GUIDELINES

BOULDER COUNTY ENVIRONMENTAL EDUCATION GUIDELINES
DEVELOPED BY THE BOULDER COUNTY E MOVEMENT

MIDDLE SCHOOL (GRADES 6-8)

Middle School (Grades 6-8) Learning Objectives

We want our students to be inspired to be gaining a sense of self in their natural and human communities, including their impact on others in those systems. We want to facilitate opportunities for them to discuss ideas, take in multiple perspectives, back up personal opinions with evidence, and distinguish between opinion and fact.

MOVEMENT
EDUCATION · ENGAGEMENT · ENVIRONMENT

September 2023

Middle School (Grades 6-8) Environmental Education Guidelines

Progression of place: The scale expands from the schoolyard into a local natural area (greenbelt, stream, or field) and into larger contexts (regional, state, national) with multiple encounters with an expanded place over time.

NATURAL CONCEPT

Matter cycles within ecosystems and energy flows through it. These processes happen at both a local and a global scale, and humans can impact these processes.

SOCIAL CONCEPT

Human and physical systems vary and interact, and human systems at different scales (community, region, nation, etc.) are interconnected.

The Guidelines

Head

ACADEMIC SKILLS AND KNOWLEDGE

- Structure, function and relationships exist among human systems, the environment, and sustainability.
  [NGSS: MS-LS2-3; MS-LS2-1; MS-ESS3-5]
- Humans and their environments are interdependent.
  [CAS: SC.MS.2.7.a.; SC.MS.3.8.a.]
  [NGSS: MS-ESS3-2;MS-ESS3-3;MS-ESS3-4; MS-LS2-1]
- Consumption and consumer choices affect the economy.
  [CAS: Nature and Skills of Economics related to SS.7.3.1]
- Human activities can deliberately or inadvertently alter ecosystems and their resiliency.
  [CAS: SC.MS.2.7.b.; SC.MS.3.9.a.; SC.MS.3.10.a.; SC.MS.3.10.b.]
  [NGSS: MS-LS2-2; MS-LS2-5; MS-ESS3-2; MS-ESS-3;MS-ESS-4]
- Systems may interact with other systems; they may have sub-systems and be a part of larger complex systems.
  [NGSS: Systems and system models; MS-LS1-3]
- In evaluating solutions, one should take into account a range of constraints including cost, safety, reliability and aesthetics and to consider social, cultural and environmental impacts.
  [NGSS: Influence of Science, Engineering, and technology on Society and the Natural World; MS-ETS1-1; MS-ETS1-2]

Heart

SOCIAL-EMOTIONAL LEARNING, AFFECTIVE NEEDS, SENSITIVITY, ATTITUDES AND SELF-EFFICACY

- Allow for appreciative inquiry—students have the time and space to notice what is interesting and curious to them in natural areas, local and urban areas, and in wilderness.
- Ask and record questions about what draws the students' attention, and create space for students to find their own answers.
- Make time for and model awareness and observation during time outdoors including recording observations, quiet, and reflection (goal: make this part of your routine with consistency and increased frequency).
- Build community and shared purpose within the classroom, school, and community.
- Question prevailing assumptions.
- Work effectively as a group and respect differences in opinion while working toward common solutions.
- Model and identify empathy and humility.
- Foster openness to new opportunities, ideas, and ways of thinking.
- Foster value for multiple perspectives including those that are different or opposed, and create opportunities for debate and disagreement in a productive forum.
- Create self-awareness about identity and culture with sensitivity and respect for differences.
- Create opportunities for older students to mentor younger students.

Hands

ACTION AND SERVICE

- Provide unstructured time outdoors, ideally in a natural setting.
- Provide opportunities for students to mentor and participate with younger students in unstructured time outdoors.
- With student input, take action to promote positive change in a local ecosystem.
- Support students in defining more complex problems, based on evidence, in the school.
- Take action to make a positive impact or solve a problem in the school.
- Support students to translate ideas, concerns, and findings into appropriate and responsible individual or collaborative actions to make a positive change.
- Assist students to establish need for service-learning projects, and allow them to envision, design, and implement those projects.
- Facilitate students adopting shared responsibility and taking cooperative action.
- Allow for place-making opportunities for students to design and have a voice in the school community.
- Facilitate opportunities for individual students to apprentice or volunteer for local professionals in fields related to sustainability (for example, trail maintenance crew, assistant in educational program, photography, bird count).

Feet

CONNECTION TO PLACE

- Build appreciation for the connections of natural and built aspects of the community, region and nation.
- Foster understanding that our natural and cultural communities extend to the regional, national and global scale.
- Organize field trips that get outside the classroom to see something from a new perspective.
- Provide multiple encounters with an expanded place over time.
- Experience a variety of natural environments.
- Facilitate opportunities for students to choose outdoor recreation experiences including backpacking, hiking, rafting, kayaking, paddleboarding and/or opportunities for students to choose outdoor experiences in ecology, botany, entomology, ornithology, etc.
- Explore nature in connected green spaces, open spaces, and parks in both wilderness areas and in urban areas.

Recommended Activities

Activities listed are intended to provide inspiration for how to connect to a local natural area, or plan a field trip with a partner organization.

- Design, plan, and implement a school garden for younger students.
- Restore native habitat in a local park, greenbelt, stream channel, or area flagged by a local land management agency.
- Provide frequent, self-guided time outside—make this a regular part of your schedule.
- Take walks through the schoolyard or neighboring areas (naturalized or not) to record changes over time and questions about observations.
- Investigate energy use and the global carbon cycle, and take action to implement sustainable energy use practices.
  [CAS: SC.MS.ESS.8]
- Take a real or virtual field trip to a regional natural area within a different life zone to compare and contrast with the life zone local to the school.
- Take field trips to a power plant, wind farm and/or dam—compare the design, production, and social, economic, and environmental impacts of each.
  [CAS: SC.MS.ESS.10; SC.MS.ESS.11]
  [NGSS: MS-ESS3-3]
- Analyze national and global weather data over time.
  [CAS: SC.MS.ESS.7]
  [NGSS: MS-ESS2-5]
- Investigate, explore and record the different types of plants and animals in a variety of local outdoor areas within the county or, specifically, the Colorado Front Range. Discuss how these plants and animals are uniquely adapted to their habitats through the process of evolution.
  [NGSS: MS-LS4-4]
- Explore the diversity of microscopic life in samples of water collected from different natural water sources within the county, including the cellular structure and the relationship between these microscopic organisms and the overall health of the ecosystem.
  [NGSS: MS-LS2-1]
- Research and report on agricultural practices. Develop models of the main practices producing food and compare the impacts on land and other resource use (for example,investigate the positive and negative impacts of growing crops using artificial light to reduce transportation costs and make certain crops available year-round).
- Research the government agencies and other organizations that influence how land is used in the county. If possible, investigate a proposed change in local land use, the process for making decisions about the changes, and any local organizations advocating for specific positions.
  [NGSS: MS-ESS3-3]
- Engage in Citizen Science.
- Collect data or research an issue in order to communicate different perspectives; hold a mock community forum or debate assigning roles to each student.
- Create opportunities to transfer skills learned in one context to new lessons or investigations. (for example, use tools like the hand lens—practice use indoors, then take outside to investigate).