

Nature Connection, Action and Hope Project Report:

A Collaboration between Boulder Valley School District's Columbine Elementary School, Classrooms for Climate Action, City of Boulder and Growing Up Boulder

Written by: Growing Up Boulder
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During a field trip to Goose Creek, students learn about water quality and testing. Photo credit: Kirsten Boyer

Table of Contents

Table of Contents	1
Project Overview	2
About Growing Up Boulder	2
About Classrooms for Climate Action	2
About Open Space and Mountain Parks	3
About Utilities' Stormwater and Flood Management Program	3
Boulder Valley School District & Columbine Elementary School	3
Project Goals and Frameworks	4
Project Goals	4
Frameworks	4
By the Numbers	5
Summary of Findings	5
Student Recommendations for Goose Creek	6
Climate Action: Flood Mitigation and "Doing the Greatest Good First"	6
Other Project Findings	6
Nature Connection leads to hope	6
Field Trip was instrumental to learning	7
Experiential pedagogy key to learning and taking climate action	7
Student Reflections	7
Columbine Engagement Highlights	9
Field Trip	9
Flood Engineer Modeling	10
Persuasive Writing and Artwork	11
Global Climate Summit	12
Student Presentations at Columbine	13
GUB and C4CA Engagement Reflections	14
Importance of Biliteracy	14
Integrated, Year-Long Project-Based Learning Unit	15
Return to Goose Creek	15
Extensive Collaboration & Planning	15
Spring 2023 Plans	15
Conclusion	16
Partners and Appreciation	17
Appendix	19

Project Overview

In August 2022, [Growing Up Boulder](#) (GUB) began partnering with three city and community partners and sixty-six 4th grade bilingual students and their teachers from [Columbine Elementary School](#) in a year-long project to build upon the successful integration, outdoor learning and youth leadership action learned from the 2021 [GUB/OSMP/BVSD Wood Brothers Project](#). The Nature Connection, Action and Hope (NCAH) project was developed as an experiential unit whereby students were immersed in weekly lessons on nature connection and stewardship, ecology, Indigenous Knowledges, climate change, climate solutions and climate justice. City of Boulder's [Open Space and Mountain Parks](#) (OSMP) and [Utilities' Stormwater and Flood Management](#) departments and [Classrooms for Climate Action](#) (C4CA), Columbine teachers and GUB staff worked collaboratively to deepen and enrich the 4th grade unit entitled, "Colorado: The Landscape + Earth's Features", and provide valuable information for replicating the model going forward. Core teaching and learning components led by C4CA and supported by the team include building students' background knowledge, field experiences that highlight learning about local ecosystems and pathways to nature connection and providing meaningful ways to demonstrate stewardship by engaging in climate justice and climate action projects. In the fall, a field trip to [Goose Creek](#), a creek near the school, was selected as the [nature phenomena](#) and inspiration for lessons relating to nature connection, ecology and flood mitigation. In spring 2023, plans are being made to integrate similar lessons with NCAR area fire mitigation, Wonderland Lake and Growing Gardens. Students will continue to take up issues of climate justice with access to healthy foods and outdoor opportunities. Over the course of the school year, the unit seeks to operationalize the article [Childhood Nature Connection and Constructive Hope](#), written by GUB co-founder and CU Professor Emerita Louise Chawla. In December 2022, at the project's halfway mark, Columbine 4th grade students demonstrated their newly acquired knowledge by showcasing their flood models at the United Nations and University of Colorado's [Right Here Right Now Global Climate Summit](#) and hosting student-led presentations for interested community and city stakeholders at Columbine Elementary School. This [Daily Camera article](#) describes the project and student presentations. Please see the appendix for additional photos and resources. The next section highlights NCAH project partners:

About Growing Up Boulder

Growing Up Boulder (GUB) is Boulder's child and youth-friendly city initiative established in 2009 as a formal partnership between the City of Boulder, Boulder Valley School District, and University of Colorado. GUB's mission is to offer young people opportunities to participate, deliberate and influence local issues that affect their lives. Since its inception, GUB has engaged more than 7,500 young people on more than 100 projects. In 2023, Growing Up Boulder will lead the City of Boulder in becoming a pilot [UNICEF USA Child-Friendly City Initiative](#). See GUB's [website](#) for more information.

About Classrooms for Climate Action

The Classrooms for Climate Action organization (C4CA) is composed of retired teachers, college students and community members who are passionate about climate action. Their main goal is to help teachers support their students in learning about climate change in order to build hope and agency by taking local climate action. C4CA helps K-12 teachers integrate climate science, climate justice and

climate action into what they are already teaching. They plan and teach side by side with them. Additional information can be found on their [website](#).

About Open Space and Mountain Parks

The City of Boulder Open Space and Mountain Parks Department preserves and protects the natural environment and land resources that characterize Boulder. They foster appreciation and use that to sustain the natural values of the land for current and future generations. Through their collaborations focused on Community Connection, Education and Inclusion, they build an inclusive community of stewards that seek to find their place in open space. Visit their [website](#) to learn more about Boulder's Open Space and Mountain Parks department.

About Utilities' Stormwater and Flood Management Program

The City of Boulder's new flood plan prioritizes projects that do "The Greatest Good, First". The latest update to the Comprehensive Flood and Stormwater Master Plan (CFS) is different in that it is one of the first to be informed by both the city's climate goals and Racial Equity Plan, which aims to improve outcomes for all by addressing systemic racial inequity. Prioritizing equity helped shape how the CFS was re-envisioned to ensure people who have limited access to flood preparedness, response and recovery resources are considered first for investments in flood and stormwater measures. The project with Columbine Elementary School focused on flood mitigation and preparedness along Goose Creek, which is in the same neighborhood as the school. See Utilities' website [here](#).

Boulder Valley School District & Columbine Elementary School

BVSD develops children's greatest abilities and makes possible the discovery and pursuit of their dreams which, when fulfilled, benefit us all. They provide a comprehensive and innovative approach to education and graduate successful, curious, lifelong learners who confidently confront the great challenges of their time. The mission of the Boulder Valley School District is to create challenging, meaningful and engaging learning opportunities so that all children thrive and are prepared for successful, civically engaged lives. See their website [here](#). Columbine Elementary is a Title 1/[Family Resource School](#) whose vision is to provide a bilingual learning community that nurtures academic excellence, encouraging each student to achieve their full potential as an emerging responsible citizen with the strength of character to take on the challenges of the 21st century. See their website [here](#).



The Four Elements were explained by Indigenous Educator, Leala Pourrier, during week 2. Photo by Luciana Escibens

The field trip was located along Goose Creek near Columbine Elementary School. Photo by Laurel Olsen

Project Goals and Frameworks

For fourteen weeks during library time, fourth grade students from three classrooms engaged in weekly inquiry-based lessons related to the driving question: *How can we as stewards of the land, educate the public about how and why we need to sustain the land and water in Colorado and take climate action?* Using the lens of climate change, mitigation, adaptation and resilience, lessons were enriched by guest speakers with content expertise, grounded in equity and multidisciplinary in design. In addition to BVSD unit objectives, the Nature Connection, Action and Hope project had additional goals, used Next Generation Science Standards (NGSS) and was informed by the two frameworks below. See the appendix for educational resources.

Project Goals

1. Encourage students to develop a connection to and appreciation for nature.
2. Learn how youth want to take action and care for their local environment (stewardship).
3. Provide relevant communications and strategies to inspire hope in a changing climate, both educating and hearing from students.
4. Create a meaningful connection to the community beyond the school classroom.

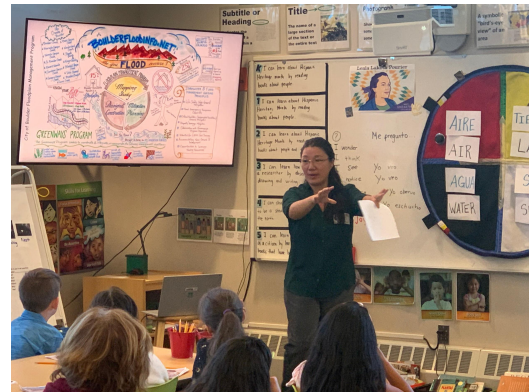
Frameworks

- Louise Chawla's research on Nature Connection and Constructive Hope was central to our unit development. See [figure 1](#) and [figure 2](#). Figure 1 has been annotated to reflect the concepts emphasized in this semester's planning.

- Classrooms for Climate Action (C4CA) [Framework](#): System, Science, Solutions, Serious
 - Connect to climate justice
 - Learn through Indigenous Knowledges
 - Create opportunities to learn outside
 - Engage in inquiry-and data-driven learning
 - Anchor learning to local climate phenomena and action projects
 - Center students' voices about climate issues and actions

By the Numbers

- 66 Columbine Elementary 4th grade students, ages 9 and 10
- 4 Columbine Elementary teachers (3 classroom teachers, 1 teacher librarian)
- 4 Growing Up Boulder staff
- 9 Classrooms for Climate Action (C4CA) staff, interns and retired teacher volunteers
- 5 OSMP staff
- 7 Utilities staff
- 1 Climate Initiatives staff
- 1,800+ total in-class engagement hours by C4CA, teachers and young people
- 300 GUB team hours



Nature connection activity at Columbine Elementary; Laurel Olsen, flood outreach coordinator, teaches students about Boulder's risk to floods. Photos by Luciana Escribens

“Go outside at least once a day and close your eyes, take a deep breath, try to feel nature and appreciate it.”

—4th grade student

Summary of Findings



This findings section includes:

- 1) Student Recommendations for Goose Creek,
- 2) Other Project Findings and
- 3) Student Reflections.

Student Recommendations for Goose Creek

Students view Goose Creek as a community asset with the potential to teach residents about the natural world and also as a place in which to enjoy the benefits of spending time in nature. Students were introduced to the fact that Boulder is the #1 city at risk for flooding in the state, and they see further flooding mitigation measures as critical to help keep people and animals safe and to protect and preserve the area from future flooding.

Climate Action: Flood Mitigation and “Doing the Greatest Good First”

Over the course of the semester, students learned about flood mitigation. They focused on why flood mitigation is important in the protection of people, property and natural areas. Flood mitigation is an important climate action because it acknowledges the reality of increased fires and floods in our area and teaches students that we need to adapt to our changing climate. Students learned that the flood risk along Goose Creek is not equal for all residents and that there are underrepresented voices who need to have input on making sure flood mitigation along Goose Creek is completed. Students had an opportunity to thank city officials for the work that has been done on the creek, and to encourage them to complete the work. This aligns with the City of Boulder’s newly approved Flood Management Plan which centers on “Doing the Greatest Good First.” This focus on climate justice teaches students that climate change is disproportionately affecting marginalized groups in our city and throughout the world. Students learned that their stewardship of the land, and aligning with underrepresented groups is worthy of their civic engagement and climate action. Their climate action paragraphs cited mitigation measures they’d like to see on Goose Creek.

Some of the flood mitigation measures that students are advocating for are:

- Deeper and wider creek beds to increase the carrying capacity of the creek
- Meanders, to slow the water down
- Drop structures to guide and slow water
- Removal of extra silt, soil, and overgrown grasses that prevent the flow of water
- Plant native species on creek banks to absorb water and control erosion
- Keep cottonwood trees healthy and growing strong since their health is vital to creek beds, preventing erosion, and providing habitat for native animals
- Keep testing the water to ensure it’s healthy for plants and animals who live along the creek

For more information, read about the [City of Boulder's Flood and Stormwater Management Plan and Doing the Greatest Good First](#) which was approved by the City Council in September 2022. Refer to the student artwork/paragraph link in the appendix for all 66 students’ flood mitigation ideas.

Other Project Findings

Nature Connection leads to hope

Teachers found that incorporating nature connection and learning about stewardship was key to students developing nature appreciation. Nature connection and appreciation naturally led to Columbine students wanting to take care of the Earth (stewardship). Students learned how flood mitigation is a form of stewardship which led them to taking climate action. Students expressed that taking climate action “makes us feel more connected and hopeful.” Students recommend that other young people get connected with nature and develop their “inner steward.”

Field Trip was instrumental to learning

The field trip was instrumental in launching nature connection and building background knowledge in ecology, hydrology and flood mitigation. Goose Creek was the perfect nature/climate phenomena. Because of its location in the students' neighborhood, it provided an authentic inquiry process. The experience of going on a field trip to Goose Creek was a remarkable experience for students (many of whom had never visited the area before) in these other ways:

- Going outside of the school and being in contact with nature,
- Having the opportunity to learn from the City of Boulder staff about new concepts and connect them with academic language they had been learning in class, such as mitigation, adaptation and climate solutions,
- Setting up their flood models at school, using all of information they received on the field trip,
- Teachers and students returning to their field trip experience, and their student packets, many times throughout the semester to apply, question and confirm new learnings in the classroom.

Experiential pedagogy key to learning and taking climate action

Students are capable of learning complex flood mitigation strategies when they have outdoor experiences, like a field trip, and hands-on activities, like the flood model experiments, in the classroom from which to learn. Creating and testing flood models in the classroom showed them how important flood mitigation is in order to slow down fast moving water during a flood. Student participation in the UN Global Climate Summit at the University of Colorado Boulder gave students insight that they can be a part of something larger and help create change right now.

Student Reflections

At the end of the semester, our team asked students to respond to several prompts. These questions are represented with infographics and sample answers below:



Word cloud illustrates student responses to the question, "How do you feel about spending time in nature?"

Word cloud illustrates student responses to the question, "How do you feel knowing that you can help people and animals along Goose Creek?"



85% of students said that their voice mattered.

My favorite part of this unit so far was...

Sample 1: "The field trip to Goose Creek because I love connecting with nature and being outside."

Sample 2: "Doing our flood models because it was fun and a hands-on activity and it taught me a lot."

Sample 3: "The field trip to CU (demonstrating flood models at the Global Climate Summit). I like to get my hands dirty."

Sample 4: "Talking with adults (during the student presentation) because they listened to my ideas."

What advice do you have for kids like you to get connected to nature and take action?

Sample 1: "Play outside a lot. That's how I got connected."

Sample 2: "My advice is to take a walk and look around and see what you might want to learn about and have fun while you do it."

Sample 3: "Visit natural places by your house daily."

Sample 4: "Nature helps you feel better!"

Having a connection to nature and being a steward is important because...

Sample 1: "It can bring hope to climate change and our world."

Sample 2: "We can help the Earth even though we are kids."

Sample 3: "It helps our community."

Sample 4: "It helps us understand what we can do to help take climate action."

Flood mitigation on Goose Creek is important for climate justice because...

Sample 1: “We don’t want animals or people to get hurt.”
Sample 2: “We need to prepare for the next flood.”
Sample 3: “It prevents floods and keeps EVERYBODY safe.”
Sample 4: “Everyone has the right to be safe.”

“Do the greatest good first” means...
Sample 1: “Justice.”
Sample 2: “If you are going to help protect people, you need to do the most helpful thing first.”
Sample 3: “Putting the most important thing at the top.”
Sample 4: “If you have more resources than someone else, then help them when they need it.”

“I want the students to remember that what they presented was proof that they learned so much over these last few months. They can make change. They have a voice. I want them to help others find their voice, too.”

–Columbine teacher librarian

“Something I was impressed by was the inclusion of Indigenous Knowledge and the depth of understanding the students gained. Loved the bilingualism!”

–Community member

Columbine Engagement Highlights

This section highlights some of the activities students engaged in during the unit. If you are interested in learning more, GUB created [this document](#), entitled *Nature Connection, Action and Hope: What’s Your Goose Creek?*, for educators and others wanting to replicate the unit.

Field Trip

During week 4 of the unit, 13 staff from OSMP, Utilities and Climate initiatives contributed their time and expertise in hosting a field trip for students at Goose Creek. Six learning stops were set up along the creek: 1) Pathways to nature connection, 2) Erosion, stormwater and trees, 3) Human-made flood elements and plants, 4) Riparian habitats, 5) Water quality and 6) Boulder and White Rock Ditch. City of Boulder, C4CA and GUB staff collaborated to design the field trip materials for [educators](#) and [students](#). A big thank you to Utilities staff for bringing them to fruition. With packet and clipboard in hand, students were able to capture their learnings, ideas, questions and observations at each station during the site visit. Further, the packets became reference materials, repeatedly referred to by teachers and students throughout the fall. As the nature phenomena to spark inquiry, the field trip to Goose Creek was instrumental in building the background students needed for future lessons. See Field Trip Stop 1-6 Summaries document link and additional photos in the appendix.

“My favorite part of this unit was the field trip to Goose Creek because I love connecting with nature and being outside.”

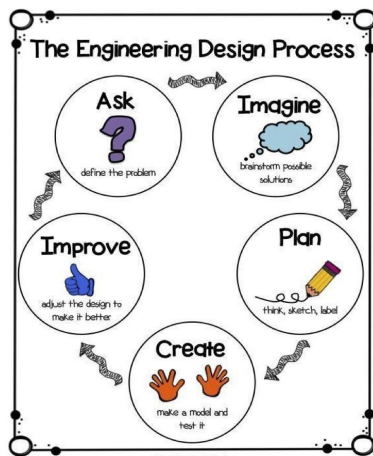
—4th grade student

“A phenomenon is simply an observable event. In the science classroom a carefully chosen phenomenon can drive student inquiry. Phenomena add relevance to the science classroom showing students science in their own world. A good phenomenon is observable, interesting, complex, and aligned to the appropriate standard.”

—The Wonder of Science



Students at Goose Creek move between stations and a student studies vegetation and wildlife snapshots.
Photos by Kirsten Boyer



Flood Engineer Modeling

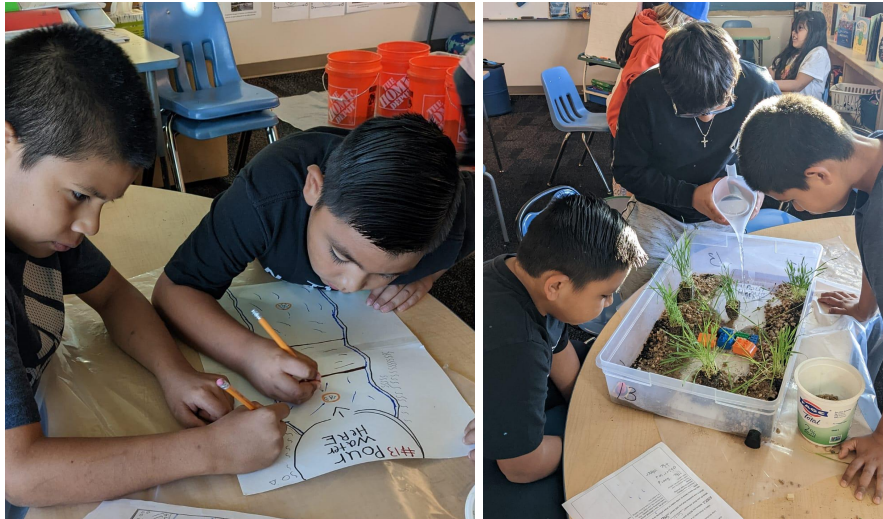
Day 1: Testing for absorbency—We began with a Goose Creek Field Trip review, highlighting what we learned there about flood mitigation efforts and some important vocabulary (ie. absorption, erosion, sediment, drop structure, flood wall). Then we connected the field trip to our purpose of the day: to conduct experiments and learn about the absorption of a variety of earth materials (sand, soil, plants, pebbles and Legos).

Day 2: Designing the flood model—Students remembered important structures they saw, like flood walls, drop structures and how the plants helped the water flow slowly in the creek. Then, they applied these structures and concepts with their flood model designs, [using this planning sheet](#) as a basis for their drawing.

Day 3: Building and testing the flood model—After placing their designs under their clear model containers, students worked with their hands and connected with the different materials using their senses. Students managed to work collectively, assign responsibilities to each team member and applied their prior knowledge using the vocabulary they learned in previous days and during the field

trip to Goose Creek. Once the models were built, students started testing them with three different water pours—200 ml, 400 ml and 600ml. Students observed what happened to the materials in their flood model after each pour, and they recorded their observations in their model table.

Day 4: Making improvements to the model—Students were able to talk about their models and materials used for absorbency, incorporating in their sentences words like channel, erosion and saturation, and how difficult it can be to design a flood model for real. Students were given the opportunity to improve their models—thinking about creating a better flood wall, doing a meander to slow the water, being more conscious with buildings and houses along the creek and/or using more soil or gravel. See additional photos in the appendix.



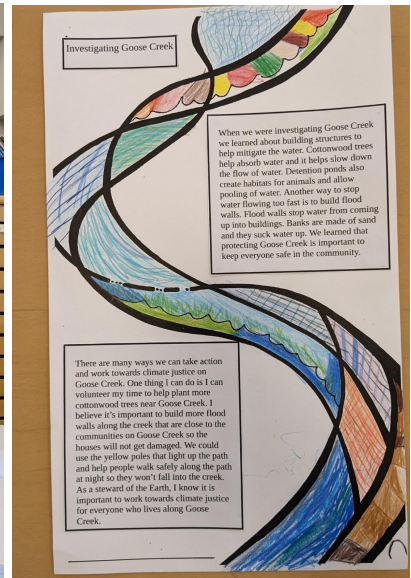
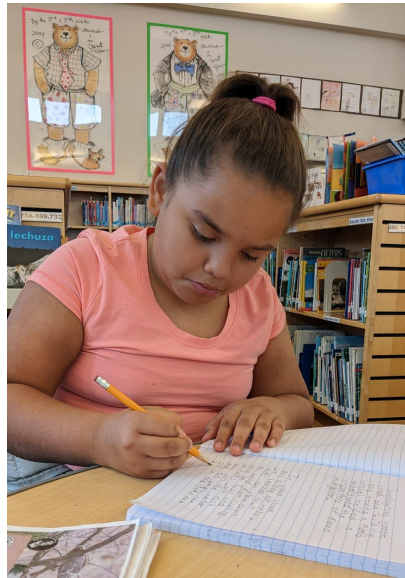
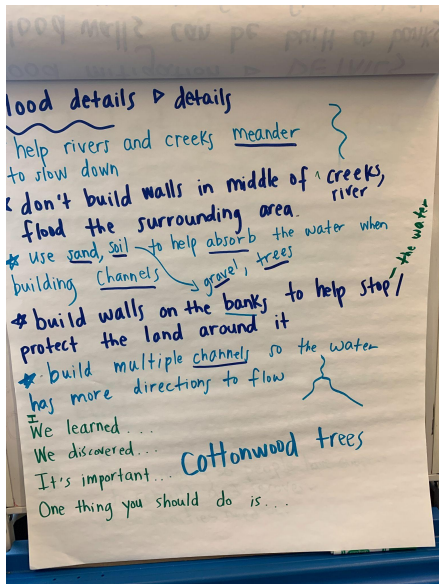
*Students design their flood model and closely observe during a water pour.
Photos by Luciana Escribens*

“My favorite part of the unit was building flood models because I loved how we got to build something fun for learning.”

—4th grade student

Persuasive Writing and Artwork

Over four sessions, students engaged in a review of persuasive and informative writing, interactive shared writing, independent writing and editing to produce two paragraphs in the language of their choice. Discussion questions such as, How did exploring Goose Creek and building and testing a flood model help us learn about the importance of flood mitigation?, sparked their acquired knowledge about Goose Creek mitigation measures, climate justice and climate solutions to communicate in written form. Finally, students participated in an art lesson, using colored pencils to produce artwork to accompany their two written paragraphs. See student artwork/paragraph link and additional photos in the appendix.



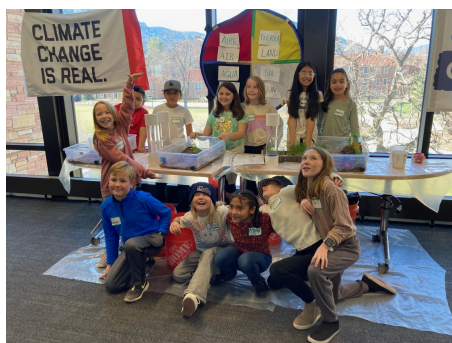
Anchor charts, like this shared writing one, supported student writing; Fourth grader engaged in writing; Sample typed paragraphs and artwork. Photos by Cathy Hill and Luciana Escribens

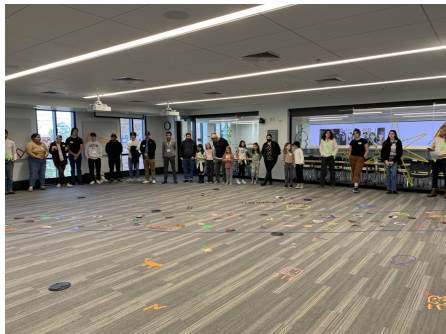
“My favorite part of the unit was drawing the art to go with my paragraphs because art is so fun!”

—4th grade student

Global Climate Summit

On Sunday, December 4, a group of the Columbine Elementary School students, their parents and teachers, took a BVSD bus from their school to the United Nations’ Global Climate Summit: “Right Here, Right Now,” at the University of Colorado’s campus. Twelve students shared their work with adult and college visitors alike, treating them to 3D flood model demonstrations, persuasive essays, artwork, photographs of their experience and explanations of their work. After sharing their Nature Connection, Action, and Hope knowledge, the children participated in an interactive workshop entitled, *“Enacting Climate Solutions: Student Workshop”*, co-created and co-moderated by Professors Beth Osnes and Jasmin Barco and their students from their *Performance for Community Engagement* course. The workshop brought about a feeling of belonging as part of a generation of changemakers through fun activities. Together, the children, students and community members explored how to carry forth the wisdom from ancestors to avoid the “unsustainable or scorched path” and chart their own course toward a “green path” for an equitable, survivable and thrive-able future. The workshop was followed by lunch and a virtual viewing of the Summit’s *Youth and Climate Justice: Developing Climate Solutions With Future Generations in Mind* panel. After this full day, the children, parents and teachers returned back to their school. See additional photos in the appendix.





Top left and bottom right: Students celebrate their flood model demonstration session at CU.

Top right: Students engage in the “Enacting Climate Solutions” youth workshop. Photos by Mara Mintzer

“My favorite part of the unit was when we went on the field trip to CU (for the Global Climate Summit). I like to get my hands dirty.”

—4th grade student

Student Presentations at Columbine

On December 6, 8 and 9, Columbine 4th graders shared their acquired knowledge through 75 minute student-led presentations in the school’s library. More than 40 guests attended, including parents, city councilors, City of Boulder staff and other interested community members. The event began by going outdoors for a few quiet moments and connecting with nature. A student emcee first told us to imagine that our head is the Earth, and that our arms are layers of greenhouse gasses which are making our planet too warm. Then, guests were guided to learn the following hand motions and powerful belief statement embraced by students and teachers:

“Climate change (arms bent over, resting on your head) requires climate solutions (arms straight up and out) which brings about climate justice (flex arm muscles) which brings about hope (both hands on heart) for all (bring hands out and gesture outward)”.

A bilingual team of emcees with an accompanying slideshow then provided an introduction to the project. Afterwards, young people at small tables had ample time to share their learning with guests on a variety of topics: Indigenous Knowledge/Stewardship, Field trip to Goose Creek (persuasive paragraph 1), “Doing the Greatest Good First”/Justice (persuasive paragraph 2), Flood models and Cottonwood Leaves/Action/Hope Activity. A flood model demonstration area was set up where students talked about flood mitigation. Students read their flood mitigation recommendations for Goose Creek and taught adults the different concepts and strategies they had learned about. At the end of the presentation, guests and students discussed climate solutions that they were using in their daily lives, and guests were invited to add their climate solutions to the Tree of Hope (see photo below). Additional photos and guest reflections can be found in the appendix.



As part of the student presentation introduction, bilingual students simulate climate change; City councilors add their climate solutions to the Tree of Hope. Photos by Curry Rosato and Luciana Escribens

“It (The student presentation) was great! Great to meet the students, connect with parents, educators, Growing up Boulder and Open Space friends. Plus, I learned a lot and got to connect with nature!”

–Boulder City Council member

“Something I want to remember is the interactive and interdisciplinary presentations. Learning about the field trip and the flood models was impactful. Getting outside, (hearing about) the variety of subjects and the Tree of Hope–WOW!”

–OSMP staff member

“My favorite part of the unit was talking with adults (during the student presentation) because they listened to my ideas.”

–4th grade student

GUB and C4CA Engagement Reflections

Importance of Biliteracy

It is clearly evident that biliteracy is truly valued at Columbine Elementary School. Recognizing students as “simultaneous bilinguals” is a concept that encourages and prioritizes students' access to both languages simultaneously. It is important for students to see both languages used and celebrated in their daily lives. A C4CA teacher says it all:

“When educating Multilingual Learners and students in general, research shows that student development of oracy is critical to success in education and in citizenship.” This project worked to develop oracy for all students by having them:

- 1) *Develop bilingual language around a topic that matters in their/our community*
- 2) *Experience first-hand by providing a field trip and flood model building activity*

- 3) *Reflect on these experiences while talking and writing about them, with scaffolding and provided language structures when needed. Through this process, students gained a required skill of knowing how to write a paragraph.*
- 4) *Having students prepare notecards for presentations of what was learned*
- 5) *Providing ample time to practice in comfortable settings before their presentations*
- 6) *Providing time to reflect and celebrate and talk about their successes and learnings*

These steps and experiences built a solid foundation for oracy around the topic of stewardship, climate change and flood mitigation. And the community effort in the process enabled students to feel supported and confident in gaining these skills.”

Integrated, Year-Long Project-Based Learning Unit

Projects that extend over the course of a semester or longer, are often rated by teachers, students and GUB/city staff to have higher degrees of success and impact than engagements that are shorter in length. As students immerse themselves over time, they find meaning, connection, and purpose, build expertise, cultivate higher degrees of ownership and have multiple opportunities to engage in climate action.

Return to Goose Creek

Teachers and guests who attended the student presentation commented that a second trip back to Goose Creek, as part of the learning unit or after school with families and friends, would be a great opportunity for students to “show what they know” about nature connection, ecology, hydrology, floods and flood mitigation and to use the vocabulary that they have learned.

Extensive Collaboration & Planning

GUB, C4CA, City of Boulder and Columbine staff communicated frequently via email/text. The team also met every Monday to plan for the engagement work throughout the semester. As a result, relationships were built and a first-rate program was delivered. Extensive collaboration and planning requires investment, but the belief that investment pays dividends was valued.

Spring 2023 Plans

In spring 2023, plans are being made to integrate similar lessons with NCAR area fire mitigation, Wonderland Lake and Growing Gardens. By continuing to engage in similar experiences, students will cultivate greater connection to nature, benefit from more experiences related to climate solutions, climate justice and take meaningful action. This action will bring hope into the hearts of these students. Centering civic engagement and collective climate action gives students a voice in systemic change. Students should NOT feel like they are individually responsible for climate change and building their capacity for collective action and seeing the impacts of this action will encourage them to continue to be civically engaged.

Since GUB staff will not be working with students in the spring, we recommend in May that teachers explicitly ask students whether they have the same amount of hope as before the unit began or if they have more hope having engaged in these lessons and why.

“In an ideal world, students would end the semester going on a field trip again (to Goose Creek) to experience all they learned...which is SO MUCH!”

–C4CA volunteer

“Something I want the students to remember is how it takes partnership and that they have the power and the knowledge to create change. I would love for them to bring friends and family to Goose Creek to spread the news.”

–OSMP staff member



Students learn about the local plants and animals of the riparian ecosystem from OSMP staff.
Photos by Kirsten Boyer



OSMP staff use a rope to illustrate the interconnectedness of all living things.

“Something I want to remember about today is the importance of making systemic changes and the agencies (communities) working together. Climate justice affects everyone.”

–Community member

Conclusion



This Nature Connection, Action and Hope project has set itself apart as being a unique and one-of-a-kind GUB partnership and learning experience. First, it's rare that multiple agencies and organizations come together to support children and youth in the classroom the way that Columbine Elementary, City of Boulder, Classrooms for Climate Action and Growing Up Boulder staff did. Each partner played an important role, demonstrated content expertise and showed a level of commitment rarely seen in regards to connecting young people with meaningful, local nature and climate learning and action in their community.

Second, the opportunity for students to provide flood model demonstrations at the UN Global Climate Summit in early December was special and well-timed. Students who were able to participate will always remember explaining the flood models to conference attendees.

Third, the more than forty guests attending the bilingual student presentations at Columbine represent the highest attendance ever at a GUB share-out, and it made a big impression on the students; for many students, this was their first experience sharing their ideas with adults in such a format. In fact, 85% of students reported that they felt heard and that their voices mattered.

Finally, a major outcome of this collaborative work is a lesson sequence [document](#), entitled *Nature Connection, Action and Hope: What's Your Goose Creek?* that was created by GUB to support other educators wishing to enrich their unit planning. It provides a roadmap for educators to incorporate nearby nature/climate phenomena and initiate multidisciplinary inquiry with a purposeful climate action component into units of study.

This fall, students at Columbine demonstrated that 9 and 10 year olds are capable of and eager to:

1. Spend time outdoors appreciating nature and developing eco-stewardship,
2. Study their local environment [in this case a local waterway within a riparian ecosystem],
3. Learn sophisticated flood engineering concepts,
4. Apply the realities of climate change and climate solutions to a local issue,
5. Stand up as stewards for climate justice and share their knowledge with interested adults

In conclusion, sixty-six bilingual fourth grade students from Columbine Elementary demonstrated a strong desire to learn about the Goose Creek riparian ecosystem and a keen interest in sharing their recommendations for making the greenway an even better community asset for nature- and climate-based learning. Students are grateful for the flood mitigation work that has already been done along Goose Creek, and they recommend that the community invests in further flood mitigation and emergency preparedness measures so that people and animals who live along Goose Creek are safe from the next flood. They want to see the City apply their policy, “Do the Greatest Good First”. GUB is excited to see what spring 2023 holds as the Nature Connection, Action and Hope unit continues and these students build upon their semester-long learnings.

“Something that I want the students to remember is that students have a lot to say and share, and their ideas and opinions matter—really matter—not just an “in school” thing but that their voices can and should be heard by the community. So many people coming to listen and learn from them really sent that message loud and clear.”

—Anne Goudvis, C4CA volunteer and Literacy Author

Partners and Appreciation

This project was the result of an extremely collaborative process. Several key partners made this project possible, including C4CA staff and volunteers, City of Boulder staff from Open Space and Mountain Parks and Utilities—all deeply invested and a pleasure to work with! GUB would like to especially thank the students and teachers at Columbine Elementary School. Teachers, we see your investment in your students and appreciate you; students, we commend your hard work!

- Boulder Valley School District (BVSD)
 - Hilary Barthel, Columbine, 4th grade teacher

- Erin Livingston, Columbine, 4th grade teacher
- Sarah Quiatt, Columbine, 4th grade teacher
- Jeanette Scotti, Columbine, Teacher Librarian
- Classrooms for Climate Action (C4CA)
 - Lynne Albert
 - Tiffany Boyd
 - Tegan Corradino
 - Tim Downing
 - Breida Geesaman
 - Anne Goudvis
 - Janet Hoaglund
 - Melissa Oviatt
 - Margaret Wynne
- Climate Initiatives, City of Boulder
 - Heather Bearnes-Loza, Sustainability Sr. Program Manager, Climate Initiatives Department
- Community Experts
 - Leala Pourrier, Indigenous Educator, Student, University of Denver
- Growing Up Boulder Staff/Team
 - Luciana Escribens, Participatory Planning Associate
 - Cathy Hill, Education Director
 - Jetzabel Martinez, Bilingual Engagement Specialist
 - Mara Mintzer, Executive Director
- Open Space and Mountain Parks Department
 - David Ford, Education & Outreach Manager, OSMP
 - Juanita Echeverri, Education and Outreach Manager, OSMP
 - Kelly Kirk, Education and Outreach Representative, OSMP
 - Leidy Pineda Flores – Bilingual Education and Outreach Sr. Representative, OSMP
 - Curry Rosato, Education and Outreach Manager, OSMP
- University of Colorado, Boulder
 - Jasmin Barco, Assistant Director Energy and Climate Justice Programs
 - Beth Osnes, Associate Professor of Theatre, an Environmental Studies associate and co-founder of SPEAK
- Utilities
 - Brandon Coleman, City of Boulder Utilities, Civil Engineering Manager
 - Shuangshuang Fan, City of Boulder Utilities, Flood and Stormwater Engineering Intern
 - Debbie Fisher, City of Boulder Utilities, Civil Engineering Sr. Project Manager
 - Christin Kapatayes, City of Boulder Utilities, Civil Engineering Sr. Project Manager
 - Kevin Koryto, City of Boulder Utilities, Civil Sr. Engineer
 - Laurel Olsen, City of Boulder Utilities, Community Engagement Sr. Program Manager
 - Candice Owen, City of Boulder Utilities, Water Quality Manager

We also want to give our heartfelt thanks to the more than 40 guests (representing BVSD, City of Boulder staff, City Councilors, local organizations and parents) who attended one of the three presentation events. We apologize if we missed some guests—not everyone RSVPd and we did the best we could to account for each one of you. Thank you for your support!

Student Presentation Guests

- Ward Bauscher Sr., parent
- Heather Bearnes-Loza, City of Boulder, Cool Boulder
- Sarabeth Berk, Growing Up Boulder Board member
- Brad Bickerton, Community member
- Aaron Brockett, Boulder Mayor
- Dan Burke, Director, Boulder Open Space & Mountain Parks
- Ghita Carroll, BVSD Sustainability Coordinator
- Edgar Chavarria, City of Boulder Engagement
- Louise Chawla, Professor Emeritus, University of Colorado
- Robin Collins, Board Member Mapleton Mobile Homes
- Allie Corradino, College student
- Juanita Echeverri, Boulder Open Space & Mountain Parks
- Maggie Vest Engleman, Community member
- Michelle Estrella, City of Boulder Boulder Open Space Board of Trustees
- Debbie Fisher, City of Boulder Utilities
- Jennifer Flowers, Columbine parent
- David Ford, Boulder Open Space & Mountain Parks
- Lauren Folkerts, Boulder City Council member
- Michelle Fredson, Retired BVSD teacher
- Jenelle Freeston, Interim Deputy Director Community Connections, OSMP
- Kate Guthrie, Retired Columbine teacher
- Pat Heinz-Pribyl, Retired BVSD Principal
- Sue Hopewell, BUENO Center CU Boulder
- Karen Hollweg, City of Boulder Open Space Board of Trustees
- Kelly Kirk, Boulder Open Space & Mountain Parks
- Amy Kirtland, CU Facilities Planner
- Maya MacHamer, Boulder Watershed Collective
- Mara Mintzer, Executive Director, Growing Up Boulder
- Harvey Oaxca, Executive Director, BVSD Northwest Network
- Laurel Olsen, City of Boulder Utilities
- Wanda Pelegrina Caldas, City of Boulder, Family Services Manager
- Enrique Ramirez, Intern, Classrooms for Climate Action
- Curry Rosato, Education Manager, Boulder Open Space & Mountain Parks
- Carole Suderman, Retired Columbine teacher
- Manuela Stewart Sifuentes, City of Boulder Language Access Program Manager
- Olivia Szeliga, Communication Specialist, Growing Up Boulder
- Tara Winer, Boulder City Council member

Appendix

BVSD materials: [Year At a Glance, 4th grade "Colorado: The Landscape and Earth's Features"](#)

Climate action artwork and paragraphs: [teacher 1](#), [teacher 2](#), and [teacher 3](#)

[Boulder Flood Management Infographic](#)

[Daily Camera Article 12/6/22](#)

[Engineering Design Process](#)

[Field Trip Program Evaluation Quickfacts](#)

[Field Trip Stops 1-6 Summaries](#)

[Giving Tree Equity Poster](#)

[Goose Creek Field Trip Materials](#)

[Guest Reflections from Student Presentations](#)

Louise Chawla's [figure 1](#) and [figure 2](#) on Nature Connection and Constructive Hope

[NCAH Lesson Sequence for Educators](#) (this has materials for every lesson)

[Next Generation Science Standards](#)

[Photos can be found here](#)

[Student Presentation Documents](#) (UN Global Climate Summit demo/Columbine Elementary)