

Outdoor Play Resource Guide: ECE

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Acknowledgements

Without the support of Gina Funicelli, Natalie Shearer, Kim Ann Laush, Cebert Adamson, Leslie Marshall, IDEAWORKS, the Centre for Teaching & Learning, and the Early Childhood Education program at Mohawk College the Pedagogy of Outdoor Play research project would not have been possible. Thank you to Beverlie Dietz of Okanagan College for arranging the Canada-Scotland Outdoor Play Study Tour, which sparked the idea for the research study and the resulting Outdoor Play Resource Guide. A special thank you to Dawn Danko for bringing forward a framework for student partnership and the willingness to join me on this adventure. Finally, Ashely and Alisia thank you for your willingness to try something new and collaborate with me to develop this resource.

~ Erin Cameron



Canada-Scotland Outdoor Play Study Tour

Embarking on a research project can be daunting; but joining Erin Cameron in partnership, with solid supports from IDEAWORKS and management, made this project a welcome collaborative journey. Thank-you to Natalie Shearer, Leslie Marshall and Cebert Adamson for continued support throughout this project. Thank-you to Erin, and our student partners Ashely and Alisia for teaching me about the ECE program and outdoor play while trying out a partnership framework.

~ Dawn Danko

The aim of this project is to support ECE faculty to embed the pedagogy of outdoor play throughout the Early Childhood Education program at Mohawk College.

PART I

BENEFITS OF OUTDOOR PLAY

I. Introduction

A sedentary life-style is one of the greatest risks to the overall health and well-being of Canadians. One key aspect in promoting healthy living is to increase young children's experiences outside in the natural world. Not only does engagement with the natural environment result in positive health benefits, it also develops a children's awareness of sustainability issues and environmental protections (Davis, 2015). To support this goal, the pedagogy of outdoor play needs to be included in the education of pre-service Early Childhood Educators (ECE) (Alden, 2018). Exploring outdoor play related concepts in college and university programs will directly influence policy and lead to program change (Dietz, B., personal communication, January 20, 2018). In current society and the Greater Hamilton community, ECE students enter the program from various backgrounds and with a range of values, beliefs, and experiences related to the outdoor environment. Identifying learning outcomes and experiences related to outdoor play ensures students within the ECE program have the knowledge and skills needed to advocate for outdoor or nature-based play that fosters child development and environmental awareness in the early years.

Educators play an important role in promoting children's well-being by creating, fostering, and sustaining a learning environment that is healthy, caring, safe, inclusive, and accepting.



Flags act as a trail marker to a wooded classroom

The following resource is a compilation of current literature that captures the importance and benefits of outdoor, nature-based play in early childhood education programming, and highlights the role of risky play in children's development. Outdoor play in natural settings provides opportunities for both healthy development and is a potential means to address childcare shortages. Scotland is one example of a society using outdoor nature play as a means to increase the health of its people while increasing access to quality childcare. In February 2018, a pan-Canadian group toured the Glasgow area of Scotland to engage in dialogue about outdoor play philosophy, policies, and the influence of culture. Pictures featured throughout this publication reflect experiences from Scotland and the variety of ways in which children are engaged in outdoor play. The programs toured varied from childcare and public playgrounds redeveloped to include more natural materials, to half-day community centre programs spent at

nearby Forest Service Sites and wooded public parks. All locations toured are within walking distance to a childcare program or community centre as increasing the public's use of and safety in local green

spaces is important to long-term community health in Scotland. At all locations, staff to child ratios are doubled in outdoor environments; this is achieved by using Play Rangers, Forestry Staff, parents, and volunteers. To meet the growing demand for educators with outdoor experience, Clyde College in Glasgow provides outdoor education to the students enrolled in its Early Childhood Education program one-day per week in a Flags act as a trail marker to a wooded classroom. wooded area of a nearby park. Programs and strategies observed in Scotland are the inspiration for the following resource.

Children are the most vulnerable to the impacts of unsustainable living with specific harms arising because of their physical and cognitive vulnerabilities (Davis, 2015).

The aim of this project is to support ECE faculty to embed the pedagogy of outdoor play throughout the Early Childhood Education program at Mohawk College. Utilizing students as partners in curriculum development, the resulting document provides resources, materials, and recommendations that are innovative and meaningful for curriculum development within the Early Childhood Programs. Two ECE students engaged in a literature review to identify key themes related to outdoor play. Following the literature review, the students reviewed the existing ECE college curriculum and reflected on their experiences within the program. This process resulted in the themes identified through the Annotated Bibliography section of this resource guide. These themes formed the basis for the recommended course learning outcomes and the materials purchased for the program.

Literature focusing on outdoor, nature-based play is extensive and describes the impact on all aspects of human development and curriculum. Theoretical and empirical research on outdoor play regularly highlight the importance of risk in the developmental process for both children and educators (Motion, 2018). As the benefits of outdoor play are pervasive, it is advisable to thread the topic of outdoor, nature-based play throughout the curriculum of college-level Early Childhood Education programs. The depth and richness of outdoor, nature-based play could not be adequately addressed in a single course. It would be a disservice, to both the health of young children and the surrounding natural environment, to teach about outdoor play in a thematic, isolated way. Without specific, positive experiences in the outdoors and a clear understanding of the benefits of risky play, new educators may enter the field of early learning and care reinforcing the current societal “risk averse” beliefs (Motion, 2018). The consequence of maintaining risk adverse curriculum and educational practices include a continued decline in population health and lack of awareness of the human impact on the environment.



2. Benefits of Outdoor Play

Explore four different aspects detailing the benefits of outdoor play.



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<https://ecampusontario.pressbooks.pub/outdoorplay/?p=23>

3. Importance of Risk

Risk is an important component of outdoor, nature-based play. It would be negligent to both avoid and ignore risk as an element of the outdoor environment. As with the indoor environment, educators need to focus on the real and the significant risks present in the environment. A risk-benefit assessment should be conducted each time a program plans to engage young children in the outdoors (Motion, 2018). The benefits identified previously outline the positive impact outdoor play can have on the developing child; what risks are present?

Each child perceives risky play differently.

A sense of risk needs to include:

- Speed
- Height
- Dangerous tools (hammers & saws)
- Dangerous elements (fire & water)
- Rough & tumble play
- Sense of getting lost

Brussoni, 2018

Risk cannot be taught from a textbook as practical experience is needed (Motion, 2018). The need for practical experience with risk and risk-assessment is a key reason to include outdoor risky play as a component of college ECE programs, and to include opportunities to work with young children in conducting risk assessments. Risk assessment is dynamic; meaning, what is perceived as risky to one person, may not hold the same risk for another. Children and educators need to be taught to trust their own judgement. To engage in a risk assessment it is important to use a flexible approach, which considers the ages and varying abilities of individual children, as well as the layout and view of the play space. Adults and children engage in constant risk assessment by looking for dangers in the tree canopy (above their head), at the height of their direct line of vision and on the ground. Conversations with children will assist them in the development of their own risk assessment and provide them with language to talk about their own abilities. Engaging in risky play is not neglect, reckless, or pushing beyond development abilities!

The Head & Shoulders, Knees & Toes song is an easy way to engage children in the process of risk assessment.

Risk is often correlated to injuries that may result. Small cuts and bruises, which heal quickly, should be anticipated as a normal part of growing up (Motion, 2018). Moderate injuries are defined as those injuries which result in time off work or school and would require formal reporting to governing bodies. Serious injuries, are defined as those that result in long-term effects such as traumatic brain injuries, amputation, or death (Brussoni, 2018). A visit to the hospital is not criteria for classification as a serious injury. Often, risk is avoided with the goal of reducing

injuries. As the statistics in the next section will illustrate, injuries occur more frequently at home and often indoors or as a result of a motor vehicle accident than due to outdoor risky play.



Assessing risk is an important part of children's play and engagement in the outdoors.

4. Statistics

The urgency for increasing engagement with both the outdoors and risky play is clear when reviewing current statistics relating to both overall health and actual risk of injury.

0 Deaths by fall from trees (Brussoni, 2018).

0 Increase in rate of child abduction deaths since 1970 (Brussoni, 2018).

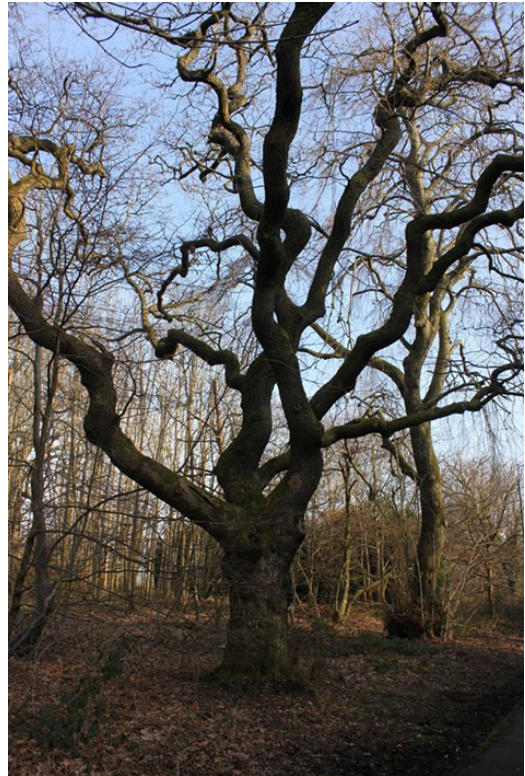
1 in 49M Deaths by fall from play equipment (Brussoni, 2018).

7% Of falls, resulting in hospital admissions occurred on **playgrounds** (Canadian Public Health Assn., 2019).

37% Of falls, resulting in hospital admissions occurred at **home** (Canadian Public Health Assn., 2019).

35% Of five to 17-year-olds meet the recommended guidelines for physical activity (ParticipACTION, 2018).

Leading cause of death to children is by motor vehicle traffic crash, followed by drowning and threats to breathing not play (Canadian Public Health Assn., 2019).



A tree is an invitation to climb.

Why are we a risk averse society?



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<https://ecampusontario.pressbooks.pub/outdoorplay/?p=27>

5. Definitions

Within the context of this research project, the following terms are defined as:

Forest School – *“is an inspirational process that offers ALL learners regular opportunities to achieve and develop confidence and self-esteem through hands-on learning experiences in a woodland or natural environment with trees. Forest School is a specialised learning approach that sits within and complements the wider context of outdoor and woodland education”* (Forest School Association, 2019).

Loose Parts – are materials that can be moved, carried, combined, redesigned, lined up, and taken apart and put back together in multiple ways. They are materials with no specific set of directions, which can be used alone or combined with other materials. [More information...](#)

Nature Play – is any activity that gets children active or thinking actively outdoors, with the end goal of building skills and ability to play without the need for parental or adult control (Whittle, 2016). Nature play does not involve human-made playground equipment.

Perceived Risk – is how each individual assesses the risk involved in situations involving speed, height, dangerous tools, dangerous elements, rough & tumble play, and/or the sense of getting lost. For example, a height that seems risky or scary for one person may not appear risky to another person.

Play Ranger – work in public spaces within communities, enabling and encouraging all children to play freely outdoors. They need to know how to make the best use of the natural environment for play, make difficult judgments on appropriate risk taking and how to be catalysts for play, without becoming either entertainers or child-minders (go2play, March 2017).

Risk Assessment – Adults and children engage in constant risk assessment by looking for dangers in the tree canopy (above their head), at the height of their direct line of vision, and on the ground. The *Head & Shoulders, Knees & Toes* song is a good way to remember where to look for risk.

Risky Play – can be defined as a thrilling and exciting activity that involves **a risk** of physical injury, and play that provides opportunities for challenge, testing limits, exploring boundaries and learning about injury risk (Little & Sweller, 2014).

Risky Play is NOT: Neglect;
Recklessness; Pushing
children beyond abilities or
interests

Serious Injury – Any injury for which there are long-term effects to the person or child. This includes traumatic brain injuries, amputation, or death. It does not include broken bones or cuts requiring stitches, which heal overtime (Brussoni, 2018).

Wilderness – a natural environment that has not been significantly modified by human activity.

Woodland – land covered with trees.



Nature and woodland play sites can be found within urban, city centres

6. M(T)CU ECE program standards

Support for the increased integration of outdoor, risky play into the Early Childhood Education program at Mohawk College are found within the recently updated program standards.

In November 2018, the Ministry of Training, Colleges and University (MTCU) published updated Program Standards for the Early Childhood Education programs of instruction leading to an Ontario College Diploma delivered by Ontario Colleges of Applied Arts and Technology (MTCU funding code 51211) (Ontario, Ministry of Education, 2019). Program standards apply to all similar programs of instruction offered by colleges across the province. Collectively, these elements outline the essential skills and knowledge that a student must reliably demonstrate in order to graduate from the program.

Resources and recommendations included within this document will support learners in achieving Vocational Learning Outcomes (VLO) 2e and 4a identified below.

The graduate has reliably demonstrated the ability to:

2. Co-create, facilitate and reflect upon inquiry and play-based early years and child care programs and pedagogical approaches to support children's learning, holistic development and well-being following children's capabilities, interests, ideas and experiences.
 - e. Incorporate learning throughout all activities of the day including learning opportunities in outdoor settings that foster an understanding and appreciation for the natural environment.
4. Collaborate with children, families, colleagues, agencies and community partners to create, maintain, evaluate and promote safe and healthy early learning environments to support independence, reasonable risk-taking and healthy development and well-being.
 - a. Plan and provide healthy and safe indoor and outdoor environments and programming in accordance with current legislation, guidelines and agency/school board policy.
 - b. facilitate children's efforts to take reasonable risks, test limits and gain independence and self-confidence

Complete program standards are publicly accessible at the Ministry of Training, Colleges and Universities [website](#).



Tarps provide a location for group gatherings and provide shelter from the rain or sun.

7. Learning Outcomes

The following list includes recommended learning outcomes that may be added to courses within the Early Childhood Education program of studies. Some may be applied as elements of performance (EoPs) or module learning outcomes.

Outdoor Play should be threaded through out the entirety of the diploma program to allow scaffolded learning opportunities.

- Plan for use of wilderness play environments.
- Compare and contrast the benefits and risks of nature play on child development.
- Differentiate between perceived risk and actual risk.
- Discuss the risks of a sedentary lifestyle.
- Identify positive health benefits of nature play.
- Investigate the impact of nature play on the mental health of young children.
- Investigate the impact of nature play on school readiness.
- Discuss the benefits of nature play on the development of children with a variety of developmental and special needs.
- Identify adaptive equipment needed to engage children with special needs in risk taking and nature play.
- Identify strategies to engage children with special needs in nature play.
- Describe the role of risky nature play in an inclusive curriculum.
- Examine opportunities for co-constructing curriculum through nature play.
- Identify safety considerations for supervision in wilderness and outdoor play environments.
- Conduct a risk assessment of an outdoor or wilderness play space.
- Engage adults and children in risk assessments when in natural/wilderness environments.
- Discuss liability and regulatory policies related to risk and wilderness play.
- Adhere to local laws and bylaws related to open flames and outdoor fires.
- Evaluate the human impact on the natural environment.
- Examine the role of the Early Childhood Educator in sustainability.
- Inspect local surroundings for hazards such as poisonous plant life.
- Identify local flora and fauna.
- Compare and contrast elements of woodland and forest school approaches with other curriculum approaches.
- Assemble outdoor equipment such as tents, tarps, & hammocks.
- Determine equipment needed for nature play and wilderness experiences.
- Design an outdoor nature play space, including visual markers for boundaries.



Mud kitchens are a staple of outdoor play.

8. Equipment & Materials

Some of the more common equipment and materials used by ECE when planning outdoor play.



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<https://ecampusontario.pressbooks.pub/outdoorplay/?p=35>

9. Recommended Lesson Plan

To have a good understanding of risk and to be comfortable in the outdoors, pre-service ECEs need educational opportunities to experiment and play. Learners should be actively engaged in discovering how to safely use outdoor equipment and to conduct a risk assessment. Students can be engaged in discovery of knot tying, plant identification, and small fire safety.

Lesson Structure	Lesson Details
Bridge In/ Pre-Assessment	Large group discussion: Who enjoys spending time outdoors? Camping?
Outcomes	<ul style="list-style-type: none"> • Assemble outdoor equipment, such as tents, tarps, & hammocks. • Conduct a risk assessment of an outdoor or wilderness play space. • Adhere to local laws and bylaws related to open flames and outdoor fires.
Participatory Learning	<p>Have learners self select into groups. Each group will explore a different piece of equipment (hammock, shelter, Kelly kettle).</p> <p>Have groups brainstorm about what they need to know to successfully assemble or use the equipment (local regulations, etc.).</p> <p>Challenge the group to list any potential risks they will need to assess for in the outdoor environment (fallen tree branches, stray dogs/animals, etc.).</p> <p>Walk to a nearby outdoor space. Guide learners to conduct a risk assessment and make note of observations (ahead of time to preview and risk assess).</p> <p>Provide 20 minutes to have the groups successfully assemble and use their assigned piece of equipment. Have each group share their experience with another group. Conduct a risk assessment of each other's equipment and observations.</p> <p>If time allows, groups can try to assemble a different piece of equipment to build skills.</p>
Post Assessment/ Summary	Have groups share their risk assessment observations and how they were successfully able to address them. Discuss what other considerations are needed and talk about local bylaws related to open flames and contained fires.

- Equipment needed: Variety of tarps, ropes, carabineers, portable shelter & toilet, hammocks,

Kelly kettles, flint, water jug with water, and a wagon.

Feel free to use the tool below to try creating your own lesson plan. You can export it as a Word document to keep and | or share.



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<https://ecampusontario.pressbooks.pub/outdoorplay/?p=37>



Portable shelters provide privacy.

10. Field Trip Suggestions

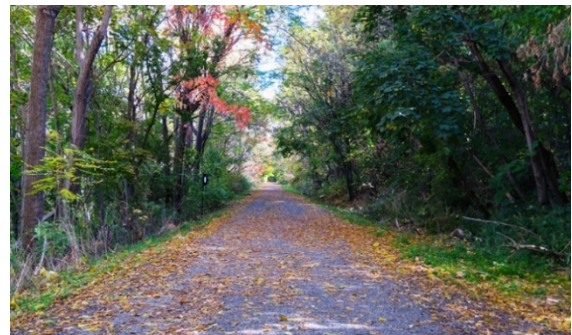
The following list provides recommendations for outdoor, natural spaces and potential educational opportunities available through conservation organizations.

[City of Hamilton Parks & Recreation](#) – Many city operated public parks are available throughout the city of Hamilton. The parks & recreation website provides maps, trail listings and waterfall access. The closest trail to Mohawk College's Fennell Campus is the 2.7 km Chedoke Radial Recreational Trail, which features a waterfall and connects the Chedoke Golf Course with the Iroquoia Heights Conservation Area.

[Conservation Halton](#) – offers environmental education field trips at Crawford Lake and Mountsberg Conservation Areas. Information about Preschool field trips are available on the website, and include Nature Play sessions and the Take a Hike program. In addition to educational program, the primary function of Conservation Halton is the preservation of eight natural spaces along the Niagara Escarpment.

[Grand River Conservation Authority](#) – Operates 12 parks along the Grand River. Brant Park is closest to Brantford and the First Nations territories of the Six Nations and Mississaugas of the NewCredit. Activities include, hiking, swimming, fishing, canoeing, and camping.

[Hamilton Conservation Authority](#) – Operates and oversees 12 outdoor conservation areas throughout the Hamilton-Wentworth region. School and group education programs are available. Groups can use parks on a day-use basis. Natural areas include Beverly Swamp, Borer's Falls, Crooks' Hollow, Devil's Punchbowl, Eramosa Karst, Felker's Falls, Fletcher Creek Ecological Preserve, Iroquoia Heights, Lower Spencer, Meadowlands, Mount Albion, Tiffany Falls,



Vinemount and Vinemount Wetland, as well as trails such as the Chippewa and Hamilton to Brantford Rail Trail and sections of Christie Lake, Dundas Valley, Confederation Beach Park, Spencer Gorge and Westfield Heritage Village. Many natural areas are accessed through hiking trails. Find environmental education information here: <http://conservationhamilton.ca/environmental-education-home/>

[Nature's Calling Environmental Education](#) – Their mission is to connect youth and families with nature and the outdoors, to raise awareness and appreciation for our natural world, and to foster a strong environmental ethic through community-based education and engagement. Workshops can be provided within the classroom or at locations in Norfolk County.

[Norfolk Trails](#) – are located throughout the County. Trail networks begin in Simcoe and Turkey Point or the north shore of Lake Erie.

[Royal Botanical Gardens](#) – Offers both natural landscapes and garden environments. Twenty-seven kilometers of hiking trails combine a range of physical challenge with nature learning. The Hendrie Garden site offered the Imagination Grove and Veggie Village for early learners. Through out the year, a variety of special exhibitions and events highlight the interactions of humans within their natural environments.

II. Outdoor Fire Regulations & Bylaws

Each town, city, region, or municipality will have its own bylaws and regulations related to the use of public outdoor spaces and open-air fires. Ensure you are meeting the local laws by checking for up-to-date information from your local office. Be careful to differentiate between a small fire for cooking and general open-air fires for burning materials. Kelly Kettles, like grills or barbeques, use a cooking fire, which is quite small and contained. These are typically not considered “open-air”. Supervision at all times is essential! Water or sand can be used to extinguish flames when the cooking is finished.

Additional information about the use of public nature spaces and parks can be located through the websites identified on the Field Trip Suggestions included within this resource guide.

City of Burlington. (n.d.). *Open air burning: Campfire, chimineas, fire pits*. Retrieved from <https://www.burlington.ca/en/services-for-you/Open-Air-Burning.asp>

City of Hamilton. (n.d.). Open air burning regulations. Retrieved from <http://www2.hamilton.ca/NR/rdonlyres/26FDA4F2-3096-43BF-9E9A-7FFE304E6173/0/OpenAirBurning.pdf>

County of Brant (n.d.). Open air burning. Retrieved from <https://www.brant.ca/en/resident-services/Open-Air-Burning.aspx>

Ontario, Ministry of Education. (2019). Child care licensing: Building, equipment, and playground. Retrieved from <http://www.edu.gov.on.ca/earlyyears/building-equipment-and-playground.html>

Ontario, Ministry of Education. (2018, November 21). Child care and early years act (2014) [e-Laws]. Retrieved from https://www.ontario.ca/laws/regulation/150137?_ga=2.100445534.1166458241.1552421330-577763927.1550609751#BK22

12. Conclusion



As society trends towards an increasing focus on safety and liability that limits children's exposure to risky nature play, it is critical that early childhood education programs incorporate formalized training that promotes the children's and educators' development of risk assessment and connection to the outdoors. From the literature reviewed, it is clear that a continued aversion to both risky play and experiences in the outdoors will result in poor health among the Canadian population. Ample evidence is available to support the notion that outdoor, nature-based and risky play positively contribute to children's overall development and school readiness. In addition to individual benefits, engagement in the outdoors at a young age positively contributes to children's awareness of sustainability and environmental issues.

PART II

ANNOTATED BIBLIOGRAPHIES

13. Risky Play

Risky Play

Brussoni, M., Gibbons, R., Gray, C., Ishikawa, T., Hansen Sandseter, E. B., Bienenstock, A., ..., Tremblay, M. S. (2015). What is the relationship between risky outdoor play and health in children? A systematic review. *International Journal of Environmental Research and Public Health*. 12, 6423 – 6454. doi:10.3390/ijerph120606423

A systematic review to examine the relationship between risky outdoor play and health in children, in order to inform the debate regarding its benefits and harms. Twenty-one relevant papers were evaluated for quality using the GRADE framework. Included articles addressed the effect on health indicators and behaviours from three types of risky play, as well as risky play supportive environments. The systematic review revealed overall positive effects of risky outdoor play on a variety of health indicators and behaviours, most commonly physical activity, but also social health and behaviours, injuries, and aggression.

Brussoni, M., Olsen, L. L., Pike, I., & Sleet, D. A. (2012). Risky play and children's safety: Balancing priorities for optimal child development. *International Journal of Environmental Research and Public Health*, 9(9), 3134-3148. doi:10.3390/ijerph9093134

This journal article discusses the importance of risky play as a necessary part of children's development and supports the need for outdoor risky play to foster healthy development. The article recommends building upon children's natural tendency towards risky play and advocates that taking risks help children learn to manage risks.

Bundy, A. C., Wyver, S., Beetham, K. S., Ragen, J., Naughton, G., Tranter, P., ... Sterman, J. (2015). The Sydney playground project- levelling the playing field: A cluster trial of a primary school-based intervention aiming to promote manageable risk-taking in children with disability. *BioMed Central (BMC) Public Health*, 15(1125), 1-6. doi:10.1186/s12889-015-2452-4

This journal article discusses how children and adults can provide opportunities to engage in manageable risky play. Discussion identifies ways to change how parents and educators view risk taking and encourage children with disability to take responsibilities for their on actions in outdoor play.

Canadian Public Health Association. (January 24, 2019). *Playground injuries: Playground injury statistics*. Retrieved on March 12, 2019 from <https://www.cpha.ca/playground-injuries>

A short article that demystifies media reports about injury trends and playground injuries. The article includes discussion about heights and surfaces, head injuries, and sports related injuries. The article

concludes that “despite consistent efforts to make playgrounds safer, injury surveillance data have shown no significant trends in injuries over time.”

Gull, C., Goldstein, S. L., & Rosengarten, T. (2018). Benefits and risks of tree climbing on child development and resiliency. *International Journal of Early Childhood Environmental Education*, 5(2), 10-29. Retrieved from <https://eric.ed.gov/?id=EJ1180021>

Using a mixed-method survey instrument, researchers surveyed 1602 parents in the United States to investigate tree-climbing behaviours of their children, reasons parents allow tree-climbing and the related injuries that can occur. The study concluded that while tree-climbing can result in minor injuries, it is a relatively safe activity that promotes social, emotional and cognitive growth along with increased resiliency in children. The article provides a review of tree-climbing policy, the trends toward limiting children’s access to tree-climbing due to fear of injury or liability, and a literature review of the impacts of engaging in risk-taking play. A list of ten potential benefits of natural play from the literature is also included.

Hansen Sandseter, E. B., & Sando, O. J. (2016). “We don’t allow children to climb trees” How a focus on safety affects Norwegian children’s play in early-childhood education and care settings. *American Journal of Play*, 8(2), 178-200. Retrieved from <http://www.journalofplay.org/sites/www.journalofplay.org/files/pdf-articles/8-2-article-we-dont-allow-children-to-climb-trees.pdf>



Transient art encourages group collaboration

Researchers investigated how a societal increased focus on safety impacted play and activities in Norwegian Early Childhood Education programs. The most commonly restricted play activity was climbing, with some institutions banning climbing. Pressure from parents was cited a significant influence on determining which activities were allowed in programs. Playground inspection and regulation also limited playground equipment purchases or uses as extensive rules exclude equipment like a hanging hammock between trees. A comprehensive literature review that outlines the benefits of children engaging in risky play, including developing risk-assessment skills and reducing phobias and anxiety, is included in the paper. The impact of potential injuries on the development of risk-management strategies to regulate playground design is presented based on current literature. The inverse correlation of level of supervision with the number of injuries in risky play is also highlighted.

O’Brien, L. (2009). Learning outdoors: The forest school approach. *Education 3-13*, 37(1), 45-60. doi:10.1080/03004270802291798

People have a real connection with the woodlands around them. Learning outdoors is important for children and young people. The natural environment should be seen as an extension of the classroom. Children can improve their confidence, motivation, concentration, language and communication, and physical skills through experiences in nature.

Sandseter, E. B. (2012). Restrictive safety or unsafe freedom? Norwegian ECEC practitioners' perceptions and practices concerning children's risky play. *Child Care in Practice*, 18(1), 83-101. doi:10.1080/13575279.2011.621889

This journal article focuses on how early childhood educators and practitioners handle risk in children's play experiences. The results concluded that Norwegian kindergarten programs do allow opportunities for risky play in their environment.

Spiegel, B., Gill, T. R., Hardbottle, H., & Ball, D. J. (2014). Children's play space and safety management: Rethinking the role of play equipment standards. *SAGE open*. January – March 2014 (1-11). DOI: 10.1177/2158244014522075

A review of theoretical and empirical research studies, which investigate the benefits of children's experimentation with risk and the consequences of reduced opportunity due to fear of injury and avoidance of litigation. International standards on play equipment are discussed.

Wishart, L., Cabezas-Benalcázar, C., Morrissey, A. & Versace, V.L. (2018). Traditional vs naturalised design: A comparison of affordances and physical activity in two preschool playscapes. *Landscape Research*. doi: [10.1080/01426397.2018.1551524](https://doi.org/10.1080/01426397.2018.1551524)

Looking at children's movement and using behaviour mapping, this study compared traditional to naturalized playscapes to determine which provides more opportunities for varied physical activity. Findings show that naturalized playscapes provide equal or greater opportunities for pre-schooler activities than traditional standardized equipment.

14. Forest Schools | Woodland | Wilderness

Forest Schools/Woodland/ Wilderness

Burns, N., Paterson, K., & Watson, N. (2009). An inclusive outdoors? Disabled people's experiences of countryside leisure services. *Leisure Studies*, 28(4), 403-417. doi:10.1080/02614360903071704

This article explores people with disabilities attitudes towards and experiences of woodland and outdoor environments. Authors argue that people with disabilities reasons for being outdoors are more complex than simply seeking 'rehabilitation'. Understanding of the uses and views of the outdoors from the perspective of a person with disability is essential to the provision of services that extends beyond the removal of physical barriers.

Child and Nature Alliance of Canada. (2018). *Forest School Canada*. [website]. Retrieved from <http://childnature.ca/forest-school-canada/>

This website provides information about forest and nature school programs across Canada. Information about policy development as well as practitioner training and professional development is also posted.

Children and Nature.org. (2018). *Research library*. [website] <https://www.childrenandnature.org/research-library/>

The database includes summaries of per-reviewed journal articles that focus on children and nature. Search options can be organized by population, outcomes, themes, research methods, and barriers.

Milligan, C., & Bingley, A. (2007). Restorative places or scary spaces? The impact of woodland on the mental well-being of young adults. *Health & Place*, 13(4), 799-811. doi:10.1016/j.healthplace.2007.01.005

This paper examines the extent to which childhood experiences of play, particularly in wooded landscapes, may influence access to woodland in young adulthood, and the potential implications for their health and mental well-being. The paper challenges the notion that the natural environment is therapeutic and concludes that a range of positive and negative influences act to shape young people's relationship with woodland environments.

O'Brien, L. (2009). Learning outdoors: The forest school approach. *Education 3-13*, 37(1), 45-60. doi:10.1080/03004270802291798

People have a real connection with the woodlands around them. Learning outdoors is important for children and young people. The natural environment should be seen as an extension of the classroom. Children can improve their confidence, motivation, concentration, language and communication, and physical skills through experiences in nature.

O'Brien, L., & Murray, R. (2007). Forest school and its impacts on young children: Case studies in Britain. *Urban Forestry & Urban Greening*, 6(4), 249-265. doi:10.1016/j.ufug.2007.03.006

Three case studies highlight the impact of forest school participation on the development of children. Six themes emerged from the data of the positive impacts on children in terms of confidence, social skills, language and communication, motivation and concentration, physical skills and knowledge and understanding. Two further themes highlight the wider impacts of Forest School on teachers, parents, and the extended family. Contact with the natural environment can be limited for children and young people in contemporary society due to concerns about safety outdoors and issues of risk and liability. Forest School provides an important opportunity for children to gain access to and become familiar with woodlands on a regular basis, while learning academic and practical skills.

Whittle, I. (2016, July 16). *Nature Play: Getting our kids outdoors*. Retrieved from <https://www.natureplayqld.org.au/nature-play-in-early-years-education>

A parent friendly article outlining the importance of nature in everyday life. In addition to the identified article, the website provides a variety of resources for educators. Nature Play lesson plans, from Infants to 6th grade are available under the "Education" tab.



Children's engagement with land and place include knowledge of local flora and fauna

15. Child Development

Brussoni, M., Olsen, L. L., Pike, I., & Sleet, D. A. (2012). Risky play and children's safety: Balancing priorities for optimal child development. *International Journal of Environmental Research and Public Health*, 9(9), 3134-3148. doi:10.3390/ijerph9093134

This journal article discusses the importance of risky play as a necessary part of children's development and supports the need for outdoor risky play to foster healthy development. The article recommends building upon children's natural tendency towards risky play and advocates that taking risks help children learn to manage risks.

Gull, C., Goldstein, S. L., & Rosengarten, T. (2018). Benefits and risks of tree climbing on child development and resiliency. *International Journal of Early Childhood Environmental Education*, 5(2), 10-29. Retrieved from <https://eric.ed.gov/?id=EJ1180021>

Using a mixed-method survey instrument, researchers surveyed 1602 parents in the United States to investigate tree-climbing behaviours of their children, reasons parents allow tree-climbing and the related injuries that can occur. The study concluded that while tree-climbing can result in minor injuries, it is a relatively safe activity that promotes social, emotional and cognitive growth along with increased resiliency in children. The article provides a review of tree-climbing policy, the trends toward limiting children's access to tree-climbing due to fear of injury or liability, and a literature review of the impacts of engaging in risk-taking play. A list of ten potential benefits of natural play from the literature is also included.

Gurholt, K. P., & Sanderud, J. R. (2016). Curious play: Children's exploration of nature. *Journal of Adventure Education and Outdoor Learning*, 16(4), 318-329. doi:10.1080/14729679.2016.1162183

Through an analysis of two empirical examples, the authors argue that curious play offers a comprehensive and existential approach to understanding the interplay of children playing in nature and children's growth. The authors argue



Leadership and social negotiation are a few of the skills enhanced through outdoor play

that curious play encourages children to be explorers and view themselves as competent; this enables the children to develop their self-image and find their identity.

Hansen Sandseter, E. B., & Sando, O. J. (2016). "We don't allow children to climb trees" How a focus on safety affects Norwegian children's play in early-childhood education and care settings. *American Journal of Play*, 8(2), 178-200. Retrieved from <http://www.journalofplay.org/sites/www.journalofplay.org/files/pdf-articles/8-2-article-we-dont-allow-children-to-climb-trees.pdf>

Researchers investigated how a societal increased focus on safety impacted play and activities in Norwegian Early Childhood Education programs. The most commonly restricted play activity was climbing, with some institutions banning climbing. Pressure from parents was cited a significant influence on determining which activities were allowed in programs. Playground inspection and regulation also limited playground equipment purchases or uses as extensive rules exclude equipment like a hanging hammock between trees.

A comprehensive literature review that outlines the benefits of children engaging in risky play, including developing risk-assessment skills and reducing phobias and anxiety, is included in the paper. The impact of potential injuries on the development of risk-management strategies to regulate playground design is presented based on current literature. The inverse correlation of level of supervision with the number of injuries in risky play is also highlighted.

Hughes, J., Richardson, M., Lumber, R., (2018). Evaluating connection to nature and the relationship with conservation behaviour in children. *Journal for Nature Conservation*, 45, 11-19. <https://doi.org/10.1016/j.jnc.2018.07.004>

This study aimed to measure conservation focussed behaviour changes as a result of time outdoors. Gender behaviours also are different when they are in the outdoors as well. There were some differences between genders and schools in self-reported pro-nature behaviors, with girls reporting more pro-nature behaviors than boys. For pro-environmental behaviors, there were school differences but no gender differences.

Hyndman, B., Benson, A., & Telford, A. (2016). Active play: Exploring the influences on children's school playground activities. *American Journal of Play*, 8(3), 325-344. Retrieved from <https://eric.ed.gov/contentdelivery/servlet/ERICServlet?accno=EJ1108796>

The article reviews research on children's active play and explores its influence on school playgrounds. Studies of individual and social play are reviewed to explore the effect of physical environments on active play, and the impact of school policies on children's active play on school playgrounds.

Little, H., & Sweller, N. (2014). Affordances for risk-taking and physical activity in Australian early childhood education settings. *Early Childhood Education Journal*, 43(4), 337-345. doi:10.1007/s10643-014-0667-0

This journal article reports findings of an on-line survey examining resources, spaces, and affordances for physical activity (PA) at 245 Australian ECE centres. Findings indicate that centres were generally well resourced to promote physical play and provide a diverse range of experiences that support PA and motor development, although varied in terms of opportunities for risk-taking in play. Most respondents believed the environment at their centres supported children's engagement in moderate to vigorous PA, however, regulatory restrictions relating to recommended height limits on climbing apparatus and having insufficient space were identified as factors limiting opportunities for challenging, physically active play. Outdoor space and teacher support are identified as important factors in childhood settings to promote PA and risk-taking.

O'Brien, L. (2009). Learning outdoors: The forest school approach. *Education 3-13*, 37(1), 45-60. doi:10.1080/03004270802291798

People have a real connection with the woodlands around them. Learning outdoors is important for children and young people. The natural environment should be seen as an extension of the classroom. Children can improve their confidence, motivation, concentration, language and communication, and physical skills through experiences in nature.



Natural forts provide a sense of being alone.

Ulset, V., Vitaro, F., Brendgen, M., Bekkhus, M., & Borge, A. I. H. (2017). Time spent outdoors during preschool: Links with children's cognitive and behavioural development. *Journal of Environmental Psychology*. 52, 69 – 80. doi: 10.1016/j.jenvp.2017.05.007

An examination of the concurrent and long-term relationships between the amount of time children attending daycare spend outdoors and their cognitive and behavioural development during preschool and first grade. Cognitive testing and reports from parents and educators followed 562 Norwegian preschoolers over a period of four years. Results indicate that outdoor time in preschool may support children's development of attention skills and protect against inattention-hyperactivity symptoms.

Wyver, S., Tranter, P., Naughton, G., Little, H., Sandseter, E. B., & Bundy, A. (2010). Ten ways to restrict children's freedom to play: The problem of surplus safety. *Contemporary Issues in Early Childhood*, 11(3), 263-277. doi:10.2304/ciec.2010.11.3.263

This article discusses the well-being of children, the excessiveness of surplus safety, and the impacts of not letting children develop through play.

16. Children's Health & Mental Health

Becker, S. P. (2009). Wilderness therapy: Ethical considerations for mental health professionals. *Child & Youth Care Forum*, 39(1), 47-61. doi:10.1007/s10566-009-9085-7

Wilderness therapy is a growing treatment approach for adolescents presenting with a variety of clinical concerns. The author reflects on the unique ethical issues faced by wilderness therapists and supports the growing field of outdoor behavioural healthcare. This article provides evidence to support young children's early engagement in nature-based play.

eMentalHealth.ca. (2018). *Nature and why it's essential for kids' brains: Information for parents and caregivers*. Retrieved from <http://www.ementalhealth.ca/index.php?m=article&ID=52861>

Many of today's children and youth seem to struggle with physical and mental health problems. This article advocates for unstructured outdoor play as a single intervention to help children's physical, mental and spiritual health. Options to help get kids outside are listed to encourage unstructured outdoor play.

Janssen, I., & Leblanc, A. (2015). Systematic review of the health benefits of physical activity and fitness in school-aged children and youth. *School Nutrition and Activity*, 183-219. doi:10.1201/b18227-14

Through a literature review of over 11, 000 papers that examine the relation between physical activity, fitness, and health in school-aged children and youth, authors identified seven health indicators including: high blood cholesterol, high blood pressure, the metabolic syndrome, obesity, low bone density, depression, and injuries. Results indicate that the more physical activity, the greater the health benefit. Authors conclude that children need to get more than 60 minutes of outdoor play and that more vigorous intensity activities should be added to strengthen muscle and build bone density at least 3 days per week.

Maller, C., Townsend, M., Pryor, A., Brown, P., & St Leger, L. (2005). Healthy nature healthy people: 'contact with nature' as an upstream health promotion intervention for populations. *Health Promotion International*, 21(1), 45-54. doi:10.1093/heapro/dai032



Before using a log swing, children ensure the strength of the tree branch and warn peers to stay out of range to avoid being hit by the swing. This is a risk assessment!

Personal health and well-being benefits from contact with nature. Parks and nature reserves play a significant role for individuals. Socio-ecological approaches to public health incorporates environmental sustainability.

O'Brien, L., & Murray, R. (2007). Forest school and its impacts on young children: Case studies in Britain. *Urban Forestry & Urban Greening*, 6(4), 249-265. doi:10.1016/j.ufug.2007.03.006

Three case studies highlight the impact of forest school participation on the development of children. Six themes emerged from the data of the positive impacts on children in terms of confidence, social skills, language and communication, motivation and concentration, physical skills and knowledge and understanding. Two further themes highlight the wider impacts of Forest School on teachers, parents, and the extended family. Contact with the natural environment can be limited for children and young people in contemporary society due to concerns about safety outdoors and issues of risk and liability. Forest School provides an important opportunity for children to gain access to and become familiar with woodlands on a regular basis, while learning academic and practical skills.

ParticipACTION. (2018). *Report card*. Retrieved from <https://www.participaction.com/en-ca/resources/report-card>

Is the most comprehensive report card on the physical activity of Canadian children and youth. Results indicate that, “Canadian kids need to move more to boost their brain health”. The report synthesizes multiple sources of data, including peer-reviewed research to determine evidence-informed grades across 14 health indicators. Physical activity and outdoor play helps children with physical development and positive mental health. Results indicate that 51% 5-17 years old and 76% 3-4 years olds are more interested in television and video games and are not the Canadian 24-hour movement guidelines. A Highlight Report, Full Report, and Expert Statement are available for download.

17. Inclusion

Ambrosini, K. (2014). *Accessible outdoors: Kids with Social, Emotional and Physical Disabilities Go Outside!* Retrieved from <https://www.childrenandnature.org/2014/12/27/accessible-outdoors-kids-with-social-emotional-and-physical-disabilities-go-outside/>

Nature brings us to a different world and the way we see the world around us. This article describes six steps to increasing outdoor participation and challenges parents and educators to consider motivation, technology supports, and predefined approaches to mobility.

Brewer, K. (2016). *Nature is the best way to nurture pupils with special educational needs.* Retrieved from <https://www.theguardian.com/teacher-network/2016/may/01/nature-nurture-pupils-special-educational-needs-outdoor-education>

This article advocates that the best way to get the most out of a classroom is being able to leave it and take learning outside. Case study examples are reviewed and conclude that life skills and academic skills are enhanced through outdoor learning. The article specifically identifies, that being able to read in the outdoors helps calm learners.

Bundy, A. C., Wyver, S., Beetham, K. S., Ragen, J., Naughton, G., Tranter, P., ... Sterman, J. (2015). The Sydney playground project- levelling the playing field: A cluster trial of a primary school-based intervention aiming to promote manageable risk-taking in children with disability. *BioMed Central (BMC) Public Health*, 15(1125), 1-6. doi:10.1186/s12889-015-2452-4

This journal article discusses how children and adults can provide opportunities to engage in manageable risky play. Discussion identifies ways to change how parents and educators view risk taking and encourage children with disability to take responsibilities for their own actions in outdoor play.



All children can use simple materials in many imaginative ways.

Burns, N., Paterson, K., & Watson, N. (2009). An inclusive outdoors? Disabled people's experiences of countryside leisure services. *Leisure Studies*, 28(4), 403-417. doi:10.1080/02614360903071704

This article explores people with disabilities attitudes towards and experiences of woodland and outdoor environments. Authors argue that people with disabilities reasons for being outdoors are more complex than simply seeking 'rehabilitation'. Understanding of the uses and views of the outdoors from the perspective of a person with disability is essential to the provision of services that extends beyond the removal of physical barriers.

Cerebral Palsy Guidance. (2018). *Enjoying the great outdoors with a physical disability*. Retrieved from <https://www.cerebralpalsyguidance.com/cerebral-palsy/living/enjoying-outdoors>

Experiences in the outdoors benefit everyone, even those who have a physical disability. Studies show that mental and physical health is improved when you are spend more time in the outdoors.

Spencer, G., Bundy, A., Wyver, S., Villeneuve, M., Tranter, P., Beetham, K., ... Naughton, G. (2016). Uncertainty in the school playground: Shifting rationalities and teachers' sense making in the management of risks for children with disabilities. *Health, Risk & Society*, 18(5-6), 301-317. doi:10.1080/13698575.2016.1238447

Protectionist concerns of educators and parents are pronounced for children with disabilities, as assumptions about limited capabilities complicate and structure the everyday play experiences for children. Drawing on findings from the Sydney Playground Project, this article discusses discomfort experienced by school staff in their responses to uncertain moments in children's play. The report includes qualitative data collected from two schools between October 2014 and September 2015 using video observations of children's play and teachers' responses to an online Tolerance of Risk in Play Scale. The findings point out the competing logics and forms of sense making used by teachers to manage the unknown. The analysis explored the ways in which risk strategies were (re)framed by school staff and how 'letting-go' or embracing uncertainty offers children opportunities to engage in risk-taking.

18. Curriculum

Bienenstock is a local (Dundas) company that celebrates divergent thinking and risk taking. Their team includes designers, landscape architects, trainers, educators and construction experts who engage in a comprehensive, international and multidisciplinary approach. Training and workshops in support of risky outdoor curriculum development are offered.

Bilton, H., & Waters, J. (2016). Why take young children outside? A critical consideration of the professed aims for outdoor learning in the early years by teachers from England and Wales. *Social Sciences*, 6(1), 1-16. doi:10.3390/socsci6010001

In this journal article, the findings suggest that more Welsh teachers plan outdoor environments explicitly for curriculum related learning compared to England teachers.

Canadian Parks Council. (2016). *The nature playbook: Take action to connect a new generation of Canadians with nature*. Retrieved from <http://www.parks-parcs.ca/pdf/playbook/nature-playbook.pdf> ISBN: 978-0-660-05644-9(paper)/ 978-0-660-05643-2 (PDF)

A free publication, which outlines how nature affects us and identifies seven strategies for increasing engagement with nature. The seven strategies offer solutions to a worldwide problem of disconnection from Nature. They came from groundbreaking research and programs presented at the 2014 IUCN World Parks Congress held in Australia.

Casey, T. & Robertson, J. (n.d.). *Loose parts play*. Inspiring Scotland, Scotland's Play Strategy, and Scottish Government. Retrieved from <https://www.inspiringscotland.org.uk/wp-content/uploads/2017/03/Loose-Parts-Play-web.pdf>

A 72 page .PDF Toolkit to support adults in the play, early years, and education sectors feel more comfortable and confident in introducing loose parts play within their settings. The Toolkit aims to



Bienenstock Natural Playgrounds. (2018). *Disruptive, transformative, relentless global leaders in natural playgrounds*. [website]. Retrieved from <https://www.naturalplaygrounds.ca/>

raise awareness of the value of loose parts to children's play, to provide practical guidance, and to advocate the use of loose parts as an approach to developing play opportunities.

Children and Nature.org. (2018). *Research library*. [website] <https://www.childrenandnature.org/research-library/>

The database includes summaries of peer-reviewed journal articles that focus on children and nature. Search options can be organized by population, outcomes, themes, research methods, and barriers.

Creative STAR Learning Ltd. (2017 – 2018). *Creative Star website: I'm a teacher, get me outside here!* Retrieved from <https://creativestarlarning.co.uk/>

This website is curated by Juliet Robertson, an advocate of the power of outdoor play in education. Teacher resources include a blog, resources, links to training courses, and support, with a focus on literacy and math. This is a Scotland/UK resource; the author speaks regularly in Canada.

go2play (2017, May). *Play champions toolkit: A guide for developing young play champions in primary schools*. Retrieved from <https://www.inspiringscotland.org.uk/wp-content/uploads/2017/05/Play-Champions-Toolkit-2016-web.pdf>

This 46-page .PDF Toolkit is designed to focus on engaging school-age children in more activity that is playful within their school day. It includes a program that can be used to support children to become leaders of play. The benefits of play and physical activity are also included.

Houser, N. E., Roach, L., Stone, M. R., Turner, J., & Kirk, S. (2016). Let the children play: Scoping review on the implementation and use of loose parts for promoting physical activity Participation. *AIMS Public health*, 3(4), 781-799. doi:10.3934/publichealth.2016.4.781

This scoping review provides an overview of the current literature on loose parts and the relationship to types of play and thinking. The different definitions of loose parts is captured, along with a list of types of loose parts. Types of play can depend on the types of loose parts provided and the nature of the environment; for example, an enclosed space can lead to increased dramatic play. Loose parts are hypothesized to promote divergent, creating thinking; however, there is limited evidence to support this hypothesis at this time.

Jay, J., & Knaus, M. (2018). Embedding play-based learning into junior primary (year 1 and 2) curriculum in Western Australia. *Australian Journal of Teacher Education*, 43(1), 112-126. doi:10.14221/ajte.2018v43n1.7

Through a case study design, authors investigate the influence of policy decisions on pedagogical practices of educators. The research identified the necessary supports required for implementing play in the early years of school as well as the challenges experienced by the teachers in implementing Australia's National Quality Standard (NQS).

Quibell, T., Charlton, J., & Law, J. (2017). Wilderness schooling: A controlled trial of the impact of an outdoor education programme on attainment outcomes in primary school pupils. *British Educational Research Journal*, 43(3), 572-587. doi:10.1002/berj.3273

This empirical research study shows how a curriculum based outdoor learning program for primary school children improves children's learning. The study compares attainment data in English reading, English writing and maths to conclude that children in the Wilderness Schooling group significantly improved their attainment in all three subjects.



Snack cooked over a campfire creates a sense of community

SBS Dateline (2016, Feb 23). *Kids gone wild: Denmark's forest kindergartens*. [Video file]. Retrieved from <https://www.youtube.com/watch?v=Jkij9dJfcw>

This video gives insight into the Forest Kindergartens in Denmark. The skill development children enjoy as a result of their participation and the social/cultural perspectives that enable these programs are discussed. The video runs for 12 minutes.

Sumpter, L. & Hedefalk, M. (2015). Preschool children's collective mathematical reasoning during free outdoor play. *Journal of Mathematical Behavior*, 39, 1-10. doi: 10.1016/jmathb.2015.03.006

This paper illustrates how young children between the ages of one to five use mathematical properties in collective reasoning during free outdoor play. It demonstrates how children use variations of mathematical products and procedures, to challenge, support, and drive their reasoning forward. Children use concrete materials to illustrate and strengthen their arguments, and aid in reaching conclusions. Children also use abstract social constructs, such as jokes, as part of their mathematical reasoning.

Woolley, H. & Lowe, A. (2013). Exploring the relationship between design approach and play value of outdoor play spaces. *Landscape Research*. 38(1), 53-74, DOI: 10.1080/01426397.2011.640432

A report on the research that explores the relationship between approaches to the design of outdoor play spaces and the play value of these spaces. It tests the hypothesis that natural playgrounds provide greater opportunities for play. Results indicate that playgrounds with movable loose parts and fewer pieces of fixed play equipment increase play value.

19. Educator/Parents

Coe, H. (2016). From excuses to encouragements: confronting and overcoming the barriers to early childhood outdoor learning in Canadian schools. *Canadian Children*, 41(1), 5-15. Retrieved from [dx.doi.org/10.18357/jcs.v41i1.15461](https://doi.org/10.18357/jcs.v41i1.15461)

This paper addresses the issues related to the outdoor learning environment and the barriers that educators face. This article encourages educators to view outdoor learning as a pedagogical and problem-solving learning experience.



Nature provides many opportunities for interactions with peers and adults

Creative STAR Learning Ltd. (2017–2018).

Creative Star website: *I'm a teacher, get me outside here!* Retrieved on November 9, 2018 from <https://creativestarlearning.co.uk/>

This website is curated by Juliet Robertson, an advocate of the power of outdoor play in education. Teacher resources include a blog, resources, links to training courses, and support, with a focus on literacy and math. This is a Scotland/UK resource; the author speaks regularly in Canada.

Davis, J. M. (2015). *Young children and the environment: Early education for sustainability*. (2nd ed.). Cambridge, UK: Cambridge University Press.

This edited text includes 15 chapters that discuss a broad range of topics from the importance of sustainability in early learning and care settings to reconciliation in the early years. Human interactions with the natural world, community leadership in sustainability, pedagogical approaches, and the role of the ECE in supporting sustainability education of young children are included. Many contributors discuss their lived experiences and reflections on program transformation to include more nature-based play within their workplaces. Online access to the first 8 chapters is available here:

https://books.google.ca/books?id=hTjJBAAQBAJ&printsec=frontcover&source=gbs_ViewAPI&redir_esc=y#v=onepage&q&f=false

eMentalHealth.ca. (2018). *Nature and why it's essential for kids' brains: Information for parents and caregivers*. Retrieved from <http://www.ementalhealth.ca/index.php?m=article&ID=52861>

Many of today's children and youth seem to struggle with physical and mental health problems. This article advocates for unstructured outdoor play as a single intervention to help children's physical, mental and spiritual health. Options to help get kids outside are listed to encourage unstructured outdoor play.

go2play. (March 2017). *Scotland's play ranger toolkit: A guide to setting up and running an effective play ranger service in Scotland*. Retrieved from <https://www.inspiringscotland.org.uk/wp-content/uploads/2017/03/Play-Ranger-Toolkit-March-15.pdf>

A play ranger is a qualified play-worker who facilitates children's play in open access spaces such as outdoor community settings and parks (like Hamilton's "Supie" program). This resource includes details about training needed to support outdoor play environments that might inform curriculum development of the ECE program, including risk assessments, tools, and equipment.

Gull Laird, S. McFarland-Piazza, L. & Allen, S. (2014). Young children's opportunities for unstructured environmental exploration of nature: Links to adults' experiences in childhood. *International Journal of Early Childhood Environmental Education*, 2(1). Retrieved from <https://files.eric.ed.gov/fulltext/EJ1108063.pdf>

This study investigated the impact of adult's early experiences in nature impact their attitudes and practices in providing unstructured outdoor play opportunities for children. While many adults reported engaging in unstructured nature play as children, this does not lead most to provide the same experiences for young children, despite the benefits on child development, particularly in the area of risk-assessment.

Herrington, et al. (2015). *Position statement on active outdoor play*. Retrieved from <http://childnature.ca/wp-content/uploads/2017/10/B.-EN-Active-Outdoor-Play-Position-Statement-FINAL-DESIGN.pdf>

A two-page evidence-informed position statement with recommendations for active outdoor play in a Canadian context.

Hewitt Taylor, J., & Heaslip, V. (2012). Protecting children or creating vulnerability? *Community Practitioner*, 85(12), 31-3. Retrieved from <https://ezproxy.mohawkcollege.ca/login?url=https://search-proquest-com.ezproxy.mohawkcollege.ca/docview/1269463990?accountid=39951>

This Journal article discusses challenges that may be presented while working with parents when children are engaging in risky play. The article suggests key discussion and perspectives to help engage with children and families about risk play.

Inspiring Scotland. (2018). *Knowledge hub: It's safer outdoors than in indoors*. Retrieved from <https://www.inspiringscotland.org.uk/hub/safer-outdoors-indoors/>

A web embedded video. Dr. Mark Tremblay of Canada's HALO Research talks to Prof. John Reilly of

the University of Strathclyde and Rachel Cowper of Inspiring Scotland about how, counter to popular belief, it is safer for children to be outdoors than indoors.

Lawson Foundation. (n.d.). *Outdoor play strategy: An exploration of children's unstructured outdoor play in Canada*. Retrieved from <https://lawson.ca/wp-content/uploads/OutdoorPlayInfoGraphic.pdf>

An infographic resource which highlights several Lawson Foundation funded research projects currently being conducted across Canada.

Leggett, N., & Newman, L. (2017). Play: Challenging educators' beliefs about play in the indoor and outdoor environment. *Australasian Journal of Early Childhood*, 42(1), 24-32. doi:10.23965/ajec.42.1.03

Authors identify play as a “contested concept” and explore the range of educators' understandings from allowing freedom for children to play without interference, through to a range of adult engagement levels. Findings highlight differences between role and responsibility perceptions whereby educators shifted roles from teacher to supervisor between contexts. The authors advocate for the re-examination of the role of the educator in children's play. This paper suggests that by acknowledging the role of the educator as an intentional teacher both indoors and outdoors, and emphasising the complexity of the educator role, a more robust definition of play that is reflective of contemporary early childhood contexts and curricula can evolve to strengthen educator understanding and practice.

OutsidePlay.ca. (2017). *Take a risk, go play outside!* Retrieved from <https://outsideplay.ca>

A British Columbia based website that aims to change parental perceptions and risk aversion behaviour. The site provides information about ways to engage in risk and why risky play is important. A template is provided to develop an Outside Play Action Plan.

Scottish Government. (2013, June 21). *Play strategy for Scotland: Our vision*. Retrieved from <https://www.gov.scot/publications/play-strategy-scotland-vision/>

An evidence informed government position on the importance of play as a child's right and its connection to community development.

Spencer, G., Bundy, A., Wyver, S., Villeneuve, M., Tranter, P., Beetham, K., ... Naughton, G. (2016). Uncertainty in the school playground: Shifting rationalities and teachers' sense making in the management of risks for children with disabilities. *Health, Risk & Society*, 18(5-6), 301-317. doi:10.1080/13698575.2016.1238447

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includes qualitative data collected from two schools between October 2014 and September 2015 using video observations of children's play and teachers' responses to an online Tolerance of Risk in Play Scale. The findings point out the competing logics and forms of sense making used by teachers to manage the unknown. The analysis explored the ways in which risk strategies were (re)framed by school staff and how 'letting-go' or embracing uncertainty offers children opportunities to engage in risk-taking.

Tremblay, M. S., Gray, C., Babcock, S. Barnes, J., Bradstreet, C. C., Carr, D. et al. (2015, June 8). Position statement on active outdoor play. *International journal of environmental research and public health*. 12(6) doi: 10.3390/ijerph120606475

A diverse, cross-sectoral group of partners, stakeholders and researchers, collaborated to develop an evidence-informed Position Statement on active outdoor play for children aged 3–12 years. The Position Statement was created in response to practitioner, academic, legal, insurance and public debate, dialogue and disagreement on the relative benefits and harms of active (including risky) outdoor play.

Wyver, S., Tranter, P., Naughton, G., Little, H., Hansen Sandseter, E. B., & Bundy, A. (2010). Ten ways to restrict children's freedom to play: The problem of surplus safety. *Contemporary Issues in Early Childhood*. 11(3). 263 – 277. <https://doi.org/10.2304/ciec.2010.11.3.263>

In this article, the authors examine the pervasiveness of surplus safety in the lives of young children. They argue that restrictions now imposed on children's play to promote safety may, paradoxically, expose children to more serious short and longer term threats of illness and limit children's life opportunities. By comparing experiences from Australia and Norway, the authors demonstrate that surplus safety is not a necessary outcome of living in a modern Western society.

20. Physical Activity

Becker, D. R., Grist, C. L., Caudle, L. A., & Watson, M. K. (2018). Complex physical activity, outdoor play, and school readiness among preschoolers. *Global Education Review*, 5(2), 110-122. Retrieved from <https://doaj.org/article/b890f37c8b5d45f3bddc2ff8fa05e1fc>

The journal article suggests that an outdoor environment that encourages the child to be physically active, and promotes activities that include a combination of aerobic movement and complex motor skills, allows for social interactions and can be connected to school readiness among preschoolers.

Go2play (May 2017). *Play champions toolkit: A guide for developing young play champions in primary schools*. Retrieved from <https://www.inspiringscotland.org.uk/wp-content/uploads/2017/05/Play-Champions-Toolkit-2016-web.pdf>

This 46 page .PDF Toolkit is designed to focus on engaging school-age children in more activity that is playful within their school day. It includes a program that can be used to support children to become leaders of play. The benefits of play and physical activity are also included.



Physical development, including strength and locomotor skills, is enhanced through interactions with natural challenges

Hyndman, B., Benson, A., & Telford, A. (2016). Active play: Exploring the influences on children's school playground activities. *American Journal of Play*, 8(3), 325-344. Retrieved from <https://eric.ed.gov/contentdelivery/servlet/ERICServlet?accno=EJ1108796>

The article reviews research on children's active play and explores its influence on school playgrounds. Studies of individual and social play are reviewed to explore the effect of physical environments on active play, and the impact of school policies on children's active play on school playgrounds.

Little, H., & Sweller, N. (2014). Affordances for risk-taking and physical activity in Australian early

childhood education settings. *Early Childhood Education Journal*, 43(4), 337-345. doi:10.1007/s10643-014-0667-0

This journal article reports findings of an on-line survey examining resources, spaces, and affordances for physical activity (PA) at 245 Australian ECE centres. Findings indicate that centres were generally well resourced to promote physical play and provide a diverse range of experiences that support PA and motor development, although varied in terms of opportunities for risk-taking in play. Most respondents believed the environment at their centres supported children's engagement in moderate to vigorous PA, however, regulatory restrictions relating to recommended height limits on climbing apparatus and having insufficient space were identified as factors limiting opportunities for challenging, physically active play. Outdoor space and teacher support are identified as important factors in childhood settings to promote PA and risk-taking.

ParticipACTION. (2018). *Report card*. Retrieved from <https://www.participaction.com/en-ca/resources/report-card>

Is the most comprehensive report card on the physical activity of Canadian children and youth. Results indicate that, "Canadian kids need to move more to boost their brain health". The report synthesizes multiple sources of data, including peer-reviewed research to determine evidence-informed grades across 14 health indicators. Physical activity and outdoor play helps children with physical development and positive mental health. Results indicate that 51% 5-17 years old and 76% 3-4 years olds are more interested in television and video games and are not the Canadian 24-hour movement guidelines.

Veiga, G., Neto, C., & Rieffe, C. (2016). Preschoolers' free play – connections with emotional and social functioning. *International Journal of Emotional Education*, 8(1), 48-62. Retrieved from <https://ezproxy.mohawkcollege.ca/login?url=https://search-proquest-com.ezproxy.mohawkcollege.ca/docview/1788745450?accountid=39951>

This study aims to examine whether free play will help prevent disruptive behaviours and if children's physical activity impacts their social and emotional development.

21. School Readiness

Becker, D. R., Grist, C. L., Caudle, L. A., & Watson, M. K. (2018). Complex physical activity, outdoor play, and school readiness among preschoolers. *Global Education Review*, 5(2), 110-122. Retrieved from <https://doaj.org/article/b890f37c8b5d45f3bddc2ff8fa05e1fc>

The journal article suggests that an outdoor environment that encourages the child to be physically active, and promotes activities that include a combination of aerobic movement and complex motor skills allows for social interactions and can be connected to school readiness among preschoolers.

ParticipACTION. (2018). *Here's how supporting your child's physical activity can help them succeed in the classroom.* Retrieved from <https://www.participaction.com/en-ca/blog/your-child-physical-activity-can-help-them-succeed-in-the-classroom>

A question and answer style blog which assist parents and readers to understand the connection between physical activity and school success. Tips for supporting healthy brain activity are also included.



In addition to math and science concepts, outdoor experiences support literacy skills too

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