



Increasing Active Play at Child Care: Outdoor Activity Settings

Facilitator Guide

July 2024

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Acknowledgements

The development of this training was a component of the Early Childhood Outdoor Play and Learning Train the Trainer Course offered by the Natural Learning Initiative at NC State University. Development of the training was funded by the CDC. The authors acknowledge the support and input from the Natural Learning Initiative (NLI) faculty and staff including Matt Babb, Nilda Cosco, and Robin Moore. Visit the NLI website for more information and resources on Early Childhood Outdoor Play and Learning <https://naturalearning.org/>.

Disclaimer

Nemours is currently funded by the Centers for Disease Control and Prevention (CDC) under a five-year Cooperative Agreement (5 NU38OT000304-05-00) to support statewide early care and education (ECE) organizations to integrate best practices and standards for healthy eating, physical activity, breastfeeding support, and reducing screen time in ECE systems and settings. The view expressed in written materials or publications, or by speakers and moderators do not necessarily reflect the official policies of the Department of Health and Human Services, nor does the mention of trade names, commercial practices, or organizations imply endorsement by the U.S. Government.

Increasing Active Play at Child Care: Outdoor Activity Settings

Increasing Active Play at Child Care: Outdoor Activity Settings is a companion training to the Physical Activity Learning Sessions (PALS). The session content is suitable for early care & education professionals regardless of their participation in PALS.

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For more information on PALS visit:
<https://healthykidshealthyfuture.org/trainers/pals>

Questions? Contact PALSECE@nemours.org

Training Overview and Professional Development System Information

The following information is provided to assist trainers and agency leaders in entering this training in state Early Care & Education (ECE) Professional Development registry systems, creating session certificates for participants, and marketing training sessions. Contact the Nemours PALS team for assistance if you have questions or need additional information on this micro session at PALSECE@nemours.org.

Session Title: Increasing Active Play at Child Care: Outdoor Activity Settings

Session Description: During this workshop, participants will examine the use of activity settings as a strategy to boost physical activity and learning in outdoor spaces. The concepts of affordance and spatial range will be explored. Participants will identify 1-2 activity settings to strengthen their current outdoor environment.

Session Objectives:

1. Understand the concepts related to outdoor play and learning (affordance, activity settings, and spatial range).
2. Identify activity settings in early care outdoor settings that encourage physical activity.
3. Recognize activity settings that support active play to incorporate into the existing environment.

Goal: Participants understand the impact of activity settings in influencing child activity levels and identify settings that would fit in their outdoor environment.

Subject Areas/Competencies: Learning Environments and Experiences

Length of Training: 90 minutes

Session Handout: Increasing Active Play at Child Care: Outdoor Activity Settings

Training Methods Used: Brief lectures, video clips, knowledge checks, discussions, reflection activities.

Optional handouts:

The following Infosheets from the Natural Learning Initiative (NLI) Infosheets will be useful for interested participants. Consider having several on hand during your session to pass around the group. Send the documents electronically after your session.

- Gross Motor Logs- <https://naturalearning.org/13-gross-motor-logs>
- Multi-Purpose Lawns- <https://naturalearning.org/16-multi-purpose-lawns>
- Pathways- <https://naturalearning.org/09-pathway-designs>
- Top Ten Activity Settings for Outdoor Learning- <https://naturalearning.org/02-top-ten-activity-settings-for-outdoor-learning>.

Training Agenda

Training Component/Content	Slide(s)	Estimated Time*
Welcome, Disclaimer, Acknowledgements	1-3	2 minutes
Icebreaker	4	8-10 minutes
Recap of PALS Best Practices	5, 6	5 minutes
Objectives	7	2 minutes
Objective 1- Learn about concepts related to outdoor play and learning including affordance, activity settings, and spatial range.		
Affordances	8-11	6 minutes
Recap Video	12	5 minutes
Knowledge Check #1 and discussion	13	3 minutes
Activity Settings & Spatial Range	14-19	8 minutes
Knowledge Check #2 and discussion	20	3 minutes
Brain Boost-Mindful Meditation in Nature Activity	21	8 minutes
Objective 2- Identify activity settings in early care outdoor spaces that encourage physical activity.		
Examples of activity settings With discussion	22	8 minutes
Reflection Activity	23	7 minutes
Understanding pathways, multipurpose lawns, and gross motor logs	24-28	5 minutes
Knowledge Check #3 and discussion	28	3 minutes
Objective 3- Recognize activity settings that support active play to incorporate into the existing environment.		
Summary Activity	29	8-10 minutes
Wrap up: Recap of key takeaways, questions, and closing	30-33	3 minutes
Total Time		90 minutes*
*Training time will vary based on group size, participation levels and the length of discussions.		

Slides for this training session can be downloaded at

<https://healthykidshealthyfuture.org/trainers/pals/pals-resources/>

Content Resources for Trainers

The content presented in this session may be new for many trainers. Trainers are encouraged to review the optional handouts suggested for participants. The following resources are provided to help build content knowledge on Outdoor Activity Settings and Outdoor Play and Learning. Additional resources can be found in the references and at <https://naturalearning.org/resources/publications/>.

1. Cosco, N., & Moore, R. (2019, May). Outdoor play: Inclusive naturalized environments | Encyclopedia on Early Childhood Development. [Www.child-Encyclopedia.com. https://www.child-encyclopedia.com/outdoor-play/according-experts/creating-inclusive-naturalized-outdoor-play-environments](https://www.child-encyclopedia.com/outdoor-play/according-experts/creating-inclusive-naturalized-outdoor-play-environments)
2. Moore, R., & Cosco, N. (2019, May 1). Outdoor play: Design quality of learning spaces | Encyclopedia on Early Childhood Development. [Www.child-Encyclopedia.com. https://www.child-encyclopedia.com/outdoor-play/according-experts/early-childhood-outdoor-play-and-learning-spaces-ecopals-achieving](https://www.child-encyclopedia.com/outdoor-play/according-experts/early-childhood-outdoor-play-and-learning-spaces-ecopals-achieving)
3. Smith, W. R., Moore, R., Cosco, N., Wesoloski, J., Danninger, T., Ward, D. S., Trost, S. G., & Ries, N. (2014). Increasing Physical Activity in Childcare Outdoor Learning Environments. *Environment and Behavior*, 48(4), 550–578. <https://doi.org/10.1177/0013916514551048>
4. The Natural Learning Initiative. (2012, January). Adding value to early childhood outdoor play and learning environments. NC State Natural Learning Initiative. <https://naturalearning.org/adding-value-to-early-childhood-outdoor-play-and-learning-environments/>
5. Natural Learning Initiative. (2020, February 20). 01. Benefits of Engaging Children with Nature | NLI. [Naturalearning.org; Natural Learning Initiative, North Carolina State University. https://naturalearning.org/01-benefits-of-engaging-children-with-nature/](https://naturalearning.org/01-benefits-of-engaging-children-with-nature/)

Note for Trainers

Trainers are encouraged to find out what is happening in their states and communities to support ECE programs in outdoor play and learning environments and on-site gardening. Reach out to your state's public health agency ECE lead and your Child Care Resource and Referral Agency to find out if there are other trainings or resources for providers. Add content to this session to reflect projects, training and funding opportunities in your state or community.

Slide 1



Healthy Kids, Healthy Future
PALS
Physical Activity Learning Session

**Increasing Active Play at Child Care:
Outdoor Activity Settings**

Add your name, agency logo, and
contact information here

 NEMOURS
CHILDREN'S HEALTH

Trainer notes:

This session is targeted at participants who have attended PALS sessions and understand the best practices of physical activity in early childhood settings and providers interested in outdoor play and learning. Some of your participants will not have the ability to influence the outdoor space or create activity settings.

This session will introduce ideas and concepts they can bring back to their program to influence future quality improvements.

Suggested speaker notes:

Welcome to this bonus session of PALS. This training will build on the importance of outdoor play covered in PALS. Research reveals that children are more active when outdoors and the features or qualities in the outdoor environments influence the levels and amounts of their activity. Studies have shown that children are more physically active in diverse outdoor environments. During our session today we will learn about outdoor setting and reflect on settings we'd like to incorporate into the outdoor spaces at our child care sites.

Suggested participant handouts:

Increasing Active Play at Child Care: Outdoor Activity settings

Slide 2

Disclaimer

Nemours is currently funded by the Centers for Disease Control and Prevention (CDC) under a five-year Cooperative Agreement (5 NU38OT000304-05-00) to support statewide early care and education (ECE) organizations to integrate best practices and standards for healthy eating, physical activity, breastfeeding support, and reducing screen time in ECE systems and settings. The views expressed in written materials or publications, or by speakers and moderators do not necessarily reflect the official policies of the Department of Health and Human Services, nor does the mention of trade names, commercial practices, or organizations imply endorsement by the U.S. Government.

Suggested speaker notes:

This training was made possible with funding from the Centers for Disease Control and Prevention (CDC). The views expressed in the content do not necessarily reflect the official policies of the Department for Health and Human Services.

Slide 3

We especially thank:

- **Centers for Disease Control and Prevention (CDC)**
For generous funding support
- **Nemours Children's Health**
For expertise, product development, materials and support
- **North Carolina State University Design Natural Learning Initiatives Early Childhood Outdoor Play and Learning (ECOPALS) Train the Trainer**
For expertise, content, and support


NATURAL LEARNING INITIATIVE

www.naturalearning.org

Suggested speaker notes:

The development of this training was a component of the Early Childhood Outdoor Play and Learning Train the Trainer Course at NC State University. Development of the training was funded by the CDC.

Slide 4



Opening Activity

What do you remember about the outdoor spaces you played in as a child?

How did you play in these spaces?

Trainer notes:

For this opening activity, we connect participants to their prior knowledge and experiences with outdoor spaces. Divide participants into groups of 2-4. Encourage participants to introduce themselves and share responses to the prompts on the slide. Allow approximately 4 minutes for small groups to discuss and

4 minutes for a large group sharing and debrief. During the debrief, explore connections between participant's reflections and the potential impact of outdoor spaces at child care.

Suggested speaker notes:

The outdoor environment influences the ways that children play and their levels of physical activity. What were your favorite outdoor play places as a young child? What do you remember about those spaces? In small groups, introduce yourself and share your memories from childhood of outdoor play spaces.

Slide 5

Review of PALS content

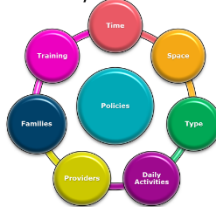
Space-Young children need adequate space to practice gross motor skills including outdoor play areas

Type- Children should experience different types of play daily including adult-led, free play, MVPA and outdoor play

Daily Activities-Outdoor play should be woven in the daily schedule 2-3 or more times per day.

Providers Role-Schedule outdoor time, set up experiences during outdoor play, lead activities, encourage, role-model and supervise

Policies-Policies, family and staff handbooks address outdoor play including clothing, staff roles, and weather considerations.



Trainer notes:

Outdoor play was included in the PALS learnings session content to include the recommended practices for outdoor time, outdoor spaces, types, and daily activities. Outdoor practices related to physical activity should be included in program policies as well. This slide recaps some outdoor play best practices

addressed in PALS.

Suggested speaker notes:

The PALS training addressed the best practices of physical activity in eight areas seen in the image on the screen, (Time, Space, Type, Daily Activities, Providers Role, Families, Training & Resources, and Policies) Let's review a few of the concepts covered in PALS.

Space-Young children need adequate space to practice gross motor skills including outdoor play areas. Children tend to be more active outdoors as they have more space to move and use large muscles.

Type- Children should experience different types of play daily including adult-led, free play, MVPA and outdoor play.

Daily Activities-Outdoor play should be woven in the daily schedule 2-3 or more times per day for infants, toddlers, and preschoolers.

Providers Role-Providers (adults) are responsible for setting up environments and experiences that support children in active play and practicing fundamental movement skills. Some provider roles include scheduling outdoor time, setting up experiences during outdoor play, leading activities, encouraging, being a role-model and supervising.

Policies-Policies, family and staff handbooks address outdoor play including clothing, staff roles, and weather considerations.

Slide 6

Outdoor recommended practices-Time		
Infants	Toddlers	Preschoolers
Outdoors 2-3 times daily	60-90 minutes of MVPA 60-90 minutes of outdoor play Outdoors 2-3 times daily	90-120 minutes of MVPA 60-90 minutes of outdoor play Outdoors 2-3 times daily
		

Trainer notes:

This slide recaps the best practices for time. Call out the minutes of outdoor play recommended for participants and the number of times outdoors.

MVPA is Moderate to Vigorous Physical Activity
Moderate to vigorous refers to the intensity of physical activity. It is a

combination of two activity levels.

Moderate-intensity activity is a brisk walk that still allows normal talking and breathing.

Vigorous-intensity activity, like a jog or run or strenuous cycling, causes faster and deeper than normal breathing and interferes with the ability to talk (for example, it leaves you “breathless”). Children who are breathless because of physical activity exercise their heart and lungs along with the muscles in their arms and legs.

Slide 7

Objectives With this training you will: • Learn about the concepts of affordance and spatial range • Identify activity settings in early care outdoor settings that encourage physical activity • Consider activity settings to incorporate into your existing environment that support active play	
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Trainer notes:

Share the session objectives with your participants. The objectives are also listed on the top of the participant handout.

Slide 8



Trainer notes:

Slide courtesy of the Natural Learning Initiative, NC State University

These three terms are on page 1 of the suggested participant handout and will be covered on the next three slides.

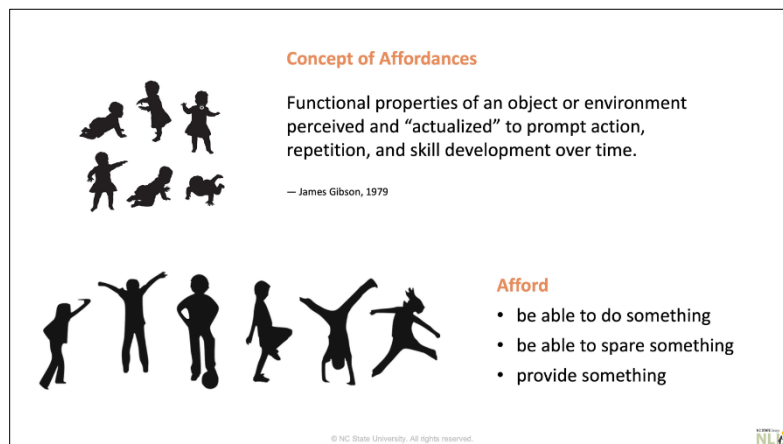
Suggested speaker notes:

This is the path for understanding the impact of the environment on children's behavior.

Three Environment and Behavior concepts:

- Affordance
- Activity Setting (also known as "behavior settings")
- Spatial range

Slide 9



Trainer notes:

Slide courtesy of the Natural Learning Initiative, NC State University

Suggested speaker notes:

What is to afford?

Afford

- be able to do something
- be able to spare something
- provide something

James Gibson, 1979 described this concept as:

The functional properties of an object or environment that is perceived and "actualized" (by the individual) to prompt action, repetition, and skill development over time.

Affordances area explored by developing children in different ways. Freedom to experiment is critical for young children to understand the surrounding physical environment.

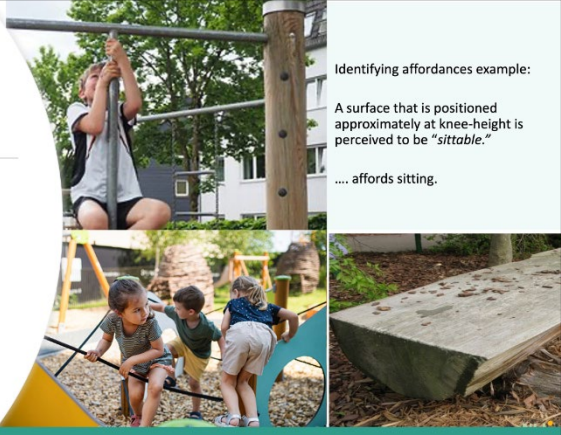
Plain language:

Affordances are the ways an object or space is understood and used in relation to a child's interests and abilities.

Slide 10

Concept of Affordances

Affordance is the **functional property** of the environment in relation to the skills of the **individual**.



Identifying affordances example:
A surface that is positioned approximately at knee-height is perceived to be "sittable."
.... affords sitting.

Trainer notes:

Slide courtesy of the Natural Learning Initiative, NC State University

Suggested speaker notes:

Affordances are properties of the environment as they are related to **children's capabilities** for using them.

They include not only objects but the layout of the space

and its components.

Affordances are also offered by events, including social and environmental events such as bubble play!

Identifying affordances example:

A surface that is positioned approximately at knee-height is perceived to be "sittable."

.... affords sitting!

Slide 11

Concept of Affordances

Affordances are properties of the environment related to **one's abilities**.

Children understand the environment as they understand its qualities and characteristics



Trainer notes:

Slide courtesy of the Natural Learning Initiative, NC State University

Suggested speaker notes:

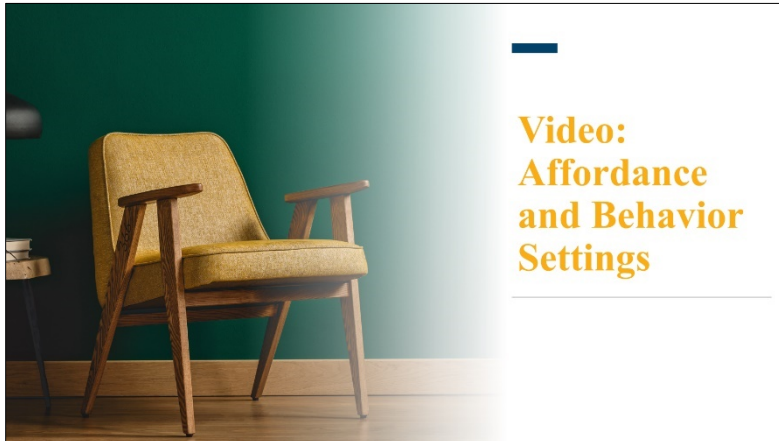
The realization of an affordance requires the child or the individual to interact with the environment.

Realization of an affordance means that children understand the qualities of the environment in relation to the capabilities and dimensions of their own body.

Trainer note

Consider adding a slide with a photo of a local play area and do a group activity to identify activity settings and discuss affordances.

Slide 12



Trainer notes:

The suggested YouTube video is 3:07 and the video link is embedded in the picture. Before starting, adjust the YouTube settings to enable closed captions by clicking on the cc icon on the bottom of the video control panel.

<https://www.youtube.com/watch?v=UYIASVcirqQ>

Suggested speaker notes:

Before the video:

This video demonstrates the concepts of affordance and behavior settings. Notice how one setting can provide different affordances based on how the user understands the setting and the skills they have.

After the video debrief with the following questions:

What stood out for you in the video?

How do activity settings in your outdoor environment provide different affordances for young children?

Slide 13

Knowledge Check #1

Fill in the blank:

Affordance is the **functional** property of the environment in relation to the skills of the **individual**.

Choices:

Functional
Structural
Physical

Individual
Owner
Manager

Trainer notes:

This slide contains animations. Advance the slide to fill in the first blank. Advance a second time to fill in the second blank. Give participants two minutes to discuss with a partner before advancing the slide.

Suggested speaker notes:

Let's have a quick check to make sure we understand the term affordance. Take a moment to think about which words from the list go in each blank in the definition on the screen.

Affordance is the **[functional]** property of the environment in relation to the skills of the **[individual]**.

Slide 14

Activity Settings



Behavior Setting. Barker, 1976

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Trainer notes:

Slide courtesy of the Natural Learning Initiative, NC State University. This is the first slide of the content supporting Objective 2, identify activity settings in early care outdoor settings that encourage physical activity.

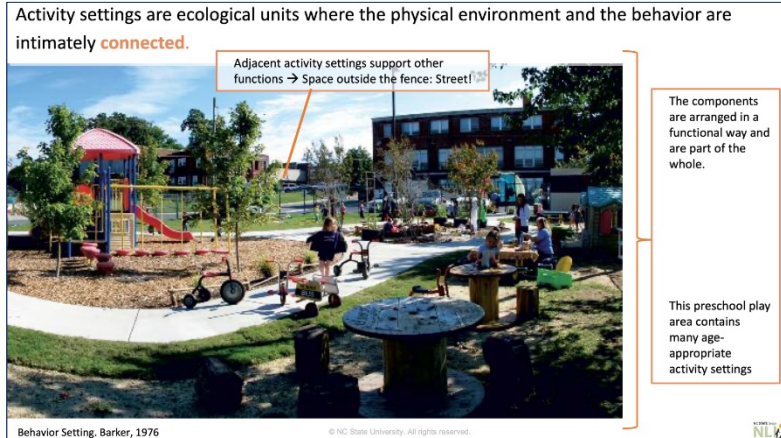
Suggested speaker notes:

Diversity of settings serve

children with different abilities, ages, interests, and culture.

This preschool play area contains various age-appropriate behavior settings: play equipment, “earth play” (or a digging area light soil mix), a play kitchen setting, a pathway for riding toys, and more..

Slide 15



Trainer notes:

Slide courtesy of the Natural Learning Initiative, NC State University

Suggested speaker notes:

The definition of “activity setting” states: Activity settings are **ecological units** where the physical environment and the behavior are intimately **connected**.

Behavior and environment connection. Can you describe how behavior and environment are connected? For example, the pathway allows children to ride wheeled toys on a smooth hard surface.

Activity settings boundaries, How it is possible to know where a setting starts and ends? Because “The components of an activity setting are arranged in a functional way and are part of the whole.” For example, the “play kitchen” area contains a table, stools, utensils to “cook” and it occupies a specific space within the play area. However, all activity settings as a whole complete the outdoor learning environment offering a highly stimulating space for child development.

Why is this important? Because activity settings help organize the space (as in the indoor classroom) in a functional way. For example, clustering high activity settings in an area and passive or low energy settings in lower noise corner of the site. Adjacent activity settings that support functions other than outdoor play and learning should be clearly marked or separated (e.g., using regulatory fences) for the protection of children.

Slide 16



Trainer notes:

Slide courtesy of the Natural Learning Initiative, NC State University

Suggested speaker notes:

Diversity of settings serve children with different abilities, ages, interests, and culture.

This preschool play area contains various age-

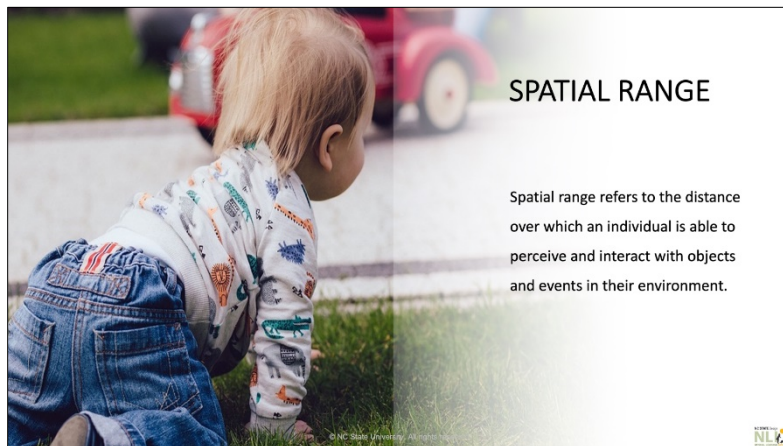
appropriate behavior settings: play equipment, “earth play” (or a digging area light soil mix), a play kitchen setting, a pathway for riding toys, and more..

Discussion:

What other settings can you identify? What are their purposes?

What additional activity settings would you add to enrich children’s experiences?

Slide 17



Trainer notes:

Slide courtesy of the Natural Learning Initiative, NC State University

Suggested speaker notes:

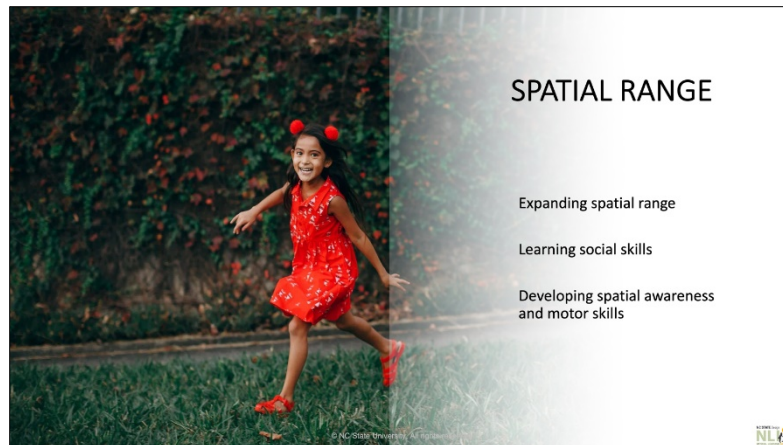
Spatial range refers to the distance over which an individual is able to perceive and interact with objects and events in their environment.

As infants continue to develop and explore their environment, their spatial range continuously expands.

Naturally, over time, infants and toddlers expand their spatial range across more and more activity settings.

How would you encourage infants and toddlers to explore their age-appropriate outdoors?

Slide 18



Trainer notes:

Slide courtesy of the Natural Learning Initiative, NC State University

Suggested speaker notes:

At this stage, preschoolers are able to navigate their environments confidently. They can move around independently.

They can climb, run, jump, and engage in physical activities with other children. Physical exploration helps preschoolers to develop spatial awareness and motor skills.

Outdoor play and exploration will also help expand their spatial range and improve their overall physical and cognitive development.

Slide 19



Trainer notes:

Slide courtesy of North Carolina State National Learning Initiative (NLI)

Suggested speaker notes:

The preschool years prepare children to expand their territories using the skills acquired in diverse naturalized environments previously (hopefully at childcare and kindergarten).

Kindergarten and school age children, living in safe communities, may become confident to enjoy nature with peers.

Note: "Free range children" typically refers to children who are allowed to explore and play independently without **constant** adult supervision **or restrictions**, it is important to note that families should properly evaluate the risks in their communities (especially traffic) if their children are allowed to roam freely.

Slide 20

Knowledge Check #2

Spatial **range** refers to....

Select one:

- a) An area bounded in space and time supporting predictable patterns of behavior stimulated by identifiable affordances.
- b) The distance over which an individual is able to perceive and interact with objects and events in their environment.
- c) The available objects and components in the environment enticing physical activity.
- d) The functional properties of an object or environment perceived and "actualized" to prompt action, repetition, and skill development over time.

Trainer notes:

Read the knowledge check question and responses aloud. Give participants a few minutes to answer. Advance the slide and the correct response is highlighted.

Slide 21

Brain boost



Trainer notes:

Mindfulness can be understood as intentional and non-judgmental present-moment awareness and is a valuable tool for children and adults. Being in nature offers many opportunities to practice mindful approaches. The script below will guide your participants through a mindfulness exercise in the training environment. You

may ask your participants to look out the window or ask them to look at the image on the screen. If you have Wi-Fi, consider playing the video of a waterfall in the forest. The link is embedded in the picture.

(<https://www.youtube.com/watch?v=eKFTSSKCzWA&t=46s>)

or

Use a short, guided meditation video that incorporates nature such as this [5 minute Guided Meditation with Nature Sounds](https://www.youtube.com/watch?v=GvrykEBPUW0T)

<https://www.youtube.com/watch?v=GvrykEBPUW0T>

Debrief the mindfulness meditation by asking participants to share 1 word on how they feel.

Suggested speaker notes:

I invite you to join me in a short mindfulness exercise. If begin to notice thoughts coming into your mind, remember that this is normal. Our brains are designed to think but we can learn to refocus our attention. Take this as an opportunity to be kind to yourself and not judge. Just notice that you are having thoughts, then, redirect your attention back to the present moment.

- Sit in a comfortable upright position with your feet planted flat on the ground. Rest your hands on your thighs or on your work surface.
- Bring attention to your breath- the inhale, the exhale, and the pauses between.
- Bring awareness to the things you see. Notice the colors, shapes, and textures. Silently list five things you see.
- Tune in to the sounds around you. Listen carefully. Try not to judge the sounds just notice them. Silently name three sounds you hear.
- Imagine what you might smell in this setting. What might the plants smell like? What two scents can you imagine are present?
- Consider what your sense of touch might experience in this environment. What are the sensations on your skin, on your feet as they stand in this place? What temperature is the air as you inhale? Describe the feeling or texture you have imagined?
- Take a few more deep breaths and notice how your body and mind feel in this moment.

Slide 22

Outdoor Activity Settings

- | | | |
|-------------------------------|-------------------------------------|----------------------------------|
| • Acoustic/Music Play Setting | • Grove of Small Trees/Shrubs | • Pathway (primary) |
| • Cut Flower Garden | • Indoor-Outdoor Transition Setting | • Pathway (secondary) |
| • Deck | • Loose Parts Setting | • Performance Setting |
| • Dry Stream Bed | • Manufactured Play Equipment | • Playhouse |
| • Earth Play Setting | • Mound | • Project Setting |
| • Fruit and Vegetable Garden | • Mud Kitchens or Café | • Sand Play Setting |
| • Gathering Setting | • Multipurpose Lawn | • STEM or STEAM Center |
| • Grass Maze | • Natural Construction Setting | • Water Play Setting (full-body) |
| • Greenhouse | • Orchard | • Water Play Setting (hands-in) |
| • Gross motor logs | • Outdoor Classroom | • Wildlife/Pollinator Garden |

Trainer notes:

This is the first slide of the content supporting Objective 2, identify activity settings in early care outdoor settings that encourage physical activity.

This slide contains animation. As you discuss the types of settings, advance slide for two additional columns to appear.

Note that four of the settings are described in detail below. If you would like to describe more settings, refer to the NLI Infosheet Top Ten Activity Settings for Outdoor Learning.

Suggested speaker notes:

Outdoor play and learning activity settings are physically-bounded spaces with predictable patterns of activity. A high-quality preschool play and learning area contains at least ten activity settings. The more settings and components a space contains, the greater the diversity of choice for children with different skills, personalities, genders, and varied racial, ethnic, cultural backgrounds to play and learn together—in short, the more inclusive the space becomes. As stated in the session opening, the outdoor environments influences how active children are when outdoors and studies have shown that children are more physically active in diverse outdoor environments. High quality early care setting offers children a variety of settings. Creating an outdoor environment that has variety of activity settings involves planning, time, and resources. A rich, diverse environment does not happen overnight.

As we go through the settings together, put a checkmark by the settings in your handout that might support high levels of active play or physical activity. Which of these settings may predict active play that causes children to breath faster and their heart to beat faster?

An **acoustic play setting** provides opportunities for “making music” and enjoying beautiful sounds. Settings can be created from recycled/re-purposed items such as pots, pans, and pipes, or manufactured items including drums, cymbals, xylophones, gongs, bells, and rattles mounted on a fence or structure designed for children to engage in percussive play. al

Decks- decks provide dry, above-ground surfaces for all-season play. As gathering places for children, decks support diverse social and imaginative play. Larger decks can accommodate educator-facilitated group activities. Designed as stages, decks support dramatic play.

Natural Construction Setting- Natural construction in the outdoor learning environment (OLE) supports open-ended, creative, and free play using diverse natural materials such as sticks, tree limbs, large leaves, and bamboo.

Outdoor Classrooms- Create an outdoor classroom by adding a greenhouse, multipurpose deck, or covered porch to serve as an activity space.

Which settings did you check?

Possible responses may include many if not most of the settings on the list.

Slide 23

Reflection Activity

What type of activities does this activity setting, a fixed play structure, afford?

Climbing, Balancing, Hanging

List out 1 to 3 different outdoor activity settings children can access at your program.

What type of activities do the outdoor activity settings at your programs afford?



Trainer notes:

This slide contains animation.

Pose the question to your group "What type of activities does the fixed play structure seen in the image afford? Some possible responses will appear when the slide is advanced.

After brief discussion on activities, advance the slide

again and direct participants to the Reflection Activity Box on page 2 of the session handout.

Ask them to complete the table by listing out 1 to 3 different outdoor activity settings at their program and the types of activities do the settings afford children? Allow 3-5 minutes for participants to reflect and make notes. Ask for a few volunteers to share one setting and the activities it affords.

Slide 24

Three outdoor activity settings

Let's consider a few activity settings that support moderate to vigorous physical activity (MVPA)

- Pathways
- Multi-purpose Lawns
- Gross Motor Logs



Suggested speaker notes:

Next, we will spend some time looking at three setting that support active play.

Slide 25

Pathways



<https://naturalearning.org/vft>

Trainer notes:

If your training site has Wi-Fi, go to the website

<https://naturalearning.org/vft>

Click on icon 1 to watch a 30 second video on pathways.

Suggested speaker notes:

Research shows that well-designed pathways promote physical activity, play, and learning by providing children and teachers with integrated access to outdoor learning

environments (OLEs). Pathways promote circulation by connecting classrooms to activity settings outdoors. They simplify navigation for children and caregivers. Looped pathways invite movement. Gently curving pathways will stimulate excitement, exploration, chase games, and higher levels of healthy physical activity. Wide pathways allow room for children, toys, and movement without conflict. Consider that pathways are more than for circulation but are play spaces too. Pathways can be made of many materials including concrete, poured rubber surfacing, asphalt, crushed stone, shredded mulch, or stepping stones.

Optional Handout: National Learning Initiative (NLI) Infosheet, *Pathway Designs* <https://naturalearning.org/09-pathway-designs>

*If you have remaining time in your session, consider coming back to the virtual field trip and watching clips 2-7.

Slide 26

Multipurpose Lawns



Suggested speaker notes:

Multi-purpose lawns provide a soft surface for active play such as ball games, parachute play, and group activities, as well as a place for quieter activity such as story-time. Rising and falling ground surfaces and bordering shade trees, shrubs and/or flowering perennials add play value. A recommended practice is to

have the lawn bounded by a curvy, looping concrete pathway to prevent the spread of aggressive grass and create an anchor for active, physical play.

How do the children use lawns at your space if lawns are available?

Optional Handout: National Learning Initiative (NLI) Infosheet *Multi-Purpose Lawns*, <https://naturalearning.org/16-multi-purpose-lawns>

Slide 27

Gross Motor Logs



Suggested speaker notes:

Gross motor logs may be as simple as a single, horizontal log installed on the ground or a low grouping of various sized logs and/or limbs installed to provide a natural alternative to fixed, manufactured play structures. Logs installed this way may afford balancing, climbing, scrambling, jumping, and leaping. Logs

can usually be found locally for free from tree care companies.

Wood can have many uses in natural learning environments. Logs can be used for seating, tree cookies (disks of lumber) can be used in loose parts areas or to create pathways.

Optional Handout: National Learning Initiative (NLI) Infosheet *Gross Motor Logs*, <https://naturalearning.org/13-gross-motor-logs>

Slide 28

Knowledge Check #3

How many activity settings does a high-quality preschool play and learning area contain?

- a) Three (3)
- b) Five (5) or more
- c) At least ten (10) activity settings

Trainer notes:

Read the knowledge check question and responses aloud. Allow time for participants to consider the response.

Advance the slide and the correct response is highlighted.

Slide 29

Summary Activity

- Acoustic/Music Play Setting
- Cut Flower Garden
- Deck
- Dry Stream Bed
- Earth Play Setting
- Fruit and Vegetable Garden
- Gathering Setting
- Grass Maze
- Greenhouse
- Gross motor logs
- Grove of Small Trees/Shrubs
- Indoor-Outdoor Transition Setting
- Loose Parts Setting
- Manufactured Play Equipment
- Mound
- Mud Kitchens or Café
- Multipurpose Lawn
- Natural Construction Setting
- Orchard
- Outdoor Classroom
- Pathway (primary)
- Pathway (secondary)
- Performance Setting
- Playhouse
- Project Setting
- Sand Play Setting
- STEM or STEAM Center
- Water Play Setting (full-body)
- Water Play Setting (hands-in)
- Wildlife/Pollinator Garden

Trainer notes:

This is the first slide of the content supporting Objective 3, consider activity settings to incorporate into your existing environment that support active play.

Facilitate a closing large group discussion on activity settings that they would like to add to their program's outdoor spaces. Recognizing that many providers would

like the full list of 30 settings, encourage participants to consider the space at their site, the resources available, and the settings that are achievable.

After reading the notes/giving instructions, allow participants 3-5 minutes to consider which settings they'd like to add. As the time ends, ask a few volunteers to share the settings they identified and what interested them about the settings.

Suggested speaker notes:

High quality outdoor environments don't happen overnight. Establishing 10 or more outdoor activity setting takes time and resources. Start with small steps to strengthen your outdoor spaces. Let's return to our handout and find the summary activity on page 2. Using the list on the first page, circle 1, 2 or 3 settings you would like to add to your spaces. Note on page 2 why you selected these settings.

Slide 30

Key take-aways



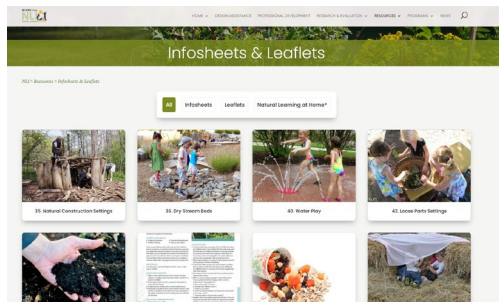
1. Affordance is the functional properties of the environment in relation to the skills of the individual.
2. Spatial range refers to the distance over which an individual is able to perceive and interact with objects and events in their environments.
3. Outdoor play and learning activity settings are physically-bounded spaces with predictable patterns of activity. A high-quality preschool play and learning area contains at least ten activity settings
4. High quality outdoor environments take time to build and grow. Start with adding one setting and see where it takes you.

Trainer notes:

Recap the 4 bullets on the slide that summarize concepts covered in the training.

Slide 31

For more information on Outdoor Play & Learning



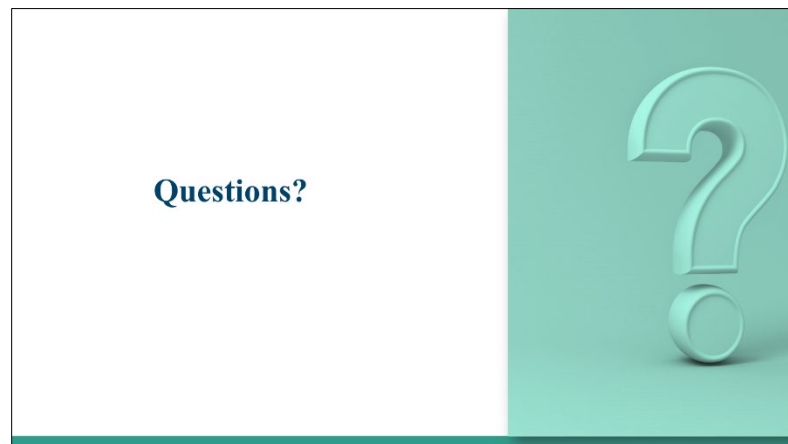
<https://naturalearning.org/infosheetsleaflets/>

managing, and sustaining high-quality outdoor play and learning environments. The course is titled Early Childhood Outdoor Learning Environments and can be access from the professional development tab on their website.

Suggested speaker notes:

If you would like to learn more out outdoor play and learning, the Natural Learning Initiative (NLI) at NC State has a free resource library with dozens of resources for ECE programs and families. NLI also offers a certificate course targeted for early childhood educators who are interested in planning,

Slide 32



Trainer notes:

Provide a final opportunity for questions and discussion.

Slide 32



Trainer notes:

Thank your participants for attending this session. If your role permits, offer opportunities to continue discussion on outdoor activity settings in technical assistance visits or by providing additional resources.

Participant Handouts



Increasing Active Play at Child Care: Outdoor Activity Settings

Objectives:

1. Understand the concepts of affordance and spatial range.
2. Identify activity settings in early care outdoor settings that encourage physical activity.
3. Recognize activity settings to incorporate into the existing environment that support active play.

Terms

Affordance is the functional property of the environment in relation to the skills of the individual. It is the way an object or space is understood and used based on an individual's interests and abilities.

Activity Settings are spaces that support predictable patterns of activity. The more settings the outdoor space contains, the greater the diversity of choice from children with different skills, interests, and backgrounds. Early childhood programs should strive for at least 10 activity settings.

Spatial Range is the distance over which an individual is able to perceive and interact with objects and events in their environment. This is the area in which a child can understand and relate with objects or events in their environment. Spatial range gets larger as a child develops movement skills and learns more about the space.

Outdoor Activity Settings-

Review the thirty activity settings in the table below. Place a checkmark beside settings that might support high levels of physical activity.

Acoustic/Music Play Setting	Grove of Small Trees/Shrubs	Pathway (primary)
Cut Flower Garden	Indoor-Outdoor Transition Setting	Pathway (secondary)
Deck	Loose Parts Setting	Performance Setting
Dry Stream Bed	Manufactured Play Equipment	Playhouse
Earth Play Setting	Mound	Project Setting
Fruit and Vegetable Garden	Mud Kitchens or Café	Sand Play Setting
Gathering Setting	Multipurpose Lawn	STEM or STEAM Center
Grass Maze	Natural Construction Setting	Water Play Setting (full-body)
Greenhouse	Orchard	Water Play Setting (hands-in)
Gross motor logs	Outdoor Classroom	Wildlife/Pollinator Garden

Reflection Activity

List out 1 to 3 different outdoor activity settings at your program.

What type of activities do these settings afford children?

Setting	Types of Active Play the setting affords
<i>Example: a slide</i>	Climbing, balancing, a ramp for play with cars or balls, sliding

Summary Activity

Return to the table on page 1. Consider the current spaces and resources at your ECE site or program. Circle 1, 2 or 3 activity settings you would like to add to your outdoor spaces. Why do these settings interest you?

The following Infosheets from the Natural Learning Initiative focus on the settings covered in this workshop:

Top Ten Activity Settings for Outdoor Learning-

<https://naturalearning.org/02-top-ten-activity-settings-for-outdoor-learning>

Gross Motor Logs- <https://naturalearning.org/13-gross-motor-logs>

Multi-Purpose Lawns- <https://naturalearning.org/16-multi-purpose-lawns>

Pathways- <https://naturalearning.org/09-pathway-designs>

Additional Resources:

North Carolina State College of Design Natural Learning Initiative (NLI) website provides a library of leaflets, info sheets, and resources for child care professionals

<https://naturalearning.org/infosheetsleaflets/>

Healthy Kids, Healthy Futures website has a resource library of creative children's activities for indoor and outdoor play, <https://healthykidshealthyfuture.org/5-healthy-goals/get-kids-moving/classroom-activities/>

Optional Handouts



TOP TEN ACTIVITY SETTINGS FOR OUTDOOR LEARNING

INFOSHEET

02

Activity settings add value to outdoor learning environments (OLEs) by supporting specific play and learning activities. An outdoor stage, for example, enables a range of imaginative and dramatic play. The addition of trees, shrubs, flowers, and grasses to OLEs further increases play and learning value by connecting children with the wonders of the natural world. This InfoSheet introduces different types of activity settings and key design considerations for successful implementation.

1. INDOOR-OUTDOOR TRANSITIONS

When classrooms open to the outdoors, children and teachers feel intimately connected to the outdoor play and learning environment. Transitional spaces link classrooms with larger, shared play and learning areas and allow indoor-outdoor programming to be managed more easily. Key considerations include:

- **Type.** Transitional spaces can take the form of decks, pergolas, and patios. Depending on available space, planting beds, raised planters, or portable containers can be installed.
- **Enclosure.** Visible boundaries are crucial for communicating that transitional spaces are “private” classroom extensions. Coverings should be unobtrusive and relatively open to allow sunlight to penetrate (*Figure 1*).
- **Shade.** Vine-covered pergolas can provide a comfortable, semi-sheltered space of flowering vines and edible fruits. Deciduous shade trees can also improve comfort in summer and winter.

2. PATHWAYS

A structured hierarchy of pathways provides spatial structure and access to activity settings within OLEs (*Figure 2*). Primary pathways directly connect indoor and outdoor spaces and provide easy movement for teachers and children. Secondary pathways create shortcuts and exploratory routes between primary pathway segments. Tertiary pathways lead to intimate landscape settings, branching off other pathways with unique textures (*Figure 3*). All pathway types promote physical activity by facilitating walking, running, chase games, and wheeled toy use (*Figure 4*). Key considerations include:

- **Surfacing.** Hard surfaces such as concrete, asphalt, or decomposed/crushed stone work best for primary pathways. Wood chips work well for secondary and tertiary pathways.
- **Edging.** Install low rails, metal hoops, or small stones to protect planting adjacent to primary pathways.



1. A covered open indoor-outdoor transitional space.



2. A primary pathway with adjacent plantings and settings.



3. Tree cookie path.



4. Pathways promote physical activity.

- **Alignment.** Continuous curves add a sense of exploration and motivate children's movement.
- **Width.** Make primary pathways at least 5 feet wide to accommodate wheeled toys passing each other. Avoid sharp corners, bottlenecks, and dead ends.

3. GATHERING SETTINGS

Gathering spaces encourage children to meet and work together in small groups, stimulating social interaction and cooperative relationships. Such spaces can support art-making, storytelling, and science exploration. Key considerations include:

- **Location.** Gathering settings should be located adjacent to high activity zones and program bases so that tools and materials are close at hand.
- **Types.** Options range from simple log or stone circles to substantial pergola-type structures. Consider creating differently sized gathering spaces for both intimate and large groups. Vine or fabric-covered tee-pees are an attractive, inexpensive option.

4. DECKS

Available in many shapes and sizes, decks provide dry, above-ground surfaces for all-season play. As gathering places for children, decks support diverse social and imaginative play. Larger decks can accommodate educator-facilitated group activities. Designed as stages, decks support expressive group activities and dramatic play, including storytelling and talent shows. Key considerations include:

- **Size.** A minimum width of 4 or 5 feet provides useful activity space – up to 15 feet affords greater diversity.
- **Location.** Against site boundary fences or in fence corners is recommended. Avoid differences of more than 6 inches in level between a deck and the ground.
- **Shape.** Squares, rectangles, hexagons, and octagons are easy to construct with timber (Figure 6). Specialized polygons can be easily constructed to fit particular location dimensions.
- **Enclosure.** When located against a fence, trellises or lattices around the perimeter of a deck can add a sense of enclosure while maintaining visibility for educators.
- **Shade.** A vine-covered arbor overhead can transform the deck into a shady, fragrant space.

5. MULTI-PURPOSE LAWNS

Multi-purpose lawns support high-energy group games, water play, and the exuberant joy of running – activities that promote cooperation and gross motor development. Lawns provide an ideal space for play with balls and other types of mobile



5. A gathering space adjacent to active play settings.



6. A versatile play deck.



7. An enclosed play lawn, ideal for mobile play equipment.

equipment that require a soft surface (Figure 7). Lawns can accommodate social gatherings such as story time and offer a place for simply relaxing. Key considerations include:

- **Size.** Scale the lawn relative to the entire OLE. For preschoolers, 150-300 square feet is appropriate.
- **Location.** Try to locate a lawn as a central focus of the play and learning area, connected to primary pathways.
- **Shape.** Lay out in a naturalistic /curvy form, with edges defined by low railings or shrubs to create calm corners in the midst of active play.
- **Material.** Invest in high quality lawn turf, making sure the subsurface soil has been appropriately amended for good drainage.
- **Shade.** Install deciduous shade tree on the south side to create shady spot(s) for social activity.

6. SAND

Sand provides opportunities to move, mold, dig, sift, sculpt, and pour. It is a classic natural material, providing a multitude of opportunities for creative play and social interaction. Key considerations include:

- **Depth of sand.** For toddlers, 12-18 inches; for preschoolers, 18-24 inches.
- **Location.** Locate against a boundary fence or in a fence corner to avoid sand "migration" and away from paths to prevent slip hazards. Avoid central locations because sand will migrate in all directions.
- **Containment.** Use timber construction, logs, or large, smooth rocks with plant buffers to contain sand (Figure 8).



11. Water tables at different heights allow for diverse play.



8. An enclosed sand play area with interior benches.



9. Mud making and water play.



10. Dry stream bed.

- **Shade.** Crucial in hot climates. Shade can be achieved with deciduous shade trees or permanent, suspended, shade cloths.
- **Entry.** Provide a single entry to avoid circulation disturbance. Consider a threshold of slatted wooden deck to shake off sand if close to pathway or indoor space.
- **Covering.** Use ½-inch to 1-inch mesh net as to protect sand from animals. Do not use a tarp – it keeps light from reaching the sand, which then becomes rancid.

7. WATER PLAY SETTINGS

Water creates endless, multi-sensory play opportunities. Water features allow children to interact with diverse objects; floating leaves, manipulating water flow with movable stones, pouring with containers, splashing, painting with water, and more (Figure 9). The primary methods of providing water play include elevated water tables or in-ground, hard-surfaced streams. Key considerations include:

- **Supply.** Use a potable water supply that drains into either a sewer system or rain garden or flows into a dry stream bed.
- **Drainage.** Features should drain at the end of each day to avoid standing water.

- **Sanitation.** Consult local regulations that may apply to childcare center water installations.
- **Surfacing.** Surfaces around water play settings should be nonskid and well drained.
- **Height.** Elevated water tables can be located in sand play settings as an effective way of combining sand and water play (Figure 11).

8. EDIBLE LANDSCAPES

Edible landscapes include annual vegetable gardens and permanent edible landscape elements such as perennial vegetables, fruiting trees, shrubs, and vines. Gardens can be a small, single bed or a large managed garden of 200-300 square feet. Edible landscapes get children excited about eating fresh fruit and vegetables and connect them intimately with nature. Key considerations include:

- **Types.** Garden forms include: raised beds; large, walk-in beds; tubs and other containers; window boxes; beds along fence lines supporting annual vines; and whatever you can invent!
- **Size.** Because of the limited reach of small children, beds of all types need to be narrow (24 to 36 inches for double-sided beds) and 12 to 24 inches high.
- **Location.** Sunny, south-facing, low activity area. Adjacent to storage or “potting shed.”
- **Protection.** To keep children from trampling plants, edge beds with framed timber between 6 and 18 inches high, or create informal borders with stones and logs.
- **Layout.** Define clear spatial structure with a single entrance and primary and secondary pathways laid out for convenient access to narrow beds. For a smaller garden, ensure beds are far enough apart to allow movement between them.

9. OUTDOOR CLASSROOMS

All outdoor play and learning programs need a base of operations and storage for play equipment and materials, including wheeled toys, loose parts, and garden tools. Create an outdoor classroom by adding a greenhouse, multipurpose deck, or covered porch to serve as an activity space. Key considerations include:

- **Location.** Access from primary pathway, as close as possible to settings where play and educational programs are held.
- **Access.** If contents are accessible to children, they can learn to take initiative, carry out an activity, tidy up and return items when completed.



12. Edible landscapes connect children with nature.



13. A covered shelter serves as a learning space.



14. Vines growing on a wire armoire create a shady tunnel.

10. SHADY PLACES

Adequate protection from the sun is essential for the health and comfort of young children outdoors. Key considerations include:

- **Vegetation.** Use medium-size trees or large shrubs interspersed within existing settings or clustered around a deck to create a shady grove. Install 2½-inch caliper trees to produce sufficient shade in a few years.
- **Structures.** Arbors, pergolas, tunnels, and trellises scattered throughout the play and learning area create patches of shade and three-dimensional space scaled to young children. Experiment with standard construction elements such as light metal grids and netting to create armatures for vine growth (Figure 14).

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INFOSHEET

Research shows that well-designed pathways promote physical activity, play, and learning by providing children and teachers with integrated access to outdoor learning environments (OLEs). Once established, a circulation hierarchy of three pathway types will make the pathway system more interesting and easier to navigate.

PRIMARY PATHWAYS

Primary pathways are a functional necessity in the OLE and should be designed to provide easy circulation by connecting classrooms to high-use settings. Primary pathways provide spatial structure and accessibility, simplifying navigation for children and allowing teachers to move quickly through the OLE. Primary pathways should be:

Looped. Avoid dead-ends, which disrupt circulation.

Curvy. Avoid sharp corners, straightaways, and bottlenecks. Gently curving forms combined with shrubby adjacent landscaping will stimulate excitement, exploration, chase games, and higher levels of healthy physical activity.

Connected. Primary entrances and exists should be accessible from the primary pathway. High-use play settings and landmarks should also be incorporated.

Wide. Primary pathways are designed to accommodate intense pedestrian and wheeled-toy traffic, helping children stay on the pathway and pass each other without conflict. Preschool primary pathways should be a minimum of 5 feet wide, with a preferred width of 6 feet. Infant and toddler primary pathways can be narrower (4 feet minimum). Note that pathways are more than circulation areas – they are play settings in their own right.



Primary pathway surfaces should accommodate wheeled toys



Extensive, recently installed primary pathway will connect new settings as they develop



Tertiary pathway of tree cookies

SECONDARY PATHWAYS

Secondary pathways connect the primary pathway to more intimate play and learning settings. Secondary pathways allow children to interact with the natural landscape and make discoveries. They can take many forms, with widths as narrow as 30 inches. Surfacing materials may include hardwood mulch, fine crushed stone, and stepping stones.

TERTIARY PATHWAYS

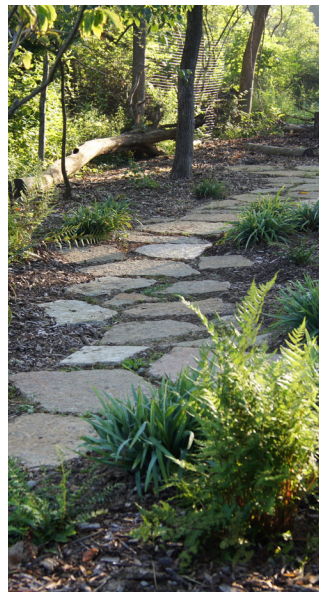
Tertiary pathways are the narrowest type of pathway, branching off primary or secondary pathways and allowing children to take short journeys into intimate landscape settings. They can be as narrow as 18 inches and surfaced with hardwood mulch, fine crushed stone, stepping stones, or tree cookies.

PATHWAY SURFACING MATERIALS

Poured-in-place rubber surfacing. This material is recommended for primary toddler pathways where children are learning to walk. Poured-in-place rubber surfacing is installed over concrete by trained specialists. Added cost increases functionality.

Concrete. Although more expensive, concrete is the best practice recommendation for primary preschool pathways because it is more stable and requires less maintenance than other available materials. Concrete can be treated with stain or integrated color to enhance OLE appearance. It can also be imprinted with leaves, "animal tracks", and other decorative elements to provide textural diversity.

Asphalt. This material can be used for primary or secondary pathways. Asphalt pathways are less



Secondary flagstone path set in hardy groundcover



Flag stone set in gravel

expensive than concrete. However, they are still more expensive than fine crushed stone or mulch pathways.

Fine crushed stone. Fine crushed stone (#10) can be used for all pathway types. Installed properly, it can be an accessible surface. In order to provide a stable and flat surface, fine material must be installed over a layer of course crushed stone (#67). Though not as hard as concrete, crushed stone will gradually become more compact with use. This material is less stable than concrete and will require maintenance and protection from erosion. It may be less expensive depending on geographic location.

Triple-shredded hardwood mulch. This material can be used for primary, secondary or tertiary pathways. It is the least expensive initial investment, but it breaks down over time and must be replenished. It is not considered an accessible material. Engineered wood fiber (EWF) is an ADA-compliant material and is recommended for creating wheeled toy and accessible pathways.

Stepping stones/flagstones. Stepping stones can be used for secondary or tertiary pathways. Using natural stone provides a rich, textural quality that creates a sense of discovering the natural world.



Primary pathways connect different activity areas through the OLE



Primary pathways can get crowded – make 5 feet wide, minimum.

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INFOSHEET

Multi-purpose lawns provide a soft surface for active play such as ball games, parachute play, and group activities, as well as a place for quieter activity such as story-time. Undulating ground surfaces and peripheral shade trees, shrubs and/or flowering perennials add play value. *Plant Protection* with designated entrances can be installed to reduce crisscross pedestrian traffic, which may wear the lawn unnecessarily. May be combined with an adjacent *Deck*.

LOCATION

Multi-purpose lawns should be in a central location of the outdoor learning environment (OLE) for ease of access. A sense of enclosure will add to the experience of group activities, such as story-time or social games. Best practice is to have the lawn bounded by a curvy, looping concrete pathway to prevent the spread of aggressive grass and create an anchor for active, physical play. The easiest place to grow grass is in full sun: although shade tolerant varieties are available, it's best to locate lawns in areas that receive 3-4 hours of afternoon sun per day.

SHAPE

Toddler and preschool lawns should be designed with a naturalistic form, using a circular or semi-circular shape whenever possible. Multi-purpose lawns should have clear physical boundaries with defined edges in order to focus group activities. Looping and curvy adjacent pathways allow for a naturalistic edge.

SIZE

Infant/Toddler. Size of the lawn depends greatly on the age of children served and their stage of development. Lawns can be less than 100 square feet for children crawling or just learning to walk.

Preschool. In preschool areas, a lawn ranging from 150 to 300 square feet will accommodate the vigorous physical activity of older children, including ball play.

School-age. Lawns should be at least 400 square feet for school-age children. To accommodate this larger size within a limited space, carefully consider the trade-offs between traditional outdoor uses, such as a paved ball area, and a multi-purpose lawn.



Animal yoga lead by a play expert on a multi-purpose lawn



A thriving lawn with an adjacent covered play deck and stump seating



A pull-up bar in an infant/toddler OLE made from stumps and PVC

SELECTING GRASSES

Warm season vs. Cool Season. Warm season grasses are green in the summer and dormant (brown) in the winter. Cool season grasses are the opposite, staying green throughout winter months. Consider local seasonal cycles when selecting grass species.

Annual vs. Perennial. Annual grasses are used for temporary lawns and erosion control. Many seed mixes will have a percentage of annual grass to allow for initial establishment. The annual grass provides a boost of green within just a few weeks, but will die out after a season and not return, allowing the perennial grass to establish. Perennial grasses go dormant, but return every year after dormancy.

Clumping vs. running. Clumping grasses grow from a single root system and do not spread, but the “clump” gets larger as the plant matures. Clumping grasses are easier to manage, but require re-seeding and fertilization to maintain a lush green lawn. Running grasses are more difficult to manage: these types of grasses provide thick mats of turf, but often out-compete other plants and end up spreading into nearby garden beds.

Common grass types:

- **Fescue** is a clumping cool-season grass that has been cultivated in many varieties. There are varieties that are suitable for sunny or shady conditions, but as a general rule, fescue lawns need both sun and shade to thrive.
- **Bermuda grass** is a common warm-season running grass that is often used on golf courses or athletic fields because of its ability to live in hot, dry conditions. Because this grass spreads so vigorously, it is very popular for low maintenance applications. The danger of planting Bermuda grass, however, is that it can quickly take over outdoor areas, creating a difficult management scenario.
- **Zoysia grass** is the recommended grass type for high traffic multi-purpose lawns. It is a warm-season running grass that is wear-resistant and forms a thick mat, similar to Bermuda. Zoysia grass is easy to manage and shade tolerant.

DRAINAGE

Good drainage will allow a lawn to dry out at an appropriate rate after rainfall or irrigation. Providing positive drainage is important for lawn health, and will maximize usage through all seasons. Inadequate drainage is the most common reason that new lawns fail. Types of lawn drainage include:



Infant/toddler lawn setting with shade canopy, flag stone, and child-safe perennial plantings. Soft lawn surface facilitates tummy time outdoors.



A multi-purpose lawn with an adjacent concrete pathway facilitates diverse, active play.



A grassy play mound creates a focal point for active play and allows children to roll, slide, and run.

"Run-off" drainage. By very slightly sloping or "doming" the lawn, excess water will flow off of the lawn toward a drainage feature, such as a catch basin or dry stream bed. Slope is defined by the amount of elevation change across a surface. The minimum slope required for this type of drainage (also known as "sheet drainage") on a lawn is 2% (1/4" change in height per foot), unless combined with another draining method.

Underdrains or "French" Drains. These types of drainage structures are installed below the ground in trenches filled with 1-2" size gravel. Water travels vertically through the soil and into the gravel pit, entering pipes that are perforated or slotted to allow water in. Underdrainage allows a lawn with less than 2% slope to have adequate drainage.

SUCCESSFUL ESTABLISHMENT

Soil Amendment. High-quality soil is critical to successful lawn establishment. When choosing a grass, test the pH of the existing soil and its ability to drain. The proper soil texture would be considered sandy loam, a type of soil that has less clay and more sand than common soil types. Depending on the pH of the soil, various fertilizers and additives may be needed to keep lawns healthy and beautiful. Till and aerate the desired lawn area, removing any large roots, rocks, and weeds, and mix in compost. If planting in heavy clay or sandy soils, mix 1-2 cubic yards of compost per 1,000 square feet into the top 6-8 inches of subsoil. For further guidance on soil quality or how to test it, contact the local cooperative extension office.

Seeding Times. Seeding is the most economical method of establishing grasses. NCSU Cooperative Extension recommends seeding cool-season grasses in early fall, but fair results may be obtained from seeding in early spring. Warm-season grasses are best planted in late spring and early summer. Unlike cool-season grasses, some warm-season grasses must be planted either by sod or other vegetative means because seeds either are not available or do not result in uniform stands.

Temporary fencing. After seeding or laying down sod, put up temporary fencing around the perimeter of the desired lawn area. This will keep children from trampling on the growing lawn, which may prevent successful establishment.

Watering. To prevent grass from drying out during establishment, keep the top 1.5 inches of the soil moist. This may require light watering two or three times a day for 7 to 21 days.



A thriving lawn with perennial border plantings



A small, looped concrete pathway bounds a multi-purpose lawn designed for younger children

RESOURCES

1. NCSU Cooperative Extension Gardener Handbook, Chapter 9: Lawns. <https://content.ces.ncsu.edu/extension-gardener-handbook/9-lawns>

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Gross motor logs may be as simple as a single, horizontal log installed on the ground or a low grouping of various sized logs and/or limbs installed to provide a natural alternative to fixed, manufactured play structures. Logs installed this way may afford balancing, climbing, scrambling, jumping, and leaping. Logs can usually be found locally for free from tree care companies. Make contact to reserve lengths of trunk or large limbs before being chipped. Installation using hand-tools is an excellent volunteer activity. The shared sense of accomplishment can motivate assistance for other installation projects.

RECOMMENDED TIMBERS

Black locust (Robinia) and cedar species are the best choice because they are uniquely rot- and pest-resistant and can last many years before needing to be replaced. However, they may be challenging to source with sufficient diameter. Other hardwoods are a viable alternative, especially if protected against rot. Longevity of all hardwoods can be extended considerably when best practices described below are followed.



Partially buried log offers a young preschooler a balancing challenge.



Horizontal log supported above ground by vertical logs.



Sawn horizontal log supported by flat stones.

MATERIALS & TOOLS:

- Black locust (Robinia) and cedar species logs (*recommended*)
- Other hardwood logs and limbs (*acceptable*)
- Log screws
- Shovel
- Eight-inch square tamper
- Capped steel pipe tamper
- Power drill
- Power disc-sander
- Pea gravel
- Flat stone supports (*optional*)

PREPARING LOGS

- Use seasoned logs (at least 12 months since felling). Logs harvested from dead trees may be used but seek advice from a certified arborist.
- Use logs 8 in. or larger in diameter. Useful lengths with smaller diameters start at 24 in. Larger diameter lengths may be limited by ability to move heavy logs.
- Logs with sturdy branches attached and/or multi-branched limbs should be carefully considered as potentially stable stand-alone log structures or offering the possibility to be combined to add play value.
- Debark logs (easier with seasoned timber) using a curved draw knife. Ensure child safety by using a disc-sander to create smooth surfaces, including rounding crosscut edges and exposed ends.
- NOTE: Bark on horizontal logs not in contact with the ground may be left on. Bark will dry out and may attract insect life underneath, which can be an interesting learning experience for children to observe. Eventually, bark will fall off to become playful loose parts until fragmenting into smaller and smaller pieces, eventually decomposing into the ground surface.
- Remove branch stubs, sharp protrusions, and sand smooth.
- Protect debarked logs from rot by using waterborne copper naphthenate (nontoxic). Apply several coats, leaving to dry between applications (about 1 hour). Apply coats until no

more liquid is absorbed. Attend especially to surfaces that may be in contact with the ground or buried below grade. Further protect logs annually with Thompson's WaterSeal.

- Treat exposed ends with two coats of polyurethane varnish. DO NOT varnish upper ends of vertical logs used by children, as they may become slippery and hazardous when wet.
- Logs of sufficient diameter and straightness may be sawn in half lengthwise and laid flat side down to increase stability, preferably supported by a flat stone at each end to avoid contact with the ground. Installed flat side up, logs afford toddlers a more appropriate "beginners" experience.

INSTALLING HORIZONTAL LOGS

Small horizontal logs (8-18 inches diameter). Install vertical logs at each end for structural support and fasten with log screws of appropriate length. A series of logs thus arranged can offer a continuous, gross motor circuit and/or be combined with a stand-alone circuit of vertical logs (described below).

Large horizontal logs (18 inches or greater diameter). Dig a shallow, rounded-bottom trench and install the log up to a 1/3 of its diameter on a 2-inch bed of pea gravel (separating log from ground). Pack gravel back around the log. Log will remain stable under its own weight. If the upper surface is more than 18 inches above ground, some state licensing rules may require a standard, 6-foot use zone.

INSTALLING VERTICAL LOGS

Vertical logs may be installed to support horizontal logs (as described above) or as stand-alone additional components. In either case follow the steps below.

- **Dig log holes.** Make holes 4 in. wider than the log diameter (to allow for 2 in. side lining of gravel). Make hole depth approximately 1/3 of the log height above ground, plus 2 in. (to allow for bottom lining of gravel). Measurements may be adjusted according to soil conditions. Undisturbed, heavy clay soils require less depth. Light sandy/loam or disturbed soils may need more depth. Ensure log will be no more than 18 in. above the ground when set in place (otherwise, a standard use zone may be required. Distribute excess soil elsewhere on the site).
- **Add drainage.** Fill the bottom of the hole with approximately 2 in. of pea gravel, adjusting to the required height of the log above ground. Tamp the gravel.¹
- **Place treated log upright** in center of hole. Gradually fill the 2 in. gap around the log with pea gravel, tamping continuously² until gravel is flush with the surrounding ground.



Large multi-branched oak limbs (downed by a hurricane) provide a unique archway entry and climber made from two limbs screwed together. Photographed 10 years after installation.



Horizontal log, anchored to the ground, surrounded by wood mulch, motivates jumping for these agile preschoolers.

- **For a stand-alone log circuit**, place logs 1.5 ft. apart (safe stepping distance) in a circular or semi-circular shape to fit the space. Allow for circulation also around the outer edge of the setting. Consider placing an extra-large log in the circle, or facing a semicircle, as the teacher's designated seat for circle/story-time.
- **Plant shade trees and shrubs** around the gross motor setting to add shade, multi-sensory interest, and a sense of enclosure.

HEALTH AND SAFETY

- Before digging, call 811 ahead of time to check for underground utilities. The service is free but can take several days.
- Wear sturdy boots and gloves during installation.
- Regularly inspect logs for signs of decay. If unstable, replace before they become a possible hazard.

¹ To tamp the bottom, use a regular 8"x8" steel-headed tamper.

² To tamp the sides, use a length of capped steel pipe.

Disclaimer: The Natural Learning Initiative (NLI), NC State University, its partners, and supporting entities assume no responsibility for consequences arising from physical interventions using information contained in this InfoSheet. Under no circumstances will liability be assumed for any loss or damage, including without limitation, indirect or consequential, incurred during installation, management, and use of such interventions. Highly recommended is adherence to relevant local, state, and national regulatory requirements concerning but not limited to health and safety, accessibility, licensing, and program regulation.

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