



Keystone  
Science School

# BEYOND THE CLASSROOM 2022 FINAL REPORT

# TABLE OF CONTENTS

Our Mission .....	1
Program Overview .....	2
Program Goals .....	3
Key Issues Framework .....	4-5
Schedule .....	6-7
Impact .....	8-9





# OUR MISSION

With the outdoors as a backdrop for learning, Keystone Science School inspires curiosity and critical thinking through the lens of science to change lives and strengthen communities.

# PROGRAM OVERVIEW

Beyond the Classroom provides teachers with all the tools necessary to facilitate a complete unit on environmental issues within a traditional classroom. The lessons from the workshop can form a stand-alone unit or supplement a Keystone Science School overnight field trip. Our framework allows teachers to explore challenging topics, such as climate science and how it relates to ecology, while learning about all sides and perspectives of an issue. We use the topic of water in the West to explore environmental issues but the lessons we present are adaptable to any local, regional, or global issue.

In this workshop, teachers receive lesson plans that are adaptable for grades 4th through 12th. Teachers also gain ideas and techniques for how to engage their local community and get their students out of the classroom to experience a local environmental issue first-hand.

## THANK YOU TO OUR PROGRAM SPONSORS!



# PROGRAM GOALS

By the end of the Beyond the Classroom workshop teachers will be able to:

1. **Explain** the concept and characteristics of a watershed and identify major watersheds in the US, Colorado, and Summit County
2. **Understand** water supply and demand issues in Colorado and the Colorado River Watershed
3. **Explain** the Doctrine of Prior Appropriation and the nature of a water right
4. **Apply** basic vocabulary relevant to water management
5. **Recognize** the importance of limited global freshwater resources and how climate science affects the availability of freshwater
6. **Analyze** and interpret the perspectives of real-life stakeholders in Colorado water management through the lens of sustainability
7. **Practice** 'solutions-oriented' collaborative approaches to managing limited water resources
8. **Collect** field data relevant to water quantity and quality



**“The hands on activities - it is great to get to do the full activity and experience it from the students’ perspective.” - 2022 Beyond the Classroom participant**

# FRAMEWORK

## USING THE KEY ISSUES FRAMEWORK TO INVESTIGATE ENVIRONMENTAL ISSUES

Our framework encourages the process of inquiry within the study of environmental issues. It is a step-by-step set of instructions that guides students through an interdisciplinary, fact-based investigative process. As an interdisciplinary tool, the framework integrates science, math, social studies, and language arts throughout the investigation. Activities within the Key Issues curriculum are aligned to Common Core and Next Generation Science standards. Below is an overview of the 10 Step Key Issues Framework.

### **Step 1: Define an environmental issue and the related terms.**

Identify the stakeholders concerned and affected by the environmental issue. Complete activity to understand the diversity of opinions.

### **Step 2: Determine environmental issues of concern to you, the students, and your community.**

Research local issues and select an issue to investigate.

### **Step 3: Analyze the players.**

Determine the players involved. Outline each player's beliefs, positions, interests, and resources. Create a concept map to determine probable causes of the problem.

### **Step 4: Begin to Create 'The Big Picture' of the issue.**

Conduct an introductory analysis of key players. Engage students in information gathering. Students gain understanding of players and motives.

### **Step 5: Determine missing information and design research questions to fill in gaps.**

Reviewing all gathered information thus far, design research questions.



**Step 6: Determine research plans, sampling methods, and create data collection instruments.**

These may include designing surveys, taking physical samples, inviting guest speakers, etc.

**Step 7: Carry out research plans and analyze data collected.**

Tabulate results and generate graphs of results. Distinguish between inferences and conclusions.

**Step 8: Examine possible solutions.**

Brainstorm possible solutions. Examine risk factors of solutions. Role play various players and their positions.



**“We will be following the framework model in my classroom using issues in our community”**

-2022 Beyond the Classroom participant

**Step 9: Choose a solution by reaching consensus with all players.**

Using discussion questions such as those listed below, discuss the complexity of making decisions about environmental issues.

- What level of government is involved?
- What are the perceived risks involved?
- What is the scientific basis for understanding/ making a decision on this issue?
- How can the affected people influence decision makers?

**Step 10: Make recommendations and share findings.**

Identify the recommended possible next steps and actions to take such as further investigation, teaching others what you learned, producing a final report, etc.

# 2022 PROGRAM SCHEDULE

## Monday, October 24th

8:00am - 10:15am - Session 1: Overview

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10:30am - 12pm - Session 2: What is a Stakeholder?

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12:30pm- 2:15pm - Session 3: Who are the stakeholders?

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2:30pm - 4:30pm - Field Trip/Water Testing

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6pm - Depart Campus for Breckenridge

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6:30pm - 8pm - Mining History Tour, Breckenridge

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8pm -9pm - Free time in Breckenridge





# Tuesday, October 25th

8am - 12pm - Session 4: Preparing your stakeholder

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1pm- 3:30pm - Session 5: Town Hall meeting

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3:30pm - 4:30pm - Debrief & Evaluations

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4:30pm - 5:30pm - Future Programs & School Store

**“The all-inclusive nature of the program was very appealing from a logistical standpoint. Content and sessions were thought out and well executed.”**

-2022 Beyond the Classroom participant



# ADDITIONAL TESTIMONIALS

## *What were the highlights of the program:*

“The water testing field trip was great. The museum tour was also really interesting.”

“Like that we were able to experience things first hand. Enjoyed “working” in the field....testing water”

“I’d say the curriculum and instructors were both great. Everyone was outstanding and kind!”

## *How will this program apply to your classroom or use professionally:*

“I want to implement an issues based problem with my students. I like the frame work for helping them focus their questions.”

# IMPACT NUMBERS

**15**  
**TEACHERS**  
**ATTENDED** = **7** **COLORADO** **7** **MISSOURI** **1** **INDIANA**



**RIVENDELL**  
**TWO RIVERS COMMUNITY SCHOOL**  
**LAKWOOD HIGH SCHOOL**  
**WOHLWEND**  
**OAK HILLS ELEMENTARY**  
**FISHERS JUNIOR HIGH SCHOOL**  
**GRANBY ELEMENTARY**  
**OAKVILLE ELEMENTARY**



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# SEE YOU AT THE NEXT BEYOND THE CLASSROOM OCTOBER 26-28, 2023

In 2023, our Beyond the Classroom training will be integrated with our H2O Outdoors Program which has used the 10 Point Framework to teach high school students about water management issues in Colorado for over 15 years. Beyond the Classroom's curriculum will run alongside H2O Outdoors and will join the program for key experiential learning moments.

This exciting pairing will give teachers in Beyond the Classroom real-life exposure to the workshop's principles in action through teachers observing students' activities in the Town Hall, Expert Panel, and in the research and presentation process.