Natural Learning Initiative

Outdoor Play and Learning Environments

Best Practice Toolkit

INFANT/TODDLER

Early Release

NC STATE

NLI

NATURAL LEARNING INITIATIVE

Early Release of Chapters 1 & 2 of the *Infants and Toddlers Outdoor Play and Learning Environments Best Practice Toolkit* responds to a request from NLI's Wake County Smart Start partners. The completed publication is due for release this Fall, 2023.

The *Infants and Toddlers Toolkit* follows the first edition (2014) and second edition (2021) of the *Preschool Toolkit*. The *Infant and Toddler Toolkit* largely mirrors its preschool precedent, except for the best practice indicators and risk management protocols that respond to substantial age-appropriate differences.

Both toolkits are components of Preventing Obesity by Design (POD), launched in 2006 by the Natural Learning Initiative to support the North Carolina Division of Child Development and Early Learning (DCDEE) in transforming childcare center barren "playgrounds" into health-promoting, naturalized Outdoor Learning Environments (OLEs).

Since 2006, POD has evolved into a strategic, multi-faceted model, now adopted by states beyond North Carolina, with content transferred via the Natural Learning Initiative professional development online certificate programs and linked resources for early childhood educators, designers, and public health professionals. Please visit www.naturalearning.org for more information.

All images are credited to the Natural Learning Initiative unless otherwise stated.

Natural Learning Initiative
College of Design,
NC State University
www.naturalearning.org

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The children were able to plant and have a garden. We had cucumbers, basil, corn, squash, and green peppers.

Director of participating childcare center

01

Infant/Toddler Outdoor Play and Learning Environment Toolkit
Early Release

IMPLEMENTING THE VISION

This Toolkit is about creating high quality environments for the youngest children, just setting out on the great adventure of life. Best practices for creating infant-toddler[a] spaces reflect the POD (Preventing Obesity by Design) model and strategy launched in 2006 by the Natural Learning Initiative (NLI). The companion *Preschool Best Practice Toolkit* was published in 2014, supported by Shape NC. The second edition (2021) serves as a companion reference for the *Infant-Toddler Toolkit*.

1.1 *Before renovation, infant-toddler space was a monoculture of mown grass with lone playhouse.*

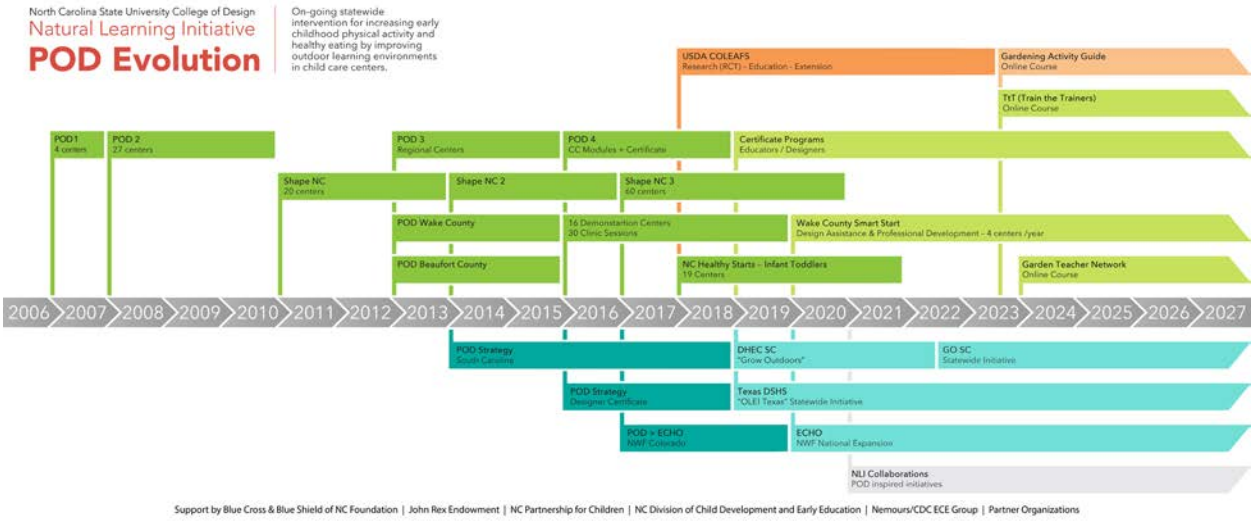
1.1 After Renovation

1.2 *The renovated space has been transformed, offering many activity settings serving the I-T age range. A raised, ramped deck (left) provides a cozy corner for infants. The opposite corner (right) provides a gardenesque, exploratory space for older toddlers. The playhouse was moved to create a new setting (1.4, over the page).*

1.2 Before Renovation

THE POD MODEL

POD is an evidence-based, health promotion strategy activated through built environment/naturalization interventions in childcare centers. A range of naturalized activity settings are created with levels of diversity and microclimatic comfort that irresistibly "pull" children and teachers outside to enjoy playing and learning together. Shared natural surroundings enhance relations between teachers and children as they explore and discover nature together. Natural surroundings support a more balanced, three-way relationship as a powerful "third teacher" (borrowing a Reggio Emilia term referring to the environment at large).[1]



***1.3** Evolution of POD across North Carolina (2006-2022, XX sites transformed), supported by multiple sponsors. POD has been adopted by several additional states.*

POD was inspired by policy adopted in 2007 by the North Carolina Division of Child Development and Early Learning (NC-DCDEE) at DHHS, to transform every childcare center "playground" into a health-promoting, naturalized Outdoor Learning Environment (OLE). POD later expanded to other states (1.2, next page), with content delivered online through professional development programs directed to early childhood educators, designers, regulators, and policy makers.

POD when launched focused on creating demonstration outdoor learning environment (OLE) sites at three childcare facilities (self-selected) in each of ten counties (of 100) distributed across North Carolina. Due to the coincident recession, three facilities closed, leaving a total of 27 of approximately 4,600 licensed centers statewide[2]—places where enrolled children receive most meals and spend a majority of their waking hours.

***1.4** Playhouse moved from the infant-toddler space prior to renovation to create a new, attractive setting on the classroom porch, with outdoor, nature-themed carpet decorated by staff.*

The purpose of demonstration sites (created using the POD implementation strategy) is to communicate the impact of high-quality outdoor environments on children, especially those from economically stressed families—likely living in food desert neighborhoods, where all green space is lacking. Demonstration sites provide direct experience and are used to illustrate print/online resources for participants in professional development programs—including this toolkit.

POD expanded in scope to include outdoor learning, social-emotional development, and mental health. Nonetheless, physical activity and healthy eating remain priorities to combat childhood obesity:

> *Childhood obesity continues to be a significant concern for the United States. The past 18 years have seen increases in the levels of severe obesity in all ages and populations despite increased attention and efforts across numerous domains of public health and individual care. Groups that are historically disenfranchised are affected the most by this epidemic, predicting increased morbidity across a lifetime (Skinner et al., 2018. p.8).*[3]

To naturalize means "to cause plants or animals from another place to begin to grow and live in a new area"[4] and describes the process of restoring nature to create a childhood biotope.[5] The vast majority of childcare centers lack a natural ecosystem because it was removed during construction. However, with design assistance and appropriate management, nature can be restored to sites to engage children.

1.5 *Patch of fragrant herbs offers sensory stimulation and home to friendly gnomes adding charm and story-telling ideas.*

Hands-on gardening supports healthy eating and attracts teacher engagement as a best practice. NLI research, supported by the USDA, underscores prior findings to support gardening as a health promotion strategy.[6] POD teachers report that gardening and other plant-based activities motivate outdoor learning and generate positive social interactions between children.[7] For infants and toddlers, gardening may occur more informally, focused on the sensory stimulation of fruit and vegetables–plants and products, prompting curiosity. Planting a seed, watching the new plant emerge fascinates, empowers, and stimulates agency[8] –"I did this!"

1.6


1.7

1.6 *Welcoming entrance to a space for two year olds. Notice the cedar tree cookies used to create an interesting pathway setting with many options for stepping one to another.*

1.7 *Bi-lingual children, just turning three years old, explain what's growing in their raised bed vegetable garden in Spanish and English.*

A professional development program launched in 2016/2017 for designers and educators uses POD demonstration sites as content to inspire action. The potential for change is enormous. There are approximately 110,000 regulated childcare centers in the U.S.,[9] serving more than 10 million children under five each day.[10] Although OLE thinking has advanced substantially, too many childcare outdoor spaces still provide experiences limited to manufactured play equipment, wood chips, mown grass, and chain-link fencing. Demonstration site evaluation results contribute evidence to scale-up best practices and ultimately to influence system change in early childhood outdoor policy.

***1.8** Garden Teacher Network professional development session hosted by a demonstration site stimulates teachers to share experiences..*

POD is informed by rapidly growing research evidence, including:

1. Preschool children are more physically active in diverse outdoor environments.[11]
2. Preschool outdoors is a determinant of children's physical activity.[12]
3. Design of childcare outdoor environments and their physical components supports increased levels of preschool physical activity and healthy eating.[13]
4. Vegetable gardens support children's knowledge of and engagement with vegetables and fruits.[14]
5. Gardening increases the frequency of consumption and acceptance of varied vegetable and fruit tastes.[15]
6. Gardening, as a food awareness activity, is regarded as a positive strategy to support healthy eating.[16]
7. Outdoor and/or green environments support children's health outcomes such as attention functioning;[17] motor development;[18] and myopia reduction.[19]
8. Increased contact with biodiversity boosts the immune system, which may reduce allergies both now and later in life.[20]
9. Youth gardens increase healthy behaviors in young children.[21]

INFANT-TODDLER DESIGN THINKING

The overall design objective is to create environments that support the beginning stages of physical development. Secondly, based on current knowledge regarding early childhood brain and central nervous system development, sensory stimulation is considered a critical factor that also supports "sensory integration."[22] Sensory stimulation is afforded by settings and components with strong sensory attributes, especially natural components that flower, offer color, fragrance, texture, movement in the wind, and attract appropriate wildlife including pollinator insects and birds; all of which stimulate development in the first years of life. Without stimulation, this metaphorical window may remain forever closed.


1.9

1.9 *Wheeled toy pathway looping around a miniature walk-in garden constructed from repurposed tire planters and giant bamboo to make a central gathering spot—plus lots of perennial plants.*

Infants during "tummy time" or those crawling, and those learning to walk need little space compared to preschoolers. Infancy includes the first year of life where everything in a child's surroundings is new, to be explored and discovered. Exposure to environmental diversity is crucial from the beginning as children learn to crawl and then slowly begin to walk, assisted by the affordances of outdoor activity settings and components. The crawling child requires nothing more than a small, ground level space engaged with playthings and closeness to nature. Crawling children begin expanding their territory, still close to the surface of the planet, experiencing nature in a special way, enhanced by intentional design and management of safe ground level encounters.


1.10

1.10 *Tummy-time on a multi-purpose lawn with blanket and playthings ("portable equipment").*

Toddlers, during every waking hour, practice and advance the skills learned during infancy, now with a broader range developmentally required to navigate a larger spatial scale. Newfound confidence drives exploration and discovery of surroundings and relationships. Diverse affordances of outdoor activity settings and components are essential for engaging the daily interest of mixed groups of children. The walking child requires three-dimensional, naturalized space to learn body-in-space perceptual skills—by "playing" them. "Now I see you, now I don't." "I wonder what's around the next corner?" Much can be achieved by designing the landscape to afford these behaviors. Settings still need to be invested with diverse sensory stimulation that's so important for brain development at this age.

1.11

1.12

An environment-and-behavior (E&B) approach to design of equitable and inclusive environments employs three key concepts:

Affordance[24] refers to how children learn to navigate and interact with the world around them when visual cues prompt perception of information embedded in things and persons. Thus, a three-year-old perceives a 15-inch-high park bench as climb-able and jump-off-able and actuates these potential affordances. The resulting activity develops physical fitness skills that the child joyfully learns and extends by endlessly repeating the action. A younger infant just learning to walk reads the edge of the same bench as something to grab to help learning to walk. The child is too young to consider climbing and jumping off because the necessary prior skills have not yet been learned. Affordance-driven skill building we assume is genetically endowed. Nobody needs to tell the child to climb. Benches retain their potential affordances. The child perceives them when developmentally ready to actualize them. The more diverse an environment is the more potential affordances wait to be actualized by a greater diversity of children with differing skills.

1.11 *Gathering place for one or two children fashioned at low cost from a red cedar plank, a few lengths of giant bamboo, and translucent fabric.*

1.12 *"Round and round we go." Stepping stones create a looping pathway around a shrub, affording gross motor activity for toddlers learning to walk.*

Activity settings (also called behavior settings)[25] can be thought of as a localized collection of affordances offering children a predictable number of different activities. Consider a sandbox—or sand play setting. The sand itself is dig-able and mold-able. Sand play toys add potential affordances waiting to be actualized. For instance, a child may use toy bulldozers to mold the sand, which also stimulates imaginative play. A sieve may afford learning about sand behavior by shaking the sieve, observing how individual grains get separated and foreign objects get caught (strained). Add water and affordances increase. Thus, infant/toddler STEM learning may be initiated, perhaps leading

1.13

1.14

1.13 *Transitional, sheltered deck between classroom and the "big" outdoors provides opportunities for teachers and children to gather to get used to being outside. A flagstone pathway with fragrant plants entices curiosity.*

1.14 *Charming toddler garden created by teachers using "found objects" both literal (rabbit, fish, birdhouse, lighthouse, smiley person) and abstract (stones), inert and living (orange pot with orange flowers): a flexible toddlerscape prompting imaginations and endless stories.*

to further exploration and discovery of interaction between things. All this depends on environmental diversity and actualization of potential affordances. The structure enclosing the sand may be designed as a bench to be sit-able by teachers, thus affording their participation in the sand play activity. The bench also affords a playable surface for kneeling children.

Components include an array of physical items not part of settings that also afford diverse interactions for young children. For example, trees to run around, smooth stones to climb on, logs to balance on, birdhouses to observe, and chimes, banners, windmills, and flags that add sensory diversity.

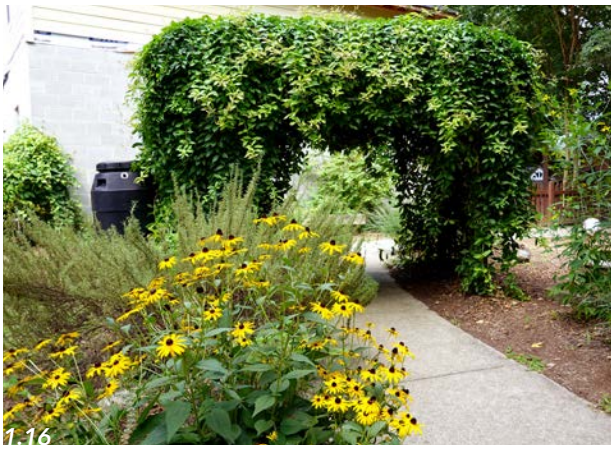
EQUITABLE AND INCLUSIVE DESIGN THINKING

POD is driven by a vision in which every child grows and develops as a healthy individual, beginning in a childcare center facility that has replaced an outdoor monoculture of grass and woodchips with diverse opportunities for playing and learning in a lush biodiversity designed to boost affiliation with nature in children's hearts and minds every day.

1.15 *Toddler space located between classroom buildings contains a playhouse combined with colorful, portable play equipment, and an all-season play surface of artificial turf. A wheeled toy pathway circulates around the edge (not visible). A shade sail protects children from direct afternoon sun.*

Play and learning settings and components are the basic building blocks of a diverse, equitable, and inclusive outdoor play and learning environment. 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.

Environmental diversity engages diversity of children—in short, the more diverse an outdoor play and learning space is, the more equitable and inclusive it becomes. Naturalization makes the space come ALIVE and thus affords unique behavioral attributes (interactivity, continuous change, sensory impact, exportability, discovery, and more) for children to play and learn together.


1.16

Environmental diversity + naturalization is the key to engaging the socio-cultural diversity of children, thus supporting equity and inclusion of all children, including those with special needs. Long-term outcomes include childhood agency and social-emotional development.

Engaging children with diverse naturalized environments as infants and toddlers may initiate acquisition of more equitable and inclusive social values along with experiences that eventually may lead to a deeper understanding of nature as a health promotion system that needs care, conservation, and restoration.[26]

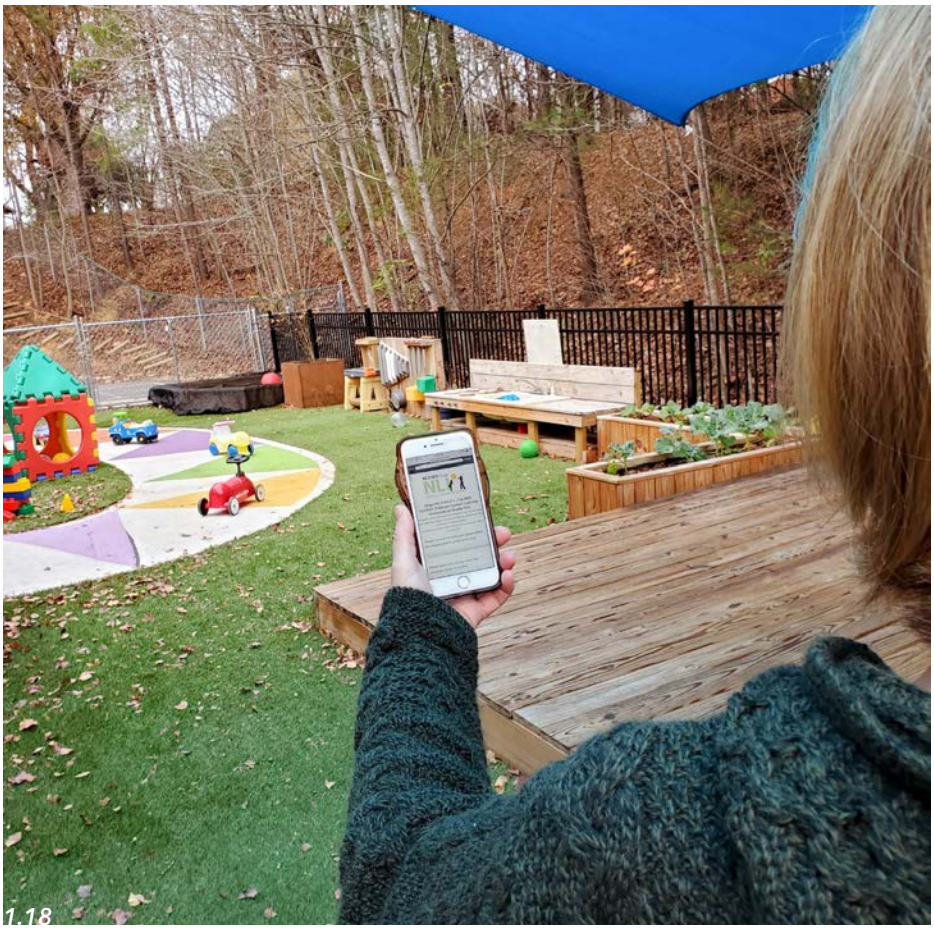
1.16 *Perennial flowering plants and a vine-covered arbor convert a wheeled toy pathway into an immersive landscape full of sensory stimulation.*

1.17 *During an online OLE design session, NLI staff assess and discuss with center staff.*

EVALUATION

Rigorous pre/post evaluation is critical to success. NLI evaluation tools include COLEQT (Childcare Outdoor Learning Environment Quality Tool), along with a "survey of existing conditions," pre-post center director/owner interviews, and parent surveys/interviews.


1.17



1.18

1.18 Left, 1.19 Below, *CO-LEQT installed on a smart phone being used to assess the best practice quality of a recently installed toddler outdoor play and learning environment.*

COLEQT (provides an assessment across best practice indicators or periodic "scan" of environmental quality and can be administered in the field using a smart phone or tablet. The 4-point scale provides scores that guide providers in making outdoor physical improvements during and beyond the incremental development process (Appendix A).

POEMS (Preschool Outdoor Environment Measurement Scale), is a validated and reliable dichotomous scale that provides an assessment of environmental and programmatic quality across seven domains. Results show associations with programmatic and environmental factors, and also inform management/investment decisions.[27]

E-Bmap (Environment and Behavior Mapping) is an open-coding, objective observational research tool that simultaneously codes behaviors of interest and associated environments (settings and components). Results show associations between physical content and afforded behavior that inform the knowledge base as well as management/investment decisions.[28]

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[4] To naturalize

[5] Biotope

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[7] Gardening facilitates social interaction

[8] Agency

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TO BE ADDED

21 Meinen, et al. op. cit.

22 Sensory integration

23 E&B

24 Affordance

25 B setting

26 Equity

27 POEMS

28 E-Bmap

We have a wonderful trike track, container gardening, art, a stage, a bridge, pathways, a huge sand/water area, and multi-surface areas such as sand, rocks, grass, cement, small pebbles, and mulch.

Director of participating childcare center

02 BEST PRACTICE INDICATORS

Infant/Toddler Outdoor Play and Learning Environment Toolkit
Early Release

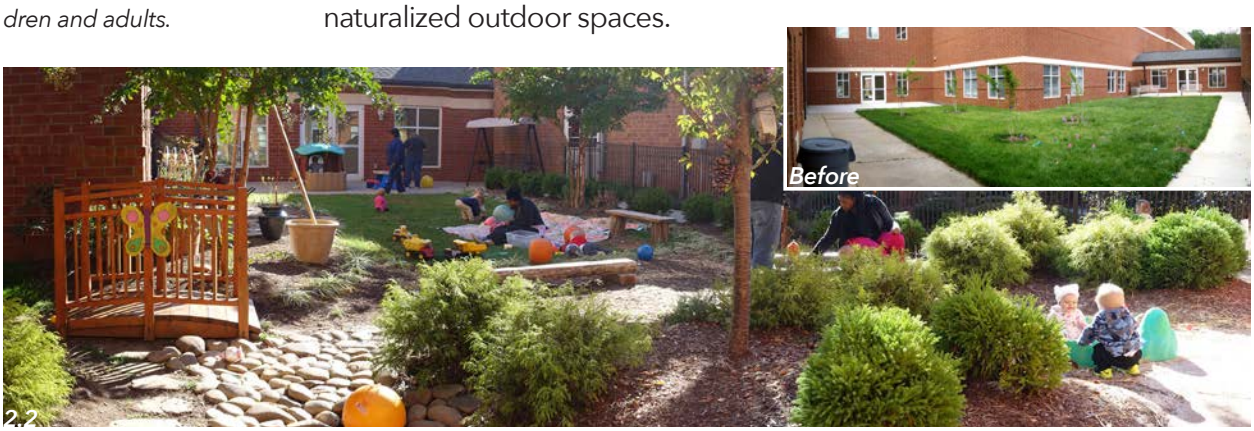
INTRODUCTION

Best Practice Indicators (BPIs) are based on more than two decades of NLI research and practice in the design and management of outdoor play and learning spaces in licensed childcare facilities. This chapter introduces BPIs as a framework for achieving high quality infant/toddler-two[A] spaces. BPIs are linked to COLEQT (Childcare Outdoor Learning Environments Quality Tool),[B] which helps providers achieve a high score by guiding installation investment while ensuring all indicators are covered.

BEST PRACTICE INDICATORS ILLUSTRATED

Two sets of overlapping BPIs are defined and illustrated, covering both infant and toddler-two outdoor play and learning spaces. On most pages the BPIs are matched; however, some differ, and as infant spaces have less functional requirements, they have two less BPIs (10 and 13 respectively).

BPIs reflect the health promoting attributes of outdoor play and learning settings and components, including active play and for toddlers hands-on gardening experiences. Additional health and wellness benefits, include social-emotional development and outdoor learning (inherently more active than indoor learning), all sustained by high-quality, diverse, naturalized outdoor spaces.



2.2 *Infant-twos courtyard on a church campus was previously a triangle of lawn bordered by pathways, now with many added settings and plantings creating an engaging space for children and adults.*

[A] The term "toddler-two" recognizes that some childcare centers designate a separate space for "twos" (children ages 24-36 months); whereas "toddlers" are typically defined as children ages 12-36 months (and infants up to 12 months of age).
[B] COLEQT (Children's Outdoor Learning Environment Quality Tool) is administered on site using a smart phone or tablet. See XXX for further information.

INFANT BEST PRACTICE INDICATORS

2.3 *Comfortable, secure "nest," constructed with standard concrete blocks and straw floor, provides a sensory "holding environment" for two children as they actively explore xylophone acoustics. Note additional "portable play" binoculars (top) and magnifying glass (bottom).*

For an infant outdoor play and learning space to achieve high quality the 10 best practice indicators listed below and illustrated in this chapter should be addressed during the incremental installation process and on-going physical management. Infant spaces are relatively small. Achieving the highest quality may still take many months but not the several years that preschool spaces can take. Use COLEQT to track progress on a path to success. Rest assured, high quality is achievable as demonstrated by the multitude of best practice infant outdoor spaces created by childcare centers proud of the high quality implemented through POD. Best practice indicators for infant spaces are listed below:

1. Are there 8 or more play and learning settings? (See list of settings).
2. Are infant classrooms directly connected to the outdoor play and learning space at the same floor level?
3. Is there a multipurpose activity setting (lawn, deck, porch, patio, etc., including items such as porch swing, hammock, comfortable chairs, portable play equipment), sufficient for all children and teachers in a group to use together?
4. Are there sufficient patches of shade provided for all children when needed?
5. Are there sufficient types of toys, portable play equipment, and play materials, accessible for all children to play with them?[5]
6. Are there sufficient gross motor activities afforded by the outdoor play and learning space?
7. Is there an outdoor, screened feeding/quiet nook with seating, a flat surface for supplies, and a sign welcoming everyone, including caregivers? (Located ideally near sink, indoors or outdoors, for handwashing.)
8. Is there a covered outdoor classroom/gathering place large enough for all children and teachers in a group to use together?
9. Is there covered/enclosed storage for portable play equipment, push toys, and infant items.[3]
10. Is there a variety of age-appropriate plants that children can explore (herbs, perennials, ornamental grasses, shrubs, vines)?

TODDLER-TWO BEST PRACTICE INDICATORS


2.4

2.4 *Looping/curvy, 5-feet wide primary pathway affords wheeled toy use to a confident, skilled toddler.*

Walking or "toddling" skills provide the right of passage to toddlerhood, accompanied by a rapid expansion of territory and desire to explore the world outdoors, to play and learn. To achieve high quality assessment the 12 best practice indicators listed below and illustrated in this chapter should be addressed during the incremental installation process, piece by piece, in a sequence of investments, and on-going physical management. Toddler-two spaces are typically larger then infant spaces so achieving the highest quality will likely take longer—more than a year. COLEQT can track progress to help become a demonstrate sitex and resource for professional development. Best practice indicators for toddler-two spaces are listed below:

1. Are there 10 or more play and learning settings? (See list of settings).
2. Are toddler-two classrooms directly connected to the outdoor play and learning space at the same floor level?
3. Is there a looping/curvy, 5-feet-wide primary pathway, connected to the building, for circulation and wheeled-toy use in the outdoor play and learning space?
4. Is there a multipurpose lawn large enough for all children in a class to use together for games, activities, and events?
5. Are there sufficient patches of shade provided for all children when needed?
6. Are there sufficient types of wheeled toys, portable play equipment, and play materials, accessible for all children to play with them?
7. Are sufficient gross motor activities afforded by the outdoor play and learning space?
8. Is there a covered outdoor classroom/gathering place large enough for all children in a class to use together?
9. Is there covered/enclosed storage for wheeled toys, portable play equipment, loose parts, and learning materials, with low, open, fixed shelves accessible to children?
10. Is there a variety of age-appropriate plants (in addition to trees) that children can explore (herbs, perennials, ornamental grasses, shrubs, vines)?
11. Are loose parts available throughout the outdoor play and learning space and/or in a designated loose parts setting?[5]
12. Are there sufficient trees?
13. Is there a designated vegetable garden with enough produce for snacking and/or meals?

BEST PRACTICE INDICATOR #1

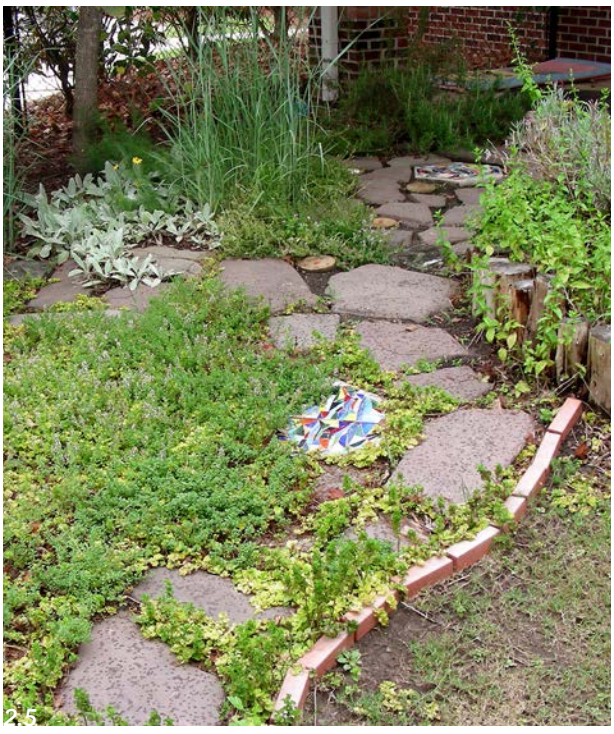
There are 8 or more play and learning activity settings

INFANTS

Infant play and learning settings and components are the basic building blocks of an effective outdoor play and learning environment. Lesser numbers are required than for older age groups because the function requirements are less. Nonetheless, diversity must be sufficient for children learning to walk, exploring, activating affordances to supporting skill development, responding to nascent personalities, gender differences, and varied racial, ethnic, and cultural backgrounds.

ACTIVITY SETTINGS for infant outdoor play and learning spaces are: *Physically-bounded spaces with predictable patterns of activity.* A high-quality infant play and learning space contains at least 8 activity settings of the 17 listed.

- Breastfeeding/Bottle-feeding Nook
- Buggy Parking
- Deck
- Diaper Changing Station
- Gathering Space
- In-ground Perennial Bed
- Indoor-Outdoor Transition
- Manufactured Play Equipment
- Mound
- Multipurpose Lawn
- Porch Swing
- Push/Pull Toy Pathway
- Sensory Garden
- Sensory Pathway (stone/tile, etc., with step-able plants)
- Sensory Station (mobile, chimes, mirrors, acoustic)
- Stepping Stone Pathway
- Textured Panel Wall



2.5 *Sensory pathway with fragrant, textured (safe), "step-able" plants between flagstones attracts crawling infants and "toddling" children.*

2.6 *Verdant, shady infant space. "Walking rail" helps children become vertical. Once achieved, undulating lawn affords "toddling" challenges as children learn to walk (the sensory pathway, 2.5, starts behind the tree.*

COMPONENTS for infant outdoor play and learning spaces are: *Physical objects that add play value and/or functionality to an infant play and learning space.* A high-quality infant outdoor play and learning space may contain any number of the 14 components listed.

- Arbor
- Climbing Log (low and smooth)
- Interior fence
- Low Steps
- Multi-sensory fixed manufactured items (chimes, windmills, banners, flags)
- Potted plants/ Container garden
- Infant Walking Rail /Pull-up Bar
- Push/Pull toys
- Seat/bench/sitting stone/etc.
- Shade tree(s)
- Shrub(s)
- Storage box
- Tire Planter
- Tunnel

2.7 *Suspended, light swing, closely supervised by teachers, affords fun, vestibular stimulation.*

2.8 *Comfortable, active infant space was previously a narrow, formless area between classroom and boundary fence. Interconnected subareas were created using existing components ("tunnel" on left) and additions, including central "sittable" storage and shrubs against fence.*

Further information

- NLI InfoSheet–*Top Ten Activity Settings for Outdoor Learning.*
- NLI InfoSheet–*Benefits of Engaging Children with Nature.*
- NLI InfoSheet–*Affordable Settings and Components.*

BEST PRACTICE INDICATOR #1

There are 10 or more play and learning activity settings

TODDLER-TWOS

Play and learning settings and components are the basic building blocks of an effective outdoor play and learning environment. 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.

ACTIVITY SETTINGS for toddler-two outdoor play and learning spaces are: *Physically-bounded spaces with predictable patterns of activity.* A high-quality toddler-two play and learning space contains at least 10 activity settings of the 23 listed.

- Breastfeeding/Bottle-feeding Nook
- Buggy Parking
- Deck
- Diaper Changing Station
- Earth Play
- Gathering Space
- Grass maze
- In-ground Perennial Bed
- Indoor-Outdoor Transition
- Manufactured Play Equipment
- Mound
- Multipurpose Lawn
- Playhouse
- Porch Swing
- Push/Pull Toy Pathway
- Sand Play
- Sensory Garden
- Sensory Pathway (stone/tile, etc., with step-able plants)
- Sensory Station (mobile, chimes, mirrors, acoustic)
- Stepping Stone Pathway
- Textured Panel Wall
- Water Play (hands-in)
- Teepee

2.9 *Toddler space packed with playful learning opportunities tucked into a corner of site with protective shade sail.*

COMPONENTS for toddler-two outdoor play and learning spaces are: *Physical objects that add play value and/or functionality a toddler-two play and learning space.* A high-quality toddler-two outdoor play and learning space may contain any number of the 16 components listed.

- Arbor
- Bridge
- Climbing Log (low and smooth)
- Interior fence
- Low Steps
- Multi-sensory fixed manufactured items (chimes, windmills, banners, flags)
- Potted plants/ Container garden
- Infant Walking Rail /Pull-up Bar
- Push/Pull toys
- Seat/bench/sitting stone/etc.
- Shade tree(s)
- Shrub(s)
- Storage
- Tables
- Tire Planter
- Tunnel

2.10 *Toddler courtyard naturalized with fragrant rosemary clustered in containers and other perennials in tire planters, interspersed with manufactured components (storage, wheeled toys, play equipment). Shade sails were created and installed by parent volunteers.*

2.11 *A riot of perennial color, fragrance, and textures in a now invisible row of tire planters edge the extended classroom and offer an arresting view from inside.*

BEST PRACTICE INDICATOR #2

Infant classrooms are directly connected to the outdoors at the same floor level.

INFANTS

Connection between infant classrooms and outdoors, physically as well as visually, is important for both teachers and children. For teachers, views through windows and glazed doors are a continuous reminder that outdoors beckons with the possibility of activities constrained or impossible indoors. After a while, daily reminders create a permanent "indoor-outdoor classroom" perception.

2.12

2.12 *Diverse mix of sensory plants frame a soft, comfortable lawn just outside the classroom. A large. high shade structure allows sunlight in.*

For infants and toddlers, window placement is critical. For prone or crawling children in the first year of life, glazing at floor level activates curiosity and fascination with the constantly changing scene outdoors, reinforceable with close-up insect- and bird-attracting perennial planting. Install pull-up rails so children can look further or over the sill if glazing is above floor level.

2.13

2.14

2.15

2.13 *"Baby parklet" installed on two parking spaces with direct access to the infant classroom.*

2.14 *Crawling infants self-propel out of the classroom into the enclosed, shady parklet.*

2.15 *Parklet teacher has furnished the parklet with blanket, cushions, and toys to create a place of playful contentment.*

BEST PRACTICE INDICATOR #2

Toddler-two classrooms are directly connected to the outdoors at the same floor level.

TODDLER-TWOS

Direct connections from classroom to outdoors, as described for infant classrooms, is equally important for toddlers and their teachers. If windows are obscured or misplaced or doors are solid or do not connect directly or even worse, lack all direct outdoor connections, consider changing the classroom location. If doors connect but are solid, consider replacing with glazed doors.

2.16

Ideally, glazed classroom doors should open directly onto a dedicated, enclosed "extended classroom," thus allowing children to independently exit and feel a sense of personal control. Once toddlers become confident walkers with a sustained sense of agency, extended classrooms serve as multipurpose transitional spaces between indoors and outdoor play and learning spaces.

2.17

2.18

2.16 *Seamless indoor-outdoor nature is created by a green screen cascading from intentionally designed wide transoms. Windows to floor level look out to diverse nature.*

2.17 *Toddler classrooms spill into the outdoors under light, airy shade structures.*

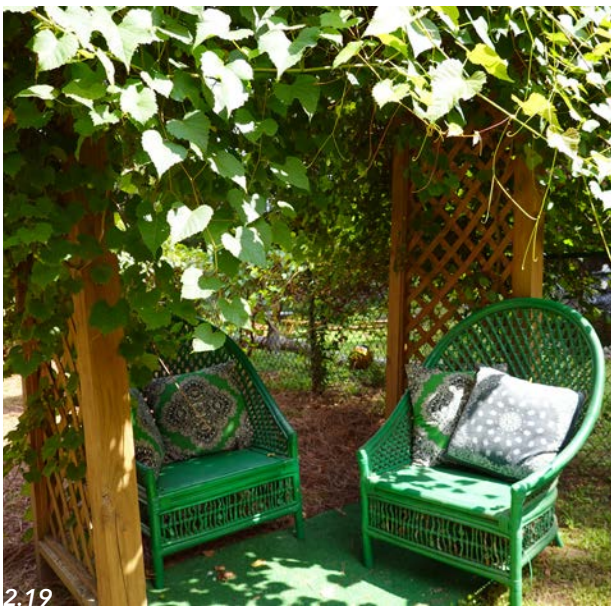
2.18 *Classroom extends outdoors in a previously unused, narrow space. Raised deck, potted plants, tables, and overhead pergola support all kinds of activities impossible to conduct indoors*

BEST PRACTICE INDICATOR #3

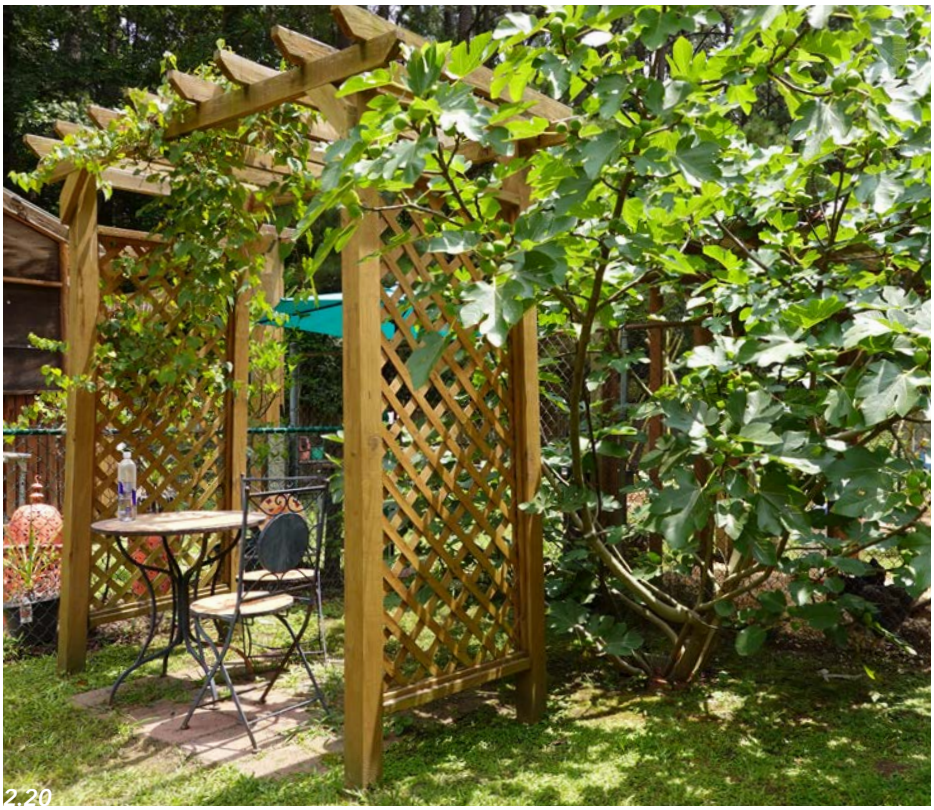
There is an outdoor, screened feeding/quiet nook with seating, a flat surface for supplies, and a sign welcoming everyone.

INFANTS

An outdoor nook can be designed to serve several purposes that require peace and privacy. They include feeding infants (breast and bottle), teacher time with an obstreperous child, and a harmonious place for a therapist to work with a child. And surely there are additional possibilities for such a setting. A simple, vine-covered close lattice, gated enclosure furnished with comfortable seating and small table should suffice. A low, lockable gate is necessary to avoid space becoming a toddler hideaway.



2.19



2.20

2.19 *This vine-covered shady arbor with comfortable seating makes a lovely nook.*

2.20 *Adding a table to support drinks and other personal items completes nook functionality.*

Further information

- NLI InfoSheet–Designing Pathways.
- NLI Green Desk–Primary Pathways.

BEST PRACTICE INDICATOR #3

There is a looping, curvy, primary pathway for circulation and wheeled toy use.

TODDLER-TWOS

Broad, curving, looping pathways that accommodate children using wheeled toys are highly attractive and afford increased levels of physical activity compared to other settings. Primary pathways are a top priority for health promotion, providing structure and primary circulation, connecting settings, motivating movement. They add overall synergy and diversity to children's activity and allow teachers to comfortably circulate. When primary pathways connect directly to classrooms, there is greater likelihood that children will follow the pathway, spreading out activity more evenly across the outdoor space. Primary pathways are usually the first installation of the incremental development process. They immediately subdivide the site into smaller chunks, helping centers decide which installations come next—motivating volunteers to assist and prospective donors to contribute.

2.21 *Toddler pathway concrete base is surfaced with a thin coat of poured-in-place soft surfacing. "Watch out, here we come!"*

2.22 *Looping pathways in this renovated toddler space connect retained settings and are surfaced with local decomposed granite offering a warm, natural appearance.*

BEST PRACTICE INDICATOR #4

There is a multipurpose setting sufficient for all children and teachers in a group to use.

INFANTS

Infants who are still crawling or are just beginning to walk have limited square footage requirements. Settings are needed that are enclosed and comfortable, with options for children and teachers to interact harmoniously. Enclosed deck structures work well, with plants in containers or integrated as raised beds. Appropriate floor coverings include living or artificial turf and outdoor carpet or rugs. Background music is an attractive addition, now made ultra-possible with advances in wireless technology.

2.23 *Courtyard lawn surrounded with diverse multi-sensory plants and comfortable seating offers a setting for multiple infant activities.*

BEST PRACTICE INDICATOR #4

There is a multipurpose setting sufficient for all children and teachers in a group to use.

TODDLER-TWOS

A single, well-maintained lawn, surfaced with high-quality living or artificial turf provides a valuable multipurpose space for activities such as group games, play with loose parts, portable play equipment, large scale constructions, parachute play, "sports," etc. Bare feet on soft grass can provide a delicious, tactile experience.

2.24

2.24 *Sheltered multipurpose deck/stage under the shade of a maple tree is a favorite toddler setting.*

Lawns should be installed on well-drained soils. Natural surfacing options include turf and grass seed. Turf is preferred, if affordable, as it rapidly creates a usable surface. Although not a substitute for a living lawn, artificial grass may be a viable alternative in locations with insufficient sunlight, poor drainage, or heavy use. All-weather use is an added advantage.

2.25

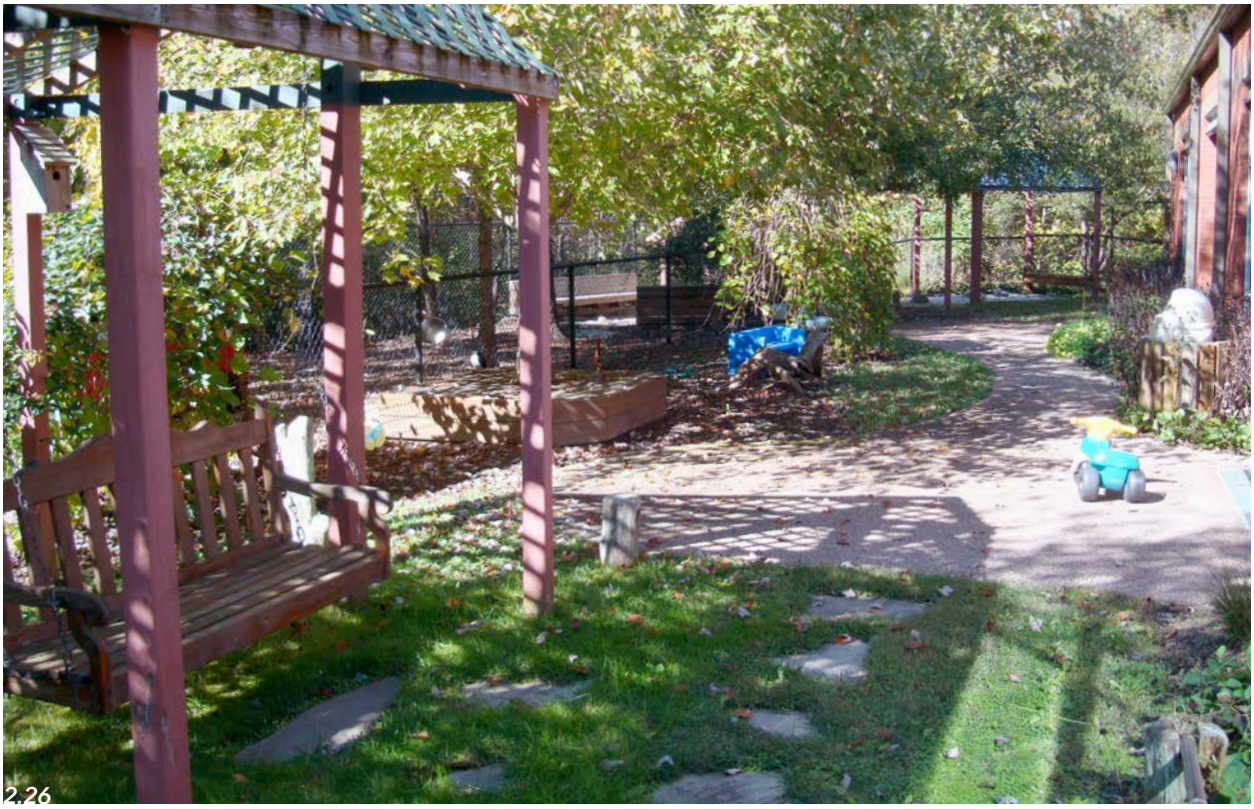
2.25 *Enclosed toddler space "in the woods" offers an Aladdin's Cave of play and learning possibilities.*

BEST PRACTICE INDICATOR #5

There are sufficient patches of shade.

INFANTS

Infants and toddlers especially but all children generally must be protected from harmful ultraviolet sunlight. If not, over-exposure and sunburn can easily happen at any latitude during summer. Because infants have limited mobility, ideally during summer months most infant space should be in dappled shade, afforded by small trees or shade structures such as arbors and pergolas. Exceptions include living lawn, flowering perennial beds, and flowering plants in containers.



2.26 *Children are never far from the dappled shade of this infant space, making it equally comfortable and attractive to children and teachers.*

BEST PRACTICE INDICATOR #5

There are sufficient patches of shade.

TODDLER-TWOS

Toddlers are far more mobile than infants and require far more space so the concept of "small patches of shade" is appropriate. This means ensuring that children are never far from shade as they move around. Small patches (i.e., 10-15 feet in diameter), protect children but also allow sufficient sunlight to penetrate the upper canopy to support photosynthesis of ground level plants—where children need to experience them. While trees become large enough, which may take several years, shade structures can be installed, either as permanent components or temporary solutions. Shade sails are an inexpensive, popular solution. They may eventually be removed when trees and shrubs afford sufficient shade.

2.27 *Shade sails installed over a narrow toddler space provide continuous protection from over-exposure to sunlight during hot, summer days.*

2.28 *Patches of shade cast by mature small trees and shrubs in a 20-year-old toddler space.*

Further information

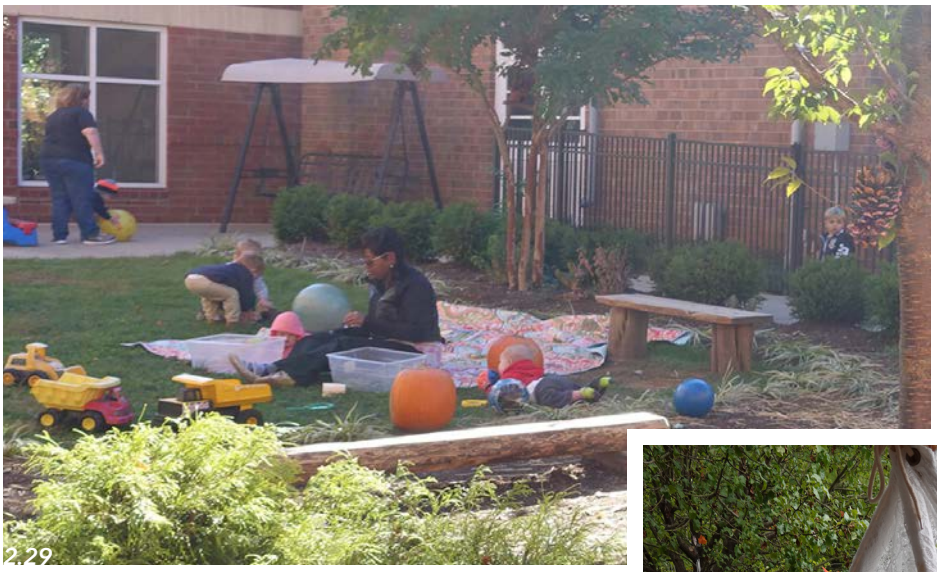
- NLI InfoSheet—*Shade Solutions.*
- NLI Green Desk—*Summer Play: Beat the Heat.*

BEST PRACTICE INDICATOR #6

There are sufficient types of portable play equipment accessible for children to play with.

INFANTS

For infants, who for many months have limited mobility, safe toys of all shapes and sizes are a primary play and learning resource. Childcare centers with infant/toddler outdoor play and learning spaces typically lay a blanket on a lawn with a collection of toys and playthings to engage children. Others may similarly use a setting such as described in BPIs #4 & #8.



2.29 *Blanket on lawn provides comfortable on-ground setting for teacher in the midst of toys, infant tummy time and active play.*

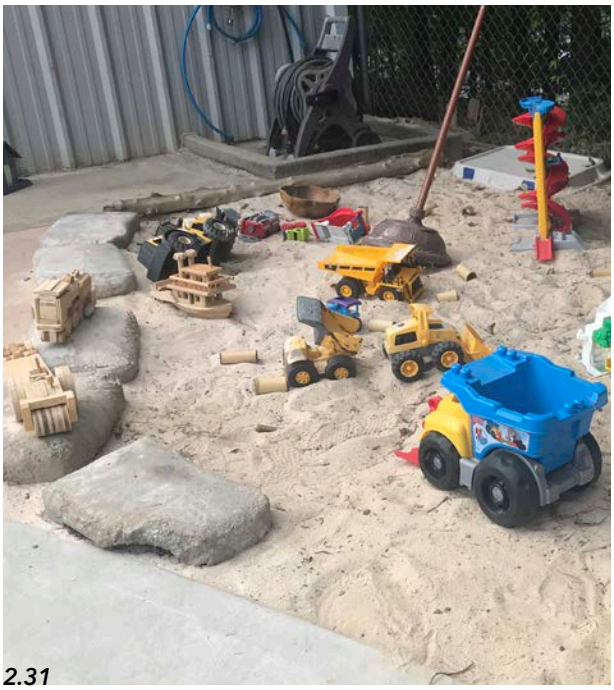
2.30 *Infant "tent" on covered classroom porch with outdoor carpet floor.*

BEST PRACTICE INDICATOR #6

There are sufficient types of portable play equipment accessible for children to play with.

TODDLER-TWOS

Portable play equipment means manufactured items made for intended purposes. Included are balls, hula hoops, building blocks, sand play toys, skipping ropes, bowling balls and pins, tents, tunnels, parachutes, musical instruments. Included are small, manufactured toys along with push-pull and riding toys. Excluded are loose parts (BPI #11), whether they be manufactured or natural (by definition, they do not have an intended purpose).



2.31

2.31 *Modest sand play in sunken spot off pathway plus all kinds of toys provides endless toddler fun.*

2.32 *Repurposed boat filled with soil and recycled "receptacle toys" offers alternative sensory experiences.*

2.32

BEST PRACTICE INDICATOR #7

There are sufficient gross motor activities afforded.

INFANTS

Infants and indeed all children require outdoor play and learning spaces that afford the widest possible range of developmentally appropriate gross motor activities so that each child has multiple opportunities each day to naturally exercise fitness skills. For the developmental stage of infancy, the 15 gross motor skills in Figure 2.XX below may be considered appropriate.

Balancing	Pulling
Bowling	Pushing
Bouncing	Rocking
Catching	Rolling
Climbing	Throwing
Clinging	Tumbling
Crawling	Walking
Creeping	

2.33 *Gross motor activities that can be supported by diverse outdoor learning environments.*

2.34 *"Baby rail" of bamboo suspended between posts supports infants learning to walk. The gently undulating lawn challenges children's proprioceptive skills to keep balanced.*

2.35 *Classic parachute play animates infants (and continues across childhood), here on an all-weather artificial turf surface.*

BEST PRACTICE INDICATOR #7

There are sufficient gross motor activities afforded.

TODDLER-TWOS

Toddlers, as they enter a new developmental stage, require a now expanded range of gross motor activities (almost twice the number for infants), afforded by outdoor play and learning spaces, supported by diverse components (fixed, movable, and loose, natural and manufactured). Balancing, for example, can be afforded by logs, rocks, manufactured balance beams, lines marked on the ground, lines of tree cookies, and so on. For the developmental stage of toddlerhood, the 29 gross motor skills in Figure 2.XX below may be considered appropriate.

Balancing	Dancing	Pulling	Sweeping
Bouncing	Drumming	Pushing	Throwing
Brachiating	Hammering	Raking	Tossing
Carrying	Hanging	Rocking	Tumbling
Climbing	Hopping	Rolling	Walking
Clinging	Kicking	Running	
Crawling	Lifting	Scooping	
Creeping	Pedaling	Sliding	

2.36 *Gross motor activities that can be supported by diverse outdoor learning environments.*

2.37 *Wooden toddler climbing/playhouse structure, custom-made to support gross motor activity.*

2.38 *Portable play cart as big as the toddler pushing it affords gross motor skill building.*

BEST PRACTICE INDICATOR #8

There is a covered outdoor classroom/gathering place large enough for all children and teachers in a group to use together.

INFANTS

Infant programs dedicated to extensive time outdoors in diverse play and learning spaces require easily accessible covered spaces with storage, appropriately scaled to small children still learning to walk, where groups can gather for intended activities. Hanging baskets and ground level containers of flowering plants add sensory richness and delight. Possible structures include prefabricated gazebos and custom-made timber shelters. Decking floors add functionality.

2.39

2.40

2.39 *Irregularly-shaped infant lawn surrounded by raised beds of diverse plants plus portable toys provides endless playful exploration opportunities.*

2.40 *Miniature table in shady corner offers a quiet play and learning setting.*

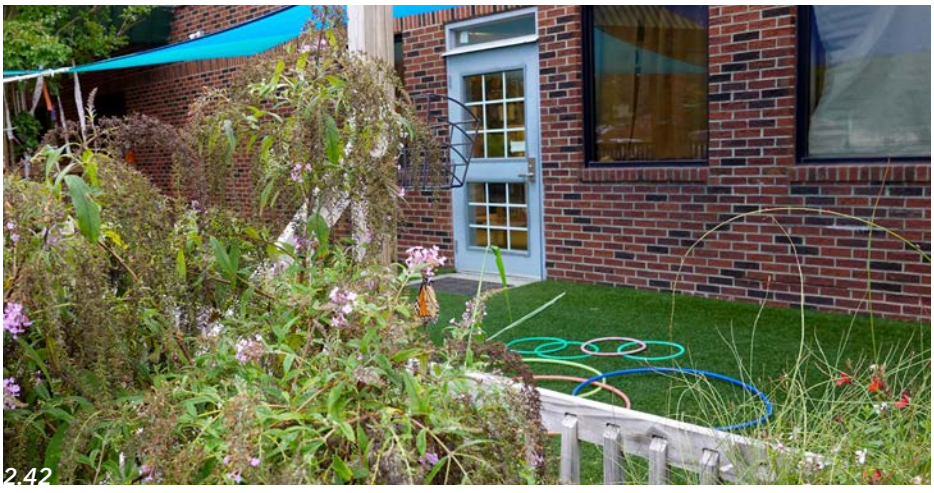
BEST PRACTICE INDICATOR #8

There is a covered outdoor classroom/gathering place large enough for all children and teachers in a group to use together.

TODDLER-TWOS

Toddlers have similar requirements as infants but larger scale as multipurpose structures with storage for tools, equipment, and materials essential for group activity and outdoor learning programs. Structures can be open on all sides, partially or fully enclosed with insect screens and a screen door. A transitional deck in front can add functionality. Translucent polyvinyl curtains added in winter can protect children from cold winds. A skylight can reduce winter gloom. Structures can include a "greenhouse" component for indoor plants. Such structures outdoor can serve as pro bono contributions from architecture firms or design-build projects for advanced architecture classes at local colleges.

2.41



2.42

2.41 *Covered deck provides basic, functional settings for all manner of gatherings and activities.*

2.42 *Previously bland, featureless space outside toddler classroom transformed into shady, verdant porch extension.*

BEST PRACTICE INDICATOR #9

There is covered/enclosed storage for portable play equipment, push toys, and infant items.

INFANTS

Infant and toddler programs require storage for toys and portable play equipment, conveniently located for teacher access. Storage comes in all shapes, sizes, construction materials, and price points—off-the-shelf or custom-made, providing many options to add essential functionality to outdoor spaces—as illustrated here.

2.43

2.44

2.43 *Open, airy shelf storage installed in available location adjacent to the play and learning space. Translucent roof lets in daylight. Projection protects contents from rain and avoids the need for awkward doors.*

2.44 *Wheeled and rocking toys stored in classroom porch sheltered by overhanging building roof (access from indoors is left, off camera).*

BEST PRACTICE INDICATOR #9

There is covered/enclosed storage for wheeled toys, portable play equipment, loose parts, and learning materials, with low, open shelves accessible to children.

TODDLER-TWOS

Toddler programs need more storage than infant programs to accommodate the greater number and size of items. Storage should always be included/built into toddler outdoor classrooms. Covered wheeled toy storage is important and can be located close to the classroom external door if available or off the primary pathway so children can be responsible for "parking" at the end of outside time. Good quality coffers are an inexpensive solution for distributing small tools and materials to individual settings. Sheds upfitted with deep shelves and bins serve well. Inexpensive plastic units can provide a temporary solution but are not made to serve long-term outdoor equipment storage functions.

2.45

2.45 *Sturdy, manufactured storage unit serves multiuse deck activities.*

2.46 *High quality outdoor chest stores play and learning items directly accessible from primary pathway.*

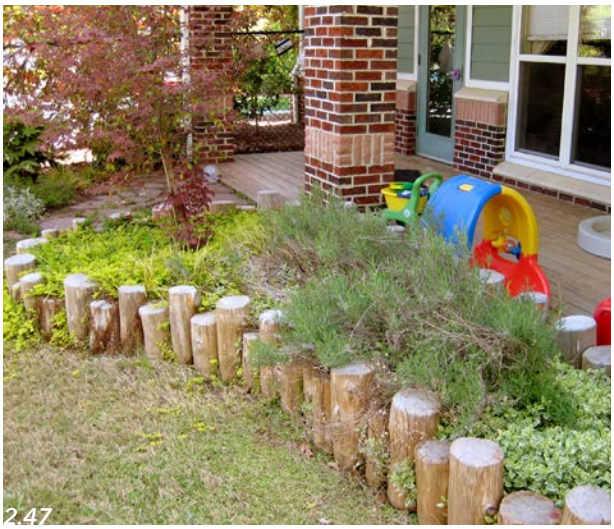
2.46

BEST PRACTICE INDICATOR #10

There is a diversity of age-appropriate plants that children can explore.

INFANTS

Infants, as noted in Chapter 1, can benefit greatly from the sensory stimulation of carefully selected plants, positioned at ground covers for crawlers and planted within the reach of walkers. Color, fragrance, texture (to see and to touch), movement in the wind, the magic of springtime falling blossoms, cascading autumn leaves—to catch to pile up and play in, these are the joys of interacting with nature in the earliest years. Tree and shrub requirements are modest but can serve as a backdrop to a palette of perennials, including ground covers and vines – ensuring viable infant spaces—which are small. Many perennials are taller than toddling children, which means wonderful, engaging spaces can be made just using plants. Think of "crawling trails" a few feet long for infants, created using arching plants such as goldenrod (Solidago). Safetywise, as infants like to "mouth" objects that can grasp, make sure plants selected for infant spaces are non-poisonous and do not produce fruit of seeds that could be a choking hazard (see Chapter 5).



2.47

2.47 *Raised bed of mixed, multisensory plants located to be accessible from classroom porch and multi-purpose lawn. Vertical post border provides support for children learning to walk.*

2.48 *"Choo-choo" raised beds make a fun, attractive, touchable, smellable, seasonal plant location.*

2.48

BEST PRACTICE INDICATOR #10

There is a diversity of age-appropriate plants that children can explore.

TODDLER-TWOS

Toddlers benefit as infants do from the sensory stimulation of plants—but even more so because of their increased mobility. Large shrubs add patches of shade and appear like small trees to young children. All plants provide natural loose parts. Ornamental grasses and flowering perennials can define spatial boundaries and add sensory richness to primary and secondary pathways. Spaces can be planted so that toddlers feel immersed in fragrance, surrounded by color, and feel the texture on their bodies. A cluster of ornamental grasses can create a maze. Create short, secondary pathways through and around plants. Miniature keyhole gardens are an appropriate form. Surround a sitting stone or log to encourage children to spent time there. Try "massive planting" of fragrant species such as lavender or rosemary. Shallow, raised beds can be configured to create immersive settings and at the same time protect plants from inadvertent trampling. Vines on chain-link fences rapidly become green walls. Choose plants that mark the seasons with dramatic physical change.

2.49

2.49 *Small, ground-level bed next to primary pathway, planted with fragrant plants for children to walk through.*

2.50

2.50 *Ah, the sweet smell of a butterfly bush (buddleia – a butterfly-attractor).*

2.51

2.51 *A grove of purple-leaf plum trees lend fragrant, colorful identity and welcome the Spring! Many cultivars are available. Check those suitable for your USDA Zone.*

BEST PRACTICE INDICATOR #11

There is a variety of loose parts accessible for all children to play with.

TODDLER-TWOS

Loose parts of all types stimulate creative, imaginative, social, and cognitive play. Both natural and manufactured loose parts are collectively considered as playthings or play objects. As for preschoolers, natural loose parts include fallen leaves, pine needles, sticks, seed heads and the seeds, flowers and flower parts, tree cookies, pieces of tree bark and tree roots, pebbles, straw bales, short lengths of bamboo, and small pieces of tree branch.


2.52

2.52 *Pebbles + shells + water + sand + sieve in aluminum trays = playful learning supported by simple, elevated wooden frame. Water makes pebbles and shells readable, like at the beach.*

Loose parts may also include manufactured items such as recycled receptacles, repurposed kitchen utensils, and repurposed tires used as planters. Natural materials that have been through a manufacturing process may also be considered, such as scraps of dimensioned lumber, pieces of plywood, recycled carboard boxes, and lengths of fabric. Excluded here is portable play equipment as defined in BPI #6.

Take extra care that nothing appearing in toddler spaces could be hazardous (see Chapter 5).

2.53

2.53 *"Small World Creations" installed on shady, multipurpose deck. Diverse loose parts prompt unlimited imaginative play.*

Further information

- NLI InfoSheet–*Natural Construction Settings.*
- NLI Green Desk–*Nature Play (tagged posts).*

BEST PRACTICE INDICATOR #12

There are sufficient trees.

TODDLER-TWOS

Toddler spaces need trees because they provide shade, comfort, seasonal change, and natural loose parts. They also contribute to biodiversity and climate equilibrium. The best practice number of trees varies according to the size of the site and presence of conserved trees prior to facility development. Rate of growth and mature size are considerations that vary according to latitude and elevation of the facility. The NLI rule of thumb for toddler spaces is one tree per 500-1000 square feet, planted in a mix of small deciduous and evergreen shade trees, carefully spaced to create patches of shade. Shade is important but so is sunlight. It is essential for growing vegetables and flowers. Large, existing shade trees can cast excessive areas of shade, which result in boring, mulched spaces, preventing understory growth. Small to medium-sized trees allow sunlight to penetrate, casting smaller patches of shade interspersed with sunny spots—keeping understory plants happy and close to children interacting with them.

2.54

2.54 *Mature, medium-sized shade tree provides a locus for open-ended dramatic play using loose parts and moveable components.*

2.55

2.55 *The meeting of tree trunk and ground surface provides a protected niche for all manner of micro-worlds – in this case a colorful marker of autumn protected by a ring of white stones.*

BEST PRACTICE INDICATOR #13

There are opportunities for gardening (vegetables, herbs, fruit, flowers), including snacking and flower picking?

TODDLER-TWOS

Toddlers engaged in gardening helps them acclimate to the sensory properties of soil, helping children understand that food comes from seeds planted in the earth. Gardening reinforces curiosity about fresh fruit and vegetables, and sparks enthusiasm for flowers, all prior to preschool gardening. Basic experiences for toddlers can be achieved using containers located in full sun with regular irrigation. Sunny locations can also support cool season gardening. If toddlers are engaged in the complete hands-on gardening cycle, from exploring seeds to eating the results, they will arrive in preschool with enthusiasm and understanding for a more extensive fruit and vegetable gardening programs that support learning healthy eating habits early in life.

2.56 *Investigating life in a raised bed of mixed vegetables and flowers.*

2.57 *Examining seeds – first step in engaging curious toddlers in gardening.*

Further information:

- NLI Green Desk–Edibles (tagged posts).
- NLI InfoSheet–Fruit and Vegetable Gardens.
- NLI InfoSheet–Growing Edibles in Containers.

BEST PRACTICE INDICATORS AS INCREMENTAL DEVELOPMENT GUIDE

In addition to assessing outdoor quality, BPIs can guide those involved in the five-step site development process:

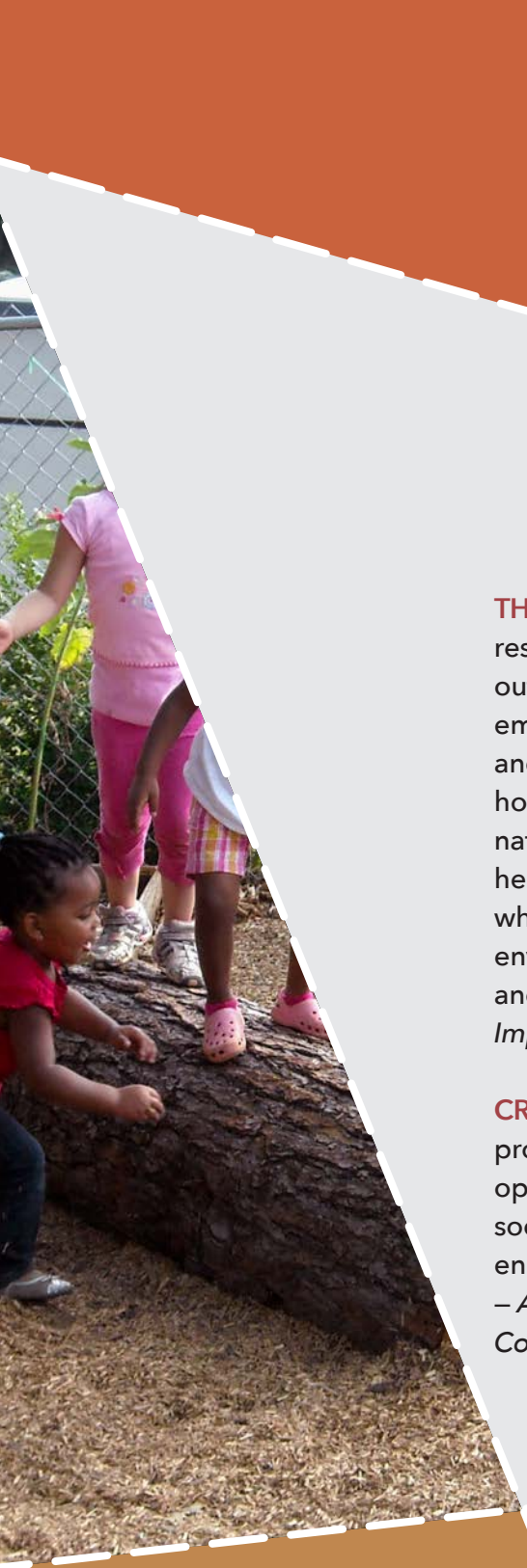
1. Engaging the community in developing a master plan.

2. Improving site layout by installing primary pathways, repositioning fence lines, relocating fixed equipment items, etc.

3. Increasing diversity of play and learning opportunities by adding settings and components.

4. Naturalizing the space by planting trees, shrubs, ground covers, vines, and hardy flowering perennials.

5. Establishing an ongoing management process (see Chapter 3: Managing Incremental Development).



THE NATURAL LEARNING INITIATIVE contributes evidence-based resources that promote getting children outside into naturalized outdoor play and learning environments. We have seen how the embodied messages help connect children to nature, to one another, and motivate learning through play and exploration. We've observed how children love nature and begin to appreciate and care for the natural world. They become encouraged to try new foods they have helped grow in their garden. A sense of wellbeing permeates the whole site as it becomes naturalized. Outdoor play and learning environments with nature engage and benefit all children, families and staff. – *Angela Lewis and Courtney Latta-Sosebee Shape NC Implementation Coaches.*

CREATING OUTDOOR LEARNING ENVIRONMENTS in childcare programs has been transformative for children and early educators and opens a wider canvas of learning. The dynamics of imaginative play, social and emotional development, and problem-solving opportunities enhance peer play and develop deeper teacher and child interactions. – *Andee Edelson, Director of Early Care and Education, Randolph County Partnership for Children.*