

# Using Simple Tools to Construct Complex Frameworks of the Natural World

by Ron Grady

Nature and the natural world have always sparked my curiosity, and yet, only since I have begun to delve into the practice of early childhood education has it really begun to come alive to me just how amazing and complex nature is. More and more, I found myself not only relishing my time outdoors, but taking close eyes to my children as they explore outdoors, as well. I am constantly intrigued by the way children gravitate toward the small and the unseen, even if only for a moment. The peal of laughter at a butterfly taking flight, the laser focus upon the quick steps of the tiniest ant, the gentle reverence and subsequent destruction of a flower freshly-bloomed. Children are obviously interested in nature, and I wanted to know just how much “my” children knew.

Although I teach primarily in an indoor preschool, I am closely



Ron Grady is an early childhood educator with a passion for child-centered and constructivist methodologies. He encourages children to learn through art, nature, and play and enjoys exploring the ways that these connect to deep processes of creative, personal, and academic inquiry. He is a teacher at NOLA Nature School in New Orleans and serves as a consulting editor for *Young Children*.

affiliated with an outdoor preschool program in my city, and wondered how the children in my own classroom, in a city preschool, went about relating to the world of nature. Further, I wondered how, in times where so much is occurring inside, children might still experience the beauty and nuance of the natural world that draws them in so irresistibly.

Indeed, one of the most exciting things about working with young children is their ability to do so much! Parents and educators alike are both insistent upon, and yet constantly amazed by, the competence shown by the young ones they encounter each day. As early educators, we are reminded to always adopt and to maintain a competent image of the young child. Therefore, using the principles of the project approach (Helm & Katz, 2011), the philosophy of Reggio Emilia, and aspects of the Mosaic Approach (Clark, 2017), I set out to answer these questions. I was determined to let the children lead the way.

## Experience and Conversation

Experience and conversation are the foremost ways in which children

construct ideas of the natural world. As practitioners, we facilitate and observe these, in order to gain insights about how to move their investigations along and incorporate them into our ongoing planning. Once I decide to tune in, I begin to pick up on the multiple layers present in the children’s conversation.

*We are on a nature walk to collect items for our classroom nature table. We pause near the base of a group of shrubs that the children have seen time and time again. However, this time someone spots a butterfly.*

*Jenna: Butterfly! Where are you?*

*Ron (Teacher): If you are too loud, she is going to run away!*

*Frank: Why?*

*Ron: She is eating the nectar from a flower.*

*The butterfly flies to another group of flowers nearby. Out of reach, but now visible to all.*

*Ron: There she goes!*

*Jenna: Oop! Butterfly!*

Ron: Do you think she wants to be caught?

*The children do not think so, and the butterfly remains in the leaves for a few moments before fluttering away. Slowly, the children approach the spot where the butterfly was.*

Another day, two girls are looking at ants on the playground during outside time.

Anna: How many are they? One, two, three, four, five...

Anna is interrupted by a more important train of thought.

Lou: Hey there is a baby. He is coming! Hello baby. Hello baby ant. What are you doing there? Let's lay down and see all the ants.

Anna: It is right there. She with her mommy. They are going under the tunnel!

The girls lay on their stomachs and move their faces close to the ground where the view is, of course, much better.

These conversations and experiences reveal that the children regard the natural world as worthy of interest and attention, show that they use their own experiences of family life to make inferences about the experiences of other creatures, and understand that these creatures exist within both the same and different worlds that they do. They breathe the same air and occupy the same space, but need different things—rock tunnels, flowers for food, freedom and space to fly—than children do. I posit, as well, that these conversations are signals of an emerging sense of respect—co-emergent with the underlying fear/joy that marks their interactions with these creatures.

## Exploring Nature Through Books

While these experiences outdoors are important and transformative, a significant and beautiful portion of our growth and learning together takes place indoors. Therefore, storybooks and informational texts are important mediums through which we revisit and reinterpret our multiple experiences of the natural world. As the children encounter these texts day after day, they begin to notice new things about the books and, importantly, make new connections to the world outside of the walls and windows that surround them.

During our ongoing inquiry, I observe many interactions with books—both informational texts and narratives—that reveal the true expanse of the children's ongoing work.

*Six girls are looking at books around a table. Anna holds a honeybee figurine over a page in a storybook depicting bees are flying around flowers. Lou holds a beetle.*

*Anna points to an illustrated honeybee: This the wings, and this is the other wings.*

*Lou raises the beetle figurine to the honeybee: This is not the same. And I saw another one who is the same.*

*The two discuss, and I mention that a nearby friend is looking at a book with lots of bugs and that maybe there is a match in there. They scan the page and quickly locate a beetle on a page filled with many, many bugs.*

*"I found it!" their friend says.*

*Another friend pipes in, "A ladybug!"*

*"It is the same as mine!" Anna finally says, placing the honeybee on the page as well.*

This is only one exemplar of many such interactions. Again, these books do not replace hands-on and in-person exploration of nature, but they are a marvelous source of enrichment that can make even the briefest experiences outdoors come alive with new meaning. Making comparisons and connections to what children have seen, and bringing concrete objects and experiences to the realm of texts, is a critical part of connecting with literature throughout the lifespan, and it is no less true in early childhood.

## Harnessing Technology

The proper use of technology in the classroom is a constant source of discussion among early educators, and while various frameworks for technology use have been developed, many rely on a "less is best" policy in preschool. However, after establishing a baseline of experience of the nature around us, we began to integrate two pieces of technology into our classroom, curious about what they might bring to our understanding and appreciation of the natural world, with which we were already so engaged.

### Our Classroom Tablet

Although familiar, our classroom tablet never seemed remarkable. We used it to check-in and check-out, to communicate occasionally with parents and families, and to play white noise at naptime—however, once we dove into nature, things changed. All of a sudden it was a source of information! Videos, pictures, and factoids were accessible to us at the swipe of a finger, and the children were eager to engage with it.

### The Digital Microscope

Another tool we used with increasing frequency was the digital microscope. During small groups, we would take it out and use it as an augmentation of our ongoing exploration. If nothing else, it revealed the children's dedication to looking at natural items closely, and their excitement when they are invited into the perceptual shift the microscope invites. From honeybees to butterflies to leaves to branches (and, of course, their own hands), the children used the microscope to see just about everything, and as the weeks went on, our discussions using this tool and the insights it provided only grew deeper.

*I am sitting around the table with four children, each looking between our classroom tablet, the digital microscope tray, and the screen upon which the images projected by the digital microscope are broadcast. A crane fly in a petri dish is the current subject of investigation.*

*Ron: Do you see? I wonder, it sort of looks the same. Look, look at this one.*

*Trey: No.*

*Mags: I think it is like that one.*

*Ron: Mags says she thinks it is like that one.*

*Now you look at the screen to see the crane fly, and look.*

Our use of the digital microscope and tablet reveal that the children are making inferences and connections to the information accessed from the internet and to the information gleaned from their direct observation and handling. This suggests that as time passes, they will grow increasingly confident of and aware that this virtual avenue is both potentially useful for gathering information and is a tool in the service of that which they

have already handled and observed firsthand.

As teachers, especially in these times, it can be difficult to feel as if we have the needed resources to equip our classrooms and our families with the tools required to undertake deep, high quality work that honors the children's interests, remains relevant to our youngest learners, builds upon their existing knowledge, and incorporates the increasingly technological tools at our disposal. However, with just these simple tools—shared experiences and conversations, books (both informational and narrative), and carefully selected pieces of technology—we can facilitate instances of multifaceted inquiry.

What's more, nature is an accessible component of everyone's lives, despite the fact that all may experience it differently. Whether it is watching a bird perch on the power line from an apartment window, a dandelion spring up from a cracked sidewalk, or roaming in a backyard filled with flowers and trees, the natural world is waiting for children and they will jump at opportunities to know it more deeply.

## References

- Clark, A. (2017). *Listening to Young Children, Expanded Third Edition: A Guide to Understanding and Using the Mosaic Approach*. London, UK: Jessica Kingsley Publishers.
- Helm, J.H., and Katz, L.G. (2011). *Young Investigators: The Project Approach in the Early Years*. New York: Teachers College Press.

