

ESTABLISHING COLLECTIVE OUTCOMES FOR ENVIRONMENTAL EDUCATION

SUMMARY OF WORK BRIEF

JANUARY 15, 2019

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Funding Support:

Pisces Foundation



Introduction

The following brief summarizes the ongoing progress in 2018 to help establish Colorado collective outcomes in environmental education. This summary is based on continued community engagement and feedback that we shared with EE practitioners, evaluators, and researchers on how we might, as a field, begin to put this theory into practice.

2018 Colorado Collective Outcomes Timeline:



Purpose & Intention

After reviewing and reflecting on the conversations we've shared to date, we know that the work in Colorado is building off of previous efforts in the field to establish a collective and shared understanding for how programs and organizations impact the lives of participants – efforts that explore and challenge which common outcomes are woven throughout the many and varied organizations who do this work. Our intention in seeking multiple perspectives is to ensure that our work does not move forward in a vacuum; but is instead connected to, aware of, and builds off of the many other synergistic efforts underway. As such, we are actively participating in a national-level conversation facilitated by a research and evaluation team at Duke. Our role as one of the three case-study sites helps ensure that our work remains relevant at both the state and national level.

Moving forward in 2019, CAEE and Blue Lotus will design a pilot evaluation that best reflects the feedback and interest gathered from various stakeholders to ensure that the design both fits the intention of this project and benefits and builds the Colorado EE field as a whole. As a part of the pilot design, we will identify existing tools or develop new tools to measure selected indicators, including a series of evaluation workshops for pilot participants. Feedback from pilot organizations will be considered in the design to ensure the tool(s) is manageable and feasible within their current programming.

The What

Through the conversations outlined above, we identified a set of five major impact areas¹ that encompass Colorado EE initiatives and the cross-cutting indicators we believe lead to these impacts. We are calling these indicators “Determinants of Environmental Literacy” as research and evaluation findings suggest that when these indicators are present and strong, they can and do lead to impact (see Figure 1).

For 2018, we continued to build off of the five impact areas established in 2017 which include: Education; Conservation; Health & Wellness; Social Justice; and, Positive Child & Youth Development (see APPENDIX A). We also continued to move forward with the leverage points that include: Academic Participation; Access|Connection to Nature; Health of the Physical Environment; Community & Civic Engagement (*on behalf of the environment*); Diversity, Equity & Inclusion | Relevancy; Well-Being; and, Workforce|Green Jobs. However, as you will see below and in Appendix A, for the purpose of clarity, these leverage points have been woven into the indicators of each impact area.

Figure 1: Determinants of Environmental Literacy



¹ Original Impact Areas and definitions come from the [Pisces Foundation](#).

Impact Areas

Provided below is a summary of the 2018 stakeholder engagement process, as reflected in the timeline above. These impact areas build off of what the Pisces Foundation has identified as “funding priorities” within their funder audience.

To better align these impact areas with the Colorado Collective Outcomes work, we used a results-based accountability (RBA) framework to envision what these impact areas might look like in real-time. The primary goal of this collaborative effort is to move all EE stakeholders closer to a shared language, clarity of roles, and a common understanding for intended outcomes and, ultimately, impact.

In 2018, the population and program level indicators were refined and defined; the list of distilled priority indicators for each impact area are listed below. For a complete list of the indicators, see Appendix A.

Indicators were prioritized by what is doable, manageable, and feasible, especially at the program level. Priority was also given to which indicators will provide the most useful feedback to the pilot organizations and to the collective outcomes understandings.

	Population level indicators*	Program level indicators**
Conservation	<ul style="list-style-type: none"> • Increase in environmental behaviors • Increase in quality: water, air & soil 	<ul style="list-style-type: none"> • Increase in nature connection • Increase in stewardship actions that protect, preserve & enhance the environment • Increase in desire, motivation to participate in positive environmental actions • Increase in positive attitudes towards nature + environment to foster and cultivate a conservation ethic • Increase in civic and community engagement • Increase awareness and knowledge of cultural, biological, & scientific processes systems
Education	<ul style="list-style-type: none"> • Increase in academic testing scores • Increase level of engagement in learning (attendance + referrals) • Increase # students enrolled in NR ENVIS degree program • Increase % schools with EE • Increase # opportunities and action for civic or community engagement 	<ul style="list-style-type: none"> • Increased understanding of EE program content • Increased critical thinking-problem solving skills • Increased engagement in learning • Increase in workforce readiness skills • Increased time spend on EE in the classroom and outdoors • Increase in culturally relevant curriculum

* population level indicators: a measure that encompasses population-level data points as opposed to individual programs or persons

** program level indicators: a measure that assesses individual programs or persons

<p>Health + Wellness</p>	<ul style="list-style-type: none"> • Increased time in Nature • Increase in # of culturally responsive outdoor spaces • Decrease in systemic barriers to accessing nature • Increase % Coloradans with Safe & Convenient Pathways to Nature • Increased nature connection across all Coloradoan demographics • Increase in programs offered linking healthy environment + healthy self 	<ul style="list-style-type: none"> • Increase in unstructured free time for all ages in outdoor green space • Increased comfort in exploration of outdoor spaces • Decrease in fear, anxiety, unknown • Decrease in participant reported barriers to accessing nature • Increase in participants with safe & convenient pathways to nature • Increase in nature connection among all participants • Increase in perceived wellness and health as result of being in outdoors • Increase in outdoor community-based health interventions
<p>Social Justice</p>	<ul style="list-style-type: none"> • Decreased barriers to nature access • Use of outdoor spaces reflects demographics of community • Increase in commitment to DEI within organizations 	<ul style="list-style-type: none"> • Increase in # participants who feel welcome in Green Spaces • Increase in # programs honoring diversity in outdoor spaces • Increase in diversity of organizational leadership • Increase in providers' DEI training for all staff • Increase in participants' perception of safe and healthy community • Increase in culturally-aware & responsive programming
<p>Positive Child + Youth Development</p>	<ul style="list-style-type: none"> • Increase in # opportunities that provide a continuum of experience between organizations, partnerships, & other collaborations • Decreased barriers to nature access • Increase in programs that support PYD Components: <ul style="list-style-type: none"> - Competence - Confidence - Character - Caring - Connection - Contribution • Increased # opportunities for civic or community engagement 	<ul style="list-style-type: none"> • Increase in # opportunities that provide a continuum of experience • Increase in # of youth experiences in the outdoors that support basic needs (food, sleep, comfort) to lead to safe & positive experiences in nature • # of youth-directed internships mentors authentic adult + peer relationships • Increase in youth's understanding of healthy & unhealthy risk • Increased # opportunities for civic or community engagement

APPENDIX A: UNABBREVIATED IMPACT AREA TABLES

OverALL Outputs not dependent on Impact Area of focus:

The indicators listed below track across all Impact Areas and provide general context of programs offered

Population	Program
Increase % Coloradans w/ access to EE	# of participants served
Increase diversity of Coloradans participating in EE	Participant demographics
User demographics of park/open space	# of hours spent outdoors (dosage)
# of hours spent outdoors (dosage)	# of programs addressing barriers (i.e., transportation, time, fees, etc.)
	Organizational demographics

Education (Academic, PK-12):

Result: Environmental education supports & ensures all PreK-12 students are lifelong learners with successful school outcomes.

Defined as: Education outcomes of participation in EE encompass improved academic performance, broadly defined. Outcomes for education can include greater E-STEAM literacy, higher standardized test scores, and increased school engagement using the environment as an integrating context OR in the outdoors/environment for all (add definition of all) students. This also encompasses programs that support teacher professional development and direct improvement of school grounds and other learning spaces.

Quality of life or condition for the desired population is:

- All Students demonstrate strong academic performance
- All Students demonstrate increased critical thinking skills
- All Students demonstrate increased engagement in learning
- All Students demonstrate increase in knowledge
- Teachers and administrators get Professional Development in EE
- Schools have nature based learning environments (i.e., school gardens, outdoor classroom, etc.)
- Schools have improved culture and climate because of EE programs

Impact Area	INDICATORS OF SUCCESS	
	Population Level	Program Level
Performance in School	Increase in academic testing scores Increased graduation rates Increase level of engagement in learning (attendance + referrals)	Students have increased understanding of EE program content Students have opportunity to demonstrate knowledge

	Increase in environmental identity.* youth voice	<p>Students have increased critical thinking/problem solving skills.</p> <p>Students take action based on critical thinking skills. As measured by:</p> <ul style="list-style-type: none"> • Intention to act • Self-reported action. What did you do about this? (self-reported) • Observed action. Instructors and parents observe higher participation in action <p>Increase in curriculum that reflects culture, linguistically appropriate & includes family engagement</p> <p>Increased engagement (add definition) in learning (as defined by K-12 lit).</p>
Graduation	<p>Increase % students graduating high school</p> <p>Increase % students of color graduating high school</p>	<p>Increase in % program alumni graduating from high school</p> <p>Increase in % program alumni of color graduating from high school</p> <p>Increase % of students of color who have mentorships (other engagement strategies)</p>
Workforce Readiness	<p>Increase # students enrolled in NR/ENVS degree program</p> <p>Increase in # students of color enrolled in NR/ENVSS degree program</p>	<p>Increase in Workforce readiness skills</p> <p>Increase in leadership skills</p> <p>Increase in % of program alumni of color seeking college level EE/Science programs</p> <p>Increase in % of program alumni applying & enrolling in college level EE/Science programs</p> <p>Increase % students who learn about EE career pathways + receive career assessment</p> <p>Increase in % of program alumni applying & enrolling in environmental vocational training</p>
Professional Development	<p>Increase in district-level EE PD participation for pre/in-service teachers</p> <p>Increase in university programs offering EE to pre-service teachers</p>	<p>Increase in individual PD & coaching opportunities teacher understanding of content/knowledge</p> <p>Increase in teachers of color participating in EE PD</p>

	# of classroom teachers w/ ENV/EE degree	<p>Increased collaboration & partnerships between non-formal and classroom educators</p> <p>Increase in culturally responsive EE curriculum</p> <p>Increased program offerings for pre-service and in service teachers</p> <p>Increased PD in outdoor environment community engagement</p> <p>Increased enrollment & participation for pre-service teachers</p> <p>Increased networking among teachers mentorship</p> <p>Increased time spent on EE in the classroom and outdoors</p> <p>Increased critical thinking/problem solving skills.</p>
Time Dedicated to EE	<p>Increase % schools participating in EE</p> <p>Increase in diversity of schools participating in EE</p> <p>Increase % schools taking EE field trips</p> <p>Increase # “Green Schools”:</p> <ul style="list-style-type: none"> Increase # school districts adopt strong EE based curriculum at all levels <p>Increase in rural districts offering EE</p> <p>Increase in districts offering and supporting outdoor experiences off site/in the community where students live</p>	<p>Increased understanding of content/knowledge among teachers & administrators</p> <p>Increase # hours school participates in EE/outdoor ed annually</p> <p>Increase # hours individual teacher’s classroom participates EE/outdoor ed annually (school year)</p> <p>Increase # hours grade level teams participate in EE/outdoor annually (school year)</p> <p># of schools with school-wide participation in EE</p> <p>Increase # of school-based family engagements (i.e., events, etc.)</p> <p>Increase in field trips taken/year</p>
Civic and Community Engagement	Increase # opportunities and action for civic or community engagement	<p>Increased skills in issue investigation & action (define skills for programs) - see CRITICAL THINKING + PROBLEM SOLVING</p> <p>Increase in problem-based/service learning projects</p>
DEI	# of environmental science, env arts, EE, outdoor ed classes offered in schools	Increase student participation in outdoor/EE school-based clubs and organizations

		<p>Increased knowledge & representation of diverse historical figures in EE</p> <p>Increased cultural use of space (how are spaces used by different cultures)</p> <p>Increase visuals for culturally responsive classrooms, curriculum, etc.</p>
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Conservation

Result: All Colorado ecosystems are healthy, vibrant, and valued.

Defined as: Programs with conservation outcomes include those that increase environmental knowledge, improve environmental awareness and attitudes, and inspire positive environmental actions that lead to improvements in environmental quality. (environmental health = human health = well-being)

Quality of life or condition for the desired population is:

- All Coloradans have clean air, water, & soil
- All Coloradans have SAFE access to, and utilize, public transit, bike routes, and safe walking paths connecting communities
- All Coloradans have access to, and use, renewable energies for their homes and businesses
- Open space programs and state parks are well funded and supported for both recreation and wildlife/habitat protection
- Environmental education is included throughout formal educational systems P-20+ in all Colorado learning institutions

IMPACT AREA	INDICATORS of SUCCESS	
CONSERVATION	POPULATION LEVEL	PROGRAM LEVEL
	Increased funding for EE from private, public, government sources	*Increase in Connection to Nature Increase in Nature in Self Identity
	Increase % of students w/ EE in formal education	*Increase in stewardship actions that protect, preserve & enhance the environment
	Increase in neighborhood green space	*Increase in positive attitudes towards nature + environment to foster and cultivate a conservation ethic
	Increase in access to green space	# of participants served, including communities of color & low SES
	Increase in env. quality of green space	# of contact hours
	Increase on legislation proposed + passed on conservation issues	# of schools / school demographics
	Increase in environmental behaviors	# of volunteers, projects & hours donated
	Increase in # of volunteers participating in stewardship	Increase in community awareness
	Increase # of citizens attending meetings specific to environmental protection	Increase in civic + community engagement
	Decrease % env. degradation (by demographics)	Ecological stewardship identity development
	Increase in walkable communities	Increase desire, motivation to participate in positive environmental actions
Increase in quality: water, air & soil	Increase awareness + knowledge of natural processes	

	<p>Increase in trade/training programs for green jobs</p> <p>Increase in enrollment in university programs in green jobs</p> <p>Increase in environmental identity, youth voice</p>	
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Health & Wellness

Result: Through increased safe access, connection to, and comfort in the natural environment, all Coloradans are healthy and well, physically, mentally, and emotionally.

Defined as: Health and wellness outcomes are improvements in physical, mental, emotional, and social health and wellness through connection with nature. Health outcomes include improved nutrition, physical fitness, reduced stress and anxiety, recovery from physical or psychological trauma, and greater awareness and understanding of personal and environmental health. Health and wellness are related to safe access and culturally responsive opportunity for underserved communities and underrepresented populations. To achieve these outcomes, ongoing and increased access to outdoor experiences, improved urban green space, and the development and support of culturally-responsive environmental educators and leaders from traditionally underrepresented groups are necessary.

Quality of life or condition for the desired population is:

- All members of all communities across Colorado spend time outdoors daily
- All members of all communities across Colorado are mentally well and experience fewer symptoms of stress, depression, cognitive fatigue, sedentary lifestyle and chronic illness
- All members of all communities across Colorado are physically, socially, and emotionally well
- The demographics of our state are fairly represented in all parks and open spaces (hyper local, local, regional, and state)
- There are equal access opportunities to QUALITY outdoor spaces
- All communities have access to food gardens and prices to participate are affordable
- All Coloradans feel welcomed in parks and open spaces, feel comfortable being outdoors alone, with friends, and with family, and feel empowered to advocate for local and wild spaces in our state
- All Coloradans understand the reciprocity of a healthy environment, healthy self

Impact Area	INDICATORS of SUCCESS	
HEALTH & WELLNESS	Population Level	Program Level
	Increased time in nature: <ul style="list-style-type: none"> ○ types of experiences ○ Types of natural areas ○ Access/distance from home 	Increased time in unstructured nature play for ECE aged children, caregivers, ECE educators Increased child-directed play in ECE programs
	Increase in naturalized playgrounds Increase in use of naturalized playgrounds and open spaces by youth and families Use of space reflects community + cultural demographics Increased time in nature to restore connect with others	Increase in unstructured free time for all ages in outdoor green space Increased curiosity/wonder about natural world Increased knowledge/awareness of outdoor spaces Increased use of outdoor spaces, specifically for families Increased culturally relevant art/experiences activated in green spaces parks

		<p>Increased comfort in exploration of outdoor spaces (decrease in fear/anxiety/unknown) - barrier</p> <p>Improved self-agency in outdoors</p>
<p>Increase in local policies related to improving access + connection to nature</p> <p>Increase in leadership at EVERY level that supports the connection of environmental health + wellness and human health + wellness</p>		<p>Increased advocacy and empowerment (civic engagement)</p>
<p>Increase in programs offered linking healthy environment + healthy self</p>		<p>Increase in perceived wellness and health as result of being in outdoors/nature for all ages</p> <p>Increase collaborative community-based interventions targeting connecting health + wellness + nature that reflect needs of community >> community is equal stakeholder >> multi-org partnerships</p> <p>Increase in health benefits messaging from programs into communities, i.e., programming geared toward health</p> <p>Increase in parents of ECE age children reporting play/behaviors/attitudes related to perceived health and wellness</p> <p>Increase in student reported play/behaviors/attitudes related to perceived health and wellness</p>
<p>Decrease in systemic barriers to accessing nature</p>		<p>Decrease in participant reported barriers to accessing nature:</p> <ul style="list-style-type: none"> • Transportation • Perception access to nature • Safety (illness, fear) + comfort • Funding • Lack of cultural representation in outdoors natural spaces • Clothing resources • Quality food • World views cultural views • Historical context >> race, gender, ethnicity
<p>Increase in # of Sustainable & Healthy Communities</p> <ul style="list-style-type: none"> ○ decrease # communities w/ food/nature deserts 		<p>Increased programs targeting decreased barriers for participants</p> <p>Decrease perception that healthy food = more expensive</p>

	<ul style="list-style-type: none"> ○ increase # safe pathways to parks & natural areas <p>Increase % Coloradans with Safe & Convenient Pathways to Nature</p> <p>Increase in # of communities of color with safe access to quality outdoor spaces (spaces with nature, green space, safe from roads and other hazards)</p>	<p>Garden programs show increased nutritional habits (consumption of vegetables/fruits)</p> <p>Increase SNAP benefits being used</p> <p>Increased skills to start, maintain, manage gardens</p> <p>Increase in SNAP type of benefits (food: markets, gardens)</p> <p>Increase in participants with safe and convenient pathways to nature.</p> <p>Increase in social cohesion (aka food gardens)</p> <p>Increase in participants of color with safe access to quality outdoor spaces.</p> <p>Increased public transportation to green/nature spaces</p>
	<p>Increase in # of students of color who view themselves as having a “nature connection”</p> <p>Increase in # of all Coloradoan students who view themselves as having a “nature connection”</p>	<p>Increase in participants who view themselves as having a nature connection.</p> <p>Increase in participants of color who view themselves as having a nature connection.</p>
	<p>Improved mental health diagnostics/Rx</p> <p>Increase in Park Prescription programs</p>	<p>Increase in observed prosocial behavior with:</p> <ul style="list-style-type: none"> ● Peers ● Community ● Family <p>Improved participants mental health diagnostics/Rx</p> <ul style="list-style-type: none"> ○ increase in time spent in nature ○ Increase in self-esteem ○ Increase in self-confidence
	<p>Improved in physical health diagnostics</p>	
	<p>Increased air quality, especially in neighborhoods/ communities with low SES (environmental)</p> <p>Increased water quality, especially in neighborhoods/ communities with low SES (environmental)</p>	<p>Increase in awareness & knowledge of air quality issues in community</p> <p>Increase awareness & knowledge of water quality issues in community</p> <p>Increase in air + water quality advocacy</p>

		<p>Increase in awareness of community engagement projects/programs</p> <p>Increase in # of community engagement projects that address air/water quality issues</p>
	<p>Increase in workplaces that support environmental/ community volunteer opportunities (like “plant a tree”)</p>	

Social Justice

Result: All Coloradans have access to and opportunity to experience the outdoors.

Defined as: Social justice outcomes are related to access and opportunity for underserved communities and underrepresented populations. These outcomes include increased access to outdoor experiences, improved urban green space, and the development and support of environmental educators and leaders from traditionally underrepresented groups.

Quality of life or condition for the desired population is:

- All members of all communities across Colorado feel welcomed in parks and open spaces, feel comfortable being outdoors alone, with friends, and with family, and feel empowered to advocate for local and wild spaces in our state.
- Park and open space attendance is diverse and encouraged in all Colorado communities, especially communities of color and rural communities (hyper local, local, regional, and state)
- Local green spaces are accessible in every community including walking paths and gathering places
- All communities have access to affordable, healthy foods and food|nature|human relationship
- Leadership in EE accurately represents the demographics of our state
- All members of all communities have access to safe, natural and healthy environments.

IMPACT AREA	INDICATORS of SUCCESS	
SOCIAL JUSTICE	Population Level	Program Level
	Decrease in barriers to accessing nature Increase % Coloradans with Safe & Convenient Pathways to Nature Diverse worldviews are represented in outdoor spaces Increase # of communities of color with safe access to quality outdoor spaces Demographic use of spaces	Increase in # of providers implementing culturally relevant (program cost, language, outreach, relationship building) community engagement practices to recruit participants Increase in # participants who feel welcome in Green Spaces Increase in ways spaces are used (what people are doing) Increase in participants who perceive Access Increase in frequency of use of spaces Increase in participants perception of safe and healthy community
	Increase diversity and # of public officials that are pro-environment Increase # of community-based leaders using environment as context Increase in # of municipalities, organizations + funders prioritizing environment in strategic plan	Increased participation in civic action Increase in perceived empowerment/self-efficacy Increase in participants self-efficacy, resiliency

	<p>Increase in local policies related to improving access and connection to nature</p>	
	<p>Increase in retention of diverse staff</p> <p>Increase diversity of EE program staff</p> <p>Increase in commitment to DEI within organizations</p> <p>Increase in % EE programs designed w/ community engagement</p>	<p>Organizational leadership has diverse representation</p> <p>Increase in staff/provides who practice DEI/cultural competency (training) + honoring worldviews</p> <p>Increase visibility of mentors + diverse role models</p>
	<p>Increase diversity of CO green workforce</p> <p>Increase diversity of students enrolled in green/EE programs</p> <p>ALL CAREERS: Increase in people using environmental experiences/ethic and how they apply these experiences in their workplace (GREEN job or not)</p> <p>GREENER jobs >> Sustainability</p>	<p>Career Intentions: Increase in # of students who intend to pursue a GREEN and/or nature-related job.</p> <p>Increase in fairly paid internships for underrepresented youth</p>
	<p>Increase in % of schools participating EE (above or education)</p> <p>Increase in % of non-EE non-profits participating in EE</p> <p>Increase in % of government programs offering EE (rec centers)</p>	<p>Increase in # of service-learning opps in school programs</p>

Positive Child + Youth Development

Result: All Colorado children (birth - age 9) and youth (ages 9 - 25) grow into responsible, resilient, engaged citizens that care for themselves, their natural environment and their communities.

Defined as: Programs with youth development outcomes are aimed at guiding young people as they grow into responsible, engaged citizens that care for the environment and their communities. These outcomes may be achieved through strength-based professional, leadership, or character development and/or through outdoor experiences or community service. Youth development outcomes may intersect with other outcome areas, as youth development is broadly focused on the education and development of the whole person.

Quality of life or condition for the desired population is:

- All youth from all Colorado communities have increased access to outdoor/nature-based learning experiences, esp. for youth of color, low-SES, and/or rural communities
- All youth from all Colorado communities have access to authentic, quality youth-directed mentor/internship experiences with a focus on sustainability and the environment that grow youth’s knowledge and skills
- All youth from all Colorado communities have access to meaningful outdoor-based, service-learning projects through schools and partner organizations
- All youth from all Colorado communities are actively involved in civic/community engagement projects w/ opportunities for increasing responsibility and leadership

IMPACT AREA	INDICATORS of SUCCESS	
POSITIVE YOUTH DEVELOPMENT	Population Level	Program Level
	Increase in # opportunities that provide a continuum of experience between organizations, partnerships, & other collaborations	Increase in # opportunities that provide a continuum of experience within organization Increase in # of family experiences Increase # of agency partnerships & collaborations focused on PYD with a particular focus on family connection & sharing youth development with parents
	Increase % participating because of affordability Increase % participating because of gear access Increase % participating b/c of transportation access	# of youth experiences (dosage) in the outdoors that support children youth with basic needs (food, sleep, comfort) to lead to safe & positive experiences in nature Increase % participating in programs because of affordability Increase % participating in program because of gear access Increase % participating in programs b/c of transportation access

	<p>Increased # opportunities for civic or community engagement (via programs)</p>	<p>Increased # opportunities for civic or community engagement (via programs)</p> <p>Increase community-based youth advisory councils</p>
	<p>Increase in # of youth-directed mentors/internship/authentic adult relationship opportunities through variety of partners that focus on components of PYD:</p> <ul style="list-style-type: none"> ○ Competence ○ Confidence ○ Character ○ Caring ○ Connection ○ Contribution ○ Comfort in the outdoors 	<p># of youth-directed internships/ mentors/ authentic adult + peer relationships</p> <p>Increase in youth’s understanding of healthy & unhealthy risk</p> <p>Increase in participant’s Competence</p> <p>Increase in participant’s Confidence</p> <p>Increase in participant’s Character</p> <p>Increase in participant’s Caring</p> <p>Increase in participants Connection to community</p> <p>Increase in participant’s Contribution</p> <p>Identification and sharing of best practices in creating conditions to develop PYD in youth</p>

**APPENDIX B:
DEFINITIONS**
(not alphabetized)

Population Definition:

“All Coloradoans” includes: “all citizens, regardless of race, color, national origin, gender, sexual orientation, gender identity and expression, age, religion, or physical or mental disability.” (adapted from: Colorado Department of Public Health & Environment)

Population Level Indicator: a measure that encompasses population-level data points as opposed to individual programs or persons (e.g., state graduation rates; Healthy Kids Colorado Survey; state air quality; etc. No one program is responsible for outcomes.

Program Level Indicator: a measure that assesses individual programs or persons (e.g., number of students served; types of programs offered; shifts in knowledge, skills, action, etc.)

E-STEAM: Environment as an integrating context for studying Science, Technology, Engineering, Arts & Math

E-STEM: learning about the Environment as a pathway to STEM learning. The arrow between E and STEM specifically highlights programs and learning initiatives that engage individuals in the environment as a means to explore concepts in traditional STEM disciplines.¹

Critical Thinking/Problem Solving Skills: are refined and applied in the context of environmental issues. Environmental literacy includes the abilities to define, learn about, evaluate, and act on environmental issues.²

Diversity: For the context of this work, we understand diversity to include all geographic communities in Colorado including rural, suburban, urban and all of the spaces in between. Diversity, in this context, also includes our expansive view on population (see definition above). We place an emphasis on increasing all of these many and varied components of diversity within reaches of EE initiatives.

Quality Outdoor Spaces: QUALITY outdoor spaces include naturalized areas that have a diversity of plant vegetation and species AND afford users of varying abilities and ages different ways to engage in the space: Trees for climbing, shade, and general aesthetic; grass for lounging, playing sports, and pervious cover; shrubs, bushes, and perennial flowers for imaginative play, aesthetic appeal, and pollinators. Additionally, these spaces would be maintained either naturally or without toxic chemical intervention.^{3 4}

Sustainable + Healthy Communities: “The sustainable well-being of communities is inextricably linked to both the health of earth’s ecosystems and the health of humans living in the community;”⁵ “foster a healthy and

¹ NAAEE ESTEM Report (https://cdn.naaee.org/sites/default/files/eeopro/resource/files/estem_report_0.pdf)

² NAAEE Learner Guidelines (https://cdn.naaee.org/sites/default/files/learnerguidelines_new.pdf)

³ Wheeler, et al. (2015) “Beyond greenspace: an ecological study of population general health and indicators of natural environment type and quality.” *International Journal of Health Geographics*, 14:17. DOI 10.1186/s12942-015-0009-5

⁴ Browning, M. & Rigolon, A. (2018) “Do Income, Race and Ethnicity, and Sprawl Influence the Greenspace-Human Health Link in City-Level Analyses? Findings from 496 Cities in the United States.” *International Journal of Environmental Research and Public Health*, 15:1541.

⁵ Yee, S., Bradley, P., Fisher, W., Perreault, S., Quackenboss, J., Johnson, E., Bousquin, J., & Murphy, P. (2012). “Integrating Human Health and Environmental Health into the DPSIR Framework: A Tool to Identify Research Opportunities for Sustainable and Healthy Communities.” *EcoHealth*, 9(4): 411-426.

sustainable environment for all: reduce pollution, sustain ecosystem health, reduce resource consumption; ensure suitable, adequate and affordable housing; create safe and well-designed communities.”¹

Civic Action: hands-on, community-based stewardship practices and actions. Civic action includes conservation where the action is ecological restoration, academics where learning about science and social systems is done through action for the local community, and diversity/equity/inclusion where all community members of all ages, ethnic backgrounds, and sexual orientation work in collaboration.²

Community Engagement: “From the perspective of environmental education, it makes sense to think of community as a system—or a system of systems. From the natural systems that sustain us (e.g., forests, wetlands, soils, water, air), to the social systems that shape our lives (e.g., housing, transportation, legal, educational, spiritual), to governmental and economic systems, no element of community exists in isolation. An understanding of the interlocking systems is a critical foundation for building people’s capacity to create a healthy, sustainable, and resilient future.”³

Environmental Education: “EE is characterized as a learning process, whose ultimate goal is to educate and encourage people in engaging in more sustainable and environmentally responsible practices [...] EE supports and promotes environmental knowledge, skills, and changes in behavior to reach environmental literacy goals.”⁴

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Environmental Literacy: “An environmentally literate person [is] someone who, both individually and together with others, makes informed decisions concerning the environment; is willing to act on these decisions to improve the well-being of other individuals, societies, and the global environment; and participates in civic life.”⁵

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Environmental Identity: a self-concept that is based on recognition of connection and interdependence with the natural world.⁷

¹ Hancock, T. (2000) “Healthy communities must also be sustainable communities.” *Public Health Reports: Focus on Healthy Communities*, 115(2-3): 151-156.

² Briggs & Krasny. (2016). “Linking citizen science and civic ecology practices in environmental education.” In Monroe, M. & Krasny, M. eds., *Across the Spectrum*

³ NAAEE Guidelines for Excellence: Community Engagement, 2017

⁴ Biedenweg, K., Monroe, M. C., & Wojcik, D. J. (2016) “Chapter 1: Foundations of environmental education,” from *Across the Spectrum: Resources for environmental educators, edition 3*, Monroe, M. C. & Krasny, M. E. (eds.)

⁵ Hollweg, K. S., Taylor, J. R., Bybee, R. W., Marcinkowski, T. J., McBeth, W. C., & Zoido, P. (2011) *Developing a framework for assessing environmental literacy*. Washington, DC: North American Association for Environmental Education. Available at <http://www.naaee.net>.

⁶ NEEF. (2015) *Environmental Literacy in the United States: An Agenda for Leadership in the 21st Century*. Washington, DC: National Environmental Education Foundation.

⁷ Clayton, S., Fraser, J., & Burgess, C. (2011) “The role of zoos in fostering environmental identity,” *Ecopsychology* 3(2): 87-96.

Determinants (indicators) of Environmental Literacy

Below is a summary of each cross-cutting indicator, or determinant, of environmental literacy. Data sources listed are not intended to be exhaustive or final, but represent the possibility.

Academic Participation

Data points contribute to understanding the ways in which EE/nature-based learning efforts contribute to academic participation which may include: improved SEL competencies; improved sense of student well-being; increase in motivation to learn; increase in student engagement; increased attendance; improved grades; improved test scores; increased graduation rates.

Access | Connection to Nature

Data points contribute to understanding how increased proximity to natural places and spaces improves connection to nature through increased time spent (dosage) and the influence on attitudes, awareness, and action; measures that assess access to natural spaces including safe and convenient pathways (TPL Park Score).

Health of the Physical Environment

Data points contribute to understanding the current health of the physical environment and how that changes over time. Data could be collected at the local, regional, and state level depending on relevancy. At the state or regional scale, data should reflect overall environmental health including air and water quality, proximity to resource extraction, and overall green space. At the local scale, data might aim to capture program-based initiatives targeting trash, water, and air pollution; vegetation plantings; and, other sustainability initiatives (e.g., recycling, alternative transportation, water consumption, etc.).

Community & Civic Engagement (on behalf of the environment)

Data points contribute to understanding how one's participation with programming, organizations, or time in nature motivates one's commitment to supporting candidates, ballot measures and community initiatives aimed at improving community well-being through environmental well-being. Such data points may include: environmental legislation & policy; volunteer hours; environmental improvement; environmental leadership; issue investigation & action; support for environmental ballot measures; and, voter turnout.

Diversity, Equity & Inclusion | Relevancy

Data points examine how activities and programs are thinking about AND achieving DEI in their work. An important component of DEI work is the consideration of access and participation: access to natural spaces, places, and nature-based programming. Data points should also consider how cultural relevancy or sustainability is being considered and incorporated. Beyond sheer demographics, we need to identify other indicators that show DEI is positively shifting: increased community engagement from communities of color; community-based initiatives (ex: [Mestizo-Curtis Park, Denver, CO](#)).

Well-Being

Data points contribute to an understanding for how individual and community well-being are improving based on increased engagement with nature and programs that promote EE and nature connection. Data points could include: biometrics; healthcare provider engagement; perceived well-being; perceived safety; improved access/decreased barriers to natural spaces; increased awareness; increased knowledge related to environmental issues and resolution skills; self-efficacy; and, mental health.

Workforce | Green Jobs

Data points help inform how scaffolded opportunities within organizations or through programming might lead to people seeking green jobs and/or promoting sustainability efforts within their existing job/business. Data points could include: green job internships; increase in degrees or certificates awarded in fields related to environmental studies, geography, environmental education, sustainable community/urban planning; growth in green job sector; growth in B-Corps certification; business' reporting on internal sustainability initiatives.