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Fall Mountain School Teaching Reflection

For me, this season of teaching Mountain School at NCI was an opportunity for learning, trying new things, and personal growth. I began the season with little formal teaching experience and only a small amount of experience from the last few years working with children from this age group. Given this reality, it is not surprising that I went through a steep learning over the course of the fall. I was very nervous about my teaching ability going into the season but emerged much more confident. While I still have much to learn about teaching an experiential environmental curriculum, I improved my teaching abilities this fall in a way that could only have been accomplished through hands-on experience.

During the first couple weeks of Mountain School, I benefited from first shadowing naturalist Ellie and then team-teaching with my fellow cohort member Angela. I learned a lot from watching Ellie, who is obviously an experienced teacher. I especially noticed how she used games and team-building activities to establish a rapport with her students early on, and I resolved to try to use this method when teaching my own trail groups. Angela is also a great teacher with much more experience in formal instruction than I have, and I learned a lot from working with her as well. Subsequently, I had a chance to try other teaching schedules such as diurnal/nocturnal shifts, teaching trail groups on my own, and team teaching with other members of my cohort. During each teaching session I learned things by observing other instructors who I was teaching with or through my own trial and error.

Throughout the fall, one of my main areas of inquiry was how to teach in a way that helps students develop a lasting sense of wonder for and connection to the natural world. It is my belief that these are the things which prompt people to become strong environmental advocates, and that they are best developed during childhood. Although I myself spend a large amount of my waking hours thinking about issues like climate change, I seldom talked much about this issue with my students. I believe that when it comes to pre-adolescent children, instilling a deep-seated love for the natural world is much more important than educating them about depressing environmental problems. If this love is inspired successful, then these children will be ready to take action in defense when they learn about environmental problems later in life.

I attempted to instill this love of nature in my students by making my Mountain School lessons as hands-on as possible and encouraging them to make observations about the world around them. One lesson I adapted with this goal in mind was the rock lesson. I experimented with a new version of the

lesson, in which I started out by asking students to go and look for “the coolest rock you can find.” I then asked them to examine their rock and asked how they think it formed. From there, I went into a discussion about the three types of rock and did the play dough exercise to demonstrate how the three rock types are made. I next encouraged the students to look at the color patterns in their rock and try to guess which type it belonged to. The play dough lesson demonstrates that metamorphic rocks tend to have colors that are swirled or blended together. The rocks my students found usually turned out to be metamorphic rocks, and they could often guess this based on its appearance.

Another example of a lesson I adapted to try to make it as hands-on and experiential as possible was the PCDs lesson. When I team taught with Lauren, she had the kids go out looking for organisms that were producers, consumers, or decomposers after she finished talking to them about the PCDs. This allowed the kids a chance to search for interesting creatures, and when they returned we talked about what they had found and which group their organisms belonged to. I subsequently adopted this same technique in my own lessons about the PCDs, and found it a great way to get the kids engaged in the lesson.

I also tried as much as possible to incorporate lessons and games that encourage Mountain School participants to observe the world around them with all their senses. I adopted a practice of playing the Meet a Tree game first thing in the morning on Day Two of Mountain School, to give the kids practice using their other senses besides site. I would also have them do a silent hike, usually on Day Three, and invariably found that the kids really appreciated the opportunity to walk through the woods on their own and experience the forest in silence. Other observation games we played included the Bandana Game, where I would have the kids close their eyes while I hid a bandana along the trail which they would then be asked to find. This appeared to be another good way of getting them to practice their observation skills.

I knew there would be challenges in Mountain School, and for me the biggest of these was group management. I am not a very assertive person by nature, and I sometimes had trouble controlling the kids—especially when I was teaching on my own. I often found it difficult to strike a balance between making sure the group was safe and focused, while also allowing kids to learn the ways their personalities demanded—which might mean allowing kinesthetic learners to fidget and move around a little during lessons. I gradually developed some practices for dealing with this challenge. For example, when a kid was digging in the dirt or playing with their hands during a lesson, I would sometimes ask them directly a question about what they thought. From their answer, it was usually obvious whether they had been paying attention to the lesson or not. This allowed me to judge whether they were really not listening, or

were in fact paying attention and simply needed to keep their hands occupied in some way. Although this technique was effective in some instances, I still feel that group management is one of the areas in which I most need to continue to grow.

Another area in which I struggled was finding ways to incorporate messages of environmental stewardship into my Mountain School lessons, without exposing the students to depressing information they would not be ready to process. As I mentioned above, I did not spend much time talking about climate change in Mountain School—however, I did find a couple of ways to incorporate a conservation message. During the water lesson, I talked with the students about how the water available for us to use is a very small fraction of the water on Earth, and asked them how they thought we should treat the water we have. Most students readily realized that we need to protect and conserve water resources. Toward the later part of the season, I also began reading incorporating a story about Rachel Carson into my Mountain School sessions. I would read the students a short story from the book *Girls Who Looked Under Rocks* about Carson's life and work. My goal was to encourage them to think about the impacts humans have on the environment and how they can be addressed. Since the story ends with the banning of many toxic pesticides in the 1960s, I thought it would be a good way to leave students with a hope-filled message. The groups I read to seemed to enjoy the story, but I would like to work on incorporating more discussion of the story afterwards.

In the end, the natural beauty of the landscape around our Environmental Learning Center was at least as important as whatever lessons I taught when it came to inspiring students with a love of the natural world. There were many moments during my Mountain School sessions when students spontaneously remarked on the beauty of the nature around them. One such moment that I particularly remember was when one of my trail groups hiked up to the waterfall, and one of the fifth grade boys looked up at the water cascading over the cliff. "I can see why they made this place a national park," the boy said with wonder in his voice. Moments like these were what made me realize the true importance of the work we are doing encouraging future environmental stewards at Mountain School.

I learned many great things during my time teaching Mountain School this fall, and enjoyed interacting with the students who came to participate in three days of exploring nature. The experience definitely improved my effectiveness as an environmental educator, and at the same time I know that I still have much more to learn. I look forward to another season of teaching in the spring, and to continuing to develop my teaching practice so as to become the most effective environmental educator I can be.

Teaching rubric for Mountain School

	1 – poor instructor performance	2 – moderate instructor performance	3 – strong instructor performance
Teaching with questions	Instructor mostly speaks directly to students, imparting information without asking many questions or prompting students to come up with their own answers. Students are not encouraged to talk during lessons.	Instructor occasionally asks students questions, but does not encourage them to delve deeply into those questions that they don't immediately know the answers to. The majority of lesson time is made up of the instructor talking to students with the occasional question interspersed.	Instructor uses questions to encourage students to think for themselves about the subject of the lesson. Instructor will sometimes impart information, but whenever possible tries to get students to answer questions themselves and to pursue their own inquiry.
Encouraging student curiosity	Instructor presents information in Mountain School lessons as a series of known facts about nature that need to be memorized. It is assumed that the instructor knows most of the answers to any question that students might come up with.	Students are encouraged to come up with some of their own questions about nature, and the instructor admits to not knowing all the answers. However, it is assumed that professional scientists know most answers and that students cannot add significantly to what is known about a give topic.	Instructor encourages students to come up with questions about the natural world that interest them, and emphasizes that the answers to many questions may not be known to the instructor or anyone else. Students come to feel that they are researchers who can come up with exciting new questions about nature and contribute to the pool of human knowledge.

Fostering connection with nature	Students come to view the natural world as simply another subject from school that they are expected to learn about, but which is not particularly interesting in itself. Students have little or no desire to explore nature further on their own. Students are not concerned about protecting nature.	Students come to think of the natural world as interesting and perhaps even exciting, but as something essentially separate from themselves and their daily experience. Students may want to protect the natural world because it is pretty or in order to conserve useful resources. Students may feel somewhat motivated to continue learning about nature, but only as one of many somewhat interesting topics they might explore.	Students feel a deep and personal connection to the natural world, to the point where the idea of doing harm to nature becomes synonymous with doing harm to themselves. Students are highly motivated to explore and learn about the natural world on their own, and see this as equivalent to learning about their own natural heritage.
Conveying information	Students absorb little or no meaningful information about the natural world from Mountain School lessons. At best, they may memorize a few major facts which they are likely to quickly forget.	Students absorb some information during lessons, but see it mainly as a series of largely disconnected facts they are expected to memorize. Students are largely unable to connect individual facts to larger concepts about the environment and ecosystems.	Students attain a very good understanding of most or all key concepts from lessons. Rather than simply memorizing facts, they are able to fit each piece of information into a bigger picture about how the different components of the environment and ecosystems work, and feel that this information has relevance to their own lives.
Creating a safe learning environment	Students feel that Mountain School is a place where they will	Students understand that they are allowed to ask questions and	Students feel that Mountain School is a place where they can

	be judged by their instructor, chaperones, and peers. Students feel pressured to "perform" well whether or not they are truly engaging with a topic.	that they don't need to know all the answers. However, they still feel that those students who "perform" better will be silently judged in a more positive light than those who perform "worse."	learn through inquiry without being judged, and where they are free to pose questions and admit to not knowing the answers. Students feel supported by their instructor, chaperones, and peers as they pursue lines of inquiry that interest them.
Building community	Students feel isolated from each other and from their instructor and chaperones. They think of the people around them as competitors or as authority figures who need to be impressed. It does not even occur to students that they may be able to relate directly to nature as part of a larger, shared community.	Students feel some sense of connection with each other and with their chaperones and instructor, but also feel pressured to compete and submit to authority. Students see nature as separate from themselves.	Students feel connected to their peers, chaperones, instructor, and nature. Students empathize with all of these other individuals, and expect to receive empathy in return. Students feel they are part of a community that includes their school, families, NCI, the National Park, and the larger natural world.