

Water Management in Wyoming Mediation

Colorado River Basin & Weather Modification

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Overview

Topics	Colorado River Basin; Wyoming Water Management; Weather Modification
Essential Question	How do we manage water for a changing future?
Audience	Middle School or High School
Materials	📄 CRB & Cloud Seeding Mediation Presentation ; 📄 CRB & Cloud Seeding Lecture Notes ; 📄 Who am I - Worksheet ; 📄 Character Cards ; 📄 CRB & Cloud Seeding Mediation: Fast Fact Sheet

Learning Objectives

- Water is a scarce resource, there are many parties concerned about water levels with differing needs/solutions.
- Examine the complexities of providing water for all users.
- Effective Communication skills: Listening, Debate skills, creating opening arguments/ questions/ rebuttals.
- Examine data and graphs behind precipitation and weather modification.

Construct an oral and written argument supported by empirical evidence and scientific reasoning to support or refute an explanation or a model for a phenomenon or a solution to a problem.

Next Generation Science Standards

MS-ESS3-4	Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems. (The consequences of increases in human populations and consumption of natural resources are described by science, but science does not make the decisions for the actions society takes).
MS-ETS1-1	Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.
HS-ESS3-6	Use a computational representation to illustrate the relationships among Earth systems and how those relationships are being modified due to human activity.

MS-LS2-4	Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.
MS-ETS1-2	Draw evidence from informational texts to support analysis, reflection, and research. (WHST.6-8.9)
MS-ESS2-5	Collect data to provide evidence for how the motions and complex interactions of air masses result in changes in weather conditions.

Learning & Lesson Plan	
Activity Name	Activity Description
Warm up your brain! (5 - 10 min)	Where does your drinking water come from? (kids might know) • 55% of Americans do not know where their drinking water comes from. :(• Use the Environmental Protection Agency's (EPA) interactive map to explore and find how their municipality gets its water. ◦ https://geopub.epa.gov/DWWidgetApp/?page=main ◦ Locate Drinking Water Providers map What larger watershed does your drinking water come from? (kids might know) • Note: Goal is that they are impacted by Wyoming policy and/or the Colorado River Basin to increase the relevance and transference of this mediation. —OR— What do students already know about the Colorado River Basin? Weather Modification Programs?
Background Information for Mediation (30 minutes)	Share Powerpoint:  CRB & Cloud Seeding Mediation Presentation and Lecture Notes:  CRB & Cloud Seeding Lecture Notes QUESTIONS? Colorado River Upper Basin Commission Meeting Agenda • Should Wyoming continue cloud seeding? What are other options for Wyoming and the Upper Basin states?
Mediation Prep (20 minutes)	Mediation Prep Each State (group of students) will get: - "CRB & Cloud Seeding Fast Fact Sheet" - "Who am I?" Sheet - Character Card & Name Tag Give groups time to get into character and fill out "who am I?" sheet to help guide them through the mediation. Check in with each group. • Read character card

	• Use your character card and fact sheet to fill out “Who am I?” sheet • Prepare an opening statement • Set out name tag, when group is ready to begin the debate (X) Welcome to the Upper Colorado River Commission Meeting • a multi-state water administrative agency tasked with ensuring the states of Colorado, Utah, Wyoming, and New Mexico allocate water pursuant to the 1922 Colorado River Compact. • Goal is to agree on a solution. Debate Rules: 1. Listen respectfully and manage your emotions. 2. One person talking at a time. 3. Get into character! Try to be objective, even if you don’t agree with your position. 4. Facts presented in the mediation should be accurate.
Mediation (30 min)	1. Opening statement (each group presents) 2. Questions 3. *If students are struggling to be solution oriented, I pause the questions and have each stakeholder or group share proposed solutions and ask questions focused on proposed solutions. 4. Closing statement - if they haven't agreed on a solution yet
Wrap-Up & Reflection	“What, So What, Now What”: A group discussion about what students learned, why it holds meaning, and what can be done with what they learned. • What did you learn about your issue that you did not already know? • Do you imagine using anything you learned in this, in real life? • Did your opinions change during the mediation? • Does this make you reconsider issues you’ve tried to solve in your own life? • Does this spark curiosity about political mediations in other parts of the world? Position Reflection & Share-out: Each character group can reflect on learning about this position and what it felt like to communicate with others from that new point-of-view. Let each group share those thoughts and feelings. Individual Reflection: Students can journal about which side of the controversial issue they agree/disagree with, their small group dynamics, and how this activity made them feel.

Resources/References

<https://wyofile.com/wyoming-examines-role-in-colorado-river-drought-effort/>
<https://wwdc.state.wy.us/weathermod/background.html#:~:text=Current%20technology%20dates%20back%20to,are%20available%20to%20the%20public.>
<https://idwr.idaho.gov/iwrp/programs/cloud-seeding-program/science-behind-cloud-seeding/>
<https://water.utah.gov/interstate-streams/colorado-river-story/>

<https://www.wyomingpublicmedia.org/open-spaces/2025-03-14/wyoming-was-once-a-pioneer-in-cloud-seeding-now-the-future-is-uncertain>

<https://www.hcn.org/articles/a-new-wyoming-cloud-seeding-study/>

<https://www.colorado.edu/center/gwc/2024/03/18/historic-upper-colorado-river-basin-agreement-require-states-meet-tribes#:~:text=Despite%20the%20fact%20that%20Tribes,to%20become%20a%20binding%20agreement.>

<https://storymaps.arcgis.com/stories/2efeafc8613440dba5b56cb83cd790ba>

<https://wyofile.com/wyoming-examines-role-in-colorado-river-drought-effort/>

https://wyofile.com/officials-scrutinize-cloud-seeding-program/?gad_source=1&gclid=Cj0KCQjwqlm_BhDnARIsAKBYcmvVJb9qPKFPdT9k1UEW9YkYTISacP1Q2AiEHkhVZ3HxFtp0qLRUOnAaAkoIEALw_wcB

