

# Conversation and Conservation: Using Open-Ended Inquiry to Co-Create Learning

Jacob Goodwin

“It’s a rabbit!” one sixth grader shouted on an early morning walk around the perimeter of our school. I approached the student and looked in the direction he was pointing. Yes, it was a rabbit. Or to be more precise, half of a rabbit, the bottom half.

“What do you think happened here?” I asked, as other students drew closer.

“A murder!” one student declared, as though she were part of a pre-teen crime fighting squad specializing in rabbit homicide.

“A coyote,” another girl stated. “I’ve seen them around. There are lots of rabbits near here, in my neighborhood.” Other students nodded. A coyote seemed plausible.

“But this isn’t fully solved,” interjected the first girl. “We should definitely keep investigating ... and secure the crime scene.” She moved toward the carcass with outstretched hands.

“Ahhh ... wait a second,” I blurted. “Please don’t touch the rabbit with your hands.”

She paused, picked up a crooked stick, and used it to nudge the body toward the base of a nearby tree. Rigor mortis had begun to set in.

An investigation was now underway, as we continued our perimeter walk of observations.<sup>1</sup>

## Forming a Question

I came to refer to these types of observational tours with my sixth grade students as “adventures.”<sup>2</sup> These are times to take in the world around us—the immediate environment that surrounds our school. We aim to find things that spark curiosity and to connect learning back to our lives.<sup>3</sup>

The idea was to use our senses to find new intrigue. We benefit from how the changing seasons of New England offers



Students venture into a marsh in search of animals and signs of human activity.

constant newness and the weather fluctuates. Given the transitory nature of weather in our area, students are always finding different things, learning to identify how people, plants, and animals interact with the land. This leads us to observe sights, sounds, and feelings as individuals, and then recollect them in group discussion.<sup>4</sup>

Our class debriefs can be verbal and informal, or sometimes we use sticky notes to create a longer lasting, visual effect. Student interests and observations often generate questions that unite our learning thematically.

The question or theme isn’t always obvious to an adult. As a teacher, I find myself listening carefully to many possibilities that students share.<sup>5</sup>

In the past year, students shared how they felt about being

ON THE COVER: Students view herons’ nests at the end of an old stone wall.



Student photo of a great blue heron.

outside during class time, how they had been cooped up during the pandemic, and how they found so many intriguing things, such as deer tracks or the little “M&Ms of the woods”—(i.e., deer droppings) around the school property.

For this particular unit of exploration, students eventually arrived at the question: How do we inspire conservation?

### Building Off Our Question

The question itself was big enough to encompass many of the students' interests and also provided us with historical reference points. For example, one small group was curious to know what the land where our middle school was built was like 100 years ago. They found an old stone wall, which marked the property line of the school and followed it as far as they could. We were all surprised to see that the wall went right into the swamp, where it was submerged in water before popping back out onto a higher bit of land about 100 yards away.<sup>6</sup>

The team was puzzled: why would “olden day” farmers build a wall only to have it go under water? It didn't make sense. Then, they spotted a beaver dam and concluded that the land hadn't always been under water, but instead had been flooded by industrious beavers after farmers gave up maintaining the field.<sup>7</sup>

Looking further into the history of New Hampshire, the team found that most of the southern part of the state had been clear cut a little over 100 years ago.<sup>8</sup> In that sense, the forests around our school were relatively new—and there were par-

allels between alterations to the land made by beavers and those made by tree-felling humans.

Another group became fascinated with giant nests built by great blue herons. These students used their binoculars to observe the majestic, prehistoric looking birds as they gracefully carried long sticks to the tops of dead pine trees. As the herons approached their nests, they pumped their necks out and in to slow down, as if pumping a brake.

### Time to Talk:

#### Small Group Protocols and Design Thinking

Quickly, I broke the class up into groups according to individual interests. On our days inside, I prepared a resource bank of articles and videos that connected to their topics on a Google Doc that students could access online (see sidebar on p. 4). These materials were a starting point for students, and many brought in books from home or identified other websites that matched their topics.

One of our learning goals was communication. Students spent time in small mixed interest groups that I created. In these groups, students shared updates on their projects, exchanged research challenges, and offered suggestions to one another. These conversations were often “triangle talks,” where student groups stood or sat in a triangular shape and took turns posing questions, listening to responses and sharing their thoughts, before rotating roles. This was an adaptation of Facing History's “Save the Last Word” routine.<sup>9</sup>

## Resources

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|---|---|
| Bird Houses   | All About Bird Houses, <a href="https://nestwatch.org/learn/all-about-birdhouses">https://nestwatch.org/learn/all-about-birdhouses</a><br>Prevent Window Crashes, <a href="https://abcbirds.org/glass-collisions/resources">https://abcbirds.org/glass-collisions/resources</a><br>Building Bird Nests, <a href="https://vt.audubon.org/news/build-your-own-bird-nest">https://vt.audubon.org/news/build-your-own-bird-nest</a><br>Bird Bath, <a href="http://www.audubon.org/news/how-make-birdbath">www.audubon.org/news/how-make-birdbath</a>  |
| Local Conservation  | Why Conserve Land, <a href="https://landtrustalliance.org/why-land-matters">https://landtrustalliance.org/why-land-matters</a><br>Southeast Land Trust of NH, <a href="https://seltnh.org">https://seltnh.org</a><br>Society for the Protection of NH Forests, <a href="https://forestsociety.org">https://forestsociety.org</a><br>Find Your Local Land Trust, <a href="https://nhlhc.org/find-land-trust">https://nhlhc.org/find-land-trust</a><br>Great Bay, <a href="https://greatbaystewards.org">https://greatbaystewards.org</a>   |
| Animals+ Imagination  | Species in NH, <a href="https://www.wildlife.nh.gov/wildlife-and-habitat/species-occurring-nh">https://www.wildlife.nh.gov/wildlife-and-habitat/species-occurring-nh</a><br>Scat Slides, <a href="http://www.thinktrees.org/wp-content/uploads/2019/03/scat-identification.pdf">www.thinktrees.org/wp-content/uploads/2019/03/scat-identification.pdf</a><br>Scat Quiz, <a href="https://northwoodsguides.com/quiz/quiz.php?quizid=5">https://northwoodsguides.com/quiz/quiz.php?quizid=5</a><br>Hunter's Guide to Scat, <a href="https://www.fieldandstream.com/story/survival/hunters-guide-to-animal-poop">https://www.fieldandstream.com/story/survival/hunters-guide-to-animal-poop</a><br>Pocket Guide to Animal tracks (Maine), <a href="http://www.maine.gov/ifw/docs/animaltracksposter.pdf">www.maine.gov/ifw/docs/animaltracksposter.pdf</a><br>New England Animal tracks, <a href="https://newengland.com/wp-content/uploads/2012/02/animal_tracks.pdf">https://newengland.com/wp-content/uploads/2012/02/animal_tracks.pdf</a> |
| Bikes/Trails  | Design a trail, <a href="https://mylandplan.org/content/designing-trail">https://mylandplan.org/content/designing-trail</a><br>7 Principles of leave no trace, <a href="https://lnt.org/why/7-principles">https://lnt.org/why/7-principles</a><br>Things to include in how to build a trail, <a href="https://runwildmychild.com/trail-building">https://runwildmychild.com/trail-building</a><br>Benefits of trails, <a href="http://www.railstotrails.org/experience-trails/benefits-of-trails">www.railstotrails.org/experience-trails/benefits-of-trails</a><br>Trail signs (amc), <a href="http://www.youtube.com/watch?v=v1zcil5suzm">www.youtube.com/watch?v=v1zcil5suzm</a>   |
| Styrofoam   | 8 Facts about Styrofoam, <a href="https://greendiningalliance.org/2015/10/8-reasons-to-ban-styro-foam">https://greendiningalliance.org/2015/10/8-reasons-to-ban-styro-foam</a><br>Eco Friendly, <a href="http://www.ecofriendlyhabits.com/styrofoam-facts">www.ecofriendlyhabits.com/styrofoam-facts</a><br>Styrofoam infographic, <a href="https://inhabitat.com/infographic-the-dangerous-truth-about-styrofoam">https://inhabitat.com/infographic-the-dangerous-truth-about-styrofoam</a>  |
| Scavenger Hunt  | Example of Botany scavenger hunt, <a href="http://www.4swep.org/post/botany-scavenger-hunt">www.4swep.org/post/botany-scavenger-hunt</a><br>Scavenger hunts (examples), <a href="https://scoutisland.ca/scavenger-hunts">https://scoutisland.ca/scavenger-hunts</a>   |
| Forest Walk with Facts about the land, signs and a brochure | (See links for birds, animals, and trees.)<br>Make Walks an Adventure, <a href="https://scoutisland.ca/make-your-walks-an-adventure">https://scoutisland.ca/make-your-walks-an-adventure</a>  |
| Tree Identification   | Eastern Forests, <a href="http://www.arboday.org/trees/whattree/eastertrees.cfm">www.arboday.org/trees/whattree/eastertrees.cfm</a><br>What Tree is that?, <a href="http://www.arboday.org/trees/whattree/whattree.cfm?Itemid=e6a">www.arboday.org/trees/whattree/whattree.cfm?Itemid=e6a</a><br>Glossary of Tree Terms, <a href="http://www.arboday.org/trees/treeguide/glossary.cfm">www.arboday.org/trees/treeguide/glossary.cfm</a><br>Tree ID, <a href="https://naturalresources.extension.iastate.edu/forestry/iowa_trees/key/key.html">https://naturalresources.extension.iastate.edu/forestry/iowa_trees/key/key.html</a>   |

Small group conversations continued as students used design thinking to develop their projects.<sup>10</sup> This began with brainstorming about the people and animals that they hoped to help. They then imagined how each person or animal interacted with their given topic. For example, one team wanted to build trails, and considered how they could adapt the trails for people who had difficulty walking or those with limited sight. They also considered what new trails might mean for the beaver who had a lodge near to an area where children liked to play. While taking these viewpoints into consideration, students thought about what further information was needed before full scale trail building could begin. This led some in the group to draft proposals and prototype trails. The trail team looked further into low impact environmental trails, investigating American Mountaineering Club sites.

A different group worked to create a field guide that could be complementary to the trails. The guide was to feature local animals, with student drawings, maps, and fun facts. The students wanted the trail to be both informative and fun—including physical activities and QR codes for those who might benefit from audio assistance.

Again and again, students asked one another if they had “learned enough” to meet their own goals and also to adequately address those who might use or be impacted by their work. Part of the lesson in this style of learning is recognizing that some ideas don’t fully develop—and that’s okay. It can also be frustrating. As one student said, “Not all seeds make their way to the ground. Not all ideas bloom.” The hope is that we



A student looks through binoculars into trees of a swamp.

can be inspired by the ideas that start to grow roots. After all, the process of learning how to learn and how to assess one's own learning is the true flower we're trying to cultivate.<sup>11</sup>

## Creations and Celebrations

Teams of students spent their time outside starting to create trails, searching for more animals and plants, building nests and helping one another. Trail work became a way of community building for the classes. The designers of one trail would ask their peers to gather sticks in piles to begin. The second phase involved sorting materials and determining best fit based on shape and size. Larger logs were set aside for a bridge project, which was to span a particularly muddy area.

The day of our presentations, students were excited to share their work. We set up stations in the woods and in the field. Teams rotated through stations during presentations and demonstrations, giving each group a chance to visit and learn from the others. Bundles of kindling were brought in to demonstrate wood splitting as part of "imagining the land one hundred years ago." Surprisingly, a few students had never seen wood split before and were drawn to the model ax created by presenters. Several lined up to have their photo taken holding a bundle of split wood. Each audience member was provided with a clipboard and a short reflection sheet asking for three focused reviews of presentations. The intention was to provide a degree of scaffolding for the students to hear one another, practice being an audience member, and then having a short, friendly discussion of peer work.

One highly engaging student-run group blended a scavenger hunt in the woods with challenges requiring interaction with the environment. Participants earned cards with factual information about plants, animals and people in the area.

The interplay between the groups also generated new experiences. The trails that had been blazed were used by most groups out of simple convenience. A bridge constructed over a stream became a feature of one scavenger hunt. The new observations and information learned by one group about the great blue heron appeared in questions posed by a neighboring team. There was a natural exchange where all students were able to contribute to the broader learning community.

## Reflections

The world is filled with mysteries. As a teacher, my aim is to be

open to the different stories and adventures that can be made alongside students: a chance encounter with a dead rabbit turned into an investigation that generated questions about the land around our school, and our responsibilities to that land as stewards. Student learning came to embody themes of geography: place, location, region, movement, and human environmental interaction. Experience shaped our understanding of place, embedded us within a region filled with history, gave purpose to our movement, and provided a better sense of animal and human movement. Abraham Joshua Heschel wrote, "There is nothing in the universal that is not contained in the particular."<sup>12</sup> In investigating the little plot of land by our school, we tapped into the universal: how authentic learning surrounds us each and every day. ■

## Notes

1. David Sobel, *Childhood and Nature: Design Principles for Educators* (Portland, Me.: Stenhouse Publishers, 2008).
2. Ibid.
3. Parker J. Palmer, *Courage to Teach: Exploring the Inner Landscape of a Teacher's Life - 20th Anniversary Edition* (Jossey-Bass, 2017).
4. David W. Orr, *Earth in Mind: On Education, Environment, and the Human Prospect* (Washington, D.C.: Island Press, 2004).
5. Gareth Mathews, "Philosophy and Developmental Psychology: Outgrowing the Deficit Conception of Childhood," in *The Oxford Handbook of Philosophy of Education*, ed. Harvey Siegel (Oxford: Oxford University Press, 2009), 163–76.
6. Tom Wessels, Brian D. Cohen, and Ann H. Zwinger, *Reading the Forested Landscape: A Natural History of New England* (New York: The Countryman Press, 1999).
7. Deborah Meier, *The Power of Their Ideas: Lessons for America from a Small School in Harlem* (Boston: Bacon Press, 1995).
8. David Govatski, "Weeks Act" White Mountain History (2021), [https://web.archive.org/web/20230323054048/https://whitemountainhistory.org/Weeks\\_Act.html](https://web.archive.org/web/20230323054048/https://whitemountainhistory.org/Weeks_Act.html)
9. "Save the Last Word for Me | Facing History and Ourselves," (2022), [www.facinghistory.org/resource-library/save-last-word-me](http://www.facinghistory.org/resource-library/save-last-word-me).
10. Sarah Gibbons, "Design Thinking 101," Nielsen Norman Group (July 31, 2016), [www.nngroup.com/articles/design-thinking](http://www.nngroup.com/articles/design-thinking).
11. Carl R. Rogers and H. Jerome Freiberg, *Freedom to Learn* (New York: Merrill, 1995).
12. Abraham Joshua Heschel, *Insecurity of Freedom* (Macmillan, 1966).



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