

Agricultural Issues Presentation

Alaska FFA Association and USDA Northwest Climate Hub

Grade Levels 6-12



DESCRIPTION

In groups of four, students will complete a 15-minute presentation on the materials covered in this coursework and additional agricultural climate adaptation techniques.

OBJECTIVES

1. Create a clear and informed presentation for classmates.
2. Work as a team to formulate a presentation that flows and informs the class.
3. Research an agricultural climate adaptation technique.

MATERIALS NEEDED

1. [Adaptation Resources for Agriculture in Alaska Handbook](#)
2. Computer for research (required) and for creating a PowerPoint (optional)
3. Poster Board (optional)
4. Markers, pens, pencils (optional)
5. National FFA Natural Resources CDE Handbook:
<https://ffa.app.box.com/s/q9jsnjqaqpubrwr33wej0wsc5xqgpcu>

ACTIVITY

All Students: Read pages 3-7 in the [Adaptation Resources for Agriculture in Alaska Handbook](#) as an introduction to the activity. (Alternatively, instructors can guide students through these pages as an introduction to the activity).

Teams of four will present on each of the following topics. Each topic will have one student whose primary responsibility is to research and present on that topic, though the group will be graded on their presentation as a whole.

Student 1. Growing Season in Alaska

One student will use the [Alaska Garden Helper Site](#) and [Adaptation Resources for Agriculture in Alaska Handbook](#) to explore local growing conditions under a changing climate.

In the [Alaska Garden Helper](#) site:

1. Go to the drop-down menu "Choose your community." Choose your local community, or the closest community to where you live.
2. In the drop-down menu "Choose Minimum Temperature Threshold," choose a minimum temperature threshold of 32°F (light frost).
3. Choose "Model Project GFDL" for your dataset display.

Using the graph created by your choices, answer and present on the following questions:

1. How many days were in the growing season from 2010-2019 in your area?
2. How many days are projected to be in a growing season from 2050-2059?
3. How many more days does the 2050-2059 have than the 2010-2019 growing season?
4. Does the 2050-2059 growing season start earlier or later than the 2010-2019 growing season?
Does it end earlier or later?

Continuing down the page to "Sample Crops," answer and present on the following questions:

1. What kind of crops grow at a baseline temperature threshold of 32°F?
2. How might the crops that can be grown in your community be affected by a lengthened growing season?
3. What new crops might you be able to grow with a longer growing season/warmer temperatures?

Student 2. Water Quality in Alaska

Read pages 3-7, 24-25, 33-34 in the [Adaptation Resources for Agriculture in Alaska Handbook](#) and answer the following questions in a presentation prepared for the class.

1. How might water quality be affected by climate change in Alaska?
2. Explain what water quality is, and why it is important to maintain water quality in the future.
3. **Choose one of the following water-quality climate adaptation techniques and present on it to the class:**
 - a. Micro or drip irrigation: <https://www.usgs.gov/special-topics/water-science-school/science/irrigation-drip-or-microirrigation>
 - b. Protect water from agricultural runoff: https://www.epa.gov/sites/default/files/2015-09/documents/ag_runoff_fact_sheet.pdf
 - c. Hardening canals or berms: https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcseprd1356137.pdf

Be sure to answer the following questions in presenting your adaptation technique:

1. What is it and how does it work?
2. Who might use this adaptation tactic?
3. How does it help to improve or preserve water quality?
4. How does it help producers in Alaska?

Student 3. Soil Health in Alaska

Read pages 3-7, 22-23, and 33-34 in the [Adaptation Resources for Agriculture in Alaska Handbook](#) and answer the following questions in a presentation prepared for the class.

1. What impacts might climate change have on soil health in Alaska?
2. Explain what healthy soil is and why it is important to maintain soil health for the future.
3. Choose one of the following soil health climate adaptation techniques and present it to the class:
 - a. No-till: https://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/national/energy/conservation/?cid=nracs143_023637
 - b. Integrated grazing on fields: <https://smallfarms.cornell.edu/2019/01/add-diversity-to-your-pastures-with-multispecies-grazing/>
 - c. Cover crops: <https://www.sare.org/resources/cover-crops/>

Be sure to answer the following questions in presenting your adaptation:

1. What is it and how does it work?

2. Who might use this adaptation tactic?
3. How does it help to improve or preserve water quality?
4. How does it help producers in Alaska?

Student 4. Agriculture in a Changing Climate

Read pages 3-7, 27-28, and 42-44 in the [Adaptation Resources for Agriculture in Alaska Handbook](#) and answer the following questions in a presentation prepared for the class.

1. How might agriculture be affected by climate change in Alaska?
2. Explain some of the types of crops grown in Alaska now, and how those crops may change in the future.
3. Choose one of the following agricultural climate adaptation techniques and present it to the class:
 - a. Greenhouses/hoop houses:
<https://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/national/programs/?cid=stelprdb1046250>
 - b. Crop rotation:
<https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/programs/?cid=nrcs142p2044349>
 - c. Pollinator gardens:
<https://www.fws.gov/pollinators/pdfs/Pollinatorgarden%20fact%20sheet-AK-FINAL.pdf>

Presentation:

The presentation will be 15 minutes total, so each group member will need to present for around four minutes.

It is up to your group to decide in what order you will present the information. Depending on where you will be presenting, you can make an accompanying PowerPoint or poster, but it's not required. You will be scored based on the National FFA Natural Resources CDE team presentation rubric based on your presentation and teamwork (on Pg 9 of the CDE Handbook and pasted below).

Indicator	Very strong evidence of skill 5-4 points	Moderate evidence of skill 3-2 points	Weak evidence of skill 1-0 points	Weight	Total Points
Written statement					
Writing conventions	Information is thoroughly and clearly reported. Ideas are clearly addressed and supported with details. There is a concise informative organization to the writing. Grammar and spelling are high quality, less than two blatant errors.	Ideas are stated with some supporting details. There is some organization evident without clear construction. (Intro, body and conclusion). Grammar and spelling are adequate. There are less than five blatant errors.	The message is difficult to understand. The main idea of the presentation is not supported by details. Rambling message with obvious lack of organization. Lack of grammar and correct spelling throughout the writing. There are six or more blatant errors.	X 40	
Analysis	Addresses the problem at hand and conveys viable solutions. Subject knowledge is excellent.	Addresses the problem at hand, but solutions may not be as clear or viable. Subject knowledge is average.	No specific focus on the problem. Factual errors are evident.	X 40	
Presentation					
Communication	Speaks very articulately without hesitation. Confidence, poise and eye contact; excellent use of grammar. Oral communication enhances entire presentation. Never has the need for unnecessary pauses or hesitation when speaking.	Speaks articulately but sometimes hesitates. Some problems with eye contact and grammar is average. Occasionally has the need for a long pause or moderate hesitation when speaking.	Speaks articulately but frequently hesitates. Frequently hesitates or has long, awkward pauses while speaking. Reads from notes and rarely looks at the judges. Has problem with pronunciation and/or very low-level use of grammar.	X 40	
Participation	All members participated equally.	The majority of the group took an active role.	All members did not participate equally, obvious weak individuals	X 20	
Questions and Answers	Knowledge is evident and provides a clear, concise, well-thought out answer to the questions.	Provides answers that are somewhat unclear and at times does not answer the questions.	Seems caught off guard by questions and either does not answer the question or provides a rambling answer.	X 20	
TOTAL POINTS					

Indicator	Very strong evidence of skill 5-4 points	Moderate evidence of skill 3-2 points	Weak evidence of skill 1-0 points	Points Earned	Weight	Total Points
Teamwork						
Managing team dynamics	<p>Completely committed to team dynamics, maturity and professionalism is always present.</p> <p>In team conflicts, problem-solving and decision-making methods and skills are used to produce a positive compromise.</p>	<p>Somewhat committed to team dynamics, maturity and professionalism is seldom present.</p> <p>In team conflicts, problem-solving and decision-making methods and skills are sometimes used to produce a compromise. Sometimes involvement in this process is limited.</p>	<p>Lacking team dynamics, maturity and professionalism.</p> <p>When team conflict arises minimal or no attempt at a resolution is made by team members.</p>		X 6	
Awareness of personality styles of others	<p>Totally conscious and respectful of differing attitudes, personalities and behaviors.</p> <p>Language is free of bias, and completely shows an understanding and respect for others' differences in learning and personality.</p>	<p>Respectful, for the most part, of others' differences in personality and behavior.</p> <p>For the most part, language conveys an understanding of others' differences in learning and personality.</p>	<p>Shows little tolerance for differing personalities and behaviors.</p> <p>Language used may be expressed as not understanding others' differences in personality and learning styles.</p>		X 2	
Uses positive and mature language and mannerisms	<p>Always uses mature language and mannerisms.</p> <p>Never uses immature verbal and/or nonverbal communication.</p> <p>Always has positive communications.</p>	<p>Usually uses mature language and mannerisms.</p> <p>Rarely uses immature verbal and/or nonverbal communication.</p> <p>Usually has positive communications.</p>	<p>Seldom or never uses mature language and mannerisms.</p> <p>Frequently uses immature verbal and/or nonverbal communication.</p> <p>Seldom has positive communications.</p>		X 4	
Reacting to changes	<p>Reacts and transitions effortlessly to change.</p> <p>Shows excellent ability to adapt with unexpected change; thinks quickly; shows no sign of stress.</p>	<p>Typically reacts well to changes.</p> <p>Seems able to adapt to unexpected change most of the time; occasionally stresses.</p>	<p>Has difficulty reacting well to changes.</p> <p>Seems stressed by change.</p>		X 2	
Handling tasks	<p>Handles tasks with ease, including task assignment.</p> <p>Efficient in planning, managing and completing all tasks in a timely and organized fashion.</p> <p>All project parts are assigned equally.</p>	<p>Does a good job handling tasks with some ease, including task assignment.</p> <p>Thoughtful about the planning and sequencing of tasks but occasional priority mistakes are made.</p> <p>Some project parts are assigned equally.</p>	<p>Difficulty handling tasks, including task assignment.</p> <p>Seems to have trouble deciding the order in which to do several tasks and struggles with completion in a timely manner.</p> <p>No project parts are assigned equally.</p>		X 6	
TOTAL POINTS						