=356

<http://www.adn.com/article/threatened-bearded-and-ringed-seal-populations-gain-protection>

<http://www.theguardian.com/environment/2014/aug/12/wolverine-lose-protection-climate-change-us-rocky-mountains>

<http://www.livescience.com/19679-climate-change-seasons-shift-mismatch.html>

<https://www.usanpn.org/files/shared/files/Changes%20in%20Phenology-Alaska.pdf>

http://www.newsminer.com/news/local_news/climate-changes-likely-mixed-for-alaska-s-moose-expert-says/article_a678c778-e0c1-11e3-81b5-0017a43b2370.html

http://www.earthgauge.net/wp-content/CF_NA%20Wildlife%20Final.pdf

Assessment:

Informal assessment: During tea party activity, teacher will circulate through the classroom listening to student conversations to gauge understanding.

Formative assessment: The research questions and answers will demonstrate how well students understand their animals' habitats, diet, predator/prey status, and behaviors. Teachers can use this to gauge if students are ready for tea party activity or if more background information is needed.

Summative assessment: The reflective writing piece will demonstrate if students show a deep understanding of complex climate issues (5 points), a moderate understanding of complex climate issues (3 - 4 points), a surface/superficial understanding of complex climate issues (2 – 3 points); or no understanding of the issues (1 point).

Author / Credits:

Author's email: jhowdyshell@swrsd.org

Credit: While I researched and wrote the animal roles, the Tea Party lesson idea comes from

Bigelow, Bill. "The U.S.-Mexico War Tea Party." The Line Between Us. A Rethinking Schools Publication: Milwaukee, WI, 2006.

Standards:

National Science and Education Standards

Content Standard A: Science As Inquiry

- a. Abilities Necessary to do Scientific Inquiry

Content Standard C: Life Science

- a. Regulation and Behavior
- b. Populations and Ecosystems
- c. Diversity and Adaptations of Organisms

Content Standard D: Earth and Space Science

- a. Structure of the Earth System

Content Standard F: Science in Personal and Social Perspectives

- a. Populations, Resources, and Environments
- b. Risks and Benefits

Alaska State Standards

Writing Standard

US.AK.5. 4, 8

US.AK.6. 4, 8

Reading Standard for Informational Text Standard

US.AK.5. 1,3 – 4, 6

US.AK.6.1 – 2, 4

Speaking and Listening Standard

US.AK.5.1, 2, 6

US.AK.6. 1 – 2, 4, 6