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Creating Learning Environments Inspired by Nature

by Cynthia Merse | Jun 26, 2018



Bringing the Outdoors in with Biophilic Design – Mounting research suggests that spending time in the outdoors provides a wide range of benefits. For children in particular, access to nature is **associated with** improvements to mental health and cognition, longer attention spans, stress reduction, and higher tests scores. More and more, school leaders and educators are recognizing this important connection and are making strides to incorporate green design in their buildings and sustainability literacy in their classrooms. Some are taking this idea a step further, creating spaces that are not just “green” but inspired by elements found in nature.

In 1984, author E.O. Wilson popularized the term “biophilia” with the publication of his seminal book of the same name. With roots in ancient Greek (“bios” meaning life, “philia” meaning love), biophilia roughly translates to a “love of living things” and is used to describe human’s affinity for nature. More recently, the term has inspired a revolutionary form of design, biophilic design, which essentially involves weaving natural elements and/or materials into the built environment. **According** to the late Yale professor Stephen Kellert, biophilic design has “the potential to transform children’s schools.”

Research backs up Kellert’s assertion, especially when it comes to academic performance. A study by the Heschong Mahone Group, cited in **Learning Spaces**, found students in classrooms with ample daylight improved their math and reading scores by 20% and 26%, respectively. Daylighting was **also shown** to improve school attendance by an average of 3.5 days per year. **Another study** found that plants in classrooms led to improvements of between 10-14% in spelling, math, and science. The benefits of biophilic design go beyond better test scores. In 2009, **a study conducted** at a school in Austria found that classrooms incorporating natural materials (in this case, flooring, ceiling, and cupboards made from wood) slowed students’ heart rates, easing stress.

There are many ways to incorporate biophilic design in a school building. Providing and/or increasing views to nature, maximizing natural daylight, and adding greenery to a school’s indoor décor are some of the more obvious options. But biophilic design is all about thinking outside the box to bring the outdoors in. Imagine living walls covered with edible and non-edible plants, smart energy and solar power hubs that resemble flowers and mushrooms, and indoor/outdoor spaces that appear to seamlessly blur the lines between these two environments. These design elements are all being used by K-12 schools. Then, there’s the use of natural elements and materials, like wood, stone, bamboo, and bricks, to create indoor and outdoor spaces. Taken a step further, biophilic design makes use of symmetry and patterns found in nature to introduce beauty and interest into these spaces while inspiring curiosity and creativity in learners of all ages.

One school that is putting biophilic design principles to good use is **Hazel Wolf K-8 STEM School**, which is part of Seattle Public Schools. With a rigorous academic program focused on environmental science, the school includes numerous natural features that bolster the school’s green design and serve as learning tools for its students. Some of **these features** include living walls, which students use to conduct investigations; a rain garden and learning

courtyard; extensive use of clear glass to give students abundant views of their school's natural surroundings; and topographic landscape elements, like grassy slopes, that serve as natural playground structures.

Incorporating biophilic design into school buildings is easier when you're starting from scratch. Yet, it's possible to create nature-inspired learning environments on a shoestring budget too. Consider implementing some of these ideas in your indoor and outdoor classrooms this coming school year. Additional ideas can be found [here](#) and [here](#):

- Add natural materials and/or elements, like tree cookies, straw bales, stones, sticks, mud pits, or sand boxes, to outdoor classrooms and playgrounds.
- Build houses or baths for birds or bees to get students engaging with and caring for living creatures. Bonus: If you can, position these structures outside your classroom window so students can make observations throughout the day.
- No room or budget for a school garden? Try raising hardy plants, flowers, and/or herbs in windowsill planter boxes.
- Have students create artwork based on local plants and animals, using a variety of natural materials and textures, to decorate classroom walls.
- Go beyond potted plants by creating a classroom terrarium, or mini-ecosystem, ideally based on things found in your local ecosystem.

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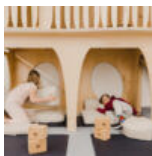
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