

# The NATURE BUS



## The Benefits of Outdoor & Community-Based Learning

### *Research Foundations Supporting The Nature Bus Microschool Approach*

At The Nature Bus Microschool, outdoor learning and community exploration are not breaks from academics - they are the foundation of how young children learn best.

Decades of peer-reviewed research summarized by the world's leading research database, the Children & Nature Network (C&NN), reveal that children learn more deeply, regulate their emotions more effectively, and stay engaged longer when learning is active, outdoors, and connected to real life.<sup>1</sup>

This research guides both the structural model of our program and the daily learning experiences children have with us at The Nature Bus Microschool.

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### **Outdoor Learning Is a Growing, Research-Backed Movement**

Outdoor and nature-based learning programs are a growing worldwide movement, as educators respond to research showing that children thrive academically, socially, and physically when learning outdoors. These nature-based schools are appearing across the United States, Virginia, and right here in the Charlottesville area.

Research compiled by the Children & Nature Network shows that:

- The number of nature preschools in the United States has more than tripled since the early 2010s, reflecting growing family demand for developmentally supportive learning environments.<sup>9</sup>
- Nature-connected education is widely used across Europe and the U.K., where outdoor learning is often part of mainstream schooling rather than an alternative.<sup>10</sup>



- International research reflects increasing global interest in outdoor and community-based learning, particularly in the early years.<sup>11</sup>
- Children themselves consistently report wanting more time outdoors, even as access during the school day continues to shrink.<sup>12</sup>

More and more families are seeking the type of research-based education their children deserve. Families are looking for schools that support strong academics, emotional well-being, physical health, and a genuine love of learning. Outdoor education continues to grow because it meets these needs in meaningful, lasting ways.

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## **Outdoor Learning Is Essential for Your Child**

Young children are wired to learn through movement, sensory input, and hands-on exploration - not prolonged sitting.<sup>2</sup> When learning feels meaningful and engaging, children retain information more effectively and develop stronger academic foundations.

At The Nature Bus Microschool, core academics including reading, writing, and math happen outdoors whenever possible. Children:

- Keep nature journals for writing and observation
- Use Montessori math materials outside
- Work with letters or numbers embedded in the natural environment
- Practice counting, measuring, and patterning with natural materials when available and appropriate

Outdoor learning naturally supports:

- Real contexts for academic skills
- Multi-sensory experiences that strengthen understanding<sup>3</sup>
- Physical movement that improves attention and executive function<sup>2</sup>

C&NN research consistently links learning in nature with improved focus, creativity, and academic outcomes, particularly in early childhood.<sup>14</sup>



## **Nature Supports Emotional Regulation and Well-Being**

Time in nature is strongly associated with reduced stress, improved mood, and stronger emotional regulation, especially when experiences are calm and predictable.<sup>15</sup>

At The Nature Bus Microschool, emotional regulation is supported through:

- Daily mindfulness and breathing practices
- Slow, observational nature walks
- A consistent daily rhythm
- Multiple daily transitions between focus and movement

Natural environments tend to be less overstimulating than indoor settings and support sustained attention and emotional balance.<sup>1</sup> Even brief, consistent time outdoors has been shown to lower stress and support children's mental health.<sup>6</sup>

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## **Nature Supports Children's Physical Health**

Outdoor learning also supports physical health in measurable ways.

A major Finnish research initiative found that regular exposure to biodiverse natural environments strengthens children's immune systems by supporting healthy microbial diversity. Children who played frequently in natural settings showed improved immune markers compared to peers in more sanitized environments.<sup>7</sup>

Because children at The Nature Bus Microschool spend most of their school day outdoors, they benefit from:

- Daily physical movement
- Natural light (vitamin D) and fresh air
- Varied terrain that builds strength, balance, and coordination
- Healthy microbial exposure that supports immune development

Hiking, walking, climbing, and exploration replace competitive physical education with movement that is cooperative, inclusive, and developmentally appropriate.



## **Nature Fosters Environmental Stewardship**

Children care about what they know. Daily time spent in nature strengthens children's connection to their environment.

Research summarized by C&NN shows that early, positive experiences in nature are strongly linked to environmentally responsible attitudes later in life.<sup>1</sup> Stewardship grows when children form real relationships with places over time.

At The Nature Bus Microschool, this happens through:

- Daily nature hikes and ongoing observation of familiar plants, animals, and seasonal changes
- Spending the school day learning outdoors whenever weather allows
- Integrated afternoon project work rooted in nature and place
- Repeated visits to meaningful natural and community spaces

On Wandering Wednesdays, children return to farms, parks, libraries, waterways, and community sites—places they begin to recognize, understand, and care about deeply.

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## **Why This Matters Now: Screen Time Has Replaced Outdoor Play**

By age eight, the average child has spent the equivalent of nearly one full year in front of screens.<sup>3</sup> At the same time, outdoor play and physical movement have declined sharply.

At The Nature Bus Microschool:

- Learning is intentionally screen-free
- Children write with pencil and paper
- Materials are tactile, concrete, and real

Research shows that handwriting, physical materials, and real-world experiences support deeper comprehension and memory than screen-based learning alone.<sup>2</sup>



## Community-Based Learning Strengthens Memory and Understanding

Children learn best when knowledge is connected to real people and real places.<sup>2</sup> Because The Nature Bus Microschool is mobile, children learn across forests, farms, trails, libraries, and community spaces. Research summarized by C&NN shows that:

- Novel environments strengthen memory formation<sup>13</sup>
- Varied learning locations sustain curiosity and engagement<sup>13</sup>
- Applying skills across contexts improves long-term understanding<sup>14</sup>

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## Reconnecting Children With the World They're Growing Into

Richard Louv, the world's leading expert on the child–nature connection, describes a growing separation between children and the natural world and links this disconnect to emotional and behavioral challenges.<sup>12</sup> He argues that meaningful time in nature supports confidence, balance, and connection.

At The Nature Bus Microschool, children don't prepare for the world someday—they grow up as part of it.

This is not education as confinement.

It is education as belonging.



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