

# NATURE CAN IMPROVE ACADEMIC OUTCOMES

Spending time in nature enhances educational outcomes by improving children's academic performance, focus, behavior and love of learning.

## BETTER ACADEMIC PERFORMANCE

Learning in natural environments can:



**BOOST PERFORMANCE**  
in reading, writing, math, science and social studies  
1, 2, 3, 4, 5



**ENHANCE**  
creativity, critical thinking and problem solving<sup>9</sup>

Seeing nature from school buildings can foster academic success<sup>6, 7, 8</sup>

## ENHANCED ATTENTION

Spending time in nature can help children focus their attention:



**FOCUS AND ATTENTION**  
10, 11, 12, 13



**ADHD SYMPTOMS**  
14, 15

The greener the setting, the better the focus<sup>14, 15</sup>

## INCREASED ENGAGEMENT & ENTHUSIASM

Exploration and discovery through outdoor experiences can promote motivation to learn:



**INCREASED ENTHUSIASM FOR LEARNING**  
1, 16



**GREATER ENGAGEMENT WITH LEARNING**<sup>17</sup>



**MORE IMPULSE CONTROL**<sup>10</sup>



**LESS DISRUPTIVE BEHAVIOR**  
20

Nature-based learning is associated with reduced aggression and fewer discipline problems:<sup>18, 19</sup>

### SUPPORTING RESEARCH

<sup>1</sup>Lieberman & Hoody (1998). Closing the achievement gap: Using the environment as an integrating context for learning. Results of a Nationwide Study. *San Diego: SEER.* <sup>2</sup>Chawla (2015). Benefits of nature contact for children. *J Plan Lit*, 30(4), 433-452. <sup>3</sup>Berezowitz et al. (2015). School gardens enhance academic performance and dietary outcomes in children. *J School Health*, 85(8), 508-518. <sup>4</sup>Williams & Dixon (2012). Impact of garden-based learning on academic outcomes in schools: Synthesis of research between 1990 and 2010. *Rev Educ Res*, 83(2), 211-235. <sup>5</sup>Wells et al. (2015). The effects of school gardens on children's science knowledge: A randomized controlled trial of low-income elementary schools. *Int J Sci Edu*, 37(17), 2858-2878. <sup>6</sup>Li & Sullivan (2016). Impact of views to school landscapes on recovery from stress and mental fatigue. *Landscape Urban Plan*, 148, 149-158. <sup>7</sup>Wu et al. (2014). Linking student performance in Massachusetts elementary schools with the "greenness" of school surroundings using remote sensing. *PLoS ONE* 9(10): e108548. <sup>8</sup>Matsuoka, R. H. 2010. Student performance and high school landscapes. *Landscape and Urban Planning* 97 (4), 273-282. <sup>9</sup>Moore & Wong (1997). *Natural Learning: Rediscovering Nature's Way of Teaching*. Berkeley, CA: MIG Communications. <sup>10</sup>Faber Taylor et al. (2002). Views of nature and self-discipline: Evidence from inner-city children. *J Environ Psy*, 22, 49-63. <sup>11</sup>Mårtensson et al. (2009). Outdoor environmental assessment of attention promoting settings for preschool children. *Health Place*, 15(4), 1149-1157. <sup>12</sup>Wells (2000). At home with nature effects of "greenness" on children's cognitive functioning. *Environ Behav*, 32(6), 775-795. <sup>13</sup>Berto et al. (2015). How does psychological restoration work in children? An exploratory study. *J Child Adolesc Behav* 3(3). <sup>14</sup>Faber Taylor et al. (2001). Coping with ADD: The surprising connection to green play settings. *Environ Behav*, 33(1), 54-77. <sup>15</sup>Amoly et al. (2014). Green and blue spaces and behavioral development in Barcelona schoolchildren: The BREATHE Project. *Environ Health Perspect*, 122,1351-1358. <sup>16</sup>Blair (2009) The child in the garden: An evaluative review of the benefits of school gardening. *J Environ Educ*, 40(2), 15-38. <sup>17</sup>Rios & Brewer (2014). Outdoor education and science achievement. *Appl Environ Educ Commun*, 13(4), 234-240. <sup>18</sup>Bell & Dymont (2008). Grounds for health: The intersection of green school grounds and health-promoting schools. *Environ Educ Res*, 14(1), 77-90. <sup>19</sup>Nedovic & Morrissey (2013). Calm, active and focused: Children's responses to an organic outdoor learning environment. *Learn Environ Res*, 16(2), 281-295. <sup>20</sup>Ruiz-Gallardo & Valdés (2013). Garden-based learning: An experience with "at risk" secondary education students. *J Environ Educ*, 44(4), 252-270.