

A New Way To Play: Shaping a New Environment for the New York Hall of Science's Youngest Visitors

by Joan Krevlin

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More than just a place for play, New York Hall of Science **Preschool Playground** is where children discover the environment, and learn principles of science through sensory exploration. The Preschool Playground is an addition to the existing **Kidpower!** Playground at the Hall of Science, designed in 1997. Totalling 60,000 square feet, the playgrounds are the largest of their kind in the United States.

Background

The New York Hall of Science (NYHOS) is a hands-on science and technology center, and features over 400 exhibits, both indoor and outdoor, that offer creative, participatory ways to learn. The exhibitions inspire a true “sense of wonder”—a legacy of the museum’s founding during the 1964 World’s Fair. Over the years, educators have revised their thinking on how children learn about science, particularly in early childhood. Current research has shown that even before their fifth birthday, children can benefit from beginning to develop thinking skills and ways of observing that prepare them for further science learning in school. The development of these skills is crucial to success, both in school and in life.

The **Preschool Playground** was conceived and created in response to increased attendance at the New York Hall of Science and a change in the demographics of their visitors, mostly families from New York City and the tri-state area. In the mid-90s, children under age six represented 25% of the children visiting the Hall with their families. By the end of the 90s, they represented 50% of those children. It was apparent that there was a need for programs and spaces at NYHOS that would engage young children and support their learning experiences.

BSKS Architects had developed the **Kidpower!** science playground at NYHOS for older children, ages 6-14, in 1997. The design was inspired by past Director Alan Friedman’s visits to exploratory science playgrounds in India. Though the content at the India playgrounds was strong, the exhibits were presented in an undifferentiated landscape, without any particular relationship to each other or their site. As architects, we sought to improve upon this model by creating a strong sense of place that allowed the overall experience of the Hall of Science playground to reinforce the exhibit content. We did this by designing a continuous steel armature that supported exhibits on two levels and connected the playground to the surrounding buildings and the exhibits to each other. The man-made materials recall the 1939 and 1964 World’s Fair vision of a technical society.

In partnership with Lee Weintraub Landscape Architecture, we began work on the NYHOS **Preschool Playground** expansion in 2000. By this time, there was a growing need to accommodate families with young children. At first, younger children were restricted from using the **Kidpower!** playground due to safety concerns. After a number of modifications, children under age six were allowed to use the existing playground, but the exhibits remained developmentally inappropriate and the level of activity was often overwhelming. An age-appropriate design was needed.

The expanded site for the new **Preschool Playground**, to the south of the NYHOS complex and bordering on Flushing Meadows Corona Park, inspired the design concept. In contrast to the existing **Kidpower!** playground, this environment for young children would utilize the landscape as an organizing element.

Many of the educators involved with the project also knew from their research and observation that the natural world provided a rich source of experiences for young children.

The notion of an “exhibit” is different for preschoolers than for older children. To them, the world is an exhibit. This is the lesson of the beach, the backyard, a dripping spigot, a set of steps. To a young child, the box is sometimes better than the toy inside, because it provides an opportunity for imaginative play. We thought of a child freely exploring his/her own back yard, and this type of intuitive play provided a foundation for the design. Our intention as designers was to provide basic tools to shape exploration and an open environment that encourages a child’s natural curiosity.

In an era of increasing ecological awareness, it was also important to provide play space where young visitors could connect with the landscape. Because children are physically close to the ground, the varying terrain and surfaces become key design elements. Plantings extend the range of sensory stimulation, changing throughout the seasons and providing a varying palette of colors and scents. Colorful architectural interventions set in the transforming landscape offer opportunities for interaction with the built and natural world. We sought to create a wealth of environments for self-directed play instead of dictating how or in what way a space or exhibit should be utilized.

The planning process

A pre-preliminary study in 2001 (unpublished) developed in conjunction with the New York Hall of Science and the New York City Department of Design and Construction



Overview of the New York Hall of Science Playgrounds Courtesy of Jeff Goldberg/Esto.

outlined the design goals for the Playground expansion. We sought to encourage full-body play and sensory experiences through the creation of shelter, water, light, materials and music, integrated within the landscape.

The study also identified challenges in relation to the existing playground, notably creating a distinct design and sense of place for the **Preschool Playground** that still related to the existing Playground. The Playground needed to be accessible to all age groups and ability levels, but tailored to the learning styles of preschoolers. For example, In Flushing, Queens, where the Playground is located, over 140 languages are spoken. To best serve this culturally diverse population, the Playground exhibits were designed to be self-explanatory and relevant to all cultures. The environment is a unifying element significant to all cultures, so we grounded our design and learning goals in this context, and sought to foster a new group of young “environmental citizens” through their engagement with the exhibits.

In 2004, an Early Childhood Symposium was held at NYHOS to review and evaluate new programming and projects underway. The expert participants provided both encouragement and useful counsel for the design and implementation of the **Preschool Playground**, and helped to shape the spaces to best serve the learning styles of young children. We discussed notions of open-ended play, and added loose play materials in the new playground that could be incorporated into

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The snake path runs through the landscape of rolling hills. Adjacent paths are oriented along the main path and provide a backdrop for seasonal plantings. Courtesy of Jeff Goldberg/Esto.

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new educational programs, such as brushes for water painting in the fountain. Concerns were also raised regarding visibility for caretakers in a decentralized outdoor environment.

Playground Walkthrough

The first design decision was to create a series of hills and valleys on the primarily-level site. The distinct places created by a rolling landscape allow for a range of different experiences, and the introduction of plantings extends the range of sensory stimulation. The same plantings would create a natural boundary between the two playgrounds, creating a sense of separation but not a true barrier.

A meandering path, textured with inset stone chevrons to recall the skin of a winding snake, runs through the valley and between the low, landscaped hills. Working closely with Lee Weintraub, Landscape Design, we layered in a swath of deciduous trees with a varied undergrowth, grassy hills for rolling and cloud watching, and a band of pine trees, with a fog system tucked into the trees to create an enchanted forest. The planted zones add seasonal texture and color, scent, and a welcome environment for birds and butterflies. Wind chimes and bird houses dot the landscape.

In contrast to the lush natural environment, vertical white walls made of structural steel pilings are set perpendicular to the path,

channeling activities into distinct areas and encouraging discovery. These paths visually connect the **Preschool Playground** to the geometric forms of the existing **Kidpower!** playground. The paths along the walls lead to smaller, more focused environments that contrast with the stimulating atmosphere of more open areas. These paths are thematically organized, inviting different types of exploration as follows:

The Bridge Path

The first path connects two hills, bridging over the snake path and rising to allow for expansive views over the park. At the summit, wind socks capture the breezes and a prism viewer playfully fragments the landscape. A grassy hill invites children to roll down, sit, or cloud watch. At one end, a timber climb allows children to clamber to the top, or to follow the gentle ramp of the snake path through the conifer forest. It is a path that encourages movement, and rewards with varying vantage points.



Children explore the snake path and timber climb set in the evergreens. Courtesy of Jeff Goldberg/Esto.

The Shelter Path

Along the Shelter Path, a series of enclosures dot the landscape, recalling whimsical architectural follies once popular in picturesque English gardens. Each sheltering space highlights the nature of closure, shelter, and structure. The Sunshade House, In/Out House and Peek-A-Boo Playhouse allow for role-playing while teaching fundamental concepts of environmental design. The giant Rabbit Hole and Interactive Nest evoke animal shelters, designed to be experienced at a child's scale.

The Sand Path

Sand boxes, sand conveyors and a Mushroom Water Pump allow children to become builders in an environment where natural materials can change shape and consistency. By 'messaging about' in collaboration with other children to modify and create sand forms, the exhibit provides an understanding of material properties and their effects. They experiment with pulleys, lever arms, and gravity. Children want to be useful, and this type of 'work' enhances their engagement and satisfaction greatly.

The Mirror Path

Brightly colored glass and mirrors reflect the landscape, enhancing and mixing colors and encouraging children to re-imagine their environment. Exhibit components include the Blue Sky House, colored glass partitions and curved mirror walls, which change as the children move and crawl through the sculpture-like structures.



Children discover shelter in the landscape, including a habitable birds' nest. Courtesy of Jeff Goldberg/Esto.



The mirror path features colored lenses and curved mirrors which transform the appearance of the landscape. Courtesy of Jeff Goldberg/Esto.

Music and Water Path

The Music Path, featuring African, Asian and Caribbean drums, celebrates the creation of music in nature. Along the Water Path an embedded mechanism creates a misty fog, shrouding the trail in mystery and cooling visitors on hot summer days. At the end of the path, an interactive pumping station powers water through a spiral-shaped fountain

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course, teaching principles of pressure flow, and gravity. Brushes are provided so that children can dabble and design with the water on the fountain surfaces.

As we recognized at the symposium, a key challenge was designing for parents and caregivers as well as children. At a young age the engagement of parents is necessary for children to feel safe and comfortable. Instead of being concentrated in a single location, seating areas are provided throughout the playground, and there are clear vantage points. The entire site is fenced, with a single entrance/exit that leads back to the hall. Crowding is also an issue for young children. Timed admission tickets are used to ensure that the calm, intimate atmosphere of the playground is preserved. “Explainers,” trained staff that assist children in their play, encourage social interaction, provide training opportunities for adults, and are key facilitators for special needs visitors.

Following the opening of the **Preschool Playground**, NYHOS staff from the Visitor Services, Explainer (Education), Exhibit, and Facility Departments met each morning to address operational issues. Some changes were made, including the addition of a portable changing station and rest room. Additional supervision was added to enforce a “clothing on” policy, necessary due to the popularity of the water elements during hot summer days. There was initial concern that the grass turf on the “rolling hill” would wear with use; however the plantings held up well. Staff anticipated disturbances from older children in the new **Preschool Playground**. However as they wandered into the new space, they wouldn’t stay long as they became aware that it was designed for younger children. Design features, such as the low bridges and rolling hills seemed to deter the involvement of older children.

The ultimate goal of the project was to create an environment that would function as an ‘outdoor classroom’ for the youngest visitors to the New York Hall of Science. The design of the playground, developed in close collaboration with the client, not only suits the institution’s programming, but supports learning and discovery in the natural landscape. We look to this project as a touchstone for the future of play spaces, especially in urban areas. Playgrounds are often where city children first connect with the environment, and learn from the environment. And for young children, learning from the natural world is really just a fun way to play. ☀



The music and water path ends in a circular fountain, ringed with drums to accompany play in the water and mist. Courtesy of Jeff Goldberg/Esto.