Nature-based Inquiry and Learning in After-School Settings

San Diego Children and Nature Collaborative
Presented at STEMpower Conference on Out-of-School Time Programs, San Diego, March 1, 2013

Today’s Talk
I. Children and Nature movement
II. Why nature-based learning?
III. Nature walks (OutdoorExplore!)
IV. Nature camps (Sagebrush Survivors)
V. Scientist Explorers Club
VI. Roots and Shoots Clubs
VII. Schoolyard habitats and gardens
VIII. Loose parts, nature play

Let’s start with you….

- Name
- Site and role
- What you hope to learn today?

Think about your first or favorite childhood memory of time in nature
- Where?
- With whom?
- What were you doing?
- What do you see, hear, feel?
- Turn to your neighbor, and share your story
I. Children and Nature Movement

Vision for children and nature:
- A world in which all children play, learn, and grow with nature in their everyday lives.
- Children are healthier, happier and smarter... when they learn in nature and play outdoors.

What Research Says: The Benefits

Children are happier....
- Nature play increases self esteem, improves psychological health, and reduces stress
- Children learn self-discipline and are more cooperative

Children are smarter....
- Nature play stimulates creativity, imagination, and problem solving
- Students learn to care for nature, and get a sense of the world around them

Children are healthier....
- Nature play improves physical conditioning and reduces obesity
- Children develop lifelong habits of fitness and recreation

“Sixty minutes of daily unstructured free play is essential to children’s physical and mental health.”
American Academy of Pediatrics, 2008
The Nature Deficit

- Children are spending less time in nature
- 40 to 60 hours weekly on electronic media
- Increased childhood obesity from 4% in the 1960s to about 20% today
- Average 4 minutes/day of unstructured, creative play outdoors

The Nature Deficit

- Children are spending less time in nature
- Adult-directed activities
- Not walking or bicycling to school
- Replacing real with virtual nature
- Fear of crime and strangers

Activities between school and dinnertime

2005 Gallup Study

- Play Outside: 4%
- Talk on the Phone: 5%
- Read: 6%
- Work/Job: 0%
- On the computer: 11%
- Play video game: 12%
- Hang out (friends/family): 20%
- Watch TV: 20%
- Play sports: 21%
- Homework/Study: 44%

What if…?

“What would our lives be like, if our days and nights were as immersed in nature as they are today in electronics?”

Richard Louv
Children & Nature Network

A Movement is born...

SD Children and Nature Collaborative

- Nature educators and community members work together to increase opportunities for children to learn in nature and play outdoors!

SD Children and Nature Collaborative

- Enhance schools’ ability to connect children to nearby nature
- Partner with community groups to value, promote and provide opportunities for outdoor experiences

www.sdchildrenandnature.org

Stretch Goals

- Every campus has a Schoolyard Habitat
- Every class takes field trips to nearby nature
- Every youth program spends time in nature
- Pediatricians Rx “Get outdoors each day!”
- Open spaces designed for outdoor play
II. Why nature-based learning?

Leta Bender, Education Leader
San Diego Children and Nature Collaborative

In Nature-Based Learning

- Students use their senses to observe, touch, listen and smell nature which lead them to think, ask questions, research, share knowledge, and take action
- Instructors are guides, explorers, learners
- Lessons or activities
  - Awaken enthusiasm
  - Focus attention
  - Direct experiences
  - Share inspiration
- Build a sense of place and community
- Promote desire to protect and preserve nature

Caring, Sharing, and Serving

- Habitat or garden project, newsletter, video, bird house, owl box, bird bath, path, bench, etc.
- Extend to community work
  - Donate food from garden
  - Clean up restore nearby native areas

Establish Rules and Expectations
Cooperative Learning
- Working together
- Cross-age teams
- Student leadership for outdoor activities
- Sharing and caring for tools
- Completing tasks
- Group satisfaction

Character Education
- Appreciating diversity
  - Grow unusual vegetables
  - Ethnic foods
- Health and nutrition
- Environmental stewardship

Environmental Stewardship

Renew... Reuse... Recycle...
Hands-on Science!
Grubs, pupae, and earthworms!

Bean Germination Window

Writing in the Garden
- Daily Journals
- Letters
- Poetry
  - Five Senses
  - Haikus
  - Cinquains
  - Instructions
  - How to...

A New Naturalist
Sense of Place
- Google maps for overview
- GPS on phones
- Map of schoolyard
- Rough map of trail walk

Other Activities in Nature
- Leaf prints
- Cloud watching and description
- Find patterns in nature
- Framing nature scenes
- Photography
- Animal observation
- Tracking
- Weather stations
- Art in nature

Art in Nature
- Observing and noticing details
- Scientific illustration
- Close up drawings using magnifiers
- Leaf veins, flowers, insects
- Bark and leaf rubbings

Art in Nature
- Colors! Collect paint chips
- Students look for 4 matched colors
- Rename colors
- Post nature’s colors
Art in Nature

- Big picture and horizon drawings
- Tree bark, insects, and small details
- Listen for and “draw” sounds

Art for Nature

- Telling the story
  - Imperial Beach ES
  - San Diego Audubon Society
  - Protect Western snowy plover shorebirds
- Students’ art for signs at South Bay beaches

Let’s turn back to you….

- Have you taught lessons in nature?
- What keeps you from teaching in nature?
- What will make nature lessons more likely?

III. Nature Walks (OutdoorExplore!)

Judie Lincer, Naturalist
OutdoorExplore! Program
San Diego Audubon Society
IV. OutdoorExplore!

- Affordable, accessible and awesome!

OutdoorExplore!

- Outdoors... canyons, parks and open spaces
- Fifteen minutes walk (think fitness)

Program Overview

- Use extended hours on minimum days
- 15-20 students per session
- 3 adults, 6:1 student:instructor ratio
- 60-90 minute sessions
- Mixed age groups (K-6)

Typical Nature Walk

- At school, introduce theme for walk
- Walk to open space area
- Free exploration and hiking
- Take time with nature’s surprises and children’s curiosity
- Active nature-based game
- Walk back to school
- Gather and share observations
Planning for the Nearby Nature Trip

- Learn about the site and habitat
  - Use observation techniques and notebooks
  - Teach about GoogleEarth and GIS
  - Invite naturalist to lead the nature lesson?

Organizing the Nearby Nature Trip

- Set objectives, behaviors, rules, and route
- Pre-trip plans
  - Information to parents
  - Permission forms
  - Emergency procedures
  - Rain and hot weather
  - Chaparones
- First aid kit, cellular phone, contact info, water

Activities for the Nearby Nature Trip

- Explore and discover!
  - Ask questions, let nature be the teacher
  - Some quiet times to listen and observe

Alignment of Program Goals

- Fight obesity/promote fitness
- Hands on learning using all senses
- Learn about local ecosystems, animals
- Promote community stewardship and service
Alignment of Program Goals

- Obesity and fitness
- Hands on/senses
- Ecosystems, animals
- Stewardship and service

Hiking, walking, running
Experiential learning
Place-based learning
“Leave no trace” stewards

Evaluation of OutdoorExplore!

Satisfaction of agency staff was 90-100%

Factors in activity choice:
- Usual “constants,” e.g., time, cost and liability
- Students must like the program (100%)
- Activities approved by management and/or aligned with agency mission (62%)
- Preference for new experiences and active engagement
- Many agency staff recalled past or current nature activities in their own lives

Evaluation of OutdoorExplore!

Staff attitudes about nature activities
- Heighten connection to the environment
- Deter childhood obesity
- Improve physical health and well-being

Ease off-site logistic challenges
- Manage the group on the walk
- Know the habitats
- Provide structured and unstructured activities
- Use orientation sessions
- Communicate often

VI. Sagebrush Survivors

- South Bay YMCA, 2012 Summer Camp
- Five days, four hours in nature
- Ten students
- Two instructors
  - Judy Osman, graduate of Wilderness Awareness School, eastern Washington
  - Brian Moehl, Education Director, San Diego Audubon
Sagebrush Survivors

- Day 1: Hazards and inspiration
  - Poison oak, walking silently
- Day 2: Birds, mammals and tracking
- Day 3: Native shrubs and trees
- Day 4: Ecology and community
  - Building debris hut and lean-to
- Day 5: Survival, warmth and water

Science Explorer’s Club

- “Doc” Norrie Robbins
  - Retired geologist, U.S. Geological Survey
- On 11 reservations, for past 11 years
- After-school program
- 4-25 students attend each month
  - Attracts ages 2-11
  - ~300 new and returning students each year

V. Science Explorers’ Club

Training Future Scientists

- Take kids out and get them wet and dirty
- Take them out monthly on their own land
- Take them out for 1.5 hours (during or after school)
- Dress them like scientists with tools and books
- Introduce them to friends and colleagues with different professions
- Introduce them to many sciences
- Connect them to broader themes in the world
- Take advantage of “learning moments”
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Geology
- Rock collecting
- Clay properties

Hydrology
- Water in usually dry riverbed
- Digging for water

Geomorphology
- Future scarp
- Mudflow after fire

Mineralogy
- Tourmaline (Pala Mineral Belt)
- Gold (magnetite) panning

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Botany
- Salvia apiana, Sacred sage
- Ethnobotany
- Trees
- Wildflowers

Entomology
- Bugs
- Aquatic insects
- Butterflies

Herpetology
- Frogs
- Lizards
- Snakes

Astronomy
- Camping out to watch the Perseid meteor shower

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Well-dressed Field Scientists

Famous Photographer of the Day

Science Explorer’s Club Results

- On 11 reservations, for past 11 years
- A recognized part of reservation Education or Recreation programs
  - Only attend if they want to
- Helps the children navigate the different cultural worldviews
- Former students stay in high school, go to college, become interns

VI. Gardens and Schoolyard Habitats

Leta Bender, Education Leader
San Diego Children and Nature Collaborative
Why a School Garden?

Team and support

- Project team: Principal, district facilities personnel, teachers, PTA, Master Gardeners, NWF stewards, school groundskeeper, team captain
- Support
  Grants from Western Growers, MGs, Plants and materials from MGs, CNPSSD, local businesses
- Volunteers
  Teachers, students, parents, friends
  MGs, Urban Corps, Scouts

“How-to” for Schoolyard Habitats

Download PDF at:
www.fws.gov/cno/conservation/schoolyard.cfm

Brainstorming with students
One student’s idea

The garden site

Scale drawing of site

Proposed plan
Plants from RECON, courtesy of Calif. Native Plant Society

Conserving water
- Water-wise plants
- Grouped for zones
- Best irrigation practices
- Rainwater collection
- Mulch

New planting with temporary irrigation system

Why compost?
- Supplies organic matter to soil
- Attracts earthworms
- Stimulates beneficial soil microorganisms
- Increases soil water holding capacity
- Increases soil nutrient retention
- Reduces organics in landfills
Now a native habitat with outdoor classroom

Mural painted by local artist

School hillsides covered with native plants
VII. Loose Parts Nature Play

- Offers natural materials
- For children to engage in unstructured outdoor play
- At events or current program sites

Loose Parts Nature Play—What is it?

- Natural items
  - Bamboo poles, sticks, tree cookies, pine cones, shells, and palm fronds
- Readily available “building materials”
  - Cardboard boxes, sheets, and twine

Arrange for a Master Gardener Consultant to help (if at a school)
Go to www.mastergardenerssandiego.org
Click on School Program and choose Request a School Garden Consultant.
Loose Parts Nature Play—What is it?

- Balancing
- Building
- Climbing
- Connecting
- Imagining
- Observing

Loose Parts Nature—How do you Play?

VIII. Roots and Shoots Clubs

Nancy Sunday, retired teacher
Roots and Shoots Clubs

Mission:
• To foster respect and compassion for all living things
• To promote understanding of all cultures and beliefs and
• To inspire each individual to take action to make the world a better place for people, animals and the environment.

Roots and Shoots Clubs

We get to help the earth. We do lots of fun things to help the earth. Let me tell you some: We made newspaper pots, signs and a garden.
Jennifer Cubas, Grade 4

Roots and Shoots Clubs

What I love about Roots and Shoots is how we help the earth and pick the trash so animals won't die from the trash that we throw on the ground.
Gabriel, Grade 3
Roots and Shoots Clubs

I like Roots and Shoots because it is fun at Roots and Shoots. We learn about animals and nature. Loretta, Grade K

I like Roots and Shoots because we get to plant and sometimes we get to go on field trips and we do fun stuff. Raeline, Grade 1

What I like about Roots and Shoots is that we have so many activities and fun things to learn about and interesting things to do like work in a garden, observe the bugs, and other interesting things there are in our school. Kaleah Allen, Grade 4

I like Roots and Shoots because I like growing and planting and having fun planting and playing with my friends and finding bugs, like so many roly polies. Samuel Perez, Grade 2
Roots and Shoots Clubs

We do a lot of fun things and lots of nature things. I remember we collect caps, hang out in nature and help the poor. We also help the animals.
Ravien G., Grade 4

Roots and Shoots Clubs

I like Roots and Shoots because it helps me tell other people not to litter. Duncan, Grade 4

Roots and Shoots Clubs

I love to learn about animals and plants. We also try to make a difference, and we have lots of fun doing it. You’re also not alone, and you will have fun with friends if you and a friend join.
Vryan Feliciano, Grade 4

Roots and Shoots Clubs

I love everything about it. The garden, the projects, even Ms. Sunday. I want to bless Jane Goodall. I don’t want it to ever end. Jamie Lynn, Grade 2
Roots and Shoots Clubs

I like Roots and Shoots because it helps the earth. Bless it. Love it. Give it. We made sunflower pots with newspaper. Roots and Shoots is important.
Karina, Grade K

It’s your turn again…..

• Have you taught lessons in nature?
• What would you like to try in your after-school program?
• What will it take, to make it happen?
• Who can help with this?

Small group brainstorming questions

1. What partner organizations might want to supply or build a program for our agency?
2. What open space resources/habitats are available in my community?
3. What potential challenges or barriers exist for integrating a nature program into my after school setting?
4. Other issues or concerns?

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Questions?
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