



# THRIVING THROUGH NATURE

*Fostering Children's Executive Function Skills*



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*“Giving children the chance to play outside has myriad benefits, from physical activity to creativity, emotional health, social connectedness, and cognitive development, including the specific executive function skills that are so critical to a happy, healthy childhood and a fulfilling life.”*



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### INTRODUCTION

One of the keys to a happy and successful life is the development of what is referred to as executive function skills. Those skills include the ability to reason, plan, remember, use self-control and solve problems. When combined with a secure attachment with caregivers, the development of executive function skills creates a foundation that nurtures children's life-long well-being. Both the development of secure attachment and the development of executive function skills can be enhanced through nature-based experiences for children. *Together in Nature: Pathways to a Stronger, Closer Family* (Children & Nature Network, 2012) provides insights and activities for developing secure child-caregiver attachment along with other benefits associated with family bonding. This document is a companion publication.

Intended to be of broad interest to adults responsible for the care of children—including parents, grandparents, teachers, educators, social workers and nature advocates—*Thriving Through Nature* describes why the development of executive function skills is important and how experiences in nature can play a critical and positive role in this process. Research on the relationship between time in nature and executive function is presented, with a focus on cognitive benefits as well as the specific effects of physical activity and unstructured play on executive function development. Varied nature-based activities are offered as examples of ways to foster executive function throughout childhood developmental phases. Apply these ideas in the lives of children you know, and everyone will benefit.

### WHAT IS EXECUTIVE FUNCTION?

The term **executive function** is generally agreed to refer to an inter-related set of mental processes that allow people to retain and work with information, focus attention, filter out distractions, problem solve, and shift mental gears. Three primary dimensions of executive function are widely understood to be **working memory**, **self-control**, and **mental flexibility**. Housed primarily in the prefrontal cortex, these brain functions are highly interrelated—operating in coordination with one another for successful achievement of the executive skills required in a given situation.

**Working memory** is the ability to briefly hold information in mind for the purpose of completing a task.

**Self-control and inhibition** is the ability to stop thoughts and actions at the appropriate time, set priorities, and generally have a considered response rather than giving in to impulses.

**Mental flexibility** is the ability to respond appropriately to changing situations and apply different rules in different settings.

These three executive functions are generally accepted as the foundation for additional skills such as:

**Emotional control**—The ability to use rational thought to modulate emotional responses.

**Initiation**—The ability to engage in a new activity as well to develop new ideas.

**Planning**—The ability to manage current as well as future-oriented demands.

**Organization**—The ability to create a functional order in physical spaces.

**Self-Monitoring**—The ability to understand whether one's performance meets given needs.

Together, executive function skills are prerequisites for successful outcomes in most facets of life—from personal relationships to emotional and physical health, from success in school to fulfilling careers.



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### WHY DOES EXECUTIVE FUNCTION MATTER?

#### **Children begin to develop executive function skills at home.**

People are not born with higher level cognitive abilities such as executive function. However, healthy infants are born with the capacity to develop these skills. Parents and other caregivers play an essential role in helping children develop executive function from early childhood through adolescence.

#### **Learning is grounded in strong executive function skills.**

Executive function skills have been referred to as the biological foundation for school readiness. Several studies have demonstrated that well-developed executive function skills in the early years are a better predictor of academic success than fluency with letters and numbers or IQ. Throughout the school years, children who have stronger working memory, self-control, and mental flexibility make greater academic progress than their peers. Conversely, studies indicate that children lacking these skills tend to have more challenges in classroom settings.

#### **Executive function skills provide a foundation for life-long success and well-being.**

The skills that cohere into mature executive function are used to successfully navigate family, school, and work settings for our entire lives. Being able to retain and use information, filter thoughts and impulses, focus on tasks, recognize errors, adjust to changes, and understand how different settings may call for different rules are all skills that impact the way we take care of ourselves, our family and community, and school, work, and civic responsibilities.

#### **Understanding executive function offers a fuller understanding of child needs.**

Children who struggle with skills like using self-control, being able to focus, and following rules often receive negative labels, are given disciplinary action, and may be medicated to mitigate these issues. By understanding the concepts behind executive function, parents and educators can come to understand that a child may not actually have a medical or psychological problem, but rather he or she may be in need of help in developing these important and useful executive function skills.

#### **There are significant costs to poor executive function.**

Poor executive function skills are associated with mental and social health problems as well as economic costs. Many mental health disorders, such as attention-deficit hyperactivity disorder (ADHD), depression, and addiction include executive function deficits. The incidence of medicating children for what are, at least in part, poor inhibitory and attentional skills has increased dramatically in the past several decades. Poor executive function skills are also associated with problems such as student dropout, drug use, and crime with all their related personal, social, and economic costs.



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### THE DEVELOPMENT OF EXECUTIVE FUNCTION

The process of developing executive function is an interplay between brain development and life experience. It begins in infancy, accelerates in early childhood, and continues into early adulthood.

- **The years from zero to five are critical.** While the brain continues to mature and develop connections well into adulthood, the brain circuits and associated skills that are developed in the earliest years of life provide a critical foundation.
- **Secure attachment is fundamental.** Cognitive development is closely intertwined with emotional and social development. Therefore consistently responsive, positive interactions between children and their adult caregivers are essential for building healthy brains.
- **Executive function skills mature at different stages** and at different rates with some abilities reaching their developmental peak in late childhood or adolescence while others mature in early adulthood.

When looking across the body of research on fostering the development of executive function skills, important themes and lessons emerge:

- With knowledge and support, executive functions can be improved by parents and teachers without the need for special tools or equipment.
- Physical activity has a clear and positive effect on cognitive development and executive function.
- The opportunity for free play is an important part of childhood and is important for healthy brain development and executive function skills.
- The more time children spend in less structured activities, the better their self-directed executive function, even when controlling for age, verbal ability, and household income. Conversely, more time in structured activities predicts poorer self-directed executive function.
- Successful executive function programs capture children's interests and tend to reduce stress, foster social bonding, and cultivate joy, pride, and self-confidence.
- Programs that address more executive function components yield wider gains in executive function.
- Access to nature has meaningful, positive impacts on cognitive function, and nature-based activities that afford the opportunity for active, free play are particularly beneficial.

Such research findings demonstrate that less-structured time, such as that often afforded by time in nature, may “uniquely support the development of self-directed control by affording children with additional practice in carrying out goal-directed actions using internal cues and reminders” (Barker *et al.*, 2014).



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### NATURE-BASED ACTIVITIES SUPPORTING CHILDREN'S EXECUTIVE FUNCTION

Social scientists interested in child-nature relationships, such as Stephen Kellert (2012) and David Sobel (2008), have developed an understanding of how children at different ages respond to and interact with nature, which has important implications for what nature-based activities are most likely to enhance the development of children's executive function skills and are most appropriate at different ages. Infancy and toddlerhood are stages in which secure interpersonal attachment sets a strong foundation for the ability to create meaningful connections during future developmental stages. From this secure foundation, early childhood (3-6), middle childhood (7-12), and adolescence (13-18) can be particularly formative for children's connection with nature. According to Sobel (2008), early childhood activities that foster a connection with the natural world should center on enhancing the developmental tendency toward **empathy** with nature, in middle childhood **exploration** should take precedence, and in adolescence **social action** should assume a more central role.

Through decades of research, Sobel (2008) has also found that, regardless of socioeconomic status, ethnicity, or ecosystem, children play in similar ways when they have free time in nature. The seven common play motifs he has identified are: 1) making forts and special places; 2) playing hunting and gathering games; 3) shaping small worlds; 4) developing friendships with animals; 5) constructing adventures; 6) creating fantasies; and 7) following paths and figuring out shortcuts. Sobel believes that there are evolutionary reasons why children consistently pursue these activities, and encourages their consideration when activities are designed to foster connections with nature and child development. These play motifs run through all major developmental periods: infancy and toddlerhood, early childhood, middle childhood, and adolescence.

We have integrated these concepts with the Harvard University Center on the Developing Child's (2011) recommendations on how to develop children's executive function skills to suggest nature-based activities that will enhance cognitive development. We have differentiated early childhood into infancy, toddlerhood and early childhood, followed by middle childhood and early adolescence. For each age group, we provide information about the physical, emotional, and cognitive milestones that inform our suggestions for nature-based activities to help develop executive function skills. Although studies have not necessarily been done to prove the effectiveness of each specific activity, all include elements that have been demonstrated to help children develop, practice, and enhance their executive function skills. Prepared for the weather, learning, fun, and family bonding in nature can be year-round activities.



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### Infancy – Birth to 18 months

Children rapidly achieve numerous developmental milestones during their infancy, beginning with vitally important interactions with their primary caregivers who provide nourishment, comfort and stimulation. Bonding occurs, positive and secure attachments to one or more caregivers are hopefully developed, and life is filled with nearly constant learning. Infants learn how to turn towards caregivers' voices, roll over, smile, vocalize and laugh, sit and crawl, pick up small objects, recognize their own names, and begin to string sounds together. During the first six months of life infants learn from their interactions with people and their environment, initially through their senses of touching and being touched, seeing and hearing. As infants begin to have increasing mobility in the period between six and eighteen months, they develop an intense interest in their rapidly expanding surroundings and begin to more actively experience and explore the world around them. Infants quickly learn the extent to which they can trust others, their environments, their senses, and what they know. The presence of loving caregivers who balance being consistently available to provide needed security and reassurance while also creating safe space for free exploration is very important (Lillard, 2005). During this phase of development, infants are also actively developing their core executive function skills, with basic self-control and working memory showing as early as six months old (Anderson, 2002). For parents and other care providers of infants, nurturing a strong personal connection and fostering executive function skills can occur while engaging them in everyday activities and traditional baby games, at times in the outdoors.

The following activities encourage infants to focus attention, use working memory, and practice basic self-control skills. The benefits of these activities can be enhanced by doing them outdoors where additional positive stimuli may occur and a sense of beauty, peace and wonder can be associated with the play.

- **Lap games** are predictable, include basic rules that guide behavior, and incorporate repetition, which helps infants remember and manage their own behavior to fit the games' rules. Hide-and-find games like peekaboo or rhyming games like pat-a-cake exercise working memory and offer an opportunity for the child to practice basic self-control skills. Fingerplays such as the Eensy Weensy Spider are loved for their simple songs and hand motions and help children develop self-control, working memory, and language.
- **Hiding games** are a great way to challenge working memory. Set up a "natural nursery" outside by spreading out a blanket and letting the baby discover elements of interest such as birds, shadows, and items on the ground. Select an object, such as a leaf, hide it, and encourage your baby to look for it. Older babies may enjoy hiding themselves and listening to you loudly search for them, mentally tracking your location and exercising self-control.
- **Imitation and copying games** are loved by infants and have the added benefit of encouraging them to track your actions, wait their turn, and then mimic your behavior—all of which build attention, working memory, and self-control skills. Adults can make animal movements or sounds for the child to copy, use natural materials to build simple structures to knock down and rebuild, and demonstrate ways to play with "loose parts" as symbols for other objects—for example, pretending a leaf is a bird.
- **Sensory experiences** offer enjoyable, ever-changing opportunities to practice working memory and attention. Take the baby on a walk outside and help her or him to touch pieces of nature (tree bark, grass, stones, water). Talk about what they are and what they feel like (rough, bendable, smooth, cold) and enjoy the opportunity for shared attention.

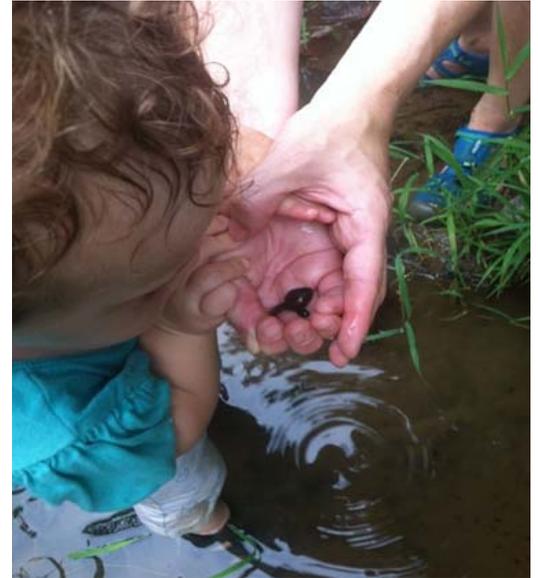


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### Toddlerhood - 18 to 36 months

As babies mature into toddlerhood, they reach a number of significant physical, cognitive, and emotional milestones. For example, they gain abilities to walk backwards, climb down stairs with a helping hand, run, build towers of blocks, use numerous words including their own names, and achieve toilet use. The expansion of sense-based exploration as the child becomes more mobile, combined with the continued provision of an appropriate and secure environment, are essential elements of this time period. In toddlerhood, children begin to engage in greater exploration of their immediate environment, which is usually supervised interaction in the home (or childcare facility), yard, or other secure play spaces. A parent's watchful responsiveness creates a safe and predictable space from which a child can begin to reach out and investigate the world. A positive emotional foundation enables children to explore the world with confidence. During toddlerhood children's thought processes and language abilities are rapidly developing. Language plays an important role in the development of executive function, as it helps children formulate and express their thoughts and actions, reflect on them, make plans that they hold in mind and use, and understand and follow increasingly complex rules (Harvard, 2011). For parents and other caregivers of toddlers, nurturing a strong personal connection in the form of secure attachment and fostering executive function skills are an essential part of everyday life. One simple approach that helps significantly, and is easy, is following the child's lead in exploration. Children are natural scientists, experimenting to find out how the world works.



The following nature-based activities encourage toddlers to focus attention, use working memory, and practice basic self-control skills.

- **Active games** – Visit any body of water (puddle, stream, pond) and make a game of throwing materials (pebbles, sticks, leaves) into the water. Children will enjoy collecting different materials and noticing what happens when objects hit the water (pebbles make a splash and sink, leaves make no sound and float). This is a great opportunity for shared attention.
- **Imaginary / free play** – Invite children to move like different animals while on a walk. Bears walk slowly on all fours, cats stalk, rabbits hop, deer prance, etc. Encourage the children to come up with their own ideas for animals and demonstrate how each moves.
- **Matching / sorting games** – Young children love to collect things. Go outside and collect natural materials such as leaves, flowers, stones, sticks, seeds, etc. Spend time looking through the collection and talking about what they have found – are there matching leaves, do they have a lot of one kind of object, are there common colors? Special items can be brought indoors to make a display of natural wonders that they collect through the seasons.
- **Quiet games** – Create photo-illustrated stories about the child's outdoor activities and animal and nature interactions. Tell and re-tell the stories with the photos, repeating and enriching vocabulary and concepts, encouraging the child to anticipate and identify people, places, and things in the pictures.



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### Early Childhood - 3 to 6 years

Children continue to achieve numerous physical, cognitive, and emotional milestones during their early childhood years. For example, they become very physically adept, are capable of taking basic care of themselves (e.g., getting dressed, eating), are able to draw and write basic words, have a robust vocabulary, and are able to play more meaningfully and collaboratively with their peers. The most significant relationship during this stage is still with the nuclear family, and the child becomes more receptive to adult influence, often mimicking adult behavior (Lillard, 2005). In early childhood children begin to explore further into their immediate environments with greater autonomy, although much play is still within sight or earshot of home and caregivers. According to Sobel (2008), empathy between the child and the natural world should be a main objective during early childhood because this stage is characterized by a lack of differentiation between the self and the other. For example, children feel implicitly drawn to baby animals. Rather than encourage separateness, a sense of connectedness should be cultivated such that it can become the emotional foundation for the more abstract ecological concept that everything is connected to everything else. Children's core executive function skills develop quickly during these years, and related skills such as goal-directed behavior and planning begin to develop. However, preschool children are just beginning to develop an awareness of when and how to use particular skills in particular contexts. Younger children may need substantial support and supervision when learning about new activities, while older children can often be more independent. This is an important development stage to be aware of and adapt activities to the skills of each child, with a goal of helping children reduce their reliance on adult regulation (Harvard, 2011).

The following nature-based activities encourage preschoolers to focus attention, use working memory, and practice basic self-control skills.

- **Storytelling / Songs** - Encouraging relationships with animals, both real and imagined, is one of the best ways to foster empathy during early childhood (Sobel, 2008). Telling stories, singing songs, moving like animals, celebrating seasons, and fostering Rachel Carson's (1965) "sense of wonder" are great activities during this stage. Choose related books to share with children and also encourage them to tell you stories and make their own story books.
- **Movement** – Simply letting children free play in a natural area is great for development of executive function. Ideas to help children initiate physical play include inviting them to play hide and seek with the idea of camouflaging themselves in the environment or setting up an obstacle course path through which to travel that incorporates specific activities such as balancing. Child-led hikes build independence, decision-making, flexibility, and team work, all of which are part of the inter-related set of skills associated with executive function.
- **Imaginary play** – Invite children to create a house or habitat for fairies, elves, or another creature of their choosing. Encourage them to use sticks, rocks, and leaves to build structures and decorate them with flowers and other natural objects. Children can work together to build large structures for bears, dinosaurs, etc. This activity has few directions and helps children let their imagination and hands work together for a sustained period of time.
- **Quiet games** – Take a "listening walk" to different areas and stop and listen for a few seconds so you can compare and contrast the different sounds heard at the different places. Can the child identify each sound? Why are the sounds different at each location? Which are the same? This is also a good exercise in practicing just being quiet and listening, which can be a challenge for children and yields great benefits.



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### Middle Childhood - 7 to 12 years

During middle childhood growth becomes more stable and children become self-conscious as they become increasingly social. The ability of children to have logical thoughts and understand different scenarios greatly increases. Children are increasingly capable of learning, creating and accomplishing numerous new skills and acquiring new knowledge. In order to perceive the world in a structured, coherent way, children create an internal framework by incorporating a whole range of opinions and values, including more fully understanding the need for rules, and how rules help them navigate the world. Bonds with family continue to play a key role in children's social and emotional development, and relationships with peers increase in significance. It is also during this time that children's geographical ranges expand rapidly, and their focus shifts from the home to the "explorable landscape" (Sobel, 2008). "Play in nature, particularly during the critical period of middle childhood, appears to be an especially important time for developing the capacities for creativity, problem-solving, and emotional and intellectual development" (Kellert, 2002). Between the ages of seven and twelve, children continue to have periods of growth in executive functions. Some specific functions, such as cognitive flexibility, begin to reach maturity (De Luca & Leventer, 2008). Overall, this is the stage during which children have major increases in verbal working memory, goal-directed behavior, self-control, selective attention, strategic planning, and organizational skills (Brocki et al., 2004). It is important for children in this age range to experience increasingly complex activities that foster the cognitive development associated with executive function. Preadolescents' awareness of how to apply executive function skills across multiple contexts is still emerging in this phase.



The following nature-based activities foster executive function development in middle childhood.

- **Physical activities** - Making forts, creating small imaginary worlds, hunting and gathering, searching for treasures, following streams and pathways, exploring the landscape, taking care of animals, gardening, and shaping the earth are great activities at this age and enhance planning, follow-through, memory, focus, problem solving and patience.
- **Planning activities** - Children can make simple garden plans, choose between seed and seedling types, and mark a calendar with tasks needed to maintain the health of a sensory garden planted with vegetation of diverse colors, textures, scents, and sizes.
- **Music / singing / dance** - Listen to a nature-themed musical composition, such as Saint-Saens' *Carnival of the Animals*, identify and imitate nature-like sounds in the music, then go outside and find nature sounds and rhythmic patterns reminiscent or distinct from the music. This activity engages the senses, improves self-control and focus, and exercises imagination.
- **Social activities and games** - Encourage children's abilities to foster peer relationships by collaborating to create a temporary outdoor play space—activities which can challenge children to innovate with loose parts, solve problems in groups, and divide tasks to reach a goal. Going on a night hike or campout is a bonding social activity, an opportunity for children to take some responsibility for planning what to bring.



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### Adolescence - 13 to 18 years

Adolescents develop mental capacities that equate to adult intelligence. Simultaneously, the processes of puberty result in near-adult physiology. This is often an emotionally turbulent time, made more so by changing hormones.

Teens need to develop a sense of self and personal identity, which is achieved, in part, by beginning to develop a philosophy of life. This stage is also characterized by the development of a strong devotion to friends and causes.

Adolescents' most significant relationships tend to be with peers—at least in terms of time and attention. During adolescence, increasing demands are placed on executive function skills which are still not fully developed. However, already present executive functions such as working memory, self-control, planning and goal-directed behavior can improve throughout this stage and begin to be used

more efficiently and effectively in varying contexts. Some specific functions, such as attentional control, have potential growth spurts during adolescence.



The following nature activities can help teens practice and enhance their maturing executive function skills.

- **Physical and mental challenges** – Planning a camping trip can engage a teen in creative thinking and anticipatory problem solving about what situations might occur and what supplies are needed to cope. Planning as a group can lead to social organizing and strategic thinking, as can setting up camp and conducting basic survival tasks such as fire building, cooking, and weather-proofing.
- **Creative activities** – Nature journaling, writing poetry, sketching, and photography can encourage students to self-reflect, understand feelings and frustrations, communicate effectively, and make and examine decisions. Presenting creative work can improve social and non-social organizational skills.
- **Service activities** – Teens benefit in many ways from successfully completing useful work while building self-confidence, self-worth, competence, wider social networks, and practical problem-solving skills. Outdoor service projects that teens can organize may include guided nature activities for younger children, tree plantings, stream cleanups, trail maintenance, or rain garden construction. Social and communication skills are enhanced if the service project is planned through teamwork.
- **Goal setting, planning and monitoring** – Teenagers are often very connected to electronic devices. Consider finding ways to make those devices part of your explorations in nature in a way that helps them with goal-directed behavior. For example, they might create a portfolio of nature photography, produce an outdoor film, or start a blog documenting their nature activities. Teens can become the authors and co-directors of your outdoor experiences.
- **Risk taking** – Engaging safely in activities that involve risk, such as long distance hiking, rock climbing, or managing a fire, develops self-control, focus, problem-solving, spatial awareness, healthy limit testing, memory, mental flexibility, and perseverance. While risk-taking is especially appealing for teens, it is fundamental to every stage in a child's development—in age-appropriate ways.



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### Implications and Recommendations

Executive functions are higher-level mental processes that regulate thought and action in support of goal-directed behavior through “planning and decision-making, maintenance and manipulation of information in memory, inhibition of unwanted thoughts, feelings, and actions, and flexible shifting from one task to another” (Barker *et al.*, 2014). These skills support learning and development, enable positive behavior, and foster healthy decision making. **When people have opportunities to develop executive function skills during their childhoods, individuals and society experience long-term benefits** (Harvard, 2011).

During infancy, warm, responsive interactions with adults help babies learn how to focus their attention, build working memory, and develop self-control. Throughout childhood, creative play, games, and educational tasks offer opportunities for these core executive functions to develop, become integrated, and provide a foundation for additional skills such as planning and flexible problem solving. By adolescence, people are expected to organize their time and responsibilities with a substantial amount of independence. Adults play a critical role in supporting the emergence and maturation of these skills—initially assisting with challenging tasks, then gradually stepping back to let children lead and learn with more autonomy—and consistently helping children to reflect on their experiences and consider new possibilities.

Studies have demonstrated that the best approaches to improving executive function are those that (Diamond & Lee, 2011): 1) engage children's passionate interests, bringing them joy and pride; 2) address stresses in children's lives, attempting to resolve external causes and strengthen calmer, healthier responses; 3) encourage children to vigorously exercise; 4) give children a sense of belonging and social acceptance; and 5) give children opportunities to repeatedly practice executive functions at progressively more advanced levels. Nature-based activities, such as those suggested here, are perfectly positioned to address children's emotional, social, physical, and cognitive development in an integrated way that fosters the growth of executive function skills.

It is important that research continues to be done on how executive function develops during childhood because this is the period of human development in which such cognitive functions have the most dramatic growth potential. Most of the existing research on executive function in children focuses on formal, structured, adult-led activities (Diamond & Lee, 2011). Research that focuses specifically on the effect of nature-based activities will help to codify, inform, reinforce, affirm, and support what many people who are committed to getting children outside have observed. Giving children the chance to play outside has myriad benefits, from physical activity, to creativity, to emotional health, to social connectedness, and cognitive development, including the executive function skills that are so critical to a happy, healthy childhood and a fulfilling life.



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## RESOURCES

Please note that recommendations are provided as helpful resources. Their inclusion does not imply endorsement, nor does it imply that they are the only, or necessarily the best, resources.

### Executive Function:

- Building Adult Capabilities to Improve Child Outcomes: A Theory of Change - [http://developingchild.harvard.edu/resources/multimedia/videos/theory\\_of\\_change/](http://developingchild.harvard.edu/resources/multimedia/videos/theory_of_change/)
- Center on the Social and Emotional Foundations for Early Learning. *Practical Strategies for Teachers/Caregivers* - <http://csefel.vanderbilt.edu/resources/strategies.html>
- Executive Function: Skills for Life and Learning Video - [http://developingchild.harvard.edu/resources/multimedia/videos/inbrief\\_series/inbrief\\_executive\\_function/](http://developingchild.harvard.edu/resources/multimedia/videos/inbrief_series/inbrief_executive_function/)
- Washington State Department of Early Learning: Executive Function Training Module - [http://deltraining.com/courses/Executive\\_Function/content-frame.htm](http://deltraining.com/courses/Executive_Function/content-frame.htm)
- Zero to Three - [www.zerotothree.org/child-development/grandparents/play-0-12-mths-final.pdf](http://www.zerotothree.org/child-development/grandparents/play-0-12-mths-final.pdf)

### Connecting Children with Nature:

- Children & Nature Network (C&NN): [www.childrenandnature.org](http://www.childrenandnature.org)
- Nature Rocks: [www.naturerocks.org](http://www.naturerocks.org)
- Natural Start: [www.naturalstart.org](http://www.naturalstart.org)
- Take a Child Outside: [www.takeachildoutside.org](http://www.takeachildoutside.org)
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## About the Children & Nature Network

The Children & Nature Network (C&NN) is leading a movement to connect all children, their families and communities to nature through innovative ideas, evidence-based resources and tools, broad-based collaboration and support of grassroots leadership. C&NN is the only organization focused solely on building a national and international movement that reconnects children with nature to optimize their healthy development—cognitively, emotionally, socially and physically. C&NN builds awareness, provides access to state-of-the-art resources, supports the grassroots with tools and strategies, develops publications and educational materials, synthesizes the best available research, and encourages collaboration to heal the broken bond between children and nature. C&NN is a 501c3 non-profit organization. For additional information, visit [www.childrenandnature.org](http://www.childrenandnature.org) and contact us at [info@childrenandnature.org](mailto:info@childrenandnature.org).

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