

Nurturing Early Learning

The Latest Science on Young Children's Learning and the Outdoors

Institute Proceedings Report

IslandWood, a School in the Woods

Bainbridge Island, WA

August 5th - 8th, 2018



Acknowledgements and Sponsors



Cultivate Learning's mission is to foster the quality that makes access to learning meaningful. We advance opportunity by lowering barriers to entering the profession and guiding educators to success, and we identify the building blocks of quality along with the path to use them — in Washington State and across the country.

IslandWood's mission is to provide exceptional learning experiences and to inspire lifelong environmental and community stewardship.

Tiny Trees' mission is to use outdoor classrooms to make a quality education in reading, math, and science affordable for families and to give children a joyful, nature-rich childhood — one full of play, exploration, and wonder.



Washington STEM's mission is to reimagine science, technology, engineering, and math education.

Seattle Children's Hospital provides hope, care, and cures to help every child live the healthiest and most fulfilling life possible.

For their generous support, we would like to thank:

Islandwood Learning Center, Boeing, and Department of Children, Youth & Families.

We would also like to thank all of our speakers and session leaders for sharing their time, energy, and expertise.



Executive Summary

Nature contact and outdoor play are essential for young children's physical, social-emotional, and cognitive well-being and development. Regular nature experiences help children thrive as learners and explorers. However, a number of factors restrict young children's access to outdoor play, including heightened academic pressure, busy schedules, caregivers' fears of physical and social dangers, and the proliferation of technology and sedentary leisure activities. In this context, early learning programs can be a powerful equalizing force in increasing children's opportunities to play and learn outdoors. Nature-based early childhood programs are increasingly prevalent and many educators and organizations are working to incorporate meaningful outdoor learning into young children's lives.

Nurturing Early Learning, the Early Achievers Institute held at IslandWood on August 5-8, 2018, gathered researchers, educators, coaches, center directors, and advocates together to learn about supporting educational experiences for young children that are rooted in the natural world. Through keynote presentations, panels, engagement with exemplar programs, and hands-on workshops, participants in the Institute explored topics including:

- The scientific evidence behind the importance of early childhood experiences in nature
- Integrating STEM, literature, art, social-emotional learning, and other curriculum topics into outdoor environments
- Risk management and other best practices for outdoor learning in early childhood
- Overcoming barriers and making outdoor play and learning work in local contexts

This proceedings report synthesizes key themes and takeaways from each session of the Institute in hopes of supplementing participants' learning and inspiring practitioners who couldn't attend the Institute. The report can also serve as a starting point for ongoing conversations and collaborations regarding young children's play and learning in the outdoors. The research briefs and other resources developed for the Institute are also available online at <http://cultivatelearning.uw.edu/research-and-evaluations/> to support continued learning on these important topics.





JULY 2018

Research Briefs

Table of Contents

Page 2

Acknowledgements
and Sponsors

Page 3

Executive Summary

Page 6

Institute Agenda

Page 8

Day 1

Page 9

The Science Behind the
Importance of Outdoor
Play for Young Children

Page 11

Day 2

Page 12

Intentional Teaching
in the Outdoors

Page 14

Watching and Wondering
in the Woods

Page 16

Play is the Engine
of Learning

Page 17

Teaching Empathy Using
Slugs, Worms, and Other
Common Creatures

Page 19

#naturesowhite:
Tools and Solutions
for Decolonizing
Outdoor Space

Page 20

Madrona School Visit

Page 22

Storytime STEM:
Mathematizing
Children's Literature

Page 24

Day 3

Page 25

The Neuroscience
Behind Having a
Field Day

Page 27

Mindfulness First...
Preaching to the Choir

Page 28

Risk Assessment in
Outdoor Learning

Page 30

DCYF Outdoor Preschool
Pilot Participants

Page 32

Embrace the Rain:
Strategies to Facilitate
Outdoor Play in Any
Weather

Page 33

Science Through Story:
Children's Picture Books as
Contexts for Teaching and
Understanding Environmental
Science Concepts

Page 35

Young Children in
the Garden

Page 36

Creating with
Natural Materials

Page 38

Storytime STEM:
Mathematizing
Children's Literature

Page 40

Day 4

Page 41

Nature-Centered
Learning in Your Context

Page 43

Connecting Research,
Practice, and
Personal Growth

Download the agenda to your device!
rebrand.ly/IslandWood-Agenda

August 5-8, 2018 Agenda

Nurturing Early Learning

The Latest Science on Young Children's Learning and the Outdoors

Sunday, August 5th

5:00PM - 6:00PM Welcome Center	1 hr	Registration & Guest Check-In Overnight guests check in and Institute attendees confirm registration, receive badges, and are welcomed by IslandWood and Cultivate Learning Staff.	Cultivate Learning Staff & IslandWood Hospitality Staff
6:00PM - 6:15PM Great Hall	15 min	Welcome & Introductions Overview of program and welcome.	Soleil Boyd, Cultivate Learning, Director of Professional Development
6:15PM - 6:45PM Great Hall	30 min	The Science Behind the Importance of Outdoor Play for Young Children A big picture of the science and research behind why outdoor time and nature contact are important for young children, including the relationship between physical activity and early learning.	Pooja S. Tandon, MD, MPH, Seattle Children's Hospital and Asst. Professor, UW
6:45PM - 8:15PM Welcome Center/ Adjacent Patio	1 hr 30 min	Hospitality Hour (6:45 PM - 7:15 PM) Hosted Dinner (7:15 PM - 8:15 PM)	

Monday, August 6th

Make & Take Open
3AM-5PM

7:00AM - 8:00AM Welcome Center	1 hr	Guided Walk to Trails & Treehouse Docent-led walks offered by IslandWood Staff to orient guests to the trails on campus and the IslandWood Treehouse.	IslandWood Docents
7:00AM - 8:00AM Learning Tree	1 hr	Peacefulness in Every Step Infuse your morning with a sense of peaceful harmony and bask in the joyful appreciation of life by practicing a variety of modalities of meditation (silent, guided, and labyrinth meditations, intuitive movement, and nature walks).	Kim Votry, UW Cultivate Learning, Curriculum Specialist
8:00AM - 9:00AM Dining Hall	1 hr	Hosted Breakfast	
9:00AM - 12:00PM Ichthyology Great Room	3 hr	Intentional Teaching in the Outdoors Whether your outdoor space is a lush forest, a busy neighborhood, or a school playground, nature always offers fascinating and imaginative opportunities for STEAM learning. But how do we tie curriculum to outdoor play? In this workshop, we'll explore that question through hands-on interactive activities.	Rachel Franz, Tiny Trees, Curriculum Manager Kim Votry, UW Cultivate Learning, Curriculum Specialist
9:00AM - 12:00PM Great Hall	3 hr	Watching and Wondering in the Woods Forests, neighborhood parks, and play yards are complex and sensory-rich environments ripe for experiential learning and play. Join us for a walk in the woods where we will demonstrate how you can allow for children's wonder, excitement, and curiosity to take the lead in your explorations.	Christina Doherty, IslandWood, Community Programs Coordinator
12:00PM - 1:00PM Dining Hall	1 hr	Hosted Lunch	
1:00PM - 4:00PM Learning Studio 102	3 hr	Play is the Engine of Learning Play may be the single most critical element of mathematical learning for young children. We'll review some of the science on the power of play and explore ways we can play with mathematics and create opportunities for students to play too. In particular, we'll explore how building the right environments and being willing to play yourself can create a vibrant culture of mathematical thinking.	Daniel Finkel, Math For Love
1:00PM - 4:00PM Learning Studio 103	3 hr	Teaching Empathy Using Slugs, Worms, and Other Common Creatures Caring for animals can help children develop empathy and respect for living things. Even in urban settings, there are creatures right outside your classroom that children can build relationships with. In this workshop, we'll learn strategies for finding backyard bugs and incorporating them into curriculum, with a focus on activities that build empathy.	Caroline Cook, Mercer Slough Environmental Education Center, Early Childhood Supervisor
4:00PM - 6:00PM Learning Studio 102	2 hr	#naturesowhite: Tools and Solutions for Decolonizing Outdoor Spaces History, false narratives, and stereotypes have all played a part in the exclusion of people of color from outdoor, wild spaces. In this seminar, we will explore ways to engage with communities and families to ensure that everyone has access to the wonderful environments this world has to offer.	Khavin Dobbs, Tiny Trees/IslandWood
4:00PM - 6:00PM Welcome Center	2 hr	Madrona Farm School Visit Join Madrona School early childhood educators in exploring, experiencing, and learning about our pioneering outdoor Waldorf Early Childhood Program! Tour our 5 acres, bake bread, chop wood, build a fire, climb trees, and learn about our experiential, interest-driven, imaginative, age-appropriate curriculum. Benefits of risk taking? Brainstorming ideas about outdoor space? Questions about discipline? Ideas for real practical work? Bring your questions and let's answer them!	Isaac Kamsley, Madrona School
6:15PM - 7:15PM Dining Hall	1 hr	Hosted Dinner	
7:30PM - 9:00PM Campfire/Friendship Circle	1 hr 30 min	Storytime STEM: Mathematizing Children's Literature Discuss the ideas of mathematizing and join in small groups to approach the book "Storm" with a math lens.	Allison Hintz & Tony Smith, University of Washington - Bothell

Tuesday, August 7th

Make & Take Open
8AM-5PM

7:00AM - 8:00AM Bluebell Cove	1 hr	Inside Out Yoga Embrace the moments of a new day with the mindfulness practice of yoga. Using thoughtful steady breath to lead you in and out of poses sequenced to gently wake your body, quiet your mind and give you a sense of ease and spaciousness to carry forth. All levels and abilities are welcome.	IslandWood Certified Yoga Instructor
8:00AM - 9:00AM Dining Hall	1 hr	Hosted Breakfast	
9:00AM - 10:00AM Great Hall	1 hr	KEYNOTE: The Neuroscience Behind Having a Field Day Though well known to most caregivers, the benefits of exercising in outdoor settings have surprising empirical support in the research literature. In this talk, we discuss some of this literature, describing the powerful positive effects "green exercise" has on executive function, focusing behaviors, and general mental health in children - and in the adults who take care of them.	John Medina, Developmental Molecular Biologist, Author of <i>Attack of the Teenage Brain</i> , <i>Brain Rules for Aging Well</i> , <i>Brain Rules</i> (New York Times Best-seller, <i>Brain Rules for Baby</i>)
10:00AM - 12:00PM Learning Studio 103	2 hr	Mindfulness First...Preaching to the Choir We already know the benefits of mindful practices and the importance of resilience and self-care...so why is it so difficult to prioritize these things in our busy lives? This workshop provides a space for mindfulness in action and relies on the collaboration of participants to observe, describe, reflect, discuss, experiment, and share personal solutions. Join us for an afternoon of peaceful learning, conscious breathing, gentle movement, and authentic connection, and take home a bounty of new ideas for prioritizing mindfulness in your life.	Kim Vitry, UW Cultivate Learning, Curriculum Specialist
10:00AM - 12:00PM Learning Studio 102	2 hr	Risk Assessment in Outdoor Learning What are the risks and related consequences of any given situation? How can we train staff and students to manage dangers? How do we assess and manage risk on the move?	Sarah Salazar Tipton & Sarah Greenwald, Olympic Nature Experience
12:00PM - 1:00PM Great Hall	1 hr	Hosted Lunch & Panel of DEL Outdoor Preschool Pilot Participants	Directors of Various Outdoor Preschools
1:00PM - 2:30PM Ichthyology Great Room	1 hr 30 min	Embrace the Rain: Strategies to Facilitate Outdoor Play in Any Weather With preparation and the right approach, outdoor learning can flourish rain or shine. From activities to gear choices, explore how to embrace the weather and help children build a positive relationship with the outdoors.	Val Loughney Stapleton, Peacock Family Services, Nature Nuts Program Director
1:00PM - 4:00PM Learning Studio 102	3 hr	Science Through Story: Children's Picture Books as Contexts for Teaching and Understanding Environmental Science Concepts In this session, we will leverage children's picture books as contexts for learning environmental science and stewardship concepts. Reading stories with children can provide opportunities for them to experience empathy, engage in STEM sense-making, and develop a variety of imaginative embodiment strategies.	Olivia Scipio, Ph.D., IslandWood, Director of the Graduate Program in Education for Environment and Community
1:00PM - 4:00PM Learning Studio 102	3 hr	Young Children in the Garden Gardens are a unique place for children to develop positive, reciprocal relationships with the world around them. By engaging in sensory-based learning in the garden, children experience the wonder of giving and receiving care from their plant teachers. This session will offer educators an opportunity to learn about the value of garden education and how it could be implemented in their own contexts.	Mónica García de Mesquita, M.Ed., IslandWood, Garden Educator
4:00PM - 6:00PM Art Studio	2 hr	Creating with Natural Materials In this session, you will be introduced to early childhood art activities that incorporate natural materials that can be found in your neighborhood and schoolyard. Join us to have fun creating and discover easy, fun, and beautiful activities to bring into your practice.	Jessica Henderson, IslandWood, Arts Coordinator
4:00PM - 6:00PM Welcome Center	2 hr	Free Time or Docent-Led Hike Enjoy free time or participate in a docent-led hike around IslandWood's trails.	IslandWood Docents
6:00PM - 7:00PM Great Hall	1 hr	Hosted Dinner	
7:30PM - 9:00PM Campfire/Friendship Circle	1 hr 30 min	Storytime STEM: Mathematizing Children's Literature Discuss the ideas of mathematizing and join in small groups to approach the book "Flashlight" with a math lens.	Allison Hintz & Tony Smith, University of Washington - Bothell

Wednesday, August 8th

7:00AM - 8:00AM Bluebell Cove	1 hr	Inside Out Yoga Embrace the moments of a new day with the mindfulness practice of yoga. Using thoughtful steady breath to lead you in and out of poses sequenced to gently wake your body, quiet your mind and give you a sense of ease and spaciousness to carry forth. All levels and abilities are welcome.	IslandWood Certified Yoga Instructor
8:00AM - 9:00AM Great Hall	1 hr	Hosted Breakfast	
9:00AM - 11:00AM Great Hall	2 hr	Nature-Centered Learning in Your Context Different early childhood environments offer unique opportunities and constraints for outdoor learning and play. Explore ways to implement nature-centered learning in your context.	John Haskin, PhD, IslandWood, Senior Vice President for Education
9:00AM - 11:00AM Ichthyology Great Room	2 hr	#naturesowhite: Tools and Solutions for Decolonizing Outdoor Space History, false narratives, and stereotypes have all played a part in the exclusion of people of color from outdoor, wild spaces. In this seminar, we will explore ways to engage with communities and families to ensure that everyone has access to the wonderful environments this world has to offer.	Khavin Debbis, Tiny Trees/IslandWood
11:00AM - 12:00PM Great Hall	1 hr	Connecting Research, Practice, and Personal Growth: Wrap-Up Lunch Panel Join your colleagues in this final session to discuss what we learned from research about the power of outdoor learning, what we've learned about how to realize this in our work with children, and how our connections to the outdoors help us as people and educators. Box lunches provided.	John Haskin, PhD, IslandWood, Senior Vice President for Education Andy Shouse, WA STEM, Chief Program Officer

With Support From:





Day 1:
August 5th, 2018



The Science Behind the Importance of Outdoor Play for Young Children

Pooja S. Tandon, MD, MPH — *Seattle Children's Hospital and UW Assistant Professor*

Sunday, August 5th — 6:15 pm - 6:45 pm

Opening keynote

This opening session focused on the importance of physical activity and outdoor play for early childhood learning and health. Physical activity supports children's holistic well-being, including healthy weight status, motor competencies, heart health, bone health, and mental health and well-being. In addition, physically active play is associated with the development of executive function skills that are essential for school success, including working memory, self-regulation, and planning. Pooja also described positive academic outcomes of regular physical activity such as appropriate classroom behavior, cognitive performance, and higher grades and standardized test scores. Children are more active when they play outdoors and experience additional benefits such as Vitamin D exposure and sensory development. Synthesizing several expert recommendations, Pooja said that preschool-age children should engage in at least one hour of outdoor play and at least two hours of active play each day.

Pooja shared striking statistics about sedentary lifestyles and obesity among young children. Early childhood obesity has long-term consequences — for example, children who are overweight at age five are four times more likely to become obese later in life. Pooja termed the recent trends an “epidemic of physical inactivity,” citing that only one in three children are physically active every day and girls are particularly inactive. She offered a number of explanations for the shifting realities of childhood, including increased screen time, environments that are unsuitable for outdoor play, and more structured activities and less free time.

Parents and educators can play a significant role in increasing young children's access to outdoor, active play. Pooja referenced a study indicating that over 50% of preschoolers don't play outside daily with their parents.



She also reported that most Washington State child care programs are not meeting best-practice standards for outdoor play time. On average, preschoolers experience 48 minutes per day of active play opportunities. However, nature-centered early childhood programs are one possible way to increase outdoor active play for young children. Finally, Pooja described a current Seattle Children's Hospital study known as Preschoolers Learning and Active in Play that utilizes wrist-worn activity trackers to encourage preschoolers and their caregivers to be more physically active.



Day 2:
August 6th, 2018



Intentional Teaching in the Outdoors

Rachel Franz — *Tiny Trees, Curriculum Manager*

Kim Votry — *UW Cultivate Learning, Curriculum Specialist*

Monday, August 6th — 9:00 am - 12:00 pm

Workshop

Rachel and Kim began this session by asking participants to describe the barriers to teaching outdoors that they face in their program contexts. Participants shared challenges such as logistical planning and scheduling, the concerns of families, anxiety about children playing too roughly, and the possibility of passing on their own fears to children. The facilitators encouraged the educators to turn these barriers into teachable moments by engaging in **intentional teaching**. They introduced the idea of creating a **yes environment** outdoors for children by strengthening the educators' teaching abilities — they said “A confused mind always says no.”

Next, Rachel and Kim led the group in a discussion of what children can learn in outdoor play. For example, educators can create teaching moments that emerge organically from children's discoveries. Children learn best when engaging in hands-on multisensory experiences

and when they are given time and space to play. Natural environments can help us slow down to gather and process information more deeply. The facilitators then drew connections between the learning opportunities that participants identified and early learning standards.

Rachel and Kim used video clips and written scenarios to invite the participants to think about approaches to teaching outdoors. The group discussed ideas such as:

- The role of the teacher as an observer, noticing and valuing what children are doing and building upon it
- Creating an **emergent curriculum** by being open to exploration, noticing, listening, looking out for big ideas and connections, and asking children “What do you know? What do you want to find out?” and other open-ended questions



- Rather than imposing a particular structure or lesson, creating space for children as innate learners and letting them lead the activities based on their own interests
- Providing opportunities for process over product
- Documenting children's explorations
- Using a place- or project-based learner-led approach rather than an activity-based teacher-led approach
- Fostering children's inquiry skills such as planning, predicting, observing, collecting and recording information, reflecting, thinking about patterns and connections, constructing reasonable explanations, and asking new questions
- Utilizing nature's ample materials as well as supplementing with indoor learning materials





Watching and Wondering in the Woods

Christina Doherty — *IslandWood, Community Programs Coordinator*

Monday, August 6th — 9:00 am - 12:00 pm

Workshop

Note: Participants divided into two smaller groups for this session — one facilitated by Christina and the other by Mary Meier (IslandWood, Community Education Manager). This summary is based on participation in Christina's group.

Christina began the session with introductions, then provided an overview of her goals, focal concepts, and activities plan for the morning. She discussed the importance of nurturing our own sense of wonder and nourishing our connections with nature.

The first concept Christina explored with the group was **sense of place** and **ecological identity**. Christina invited participants to co-create a map in the meadow by positioning themselves in a place that is central to their identity. Next, each person described their place and the group reflected about how recalling these special places made them feel — participants used words like “freedom,” “grounded,” “connected,” and “joy.” Christina talked about the importance of cultivating a personal sense of place in order to model heartfelt connections to place, help others build their own ecological identities, and foster community and stewardship. Participants also explored the idea that

ecological identity is equally powerful in urban spaces and should be conceptualized broadly rather than approached with a deficit mindset.

Christina led the group to a bigleaf maple to introduce the next concept, **phenology**, which she described as “nature’s calendar” or the timing of cyclic seasonal events. In a series of think-pair-shares, participants imagined how the bigleaf maple might change throughout the four seasons. Christina discussed how to modulate the language used to characterize natural phenomena with children of different ages and how to introduce complex terminology. She emphasized the powerful learning opportunities involved in paying close attention to something over time and recording its changes.

“Everything has observable data and everything has inherent meaning to us.”

Christina Doherty



Christina modeled this attentiveness and curiosity as the group moved around IslandWood's grounds by pausing often to share her knowledge about the plant and animal inhabitants of the space.

Next, the group walked along a trail to Mac's Pond, where they watched young campers journey to the center of the pond on a floating classroom. On the shore, Christina introduced **universal concepts**, an idea from the art of interpretation about helping diverse individuals build personal connections with a place or object. Christina offered a distinction between **tangibles**, which are concrete facts about the world, and **intangibles**, or the meaning underlying the perceivable characteristics. To explore this concept, participants gathered in small groups to examine a natural object of their choice, first noting the tangibles (eg. green, scratchy, waxy) then the intangibles (eg. resilience, nurturing, home). After each group shared the intangibles they generated, Christina highlighted the similarities and differences in the groups' ideas and talked about how universal concepts can be embedded in learning environments to help children build deep connections with content and contexts.

Finally, participants walked to the suspension bridge for a quiet moment of reflection and personal intention-setting. Christina invited individuals to share their intentions with the group and wrapped up the session with the same warmth, energy, and humor that she offered throughout the morning's activities.





Play is the Engine of Learning

Daniel Finkel — *Math for Love*

Monday, August 6th — 1:00 pm - 4:00 pm

Workshop

In this session, Dan focused on the key idea that play is the best way to teach and learn mathematics with young children. Rather than a waste of time or a distraction, play is at the heart of true learning. As opposed to rote memorization of formulas and definitions, children should discover math through hands-on and playful experiences. An equation is “a photograph of the experience” and exploring a mathematical phenomenon is the experience itself. Dan encouraged a sense of curiosity, where confusion is embraced and questions are more important than answers.

Dan modeled this playful approach to math teaching and learning by inviting participants to experiment with pattern blocks. Through a series of guided questions, he led the group to discover the mathematical phenomenon of square numbers. Participants also had the opportunity to try several other games, including Tiny Polka Dot, a game that Dan created for children ages 3 - 8.

In this framework, the role of the educator is to demonstrate playfulness and design a safe, fun, and playful environment for learners. Dan discussed the idea of math trauma, where past mistakes in math make us believe that we are inherently less intelligent.

To support children's joyful engagement with math, educators can model determination, acceptance of setbacks and mistakes, courage, and enjoyment in math learning experiences. Dan suggested that rather than praising children for accurate answers or learning speed, teachers should praise effort. He urged the group to adopt the mentality that everyone can be successful in learning math. He encouraged participants to discover what they enjoy about math and share that excitement with children.

In addition to fostering play, Dan recommended that educators:

- Ask questions such as “how many,” “what kind,” “how big,” and “what if” in conversations with children
- Use descriptive and numerical language in everyday interactions
- Incorporate games and activities that involve counting, sorting, comparing, and building

“There’s a world to explore, what can you find in it?”

Daniel Finkel



Teaching Empathy Using Slugs, Worms, and Other Common Creatures

Caroline Cook —*Mercer Slough Environmental Education Center, Early Childhood Supervisor*
Monday, August 6th — 1:00 pm - 4:00 pm
Workshop

Caroline started the session with an icebreaker activity in which she showed a series of images of animals and asked participants to move to different locations in the room according to their positive, neutral, or negative emotional responses to the animals. The group then reflected on the activity, exploring questions like “What made us smile/frown?” and “What was surprising about people’s reactions?”

Caroline offered a definition of **empathy** as a “stimulated emotional state that relies on the ability to perceive, understand, and care about the experiences or perspectives of another person or animal” (Seattle Aquarium). She explained that empathy includes multiple components — **affective**, **cognitive**, and **empathic concern**. Certain factors make it easier to feel empathy for an animal: recognizable body parts, especially faces, visible

and relatable behaviors and affect, and length of time exposed to the animal.

Next, Caroline provided a number of strategies for supporting young children’s empathy for animals. When facilitating interactions with animals, educators can utilize pronouns and names to refer to the animal, describe the animal as an individual with particular needs rather than generalizing about the species, compare the animal’s experiences to human experiences, and model empathy in their own actions. Caroline shared that learning more about animals, including observing, touching, holding, and caring for them, also helps children develop empathy. Finally, she described the power of imaginative experiences such as animal yoga, role play and perspective-taking, and storytelling.



Caroline gave the group time to engage in their own observations of worms and insects and think about how to guide young children's explorations. She offered some practical information about creating and maintaining a worm bin in the classroom. Then, participants went on a bug hunt equipped with tools like magnifying glasses, bug boxes, spoons, and glass slug slides and discovered a variety of critters, including banana slugs, millipedes, and spiders. During these hands-on experiences, the group identified and collaboratively brainstormed solutions to challenges such as how to discuss both empathy and the death of animals, how to attract animals to the programs' outdoor spaces, how to navigate licensing requirements, and how to support children who are fearful of animals or the outdoors.

To close the session, Caroline described an example bee curriculum for young children that incorporates multiple forms of learning, including observations, art activities, sensory and motor play, role playing, and group discussion. She also highlighted the tension between scientific and anthropomorphic characterizations of animals and emphasized that emotional connections to other beings are crucial in early childhood. Finally, Caroline invited participants to generate ideas for animals that could be featured in learning experiences in their own program contexts.





#naturesowhite: Tools and Solutions for Decolonizing Outdoor Space

Khavin Debbs — *Tiny Trees, Operations and Partnerships Manager*

Monday, August 6th — 4:00 pm - 6:00 pm

Workshop

Note: This session summary was written based on the second iteration of Khavin's session, which took place on Wednesday, August 8th, 9:00 am - 11:00 am.

Khavin began by introducing himself and describing his background, then asked participants to share their name and something new and something good in their lives. He presented community agreements to facilitate discussions and group work in the session, including: this is a brave space, assume positive intent, and speak your truth and use "I" statements.

Khavin invited the group to reflect quietly about their earliest memories outdoors. He described his own backyard adventures and other members of the group shared about their experiences in places ranging from Pennsylvania to the Philippines. Khavin emphasized that there are many different ways to experience the outdoors in urban as well as "wild" spaces. For many people, urban places are our habitats, and divorcing ourselves from the nature in our daily lives creates distance and alienation.

Khavin introduced the issue at the heart of the session — people of color are not accessing outdoor spaces as much as White individuals are. They lack representation in mainstream messaging about outdoor activities and lifestyles, which implies "This is not a space for you." To explore this issue, participants worked in groups to critically analyze and rewrite excerpts from the National Wildlife Federation mission statement that perpetuate exclusion of POC and erasure of problematic histories. The groups generated ideas such as

- Promoting a conservation ethic aimed at increasing access for all
- Explicitly inviting POC and other underrepresented groups to engage with the outdoors
- Acknowledging the historical and ongoing exploitation of land
- Emphasizing our shared dependence on a healthy planet
- Recognizing the diversity of natural spaces and ways of being outdoors

Next, Khavin facilitated a discussion about what we can do as educators to counter the narrative that POC don't enjoy the outdoors. Participants' suggestions included:

- Recognizing that urban outdoor spaces matter and have pedagogical value
- Critiquing narrow understandings of nature
- Going outside ourselves and challenging societal norms
- Building support networks for POC going outdoors
- Inviting POC who are involved with nature to serve as models for children
- Reading books and telling stories that portray POC outdoors

Next, Khavin explained Bronfenbrenner's **ecological systems theory** as a framework for helping children cultivate a sense of place by beginning with what is close to their hearts and minds. Khavin described the systems from most proximal to broadest and offered strategies corresponding to each level:

- **Microsystem** — most immediate environment of the child (eg. home, school, peer group, community)
 - Acknowledge how child relates to the people and spaces closest to them
 - Foster learning and stewardship in local contexts

- **Mesosystem** — interactions between microsystems
 - Draw connections between home, community, and school
 - Take school trips to important local places
- **Exosystem** — links between two or more settings, which the child may not directly interact with but which affect them indirectly
 - Listen to family's understandings of external influences on child's life
 - Conduct home visits to learn about child's contexts
- **Macrosystem** — distant influences, such as cultural values and sociopolitical systems
 - Invite families to share their cultural expertise with the class
- **Chronosystem** — dynamic changes and transitions over time
 - Look for learning opportunities in each moment

Khavin ended the session by encouraging participants to keep their heart in the work of decolonizing nature. He shared examples of progress such as the work of organizations like Latino Outdoors and Outdoor Afro, the Unlikely Hikers community on Instagram, and the positive efforts of the Children & Nature Network to address equity and representation.



“Our built environment is nature just as much as a tree is.”

Khavin Debbs



Madrona School Visit

Isaac Kemsley — *Madrona School*

Monday, August 6th — 4:00 pm - 6:00 pm

Workshop

In this open-ended session, participants had time to explore and relax in the beautiful campus of Madrona School. Activities included making fresh bread and honey butter, splitting wood, harvesting blackberries and apples, greeting the chickens, wandering in the garden, lying in the hammocks, climbing on the play structures and balancing beams, and walking the trails that trace the edge of the five-acre space.

Isaac engaged participants in conversations about his pedagogical values and the learning opportunities that children at Madrona School experience. He emphasized the importance of motor play and rich sensory stimuli, the necessity of activities that support children's proprioception, and the empowering effects of tool use. Isaac discussed how outdoor learning can be adapted to different contexts, offering examples of his own work

in diverse settings and asserting "You can do a lot in city parks." With repeated immersion in a space, children develop a sense of place and stewardship. Similarly, children at Madrona School build strong connections to place through community gatherings on campus and field trips to neighboring farms. Visiting Madrona School was an inspiring experience and participants gained many ideas to implement in their own programs.





Storytime STEM: Mathematizing Children's Literature

Allison Hintz — *UW Bothell*

Tony Smith — *UW Bothell*

Monday, August 6th — 7:30 pm - 9:00 pm
Workshop

In this fireside session at the Friendship Circle, Allison and Tony explored children's literature as a context for thinking about the world as mathematic. They engaged participants in conversations about being playful and foregrounding children's ideas and voices when reading stories together. For children who are not yet verbal, the adult reader can think aloud and model mathematic and scientific lenses. Allison and Tony suggested that the first read of a book should be open for noticing and wondering. In subsequent readings, different lenses such as math and science can be adopted.

The facilitators offered the following guiding questions:

- What's happening? What might happen next?
- As a mathematician, what do you notice and wonder?
- As a scientist, what do you observe?

To practice these approaches, Tony led the group in a reading of *The Big Storm* by Nancy Tafuri. He paused several times and invited participants to call out their noticings and predictions. Participants identified patterns, wondered about the plot and characters, and drew connections to other texts — for example, "Things never go well when there's a skunk!" After the initial reading, Allison and Tony led the group in reflecting about their own noticings.



Next, the facilitators offered ways to engage in a second reading, such as delving deeper into an idea that emerged in the first read, focusing on a particular page or illustration, and emphasizing a mathematical concept. They urged participants to notice and extend what children themselves are curious about. The group discussed how mathematic and scientific lenses might be adapted for younger children, such as noticing colors and textures, estimating quantities, and learning the ASL signs for each animal.

As a final activity, participants imagined their own Pacific Northwest-inspired variations on *The Big Storm* while enjoying s'mores by the fire. Their creative story ideas ranged from tidepool critters, to animals munching on wild blackberries, to early childhood educators getting lost in the woods of IslandWood.

Children are the “authors of their own mathematical wonders.”

Allison Hintz



Day 3:
August 7th, 2018



The Neuroscience Behind Having a Field Day

John Medina — *Developmental Molecular Biologist, Author of Attack of the Teenage Brain, Brain Rules for Aging Well, Brain Rules (NYT Bestseller), Brain Rules for Baby*

Tuesday, August 7th — 9:00 am - 10:00 am

Keynote

In this keynote, John created a compelling case for active outdoor play in an engaging presentation grounded in neuroscience and psychology research. He began by emphasizing the importance of executive function, then synthesized data demonstrating the impact of the color green, aerobic exercise, and the great outdoors for human health and well-being across all stages of development.

First, John shared definitions of **executive function** (EF) that capture an array of neurologically based skills including **cognitive control** (eg. working memory, defocusing and refocusing, planning, creating order) and **emotional self-regulation** (eg. impulse control, affect regulation, and stress compensatory behavior).

John argued that there are many reasons to care about EF: relational reasons such as more secure attachments and less anger and moodiness; business reasons such as improved collaboration, planning, productivity, and goal-setting; and familial reasons such as better grades and higher salaries. John described variations of the classic marshmallow experiment, in which children who resisted the impulse to immediately eat the treat

“The classroom of the future looks like an arboretum.”

John Medina

demonstrated dramatic academic advantages years later. John highlighted the importance of EF for learning and the relationship between emotions and cognition.

After laying this foundation, John proceeded to discuss the powerful influence of the color green on human cognition, especially EF. He explained that 99.987% of human evolutionary history has occurred in natural outdoor settings, primarily in the arid African savannah where green is an indicator of a vital water source. As a result, we are biologically predisposed to focus in contexts where green is prevalent.

John cited research that consistently demonstrates the positive and dose-dependent effects of green on attentional focus for college-age, school-age, and preschool-age individuals.

Next, John described the importance of aerobic exercise for human health and cognition, including EF, memory, spatial reasoning, and reaction time. In addition to associative data, research has revealed a causal link between aerobic exercise and EF outcomes for people of all ages. The effects are specific to aerobic exercise — for example, there is no corresponding effect for strength training. These benefits are present in 4-year-olds, supporting the functioning of the prefrontal cortex and the development of higher-order cognitive abilities such as inhibitory behavior, attentional shifting, and cognitive flexibility.

Finally, John emphasized the unique power of time in the great outdoors — as opposed to, for example, running on a treadmill in a green room. Again, these benefits are evident across all ages. For adults, exposure to natural environments improves attentional focus and decreases stress, anger, depression, and arousal fatigue, especially if the environment includes a water feature. For teenagers, green surroundings are associated with antidepressant effects and boost performance on tests and EF assessments. Outdoor exercise in natural settings offers benefits for preschoolers' cognition as well. John explained that these effects take hold quickly — subjects exhibit changes in galvanic skin response, a physiological indicator of stress, within 200 milliseconds of nature exposure. Effects on attention and mood take somewhat longer, approximately 20-40 minutes.

In his presentation, John synthesized several bodies of literature to demonstrate the importance of outdoor active play and concluded by declaring that the gold standard for classrooms should be much like IslandWood. In the Q&A session, participants posed questions like how the research applies prenatally and in infancy, whether the effects are the same for simulated nature, how we can advocate for outdoor play, and true to Pacific Northwest form, whether rain qualifies as a water feature.

“Learning is primarily an emotional proposition.”

John Medina





Mindfulness First...Preaching to the Choir

Kim Votry — *UW Cultivate Learning, Curriculum Specialist*

Tuesday, August 7th — 10:00 am - 12:00 pm
Workshop

In this session, Kim facilitated a discussion on incorporating mindfulness practices into our lives. Kim posed the question: Why is it such a challenge to commit to ourselves and bring mindfulness into our lives, even though we value it? She emphasized the value of simplicity in self-care practices as opposed to expensive or grand experiences. The group discussed barriers to self care and brainstormed ways to regularly practice mindfulness. Some of the strategies participants shared included:

- Identifying and working with energetic boundaries
- Finding ways to boost emotional and physical health
- Utilizing calendars and apps to support a mindfulness practice
- Engaging in verbal and internal processing
- Keeping a gratitude journal
- Making passwords a reminder or affirmation
- Practicing yoga
- Using happy and inspiring music as alarms
- Listening to positive and relaxing music and/or singing
- Praying
- Focusing on and working toward desires rather than dislikes (addition rather than deprivation mindset)
- Listening to humorous or inspirational podcasts
- Creating a physical space that supports mindfulness
- Engaging in creative activities

In addition to these strategies, Kim shared a few techniques that can be used in any moment. For example, Kim invited participants to practice deep breathing that they could do each time they paused at a stop sign while driving. Participants also learned how to draw a labyrinth and practiced a guided meditation about connecting to the earth.



Risk Assessment in Outdoor Learning

Sarah Salazar-Tipton — *Olympic Nature Experience*

Sarah Greenwald — *Olympic Nature Experience*

Tuesday, August 7th — 10:00 am - 12:00 pm

Workshop

Sarah and Sarah began this session by inviting participants to introduce themselves and describe any barriers to outdoor play that they experience in their programs. Next, they introduced several definitions:

- **Benefit-risk assessment:** consists of multiple components, including identifying risk types associated with a space or activity, evaluating the likelihood and severity of injuries, describing potential benefits, and creating a plan to mitigate and manage risks while maintaining benefits
- **Risk:** exposure to something unpleasant, challenging, or dangerous
- **Danger:** possibility of suffering harm or injury
- **Challenge:** task or situation that tests children's abilities
- **Safety:** creating environmental conditions to prevent harm, injury, and danger — as in “a safe space”

- **Protection:** taking active steps to prevent injury using a protective mindset and skill set — a preferable approach to risk management

The facilitators focused their presentation on a detailed exploration of **margin of error theory**, which consists of the **margin before error** that is determined by a child's abilities, dispositions, and interests, and the **margin before consequence** that is dependent on environmental factors and the teacher's choices and actions. They emphasized that educators have two main jobs: keeping the margin before consequence large, in part by adapting to each child, and teaching children how to protect themselves and enlarge their margin before error. Next, they offered specific strategies for fulfilling these two jobs:

- Building nurturing and trusting relationships with children and meeting children's needs
- Offering children awareness tools (eg. deer ears and owl eyes) and tools for emotional and physical self-regulation



- Providing opportunities for children to assess their own safety and engage in challenging play
- Creating boundaries and safety routines (eg. trail calls, safety cones, maximum climbing heights, regularly reinforced safety agreements)
- Using a combination of reflective language (eg. “I see that you’ve climbed pretty high in that tree.”) and empowering language
- Encouraging children to “pay attention” rather than “be careful”

“You have to switch to a protective mindset, and if you’re not including the children, you’re missing half the team.”

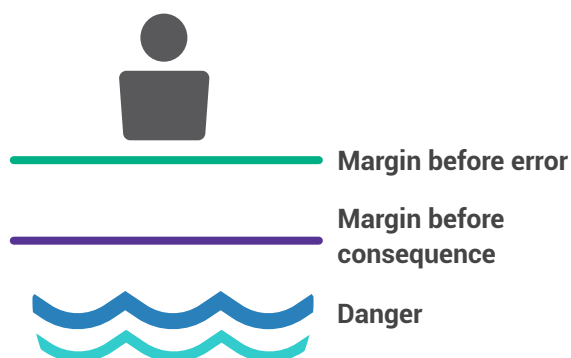
Sarah Salazar-Tipton

To provide a concrete example of risk assessment and management processes, Sarah and Sarah explained the model used at Olympic Nature Experience, which assigns numerical values to environmental risks and developmental risks:

- Environmental risks:
 - Low — 1
 - Medium — 2
 - High — 3
 - Dangerous — 4

- Developmental risks:
 - On own — 0
 - 50% support needed — 1
 - Unable to do without support — 2
 - Support needed for a new teacher — 1

They described how educators assess the day’s activities each morning, identifying potential hazards and benefits of the scenario, environmental and developmental risk levels, and a plan to mitigate the risks. Participants practiced applying this model to a sample scenario, and the facilitators highlighted the dynamic nature of these assessments and the importance of adapting to what is actually happening in each moment.





DCYF Outdoor Preschool Pilot Participants

Aliza Yair — *DCYF Outdoor Preschool Pilot Program*

Sabrina Green — *Squaxin Island Child Development Center*

Rachel Franz — *Tiny Trees*

Sarah Salazar-Tipton — *Olympic Nature Experience*

Caroline Cook — *Mercer Slough Environmental Education Center*

Tuesday, August 7th — 12:00 pm - 1:00 pm

Workshop

Aliza facilitated this panel discussion with four of the participants in the DCYF Outdoor Preschool Pilot, which is a project to create licensing standards that are suitable for outdoor early learning programs and explore the feasibility of integrating outdoor preschools into licensing regulations and Early Achievers. The four panelists represented a wide array of program structures, including indoor/outdoor, entirely outdoor, roving, and center-based programs.

The session began with the panelists introducing themselves and their programs, describing their operating models and outdoor spaces. Next, Aliza asked the panelists to share their motivations for participating in the pilot program. Motivations included: expanding program capacity and duration, reconnecting Indigenous children with nature, pushing back on restrictive regulations to create a “yes-environment” outdoors, thinking

collaboratively about the challenges of outdoor preschools, making outdoor early learning programs more accessible and affordable, establishing best practices for outdoor learning, and informing practice in traditional preschool settings. Aliza then opened the session to audience questions, which included:

- **What do the educators carry in their backpacks?**
 - Sarah responded that their bags include a first aid kit, outdoor bathroom kit, extra water, food, and clothes, emergency shelter-in-place kit, walkie talkies, whistle, cell phone, watch, safety cones, ropes, hand sanitizer, tarp, mud kitchen and art supplies, and child records.



- ***How can we support new educators and make hiring decisions in outdoor preschool programs?***
 - Rachel responded that it's a nuanced process because this kind of teaching experience is not for everyone. She said they ask candidates to describe a time they advocated for themselves and a time when their resilience was tested, as well as how they engage in self-care practices.
 - Caroline added that comfort with outdoor environments and the associated risks is important and comes with time and experience.
 - Sarah said that they utilize the coyote mentoring model. When hiring new teachers, they ask candidates to describe an encounter with nature that moved them. They look for people who like to move, be with children, and be in nature.
 - Aliza mentioned that teaching teams with complementary skills and knowledge can be a great way to support teachers.
- ***What are the criteria for success in this pilot? What are the positive outcomes on a legislative level?***
 - Aliza responded that they are primarily measuring programs' ability to comply with the regulations. They will also look at injury rates, teacher qualifications, and programs' growth. She said that the primary legislative outcomes are providing a licensing option for outdoor preschools and establishing best practices.
 - Gail added that the pilot is crucial because licensing is necessary for gaining access to state funds and expanding the programs' ability to serve children equitably.



Embrace the Rain: Strategies to Facilitate Outdoor Play in Any Weather

Val Loughney Stapleton — *Peacock Family Services, Nature Nuts Program Director*

Tuesday, August 7th — 1:00 pm - 2:30 pm

Workshop

In this session, Val shared a variety of pragmatic suggestions for facilitating outdoor play. She first addressed how to adjust educators' and families' attitudes toward weather, emphasizing that children take on the beliefs of the adults around them. Next, Val discussed how to prepare teachers and parents for outdoor play, offering ideas like:

- Providing plenty of information (eg. parent meetings, handbook, gear list, weekly email about plans) and agreeing upon expectations in advance
- Staying aware of changing weather events
- Planning ahead regarding the locations of shelters, resting places, and activity spaces
- Creating a back-up plan and communicating it to staff and families

Similarly, Val provided strategies for preparing children for outdoor play in all weather, such as:

- Building children's excitement for the space and activity ahead of time
- Communicating expectations

- Giving children solutions for if they feel uncomfortable (eg. someone to talk to, a place to rest)
- Ensuring that all children have the necessary gear

Val addressed some specific considerations for different seasons and weather scenarios and highlighted the importance of supporting parents in acquiring appropriate gear for their children. She also outlined key supplies for educators to keep among their own gear, including a rain activity bag. Finally, Val offered ideas for outdoor activities that are perfect for rainy days:

- Rain gauge
- Playing in a mud kitchen
- Making mud faces on trees
- Building a bridge
- Making stick boats
- Making hot tea
- Campfire time
- Free exploration!



Science Through Story: Children's Picture Books as Contexts for Teaching and Understanding Environmental Science Concepts

Déana Scipio, Ph.D — *IslandWood, Director of the Graduate Program in Education for Environment and Community*

Tuesday, August 7th — 1:00 pm - 4:00 pm
Workshop

Déana began this session with an introduction of the IslandWood graduate program in Education for Environment and Community, then invited participants to share their name, organization, hopes for the session, and the strangest thing they've ever put in a microwave.

The first activity was a mind mapping exercise and gallery walk focused on four prompts about children's books:

- What do you think of when someone says picture book?
- What are some of your favorite picture books?
- What characteristics do they share?
- How have you used children's books in your teaching?

Participants wrote responses to these questions on post-it notes, then grouped their post-it notes and named each

group, and finally walked around to look at other people's work. The group brainstormed themes and similarities that they noticed across the mind maps, including: artistic and aesthetic value, social relationships, literacy skills, routine and ritual, love and comfort, and understanding difference.

Next, Déana facilitated an activity exploring the concepts of **biotic** and **abiotic** that could be conducted with children. She invited participants to go outside and gather some objects that they find interesting. Then, they worked in groups to discuss how the items are connected or related and to categorize them. The categories were highly diverse, including color, texture, material, function, participation in a cycle, and relation to other aspects of nature.



Déana noted how participants thought beyond the binary of biotic versus abiotic and explained how the different categorizations can spark a conversation about people's multiple ways of knowing. She also emphasized how the activity could develop into many learning units that emerge from children's interests.

Déana shared the story *The Tin Forest* and modeled how to engage children in scientific thinking. She demonstrated strategies such as comparing and contrasting the colors palettes of different pages, making predictions about what will occur next, and asking questions like "What determines whether something is living?" Déana next introduced another story, *The Salamander Room*, that could be read alongside *The Tin Forest* to discuss ideas like habitat and what is needed for living. Déana highlighted the importance of **comprehension strategy instruction** as a way to cultivate children's metacognitive skills such as monitoring and evaluating their own understanding. Déana also described an approach to engaging with children's books called **think-aloud pedagogy**, in which the educator models a reading comprehension strategy, guides student participation, then gives students opportunities to engage in individual strategy practice.

These strategies include making connections such as text-to-text, text-to-world, text-to-self, and text-to-science.

As a final activity, participants designed lessons that utilize a children's book to explore a scientific phenomenon or process. Déana offered an example of using **Rosie Revere, Engineer** to learn about the cyclical process of engineering — defining the problem, developing a solution, and optimizing the solution. Déana invited participants to share their lesson ideas, which focused on phenomena like flotsam in the ocean and trees in autumn.

Déana mentioned a number of resources for teaching science with children, including: free publications by the National Academies Press; Science Snacks, home science activities from Exploratorium's website; and STEM teaching tools, a set of practice-oriented briefs produced by a research-to-practice collaboratory. She explained how the NGSS standards have a new focus on phenomena, inquiry, core ideas, and scientific practices rather a static body of scientific knowledge.



Young Children in the Garden

Mónica Garcia de Mesquita, M.Ed — *IslandWood, Garden Educator*

Tuesday, August 7th — 1:00 pm - 4:00 pm

Workshop

Mónica began the session with an overview of the benefits of outside time, then discussed the importance of gardens in particular for teaching us how to coexist sustainably with nature. Next, she described some of the curricular opportunities in garden spaces — for example, opportunities for multicultural, social justice, and environmental justice education. Mónica also suggested several garden activities that align with various domains of early learning, including sensorimotor, cognitive, language and literacy, and social-emotional competencies.

Next, participants had the opportunity to engage in several activities in the garden. Mónica led the group on a tasting tour where they sampled tomatoes, chives, chard, basil, several kinds of mint, and edible flowers. Then, participants harvested ingredients from the garden to make spring rolls.

Mónica explained that making spring rolls is an inexpensive activity that is appropriate for young children, and that similar foods are familiar in many cultures. Finally, participants gathered plants from the garden to make tea. These activities were a powerful form of experiential learning that awakened participants' senses of sight, smell, touch, and taste. Mónica modeled a deep joy and love of being in the garden and helped participants see opportunities for discussing empathy and care with children.





Creating with Natural Materials

Jessica Henderson — *IslandWood, Arts Coordinator*

Tuesday, August 7th — 4:00 pm - 6:00 pm

Workshop

Jess began this session by explaining why art activities with natural materials are important for children — children benefit from hands-on learning about nature, diverse sensory experiences, cross-subject integration, and opportunities to cultivate wonder and joy. In addition, the materials are free and readily available and children can recreate the activities at home. Jess described a variety of places where nature-based art projects can take place, including playgrounds, parks, beaches, backyards, and classrooms. She also identified potential challenges such as weather, physical safety, unpredictability of some materials and locations, and tensions between environmental stewardship and gathering practices, but emphasized that the experiences are ultimately rewarding.

Participants had the opportunity to engage in two art activities. First, the group created Andy Goldsworthy-inspired earth art sculptures in the wooded area behind the art studio. They admired each other's creations, then reconvened as a group with Jess to reflect on questions like: How does the material tell you what it wants to be? How did it feel to have no idea what you were going to create?

When you felt like you had created something, how did you feel about your product? Participants shared that the experience felt liberating, open-ended, and sometimes frustrating. One person felt "a sense of accomplishment, like it represented something about me or how I was feeling," and another individual felt "a little sad to leave it behind." Jess shared ideas for modifications and extensions of the activity such as building sculptures inside the classroom and creating rock towers, forts, and fairy houses. She encouraged educators to use



language like “Tell me about your process, how did you do that?” rather than asking children what their sculptures represent.

Next, the group participated in a nature weaving activity using branches they found in the woods. They wrapped yarn around the branches, then wove in the natural materials they gathered. Jess invited participants to brainstorm modifications and variations:

- Wrapping yarn ahead of time for younger children
- Planting branches in the ground and observing as spiders create their own weavings
- Wrapping story sticks with yarn to gather natural materials on longer hikes
- Weaving on a chain-link fence
- Weaving a divider or fence out of branches
- Incorporating scents (eg. mint, lavender) to create calming fans

Jess shared a list of other ideas for art projects involving natural materials, including:

- Making nature crowns, bracelets, and wands using the sticky side of masking tape as the canvas
- Creating paint brushes from natural materials tied with string, wire, rubber bands, or clothespins
- Crushing herbs into paint for scented paintings
- Painting and stamping with potatoes and other fruits and veggies
- Creating paints and pigments from natural materials
- Printing on muslin fabrics by pounding natural materials with a mallet
- Printing with natural objects (eg. seeds, cones, pebbles) in air dry clay
- Making sun prints with sun print paper
- Painting rocks
- Making mirror leaf drawings — children start with half of a leaf and try to draw lines to mimic the shape or imagine their own

- Creating mobiles with gathered materials
- Creating seed art

The group also generated more ideas, including:

- Making leaf rubbings
- Gathering natural materials on a sensory table (eg. pieces of flowers, possibly floating in water; soil, rocks, twigs, and even growing grass)
- Making mud pies with leaves and flowers
- Creating nests using mud, twigs, leaves, etc.
- Punching holes in leaves to make jewelry
- Cutting different natural materials and creating art using the shapes





Storytime STEM: Mathematizing Children's Literature

Allison Hintz — *UW Bothell*

Tony Smith — *UW Bothell*

Tuesday, August 7th — 7:30 pm - 9:00 pm

Workshop

For the second iteration of Allison and Tony's campfire session, the facilitators used *Flashlight* by Lizi Boyd to explore the questions they offered at the first session:

- What's happening? What might happen next?
- As a mathematician, what do you notice and wonder?
- As a scientist, what do you observe?

Allison and Tony discussed how wordless picture books like *Flashlight* are rich in visual detail, open to multiple interpretations, and can help educators create space

for children's own ideas. They are also a useful tool for formative assessment — for example, an educator can read one-on-one with a child and invite the child to tell the story of what's happening in the book.

Tony began the group's reading by describing what he noticed on the first page of the book, then inviting the participants to pick up the narration. Participants mentioned aspects of the story such as the child's facial expressions, the animals following the child, the presence of human-made structures versus natural spaces, and the shape of the flashlight beam.



After they finished the reading, the group discussed possible interpretations: Did the events take place in the child's own backyard or in the woods? Was the story a dream? Did the child imagine the narrative while reading a book? After the initial reading, Allison and Tony invited participants to read the story again in small groups using a mathematical lens. The group identified mathematical concepts such as the angle of the flashlight, the number of animals on each page, the portion of an animal illuminated by the light as a way to discuss fractions, the widths and shapes of trees, and the shape of the cutouts on the pages.

Next, Allison and Tony encouraged participants to explore the nearby woods using their own flashlights to really look at aspects of the natural world. They asked the group to observe how the dim evening light and their flashlight beams altered the way things looked. Participants noticed the shadows cast by leaves and marveled at the domed webs of spiders. Then, the group reconvened to enjoy s'mores and conversation around the fire.





Day 4:
August 8th, 2018



Nature-Centered Learning in Your Context

John Haskin — *IslandWood, Senior Vice President for Education*

Wednesday, August 8th — 9:00 am - 11:00 am

Workshop

In this session, John facilitated a discussion about the role of the educator in place-based experiential education. John framed the teacher's role as that of a co-learner who guides children's natural interest and curiosity in order to "tickle the feeling realm." John described indicators of engagement and invited participants to notice signs of excitement in the group. He modeled this skill when the group was surprised and excited by a group of deer in the field, asking participants to identify behavioral clues that the deer were alert. Similarly, John led the group in a conversation about how to recognize learning — for example, by paying attention to children's popcorn-style dialogue and sharp intakes of breath.

John also posed the question of what it means to maintain a beginner's mind as a teacher. Participants identified strategies such as:

- Placing ourselves in the child's perspective — what do they see?
- Following the child's lead to see where they take their learning
- Remembering that we don't have all the information and keeping an open mind to new insights
- Decentering our own expertise and centering the child's expertise

John offered several activities during the session. He challenged participants to name a creative way to use a water bottle in their classrooms and was surprised by the participants' wide range of ideas. John also introduced an activity that participants could use in their program contexts. He divided the participants into small groups and gave each group a handkerchief. Each group selected a memorizer, who tried to memorize a pattern on John's handkerchief formed with found natural objects and help their group recreate it. There were additional variations, such as inviting a second team member to take a quick peek of the pattern and open-house time where groups could help their neighbors correct their patterns. John facilitated a discussion about modifying the pattern complexity to accommodate different age groups. The group also noted that the game would be a good get-to-know-you activity because it enables the educator to understand children's prior knowledge and observe how children work together. John emphasized that teaching requires learning about the children and understanding their thinking in order to recognize opportunities and imagine where to go next.





Connecting Research, Practice, and Personal Growth

John Haskin — *IslandWood, Senior Vice President for Education*

Andy Shouse — *WA STEM, Chief Program Officer*

Wednesday, August 8th — 11:00 am - 12:00 pm

Wrap-Up Panel



John and Andy introduced themselves and their organizations, then explained that the wrap-up session would be a time for participants to process the information they gathered and make meaning in order to enact change in their program contexts. John and Andy invited participants to reflect on three questions:

- What will you take from this event that will change what you do?
- What aren't we talking about that we should be?
- Who isn't here that should be?

For the first question, the facilitators invited participants to think quietly for a few minutes, then discuss their thoughts in groups of four, and finally share the headlines of their conversations with the full group. Participants generated headlines such as:

- Process, not product
- Start with ourselves
- Learn from others
- Share self-care with children
- "Yes, and"
- Push our boundaries
- More awareness, more reflection, more outside

Next, participants had a few minutes to discuss the second and third questions in small groups before reconvening with the larger group. Participants mentioned missing topics such as:

- Data and research from other countries
- Strategies to facilitate conversations about race
- White privilege in systems and in practice
- Dual language learners
- Communicating with families
- Outdoor learning for infants and toddlers
- The transition to elementary school, where outdoor play becomes recess
- Naturalizing playspaces
- Meeting quality learning standards
- How to communicate research to broad audiences and enact change

“Teachers are learners too and we have to keep feeding that.”

John Haskin

Participants also identified many missing or underrepresented groups:

- Parents and families
- K-12 teachers
- Family child care providers
- Infant and toddler teachers
- Tleena Ives and other tribal leaders
- Legislators and government representatives
- Licensors
- ELO educators
- A broader cross section of teachers, assistant teachers, etc. from each organization
- Presenters of color
- LGBTQ community
- Refugee and immigrant communities

Participants expressed excitement about addressing these gaps at future gatherings and, in the meantime, bringing their insights and energy home to their own programs.





Developed by:

Rachel Han
Research Assistant, Cultivate Learning

Sophie Biddle
Data Collector, ELO Team, Cultivate Learning

Lisa Wilson
Curriculum Specialist, Cultivate Learning

Ceci Skolrud
Graphic Designer, Cultivate Learning

This is a publication from Cultivate Learning.
Cultivate Learning is a research center led by
Executive Director Gail E. Joseph, Ph.D., in the College
of Education at the University of Washington.

This work was supported by funding from the
Washington State Department of Children, Youth,
and Families as part of the Quality Ratings and
Improvement System Assessment, Ratings, and
Training Contract #18-089-03.



Cultivate Learning

www.cultivatelearning.uw.edu

+1 (206) 221-0569

cqel@uw.edu