



Meeting Science Education Standards with Cascade Mountain School Outdoor School

What we teach:

At Cascade Mountain School, we believe in fostering a strong and lasting connection between people and the natural world through education, service learning, career development and research.

All of our programs create opportunities for our fundamental education goals:

- Cultivating individual responsibility; personal health and wellbeing
- Excelling in scientific inquiry, systems thinking, and ecological literacy
- Fostering creation of community and engaged community members
- Understanding of the interconnectedness of the natural world to promote lifelong environmental stewardship and action
- Connecting individuals with the natural world who are historically underrepresented in outdoor recreation and education

Our classrooms are the mountains, rivers, and valleys of the Gifford Pinchot National Forest, the farms and fields of the Trout Lake Valley and the Columbia River Gorge. Through our community school approach we bring in teachers who are environmental educators, farmers, engineers, biologists, activists and passionate community members dedicated to sharing their craft and hope with the next generation. Our strong connection to place and community are the cornerstones that make our programs strong.

Encouraging the next generation of leaders:

Each program at Cascade Mountain School presents an integrated educational experience for students. Our core curriculum themes fit in with many elements of the Next Generation Science Standards (NGSS) and our values of building a classroom community through social and emotional learning. Within each curriculum we make a special effort to expose students to potential career opportunities through field studies and farm visits with local farmers, scientists, educators and others, who through their work, strive to protect and serve that natural world. We understand that each school is unique and at a different stage in adopting NGSS and can design programs around individual perspectives.

Building Classroom Community through social and emotional learning:

Students learn best in an environment that recognizes who they are as individuals, as a member of their community and where they are in their life's journey. At Cascade Mountain School we honor journey and process, which is why our programs incorporate social and emotional learning into the entire experience. There are many essential skills that impact student's well-being and education, but are not easily measure through testing--critical thinking, managing emotions, decision making and working through conflict. Students are empowered to create a community that reflects them through community living, culture building, small group learning, individual reflection, mindfulness and team challenges.

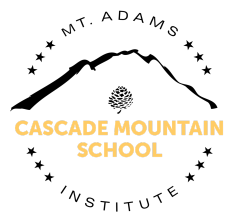
CMS core curriculum and the Next Generation Science Standards (NGSS):

Our programs are based on an understanding of the holistic nature in which students learn; we recognize that our core curriculum combines a variety of scientific practices, concepts and areas of study that will help students learn and love the place science has in their lives. The NGSS's extensive network of standards can be found [here](#), below we have highlighted several ways Cascade Mountain School programs are educating in alignment with these standards:

Science and Engineering Practices	Crosscutting Concepts
Asking questions and defining problems	Influence of science, engineering and technology on society and the natural world
Developing and using models	Science addresses questions about the natural and material world
Analyzing and interpreting data	Systems and system models
Scientific knowledge is open to revision and new evidence	Stability and change

Our curriculum is in alignment with many NGSS guidelines. Here are some of the performance standards and disciplinary core ideas we address:

CMS Core Curriculum & the NGSS Snapshot Performance Expectations in bold and Disciplinary Core Ideas	
Watershed Science	
Students engage in conversations and activities regarding water quality and quantity as they relate to irrigation, salmon habitat, recreation, and hydropower. This curriculum addresses these standards:	
MS-ESS2-1.	Describe the cycling of Earth's materials and the flow of energy that drives this process
ESS2-2	Describe the amounts of salt water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth
ESS2.C	The Roles of Water in Earth's Surface Processes
ESS3.D	Global Climate Change
Food Systems	
Students participate in conversations and activities about food production, local and regional methods of agriculture, personal food choices, and food equity issues; through visits and service work with local farmers. This curriculum addresses these standards:	
MS-LS1-6.	Construct a scientific explanation for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms
MS-ESS3-4	Construct an argument supported by evidence for how increases in human population and per capita consumption of natural resources impact Earth's systems
LS2.A	Organisms and populations are dependent on their environmental interactions both with other living things and with nonliving factors, any of which can limit their growth
ESSC3.C	Human Impacts on Earth Systems
Wilderness Experience	
Students will learn the skills they need to survive in the backcountry; while studying the ecological, geological and human history of the land.	
MS-ESS3-4	Construct an argument supported by evidence for how increases in human population and per capita consumption of natural resources impact Earth's systems
MS-ESS2-4	Construct a scientific explanation based on evidence for how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geoscience
ESS2.B	Plate tectonics and large-scale system interactions
ESS2.C	The roles of water in Earth's surface processes



Design Engineering and Tinkering

Use the engineering design process and patterns from the natural world to explore problems and design creative solutions. We approach this topic through an environmental engineering or primitive survival skills and design lens. This curriculum addresses these standards:

MS-ETS1-1.	Define the criteria and constraints of a design problem; taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions
MS-ETS1-2.	Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem
MS-ETS1-3.	Analyze data from tests to determine similarities and differences among several design solutions
MS-ETS1-4.	Develop a model to generate data for iterative testing