



COLORADO

Colorado Water
Conservation Board

Department of Natural Resources

Colorado Water Conservation Board

Water Plan

Water Project Summary

Name of Applicant	University of Colorado Boulder
Name of Water Project	GameOn for Drought Resilience: Youth Led Rural Engagement
Grant Request Amount	\$70,029.00
Primary Category	\$70,029.00
<i>Engagement & Innovation Activities</i>	
Total Applicant Match	\$23,345.00
Applicant Cash Match	\$11,672.50
Applicant In-Kind Match	\$11,672.50
Total Other Sources of Funding	\$0.00
Total Project Cost	\$93,374.00

Applicant & Grantee Information

Name of Grantee: University of Colorado Boulder
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Position/Title: Director, Center for Education,
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Description of Grantee/Applicant

State/Public-controlled Institute of Higher Education

Type of Eligible Entity

- ☐ Public (Government)
☐ Public (District)
☐ Public (Municipality)
☐

- ☐ Ditch Company
- ☐ Private Incorporated
- ☐ Private Individual, Partnership, or Sole Proprietor
- ☐ Non-governmental Organization
- ☐ Covered Entity
- ☒ Other

Category of Water Project

- ☐ Agricultural Projects
Developing communications materials that specifically work with and educate the agricultural community on headwater restoration, identifying the state of the science of this type of work to assist agricultural users among others.
- ☐ Conservation & Land Use Planning
Activities and projects that implement long-term strategies for conservation, land use, and drought planning.
- ☒ Engagement & Innovation Activities
Activities and projects that support water education, outreach, and innovation efforts. Please fill out the Supplemental Application on the website.
- ☐ Watershed Restoration & Recreation
Projects that promote watershed health, environmental health, and recreation.
- ☐ Water Storage & Supply
Projects that facilitate the development of additional storage, artificial aquifer recharge, and dredging existing reservoirs to restore the reservoirs' full decreed capacity and Multi-beneficial projects and those projects identified in basin implementation plans to address the water supply and demand gap.

Location of Water Project

Latitude 39.745000
 Longitude -104.983000
 Lat Long Flag
 Water Source
 Basins Gunnison; Rio Grande; Southwest
 Counties Gunnison; Montrose; Delta; Alamosa
 Districts

Water Project Overview

Major Water Use Type Education
 Type of Water Project Education
 Scheduled Start Date - Design 4/15/2025
 Scheduled Start Date - Construction
 Description
 GameOn will empower Coloradan rural youth and their teachers to build community resilience to drought. Secondary students will gain tools and confidence to lead discussions about water use and drought resilience through a Colorado Academic Standards-aligned unit that culminates in a scenario-based role-play game. Our Drought Resilience Game simulates community decision-making and explores solutions for managing water resources during drought. This proposal expands this widely-used educational game to include real-world examples from the 2023 Colorado Water Plan and Basin Implementation Plans, videos highlighting stories from local water leaders, and Spanish translations.

We will share the updated game with 30+ teachers at two teacher workshops in June 2025. Five teachers have been selected from Colorado communities to participate in the workshops, teach the unit in their classroom during the 2025-26 school year, and help their students lead a Community Game Night. The Game Nights will be held with local partners and Basin Roundtable members to engage underrepresented groups and enhance understanding of water challenges through youth-led community discussions. Evaluation of the game night will collect participant feedback and be summarized for dissemination. The project promotes greater community engagement in water resilience and policy discussions by elevating diverse voices and promoting dialogue.

Measurable Results

New Storage Created (acre-feet)
 New Annual Water Supplies Developed or Conserved (acre-feet), Consumptive or Nonconsumptive
 Existing Storage Preserved or Enhanced (acre-feet)
 New Storage Created (acre-feet)
 Length of Stream Restored or Protected (linear feet)
 Length of Pipe, Canal Built or Improved (linear feet)
 Efficiency Savings (dollars/year)
 Efficiency Savings (acre-feet/year)
 Area of Restored or Preserved Habitat (acres)
 Quantity of Water Shared through Alternative Transfer Mechanisms or water sharing agreement (acre-feet)
 Number of Coloradans Impacted by Incorporating Water-Saving Actions into Land Use Planning
 1,630 Number of Coloradans Impacted by Engagement Activity
 Other
 No additional measurable results provided

Water Project Justification

Background: With a projected statewide water supply shortfall of more than 500,000 acre-feet per year by 2050, Coloradans across the state face several big water challenges. Coloradans will have to make difficult decisions to address a variety of challenges, including agricultural dry-up, environmental concerns, and municipal water supply gaps (2023 Colorado Water Plan [CWP], p.147). Additionally, risks increase the gravity of these decisions, including climate changes, water quantity and quality, funding shortfalls, and aging infrastructure (CWP, pp. 148-150). Ideally, these decisions will be made through healthy community discourse that engages a wide variety of water users and constituents. To close the supply-demand gap, not only water leaders, but all citizens will need to participate in finding comprehensive solutions to ensure resilient water management systems outlined in the CWP. Fortunately, Public Outreach and Education is one of the least-expensive, and possibly effective tools to find creative solutions for a resilient future. The CWP confirms that “an educated public is necessary for developing sustainable grassroots solutions and gaining public and political support for implementing water solutions” (CWP, p. 154), and encourages “outreach, education, and public engagement across diverse geographies, cultures, and age groups [to] help Coloradans access accurate information and empower them to participate in stakeholder decision-making processes” (CWP, p. 154). Furthermore, the objectives and strategies outlined in the Statewide Water Education Action Plan (SWEAP) provide a framework for water educators to address the Education, Outreach, and Innovation objectives outlined in the Colorado Water Plan. The GameOn project utilizes innovative, research-based methods to engage Coloradoans in an interactive format to develop a systems-level understanding (SWEAP, p.8) of water management by presenting problem scenarios and motivating participants to deepen their understanding of water knowledge and skills through friendly competition. We will reach a diversity of geographies, by working with teachers from across the state and focusing on five partner rural communities in Southern Colorado for deeper engagement through supporting teachers and hosting Community Game Nights. The Game Nights will effectively give Coloradans an opportunity to engage in

decision-making processes in a fun and exciting format, which will motivate participants to learn more about wise water use and actions for community drought resilience.

The Hazard Education, Awareness, and Resilience Task (HEART) Force at CEEE, currently funded by a second \$500K National Oceanic and Atmospheric Administration Environmental Literacy Program Grant, which ends in 2025, has developed a strong foundation and reputation for hazard resilience education in rural Colorado communities. The program won the Colorado Alliance for Environmental Education Innovative Education Program award in 2022. HEART Force works with Colorado middle and high school science classrooms, and has reached over 150 teachers across the state, with over 3,000 students impacted by the program. A cornerstone of the Colorado Academic Standards-aligned curricular units are scenario-based role-play games, in which students assume the roles of community leaders, and are challenged to make decisions to protect their communities' wellbeing when faced with drought, wildfire, or flood. Teachers describe the games as highly engaging and effective, and our research and evaluation has shown the effectiveness of the games in increasing student engagement with the topic, and positively impacting their sense of agency in community resilience conversations (Littrell et al, in review, Schloesser et al. 2024). The first version of the Drought Resilience Game is based on a water management scenario in rural Colorado.

Proposed Work: With the here proposed GameOn project, we propose a complete revision of the Drought Resilience Game as an education tool for classrooms and communities to learn about and apply scenarios based on the 2023 Colorado Water Plan and Basin Implementation Plans. The revised GameOn Drought Resilience Game will align the resilience strategies and scenarios used in the game with those outlined in the 2023 Colorado Water Plan and Basin Implementation Plans. In the current version of the game, players take on roles of water leaders and engaged citizens. In the revised game, the instructions and role descriptions will incorporate and reflect the voices of local community leaders. The CEEE team will create several water leader perspective videos, that will highlight stories of diverse water leaders identified by Basin Roundtable members, to concretize connections to local drought resilience challenges and opportunities. These videos will be incorporated into a digital facilitation toolkit, for teachers and students to use when they facilitate the game. The toolkit will also include a revised instructional video which will explain the rules of the game. The revised Drought Resilience Game and digital facilitation toolkit will be translated into Spanish, and bilingual versions will be shared on the CEEE website for users to access and download for free.

We will share the revised game with 30 teachers at two train-the-trainer teacher workshops in June 2026, held in Gunnison in partnership with the Western Colorado University Summer Teacher Institute and in Boulder at the CEEE Resilient Futures Teacher Workshop. At these workshops, teachers will learn how to facilitate the game and teach the Colorado Drought curricular unit, and hear from Basin Roundtable members and local water leaders, as well as practice game facilitation and dialogue facilitation techniques.

Five partner communities have been identified to engage more deeply with the GameOn program, and identified teachers have agreed to teach the unit in their classroom, and host Community Game Nights with the support of local partners. The Community Game Nights will be held in conjunction with existing water-related events when possible, and engage 250 community members. Basin Roundtable members will be invited to speak at the Community Game Nights, and we will evaluate the events to see what participants learned, and how their understanding of the Critical Water Concepts outlined in the SWEAP has changed. Our team will assemble evaluation results from the Game Nights to develop short articles about the events to share with Basin Roundtable newsletters. We will also present about the Drought Resilience Game and the GameOn program at the 2026 Sustaining Colorado Watersheds Conference.

Connections to SWEAP: The use of scenario-based role-play in the classroom and at Community Game Nights will effectively address Outcome 4 in the SWEAP, "The proportion of Coloradans who report confidence in having

the skills necessary to take an active role in water stewardship in their community increases” (SWEAP, p.15), by using SWEAP strategies 4a., “Train the trainer to build participants’ skills in discourse and decision-making” (SWEAP, p. 15) and 4b., “Expand leadership opportunities for adults and youth that foster skills for informed discourse and decision-making” (SWEAP, p. 15). Furthermore, this project illustrates example 4b1. in the SWEAP, “Tailor programs that use role play to build decision-making skills based on Colorado water scenarios” (SWEAP, p, 18).

Education and outreach components of existing Basin Roundtable Public Education, Participation, and Outreach (PEPO) efforts focus primarily on an information deficit model, one which assumes that a lack of information is the main reason for the public’s missing action around water conservation. On the contrary, the here proposed approach uses asset-based pedagogies and problem-based learning to uphold communities’ existing funds of knowledge, and build upon collaboration and decision-making skills to solve a communal and state-wide challenge; in this case, the water supply-demand gap. Research has shown that formal education can significantly increase public awareness of environmental hazards, make people more apt to take action, and reduce hazard impacts (Cerulli et al., 2020; Nathe, 2000). Schools can serve as the “center of participatory risk reduction in a community” (Wisner, 2006, p. 2). Topics that students engage with in school can also influence the opinion of parents and therefore have a potentially large effect on building hazard awareness within the community (Ronan & Johnston, 2005; Lawson et al., 2019). Youths are a powerful audience to initiate change in a community and thus they are an important partner for building community resilience. In our team’s Colorado teacher needs assessment focused on hazards and resilience, most respondents described a need for relevant classroom activities (~80%) and professional development (~52%; Boyd et al., 2021).

In addition to meeting SWEAP and CWP goals, GameOn will also fulfill goals from the three Basin Roundtables we are working with (see letters of support).

Connections to Basin Education Action Plans:

The most recent Gunnison Education Action Plan from 2021-22, includes the following goals: “Collaborate with K-12 educators, especially those involved with water-related activities (GB EAP, p.2)”, and “Partnering with related higher education facilities to share pertinent water resource information” (GB EAP, p. 2). GameOn builds upon successful relationships with local K-12 educators teaching about water in their classrooms. High School teachers can be particularly difficult to collaborate with given their busy instructional calendars, but our team has established strong relationships that GameOn and the Gunnison Basin Roundtable will benefit from. Additionally, our position at the University of Colorado, and support from partners at Western Colorado University, Adams State College, and Fort Lewis College will accomplish the goals of partnering with Higher Education institutions.

The Rio Grande Basin Implementation Plan outlines the importance of providing outreach and education at “in-person educational opportunities, through water education courses...workshops and trainings, and public and in-class presentations” (p.55). GameOn provides an excellent pathway for Rio Grand Basin Roundtable members to engage in education, and “conduct basinwide education and outreach efforts that are responsive, inclusive, and collaborative” (p.55).

The Southwest Basin Roundtable (SWB) is hoping to increase its reach to “SWB residents, state citizens, realtors, water users, K-12 and post-secondary students, and others” that may be new to traditional water uses in the SWB (SWB EAP 2021, p. 4). By inviting SWB Roundtable Members to participate in the Community Game Night in Durango, SWB members will be able to reach a diverse audience and directly engage with K-12 students. Note: Our team is connected with the SWB Roundtable, a letter has not been included in this application due to scheduling. However, we will invite their participation should the program get funded and have support from the Four Corners Water Center as one of the key members of the SWB roundtable.

In summary, the GameOn for Drought Resilience program provides a fun and engaging format perfectly poised to be used as a tool to innovate and enliven Colorado water education and public engagement efforts, infusing opportunities to practice decision-making into standards-aligned middle and high school classroom curricula and in public engagement settings.

References Cited:

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- Wisner, B. (2006) *Let Our Children Teach Us. A Review of the Role of Education and Knowledge in Disaster Risk Reduction*. Books for Change.

Related Studies

No Related Studies provided

Taxpayer Bill of Rights

No Tax Bill of Rights provided