Engineering with Nature
Learning and Communicating through Construction Play

“Play is our brain's favorite way of learning”
— Diane Ackerman
Our Time Together

- Engineering Skills in Play
- The Language of Building
- Supportive Spaces and Materials

POLL
What do you remember building as a child?
“The goal of a quality STEM education is to produce scientifically and technologically literate citizens who can solve complex, multi-disciplinary problems through analytical and innovative thinking in real-world applications needed for college and career success”
– National Research Council (2012)
“Engineering is solving problems, using a variety of materials, designing and creating, and building things that work.”

– National Research Council (2012)

Young Children are Engineers

Construction/Engineering Skills Observed in Play

- sizing
- strong base
- loading
- stacking
- aligning
- squaring
- cornering
- ramping
- bridging
- using fasteners
- covering area
Try it …

1) Look at the next photo
2) Make a sketch
3) Identify the skill(s)
The students first brought the log. But wooden hand was partially burned. It provided a stable fulcrum. Through trial and error the children were able to find the best position for themselves in the board, and the brush while initially sitting down. Each iteration brought them closer to the goal. By the end the girls were able to achieve in one push, pushing the log back and forth with minimal effort with body efficiently moving their weight. They were able to alternate moving and adjust the log and down.

The Language of Shapes

Shapes and Numbers
Children are Communicating

- What they know of the world
- Their understanding of how things work
- Their feelings and ideas
Social-Emotional Success

Children learn about empathy. They take care of each other as well as take care of plants and animals in the nature explore classroom. Children use the Nature Explore classroom to regulate their feelings.
Tying it Together:
What are children communicating?

- Experiences
- Ideas and Plans
- Concepts
- Skills
- Feelings
- Preferences
- Imagination
Tying it Together:
Where are they at in the design cycle?

Ask
Improve
Imagine
Create
Plan

Tying it Together:
How will you use what you observe to support them?

Children are Communicating

THE LANGUAGE OF BUILDING
SHOES AND MATERIALS
Mini Search and Build

Think about your favorite animal and where they sleep.

Now find three to six items around you to build/represent that home.

Supportive Spaces and Materials

Set the stage indoors and out.

Based on our Ten Guiding Principles in the Learning with Nature Idea Book
What’s Worked?

- Non-Standard, Varied Materials
- Inspiration
- Predictable Spaces
- Easy Access

Think carefully about the properties of materials offered

...for Block Building
“... The basic, unprescribed qualities of natural items such as sticks and dirt require children to make ‘something of nothing’...”

– Bohling, Saarela and Miller
"If we encourage children to hone their own imagination and inventiveness, they are less apt to need the transient novelty of a new toy to generate excitement or hold their interest."
Easy Access Can Be Simple

Easy Access Can Be Portable

Real-life Tools
Architectural Replicas and Images
Outdoor Classroom Certification

Join our growing network of 500+
Certified Nature Explore Classrooms!
Our mission is to inspire joy and wonder in children, educators, and communities with a heart-centered approach to early education.