



Raising healthy children for a healthy planet

2017

Project Steering Committee 2015–2017

Nicole Bell (Trent University, School of Education and Professional Learning)

Kim Dobson (Outdoor Educator, KPRDSB¹)

Cameron Douglas (Secondary Teacher, KPRDSB¹)

Paul Elliott (Trent University, School of Education and Professional Learning)

Anne Gallant (Peterborough Public Health)

Tanya Kranc (Elementary Teacher, PVNCCDSB²)

David Kubica (Secondary Teacher, KPRDSB¹)

Barbara Lillico (Peterborough Family Resource Centre)

Mary Lou Lummiss (Fleming College, Early Childhood Education)

Peter Mangold (Superintendent, KPRDSB¹)

Jim Moloney (Peterborough Utilities, Riverview Park and Zoo)

Sheila Potter (Elementary Teacher, KPRDSB¹; Outdoor Educator)

Johan Ragetli (Elementary Teacher, KPRDSB¹)

Kathy Reid (Otonabee Conservation)

Jacob Rodenburg (Camp Kawartha)

Brianna Salmon (GreenUP)

Sarah Taylor (Consultant, PVNCCDSB²)

Nancy Thomson (Outdoor Educator, THINK Outside)



¹ Kawartha Pine Ridge District School Board

² Peterborough Victoria Northumberland Clarington Catholic District School Board

Project Coordinator, Lead Researcher and Co-Writer: Cathy Dueck

Project Director and Co-Writer: Jacob Rodenburg

Indigenous Consultation Facilitator: Cherylanne James, TRACKS
(Trent Aboriginal Cultural Knowledge and Science)

Project Advisor: Joanne Richmond (Ontario Trillium Foundation)

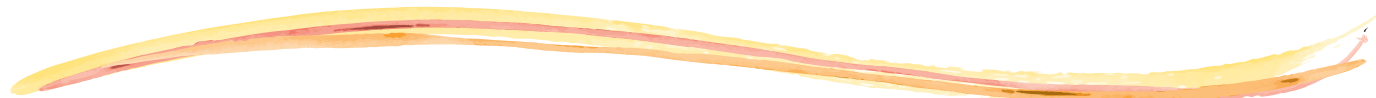
Research Advisor: Lisa Nisbet (Trent University, Psychology)

Illustrations and Layout: Jackie Donaldson

Student Research Assistants: Chelsea Newman, Mason Godden, Eliza Nicholson

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Summary

How do we raise engaged and concerned citizens in our community? How can we teach children to care for each other, for the land and water and all the beings who share the earth with us? *Pathway to Stewardship and Kinship* is a community-based strategy that attempts to answer these important questions. It provides a way forward so that we can collectively inspire our children and youth to create healthy and vibrant communities for themselves and for the planet.

This *Pathway* is both a guide and a roadmap that helps communities create a culture of care and connectivity both for people and for the living systems that support and nurture us all, based on every stage of a child's development. Using a series of *landmarks* or goals for each age group (30 landmarks in total), the *Pathway* is carefully matched with the developmental needs and abilities of children and youth as they grow from birth to adulthood. It suggests local resources to guide each landmark experience.



This is a call to action for everyone who plans for, or spends time with children – parents, teachers, care-givers, relatives, community groups, health professionals and government agencies. *Pathway to Stewardship and Kinship* integrates with the Ontario curriculum, and provides many ideas for family activities and community programs. The more broadly this strategy is endorsed and adopted in the community, the deeper the benefit for our children's health and the closely linked health of the environment.

In this document, we define a steward as someone who takes responsibility for the well-being of all community members, both human and non-human alike. A healthy ecosystem is the very foundation of human health. Our shared journey begins by rediscovering and respecting the deep ties that connect all things on the planet. The will to nourish these relationships emerges from a sense of belonging to a place and a sense of kinship with all who live there. In the process of building strong and enduring relationships, we acknowledge that we are part of an unfolding story, a story that comprises all things that came before and all those yet to come.

The *Pathway* proposal is grounded in extensive research in child development, educational theory, moral development, and the factors promoting mental and physical health in children. Many concepts emerging from the literature are similar to those expressed in Indigenous cultures, which we note with great appreciation and respect.

The strategy outlined in the *Pathway to Stewardship and Kinship* also reflects the thoughts, ideas and insights of leaders in the Peterborough-Kawartha region. We interviewed 80 community leaders from a wide variety of sectors, to learn what childhood experiences helped promote their love of the natural world, and to collect their recommendations for today's young people. These results were overlaid on the literature review to develop the landmarks outlined in this document.

Many of the childhood experiences that foster stewardship in later life also play a key role in building children's health today. For example, giving children ample time for unstructured play in diverse natural areas not only encourages a lifelong love of the natural world, but these experiences enhance mental and physical health, creativity, problem-solving and cooperation with others.

Learning and growing is a never-ending process. In the same way, this document will continue to change and develop as we explore the pathways to health, justice and kinship for all beings. Our journey has begun in Peterborough-Kawartha, but its universal concepts can be applied in other regions as well. It is grounded in our shared love for our children and our unwavering belief in their ability to create healthy, resilient communities in which all can thrive – now and far into the future.


Getting Started

Imagine a community where all children grow up respecting each other and the natural world around them – one in which every child values human and environmental health. Imagine our children learning how to help make their neighbourhoods and their schools more vibrant and sustainable – a place where each child is guided and inspired by their parents, teachers and leaders to nurture a diverse and healthy community where all living things can thrive.

We believe that here in the Greater Peterborough area, we have the creativity, resources and expertise to make this vision a reality. *Pathway to Stewardship and Kinship* is a call for collective action in simple ways to create a formidable collective impact on the well-being of our children, our community, the earth, and our collective future.

We acknowledge that our community's journey is unfolding on the traditional territories of the Michi Zaagiik Anishinaabeg (Mississauga Ojibway), adjacent to the territory of the Haudenosaunee (Iroquois) on the land recognized by the Williams Treaty. The Anishinaabeg name for Peterborough is Nogojiwanong, which means "place at the foot of the rapids," in reference to the mighty river at the heart of the community. Rethinking our relationship with the natural world is the first step in the journey towards an equitable, sustainable and healthy future – a journey where Indigenous wisdom provides important guidance.

At the heart of the discussion are the concepts of caring and connectivity and the role they must play in realizing this vision for the future. Stewardship is an important concept that suggests deep attachments and sense of care and protection. Kinship is a related concept suggesting close relationship, equality, and reciprocal sharing for the benefit of all. Nurturing these qualities is about providing children with the right tools and experiences at different stages of their development to know, love, respect and ultimately protect the very life systems that sustain us all. In so doing, we empower our children, and give them hope. These are powerful gifts.



“What we really need are people who know how to live responsibly with the earth and fulfill their role as human beings to take what they need and give back, to nurture self and each other, to respect and give thanks for all things.

– Tayohseron:tye Nikki Auten

We are especially grateful to the Indigenous contributors and advisors who generously shared their experiences and wisdom with us. There is so much to be learned from Indigenous teachings as we strive to create a culture of caring and responsibility that is reflected in the way we raise our children. In fact, many teachings from Indigenous cultures are echoed in modern research on child development which stresses that play time in nature develops relationships that are fundamental to healthy child development. Nature is an irreplaceable teacher and mentor.

What is Stewardship?

In this document, the word stewardship means a sense of connection to, caring about, and responsibility for each other and the natural world that supports us. It involves personal action to protect and enhance the health and well-being of both natural and human communities, which are in fact interwoven. It also recognizes that human health is entirely dependent on flourishing ecosystems.

Nurturing stewardship is a proactive undertaking. Building on a sense of awe and wonder, we cultivate empathy and respect for all life. As children begin to learn how the world functions, they understand the impacts that people can have, and explore solutions to challenges in their community. As they develop leadership skills by participating in local action, they develop confidence, a sense of agency, and belonging.

Stewardship:

The Challenge of Language

Words have many different meanings, based on culture, context and history. Throughout this project, we have had long discussions about the word “stewardship.” For many people, stewardship is the best way to describe a sense of caring, connection and responsibility for the earth and the people whose lives depend on it. For others, the word’s historical roots imply an imbalance of status – of caring for something that is not equal to us.

A common thread in Indigenous cultures is a sense of kinship between all parts of Creation. Everything is related and equally important. The earth sustains us and we are in turn responsible for caring for it – an equal partnership of respectful relationship.

The challenge of language continues. We will still use the word “stewardship” in this document, along with its close relatives, kinship, caring, connectivity, relationship and community. In the journey to forge a culture that sustains and celebrates life, we may need to also forge new words to describe it. A challenge indeed for us all!

True stewardship means living in ways that honour and strengthen the complex and interdependent web of life we are embedded within. As John Muir suggested: *“When one tugs at a single thing in nature, we find it attached to the rest of the world.”*


Why Now?

There are both encouraging and troubling indicators that now is the time to move forward.

In 2016, the Peterborough-Kawartha-Haliburton region was recognized by the United Nations as a “Regional Centre of Expertise in Sustainability Education” (RCE), one of only 150 communities worldwide to be awarded this prestigious designation. We have an amazing number of committed people, a vast array of excellent services, and a great deal of collective experience to move to the next phase of our journey towards sustainability.

However, environmental indicators continue to be alarming worldwide. Issues such as climate change, habitat loss, declining species diversity and human population growth continue to increase in scale and complexity, despite the efforts of many dedicated people. The enormity of global issues can result in an overwhelming sense of futility as we face such daunting problems. We may overlook the tremendous power of collective human will, resiliency and determination to create deep and lasting change.

A primary driving force behind this initiative is a deep concern for the welfare of our youth and children, in light of the many challenges they face. Many sectors are sending out warning signals that something is drastically wrong. Psychologists have pointed to an epidemic of mental health issues ranging from anxiety disorders in children, rising incidence of suicide and substance abuse in youth, to feelings of alienation and depression in adults. Teachers notice a spike in the number children with special needs, such as attention deficits and anti-social behaviours. Health care providers are concerned about children's fitness and health status, resulting from too little physical activity and too much screen time. This sedentary, indoor lifestyle can contribute to a suite of health challenges including heart disease and diabetes. Today's children may be the first in generations to not live as long as their parents.¹



“The human and economic consequences of continuing to allow unhealthy weights to threaten our children's health are so dire that the status quo is simply not an option.”

– Healthy Kids Panel²

The Community Foundation of Greater Peterborough's 2016 “Vital Signs” community profile shows that only 7% of local children, and 4% of youth are getting recommended levels of physical activity. Local residents' self-assessment of mental health is also lower and dropping faster, than provincial averages.³ Now is the time for decisive action.



“Ontario has a strong track record in creating social change. Smoking rates are down – as is drinking and driving. Most Ontarians wear seatbelts. We are skilled at working together and using a combination of approaches to encourage Ontarians to do things that are good for their health.”

– Healthy Kids Panel⁴

¹ Parliament of Canada (2007), *Healthy Weights for Healthy Kids*, <http://www.parl.gc.ca/HousePublications/Publication.aspx?DocId=2795145>

² Report to Ontario Ministry of Health by Healthy Kids Panel (2013), *No Time to Wait*, 9.

³ Community Foundation of Greater Peterborough (2016), Greater Peterborough's *Vital Signs 2016*, <http://www.cfgp.ca/vitalsigns/>

⁴ Report to Ontario Ministry of Health by Healthy Kids Panel (2013), *No Time to Wait*, 10.

These issues have led to a flurry of research into causes and potential solutions to these issues, starting in early childhood. Much of this research is coming to very similar conclusions – that plenty of childhood time spent in unstructured play in natural outdoor environments has many benefits, including^{5,6,7,8,9,10}.

- ✓ reducing stress
- ✓ improving physical and mental health
- ✓ stimulating creativity
- ✓ enhancing concentration and conflict resolution skills
- ✓ building self-esteem
- ✓ encouraging co-operation, collaboration and self-regulation
- ✓ developing problem-solving abilities, and
- ✓ sparking a life-long interest in learning

And, families will be interested to note that similar benefits accrue to adults.^{11,12,13} Spending time in nature benefits everyone.



Physical
Health



Mental
Health



Community
Health



Environmental
Health

Giving children many opportunities to have positive experiences in the natural world, especially at a young age, is the most powerful way to stimulate a sense of community, of belonging, and a sense of responsibility towards

⁵ Participaction (2015), *The Biggest Risk is Keeping Kids Indoors*, https://www.participaction.com/sites/default/files/downloads/Participaction-2015ReportCard-FullReport_5.pdf

⁶ Louise Chawla (2015), "Benefits of Nature Contact for Children," *Journal of Planning Literature* 30(4): 433-452.

⁷ A. Faber Taylor and F. E. Kuo (2009), "Children with Attention Deficits Concentrate Better After Walk in the Park," *Journal of Attention Disorders* 12: 402-409.

⁸ Richard Louv (2008), *Last Child in the Woods: Saving Our Children from Nature-Deficit Disorder* (Algonquin Books).

⁹ Sarah Anne Munoz (2009), *Children in the Outdoors: A Literature Review*, Sustainable Development Research Centre, Horizon Scotland.

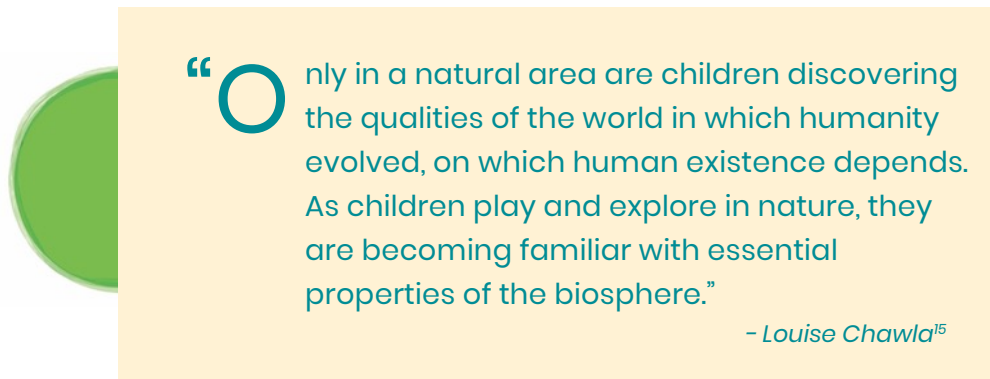
¹⁰ Tim Gill (2014), "The Benefits of Children's Engagement with Nature: A Systematic Literature Review," *Children, Youth and Environments* 24(2): 10-34.

¹¹ E. Nisbet, J. M. Zelinski and S. A. Murphy (2009), "The Nature Relatedness Scale: Linking Individuals' Connection with Nature to Environmental Concern and Behaviour," *Environment and Behavior* 41: 715-740.

¹² F. E. Kuo and W. C. Sullivan (2001a), "Aggression and Violence in the Inner City: Effects of Environment via Mental Fatigue," *Environment and Behavior* 33: 543-57.

¹³ Eva M. Selhub and Alan C. Logan (2012), *Your Brain on Nature: The Science of Nature's Influence on Your Health, Happiness, and Vitality*, (Toronto: HarperCollins Publishers Ltd.).

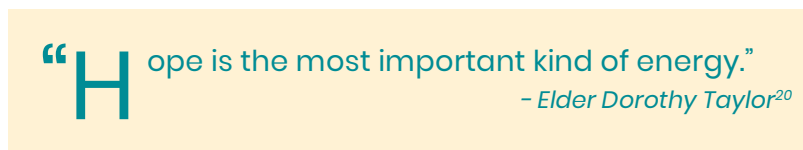
the world around them.¹⁴ And by engaging in simple acts of stewardship we inspire advocacy and an ethic of caring. In the end, this seems like such a simple recipe for engaged citizenship.



Sadly, most childhood experiences in a modern world push children in exactly the opposite direction. Many children's days are pre-scheduled from the moment they wake. Fascination with technology leads to children spending an average of 7½ hours a day in front of a screen.¹⁶

Media focus on rare incidents of child abduction frightens us into over-protection and we pass our fears onto our children. For "safety's sake" and fear of litigation, we've made our schoolyards and parks into sterile environments with little opportunity for creative play or interaction with the natural world. We drive our children to and from school. Children are missing the opportunity to play and explore freely in the outdoors.¹⁷ This unfortunate sense of risk results in unintentional and long-lasting harm to children.¹⁸ Health professionals see increasing numbers of children with anxiety and attention disorders, fearful of people and nature, feeling powerless and disconnected from the world around them.¹⁹

It's the opposite of what we deeply wish for our children. However, as we are reminded by the wisdom of Elder Dorothy Taylor from Curve Lake First Nation: "Hope is the most important kind of energy."²⁰ And through hope and collective action, miraculous things can happen.



¹⁴ Ontario Ministry of Education (2014), *How Does Learning Happen? Ontario's Pedagogy for the Early Years*.

¹⁵ Louise Chawla (2017b), "Pivotal Experiences in the Development of Connection and Care for Nature in Childhood and Adolescence." In *Relearn Nature* (in press in French translation), edited by Cynthia Fleury and Anne-Caroline Prévot. Paris: CNRS Editions, 7.

¹⁶ Statistics Canada, *2012-13 Canadian Health Measures Survey*, cited in *Participation* (2015).

¹⁷ *Participation* (2015), *The Biggest Risk is Keeping Kids Indoors*.

¹⁸ Mariana Brussoni (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(6): 6455-6474.

¹⁹ Peter Gray (2011), "The Decline of Play and the Rise of Psychopathology in Children and Adolescents," *American Journal of Play* 3: 443-463.

²⁰ Dorothy Taylor, Elder, Curve Lake First Nation, "Nibi Emosaawdamojing: Those that Walk for the Water" (Lecture, Elders' Gathering, Trent University, March 4, 2017).

The Road to Stewardship and Kinship

This proposal attempts to address these concerns in a simple, straightforward way. We have combined scientific research with the wisdom of local leaders to produce a series of recommendations for children at various stages of their growth and development. These “landmarks” will not only serve to rekindle our children’s connections to land and water, but they will help us to spark our innate love of the world around us, and to rediscover our own connections with, and responsibility to, our human and natural communities.

The landmarks also provide ideas for inspiring action in a way that builds hope and empowerment, instead of fostering fear. Nurturing stewardship and deepening relationships means not only educating the “head”, but also providing experiences that cultivate the “heart” and translate into positive action for the “hands.”²¹

Another common thread in Indigenous worldviews is the importance of “spirit” in this concept of “living a good life.” Here again, the complexities of language challenge us, as “spirit,” for many people, has religious overtones, both pro and con. We are drawn to the interpretation that spirit is “a sense of the interconnectedness of things and a sense that we live in a sea of energy that animates everything.”²²

This tapestry of relationships connects us to the world around us, giving a sense of belonging, of home, and our place in it. This is what anchors us to our world.

Land • mark

1. An object or feature of a landscape or town that is easily seen from a distance, especially one that enables someone to establish their location;
2. An event, discovery or change marking an important stage or turning point in something.

– Oxford Dictionary



²¹ Forest School Canada (2014), *Forest and Nature School in Canada: A Head, Heart, Hands Approach to Outdoor Learning* http://childnature.ca/wp-content/uploads/2016/05/FSC-Guide_web.pdf

²² David Newhouse (2008). “Ganigonhi:oh: The Good Mind Meets the Academy,” *Canadian Journal of Native Education*, 31(1): 184-197.

Who Is This For?

We hope these concepts and landmarks will be useful to teachers, parents, grandparents, caregivers, community groups – in short, anyone who spends time with children, as well as for young people themselves.

This framework for stewardship and kinship will enhance and enrich existing parenting manuals, detailed school curricula and community programs. The recommendations link with school programs, provide ideas for family activities, action projects for children of all ages, and guidance for community groups who are planning or conducting programs for children and youth. It provides a common focus that everyone can share, for the benefit of all.



Photo courtesy of Compass Early Learning

The more broadly these basic principles are recognized and encouraged by all sectors of our community, the wider the potential benefits for our children's health and lasting well-being. We don't need big budgets or years of preparation. We can and should start now.

The Background

Peterborough is blessed to have many wonderful people doing good work with children. The concept for this framework came from Camp Kawartha's Jacob Rodenburg as he developed a series of linked stewardship programs for school groups. As he discussed the concept with other community groups, it made sense to expand the scope to include families and any community resources offering services for children and youth.

We believe the saying "It takes a village to raise a child," and likewise, "It takes a village to raise a steward." This must be a collective and coordinated undertaking.

We formed a steering committee of educators, public health professionals and conservation groups to oversee the project. Committee members offered their extensive expertise with children and youth ranging from birth through the teen years, coupled with a commitment to environmental health and sustainability.

Seed funding from the Community Foundation of Greater Peterborough facilitated extensive background research. We began with a review of recent research in child development, including factors promoting mental and physical health, moral and social development. Continued support from the Ontario Trillium Foundation helped to reach more deeply into the local community as well as across North America, for ideas, advice and feedback from many experts in related fields. Trent University's TRACKS program (Trent Aboriginal Cultural Knowledge of Science) facilitated the sharing of a broader range of perspectives from regional Indigenous teachers, students and Elders.

We interviewed 80 regional community leaders interested in the environment and environmental issues, to learn what childhood experiences shaped them, and hear their suggestions for the best ways to nurture caring, connected and responsible young people. The research has resulted in this proposal – a challenge to our entire community to work together in raising our children as engaged citizens.

Moving Forward Together

This proposal represents the voices of many diverse sectors in Greater Peterborough: education, health, government, environment, social services, business and non-profit groups as well as regional Indigenous voices from Anishinaabe and Haudenosaunee cultures. It is a unique first attempt to chart a path specifically towards stewardship in the way we raise our children. It is also a dynamic proposal that will strengthen and benefit from ongoing community discussion and recommendations. It is a place to begin, a place to help us create an enduring culture of stewardship and kinship for our community. We hope it will also inspire other jurisdictions to do the same.



For Everyone

As we began to review and summarize our research, it became obvious that there are important, overarching stewardship principles relevant for everyone, regardless of the age or stage of the young person. We summarize them here, focusing in the following section on more age-specific principles and landmarks.

Respect for each other and all nature

A fundamental value in building a foundation for stewardship is the understanding that life itself is amazing and that all things – human and non-human – deserve respect.²³ This value is especially important for everyone who interacts with children. It might take some personal reflection and resolve to overcome fears or prejudices that we adults have acquired, in order to become effective mentors for children on the road to stewardship. A simple way to introduce and nurture respect and empathy is to provide children opportunities for positive interactions with animals, either wild or domestic.

In Indigenous views of the world, even non-living things have a spirit – a connecting thread in the tapestry of life. Water, air, rocks, as well as plants and animals all have important roles in Creation, and are equally deserving of respectful relationships.

This principle is so fundamental, it is recognized in the United Nations Convention on the Rights of the Child, that “Education of the child shall be directed to the development of respect for the natural environment.”²⁴

Sense of awe and wonder

We are never too old to appreciate the wonders of life, or to encourage and share that sense of awe that results from truly seeing the world around us. Awe and wonder underpin a natural curiosity and desire to learn, which

²³ Nicole Bell (2013), “Anishinaabe Bimaadiziwin: Living Spiritually with Respect, Relationship, Reciprocity and Responsibility,” *Contemporary Studies in Environmental and Indigenous Pedagogies* 5: 89–107.

²⁴ United Nations Human Rights, Office of the High Commissioner (1990), *Convention on the Rights of the Child* Article 29.1(e) <http://www.ohchr.org/EN/ProfessionalInterest/Pages/CRC.aspx>

accompany the lifelong thrill of discovery. We forget as adults how powerful language can be. If you want to cultivate a sense of wonder you need to use the language of wonder (“Isn’t this amazing!”).^{25,26}

Natural curiosity and discovery

It’s a wise teacher who knows when to share information, and when to let natural discovery take place. When children are subjected to too many facts, the overload can actually inhibit or destroy interest and learning. The best learning focuses on the child, not the teacher. Keep in mind that the engine of learning is curiosity.²⁷ As adults, we need to remember that a name or a label is merely a beginning point. It is the start of a story – an intriguing one – and it is up to you to keep the story going! A good question should invite other questions. Think about your questions as way to encourage kids to ask why, to wonder, to marvel at the natural world and to promote further exploration.

Sense of place

An important part of developing a sense of security and belonging is spending enough time outdoors in the same place to become deeply familiar and connected with it. For those who have developed a particular attachment to a place when growing up, that sense of place becomes part of their identity. It is important to give children plenty of time to develop those deep attachments to place, whether that’s a favourite park, a cottage, a camp or other outdoor place with special memories.²⁸

Sense of gratitude

Often, we become so preoccupied by daily pressures and challenges, that we become oblivious to the many wonders and gifts around us. Wisdom from many Faith communities and Indigenous ceremonies remind us to take time every day to recognize and appreciate the many gifts of creation.²⁹ This can begin with mindfulness – taking time to be calm, quiet and present in the moment – noticing in detail where we are, and letting cares and worries evaporate. The act of giving thanks can help us to strengthen our connections to each other and to the special places that are an integral part of our community. This is an important tool in cultivating mental health at all stages of life.



²⁵ Rachel Carson (1998), *The Sense of Wonder*, (New York: HarperCollins), First published 1965 by Harper and Row.

²⁶ Louv (2008), “Last Child in the Woods.”

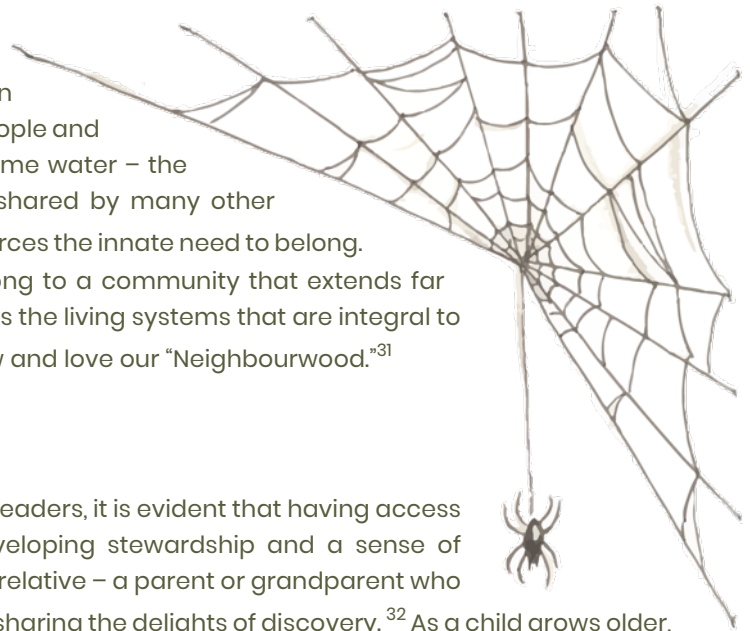
²⁷ David Sobel (1998), “Beyond Ecophobia,” *Yes Magazine* <http://www.yesmagazine.org/issues/education-for-life/803>

²⁸ D. A. Gruenwald (2003), “The Best of Both Worlds: a Critical Pedagogy of Place,” *Educational Researcher* 32(4): 3-12.

²⁹ Newhouse (2008), “Ganigonhi:oh: The Good Mind Meets the Academy.”

Interconnectedness

Children benefit from many opportunities to learn how our lives are connected to the lives of other people and other living things. We share the same air, the same water – the food we eat contains nutrients that have been shared by many other beings for many years.³⁰ This understanding reinforces the innate need to belong. Stewardship involves understanding that we belong to a community that extends far beyond our close friends and relatives and includes the living systems that are integral to health. Let's encourage our children to get to know and love our "Neighbourhood."³¹



Mentorship at all ages

Both in research and discussions with community leaders, it is evident that having access to a caring mentor is critically important in developing stewardship and a sense of belonging. In the early years, this is usually a close relative – a parent or grandparent who spends time with the child, exploring together and sharing the delights of discovery.³² As a child grows older, the mentor is often a teacher or other youth leader who becomes a trusted and admired role model.³³ While having knowledge to share with a child is helpful, it's more important to share an interest and to spark curiosity.³⁴ Seniors can be valuable mentors for children, and opportunities for inter-generational learning can be of mutual benefit.

Overcoming fears

Not everyone feels comfortable and safe outdoors – especially in natural areas. Building comfort and security outdoors is something you can learn, with patience and practice. Learn the real dangers (falling over cliffs, drowning etc.) and learn how to handle them (stay away from the edge, learn how to swim etc.). Fear of the dark, animals, insects, snakes etc. can be overcome with patience. Working on our own fears as adults can help our children become more confident and less anxious and fearful. Remember that getting scrapes is a normal part of growing up, and letting children take reasonable risks (jumping, climbing) helps them to stretch their abilities and learn their limits. Learning to overcome fears literally opens the doors to a world of wonders.^{35,36,37}

³⁰ Clinton L. Beckford and Russell Nahdee (2011), "Teaching for Ecological Sustainability: Incorporating Indigenous Philosophies and Practices," *What Works? Research into Practice*. Ontario Ministry of Education.

³¹ W. A. Kenney and D. Puric-Mladenovic (2014), *Community Engagement in Urban Forest Stewardship: Neighbourhoods © Approach*. Presented at the 11th Canadian Urban Forest Conference, http://neighbourhoods.org/uploads/3/4/5/3/455999/neighbourhoodscufc11_march30_15.pdf

³² Ruth A. Wilson (2007) cited in Dowdell et al (2011), "Nature and its Influence on Children's Outdoor Play."

³³ Louise Chawla (2007), "Childhood Experiences Associated with Care for the Natural World: A Theoretical Framework for Empirical Results," *Children, Youth and Environments* 17(4): 144-170.

³⁴ Louv (2008). "Last Child in the Woods."

³⁵ Participaction (2015), op. cit.

³⁶ R. D. Bixler & M. F. Floyd (1997), "Nature is Scary, Disgusting, and Uncomfortable," *Environment and Behavior*, 29 (4), 443-467.

³⁷ K. S. Lekies, G. Yost & J. Rode (2015), "Urban Youth's Experiences of Nature: Implications for Outdoor Adventure Recreation," *Journal of Outdoor Recreation and Tourism*, 9, 1-10.

Independent Mobility

While very young children cannot be expected to understand the dangers of traffic, older children who demonstrate awareness, understanding and basic safety should be rewarded with corresponding degrees of freedom of movement. This is a particularly difficult concept for today's cautious parents to understand. The 2015 report from Participaction called "The Biggest Risk is Keeping Kids Indoors" is a well-documented examination of the risks and benefits of independent mobility.³⁸

Accessibility

Differences in physical abilities need not deter anyone from enjoying time in nature. Agencies such as Five Counties Children's Centre have access to all-terrain vehicles for children, so that anyone can participate in nature adventures. Camp Kawartha has a fully accessible climbing wall. These are just a couple of examples of how our community supports children and youth of all abilities to be healthy, active stewards of our world.

Limits to screen time

Another recurring recommendation, both in research and feedback from community leaders, points to the benefits of limiting screen time – television, computer and cell phones. Too much screen time severely limits physical activity, social and creative development as well as causing a sense of separation from the natural world. While technology can offer many benefits, too much of it can be toxic to healthy development.³⁹

Creative parents, teachers and mentors can encourage positive uses of technology to enhance outdoor time for youth, such as using cell phones to create nature photo essays, access "nature apps" for information, digitized trail signage or scavenger hunts.⁴⁰



Creative expression

The arts provide one of the most powerful ways of developing the moral aspect of humanity, a foundation of mental health. Research refers repeatedly to the importance of providing opportunities at all ages to express feelings. Discussion, painting, drama, stories, dance, poetry, photography, sculpture and music are a few examples of the ways we express ourselves and learn from others. The arts are also an important vehicle for developing empathy and sympathy by imagining ourselves inside the lives of other beings.⁴¹ While young people may prefer certain ways of expressing themselves at various ages, creative expression overall remains an important factor in healthy development throughout life.^{42,43}

³⁸ Participaction (2015), op. cit.

³⁹ Louv (2008), op. cit.

⁴⁰ Rodenburg and Monkman (2016), *The Big Book of Nature Activities*, 54-62.

⁴¹ Louise Chawla, personal email communication, March 2017.

⁴² Pennsylvania Land Trust (n.d.), *Nature Play: Nurturing Children and Strengthening Conservation Through Connections to the Land*.

⁴³ Ruth A. Wilson (2007), "Fostering Goodness and Caring: Promoting Moral Development in Young Children," *Early Childhood News* <http://www.earlychildhoodnews.com/earlychildhood/...ArticleID=565>

Action

Everyone, no matter what their age or ability can do something positive for the world around them. Tending a garden, raising butterflies, caring for a natural area, reducing our energy consumption, are just some of the simple ways we empower our youth to make a positive impact right here at home. Remember the idea of agency. Kids can solve a problem provided they are given the right tools and strategies for their age. Every positive action leads to a sense of hope. And every bit of hope is empowering. As kids grow older they can begin to explore the idea of sustainable living: reducing their carbon footprint, exploring alternatives to fossil fuels, exploring product life cycle and social justice issues.^{44,45,46}

Never too late to start

What if you've just moved to town, and your kids are already in their middle years or teens? Is it too late to start the [Pathway](#) landmarks and activities? It's never too late – even if you're an adult who has rarely been outdoors and has many fears. This [Pathway to Stewardship and Kinship](#) is for everyone, at all ages, regardless of when you start on the path. The key is to support each other as we learn new ideas and skills for responsible and rewarding involvement with our community and our world.

The power of joy

All of the suggested activities are grounded in the knowledge that great joy can be found in nature and being outdoors, and that joy is contagious. Laughter is an excellent way to relieve stress, and a sense of fun is infused through all the landmarks in this document. This [Pathway to Stewardship and Kinship](#) is an enjoyable journey for every child and their mentors.

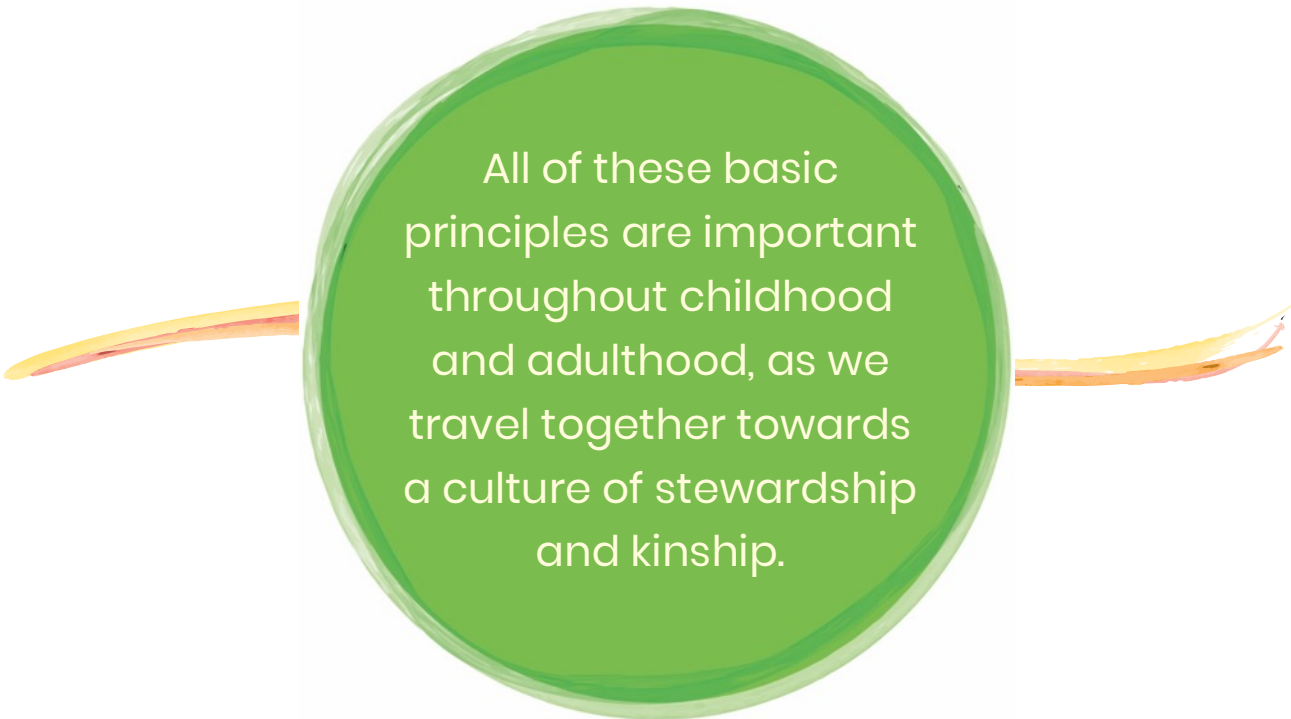


Photo courtesy of Peterborough Children's Water Festival.

⁴⁴ Susan Staniforth (2004), "Leap into Action: Simple Steps to Environmental Action," BC Conservation Foundation.

⁴⁵ Stan Kozak and Susan Elliot (2014), Connecting the Dots: Key Strategies that Transform Learning for Environmental Education, Citizenship and Sustainability, Learning for a Sustainable Future. Maracle Press: Oshawa, Ont.

⁴⁶ H. R. Hungerford and T. L. Volk (1990), "Changing Learner Behavior through Environmental Education," *Journal of Environmental Education* 21(3): 8-21.



All of these basic principles are important throughout childhood and adulthood, as we travel together towards a culture of stewardship and kinship.

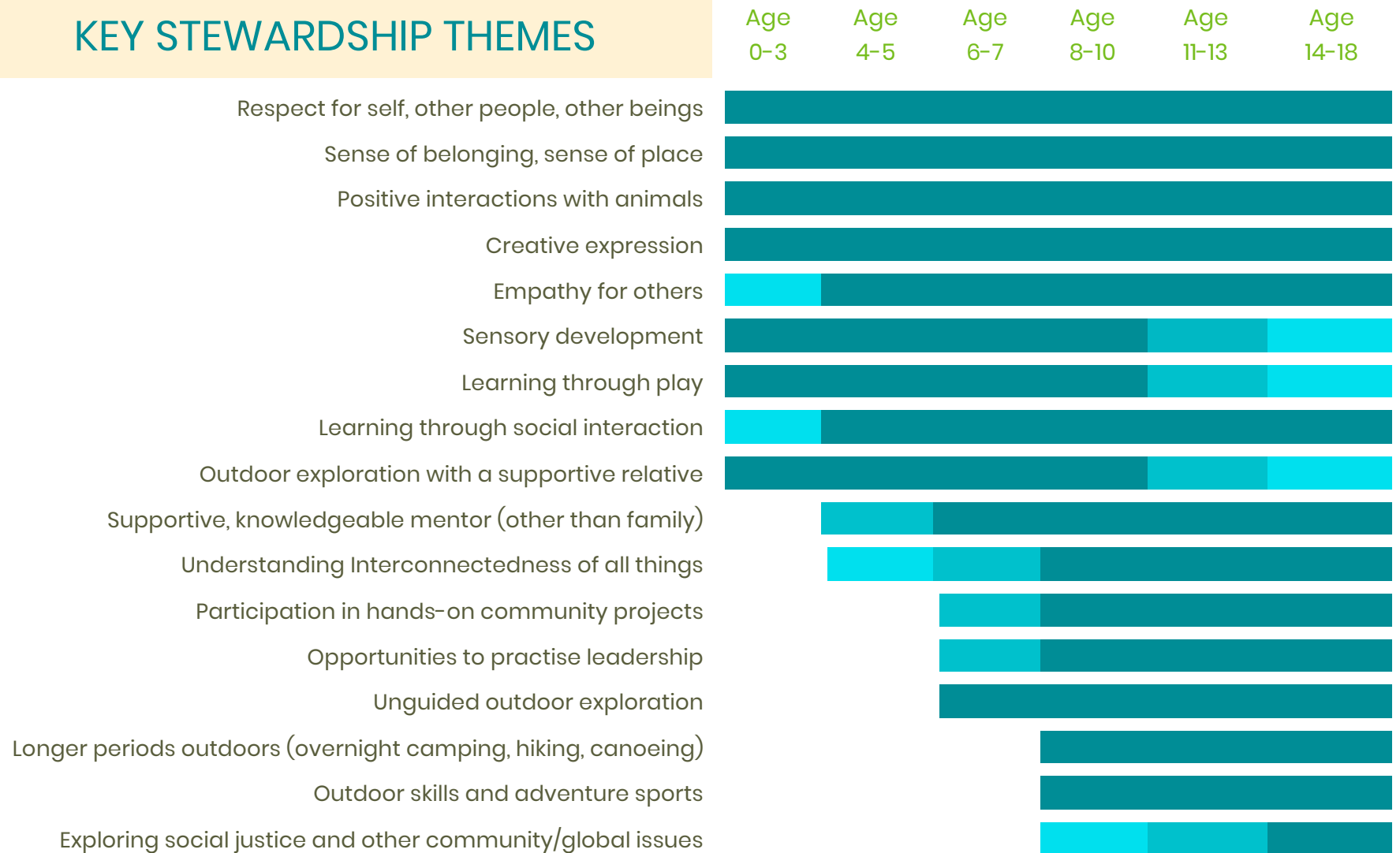
The “Key Themes” Chart

The following chart summarizes examples of key stewardship themes common to all ages, as well as those that are particularly critical at specific stages of development. This is a broad overview of concepts underlying the principles, landmarks and activities suggested in the “Ages and Stages” section that follows.

Note:

- Each theme is accompanied by a shaded bar showing ideal ages for exploring various skills and concepts;
- Remember that everyone is different, and we all grow and develop in different ways! These themes are a simple visual guide only;
- Light shading in a bar indicates some benefit for that age group, deepening to a more intense shade as potential benefits increase at other stages of life.

KEY STEWARDSHIP THEMES



Ages & Stages

The *Pathway to Stewardship and Kinship* framework grows from the understanding that children's development follows a pattern, in the same way that a seed first sends down a root, then a shoot, followed by leaves and then expands to more complex structures.

Not every child develops in exactly the same way or at the same rate, and this is natural. The principles and landmarks that follow are based on broad trends of child and youth development, recognizing the foundational blocks that must be in place before we can learn larger, more complex concepts such as connections, compassion and community.



How to Use the Framework

In the following pages, each age group begins with a few important principles that underpin each landmark. While there is some overlap between age groups, the overarching principles shift as children grow and develop different skills and interests. We can all be more effective mentors for young people by being aware of these fundamental principles that encourage stewardship at various ages and stages.

The core of this document is the *landmarks*, or specific experiences for each age group. To be as simple and accessible as possible, there are a small number of landmarks for each group. Flowing from the landmarks are suggested activities – various ways in which the landmarks could be implemented. You may have your own ideas for reaching these landmarks, and that's fine too. We recognize that every school, organization, and family has unique circumstances and there are different resources available to them. The goal is to provide every child in the Greater Peterborough Area with the opportunities, skills and resources to reach and experience each landmark. If every child can have these opportunities, our community will be better prepared with hope, strength and commitment to forge a more sustainable tomorrow.

While the landmarks are geared towards children and youth, they are also of benefit to every adult who interacts with children:

How can we work together to give these experiences to as many children as possible?

When families, schools and the broader community collaborate on a common goal, the influence on children is enormous – a powerful force for positive change.

SCHOOL – These landmarks integrate with the Ontario School Curriculum, so classroom teachers from all school boards can play an important role in endorsing and using this *Pathway to Stewardship and Kinship*.

FAMILY – Home life has a profound influence on child development. Parents, grandparents and other relatives will find plenty of enjoyable family activities in the document, which you can use as a springboard for other ideas.

COMMUNITY – Understanding the well-documented principles and landmarks in this framework will help community groups and services design effective programs for children and youth, and strengthen existing services. Wherever there are gaps in available community resources and services to support the framework, opportunities emerge for future program and resource development.

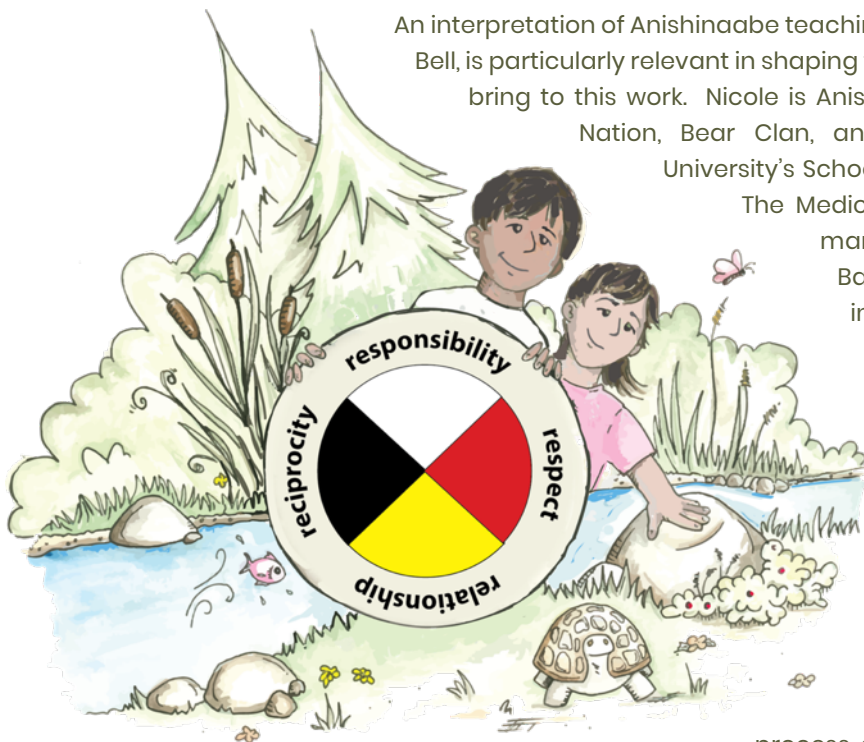
Benefits of Combining Ages

This framework is organized around specific ages and stages of development, similar to the way schools and other community services are structured. However, there are mutual benefits to encouraging children of different ages to interact in playing/learning, celebrating and planning projects together.

Children have a natural affinity for learning from friends older than themselves. Similarly, giving older children opportunities to mentor younger ones can help develop leadership skills, empathy and compassion. Seniors, both Indigenous Elders and others from all walks of life have a vast wealth of experience to share with youth, and building relationships across broad age spans is another fundamental concept of this framework.

The Wisdom of Indigenous Teachings

Canada is finally at a stage in its history where Indigenous voices are starting to be given the respect and consideration they deserve. There is a strong link between this attempt to develop a guide for healthier lives and relationships, and the First Nations cultures for whom reverence for the natural world is the very foundation of existence. As the troubling impacts of a self-preoccupied Western culture become undeniable, the importance of Indigenous Knowledge is evident to anyone with concerns for the future. A sustainable and resilient culture that evolved over millennia on this very land, surviving unthinkable hardships, provides guidance and inspiration for us all.



Medicine wheel interpretation by Nicole Bell (2013).

An interpretation of Anishinaabe teachings, shared by friend and colleague Nicole Bell, is particularly relevant in shaping the attitude and perspective that we try to bring to this work. Nicole is Anishinaabe (Algonkin), from Kitigan Zibi First Nation, Bear Clan, and Senior Indigenous Advisor for Trent University's School of Education and Professional Learning.

The Medicine Wheel is used as a teaching tool in many Indigenous cultures in North America.

Based on the four directions, it guides interpretations of the world and our roles and responsibilities in it. For example, taking action (north) should only happen after "seeing" or "visioning" where you need to go to learn and find healing (east). The next step is spending time to feel and relate to the vision (south). This must be followed by thinking and reasoning about how to take action (west), followed by finally acting on the vision.

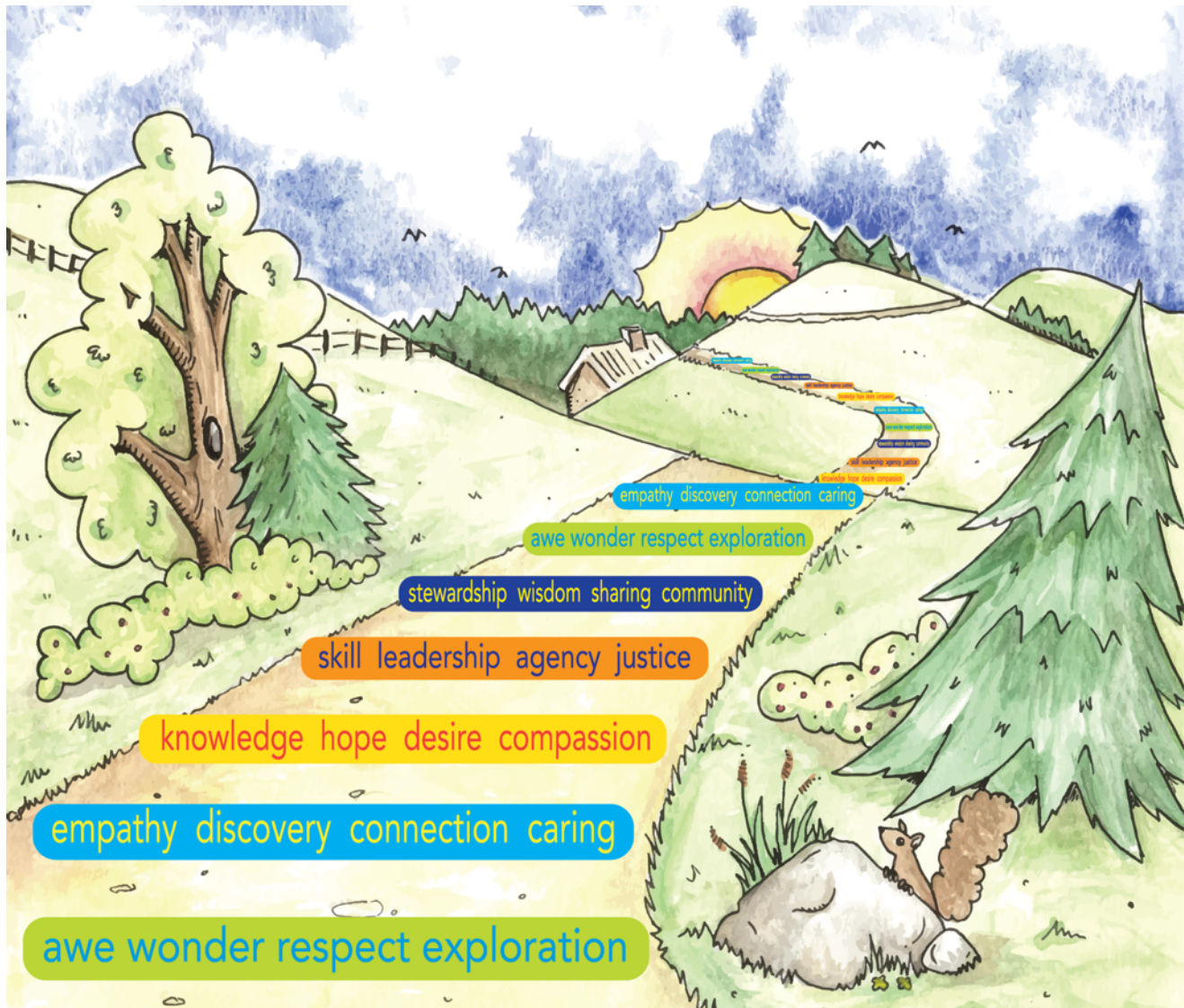
Each stage is equally important in the process, and must be given equal attention.

Similarly, the Medicine Wheel is used to teach the "4Rs". While there are many variations of these teachings, Nicole explains the 4Rs as representing respect, relationship, reciprocity and responsibility. Respect (in the east) results from looking carefully to create deep awareness of and connection to the world and the interconnections between all its components. This leads to a deeper understanding of relationship (in the south), or unity that comes from an awareness of the links between all things. Western culture often breaks things apart to examine them individually, thereby losing a sense of the collective whole. Reciprocity (in the west) is the concept that we

cannot take without giving back. In Anishinaabe traditions, reciprocity is practiced by giving thanks for the gifts of Creation, and never taking without giving back. Through reciprocity, we can build health and true sustainability. The fourth “R” is responsibility (in the north). This reminds us that it is not enough to see, to feel and to know, but we must act on this understanding, to enhance and protect the well-being of all.⁴⁷

This is barely an introduction to the many concepts and insights in Nicole’s work. We include this brief overview with great appreciation and respect.

The illustration below shows the key elements of the lifelong journey to find our place in the world – a quest for stewardship and kinship. We never really leave any step behind, but continue to revisit each stage as our community learns and grows together.



These concepts are reflected in the following framework
for children and youth.

⁴⁷ Nicole Bell (2013), “Anishinaabe Bimaadiziwin: Living Spiritually with Respect, Relationship, Reciprocity and Responsibility,” *Contemporary Studies in Environmental and Indigenous Pedagogies: A Curricula of Stories and Place* 5: 89-107.

Landmarks for the Early Years (birth – 3 years)

Note: Even young babies can participate in these activities. Suggestions are grouped into pre- and post-walking age activities.

1. Explore outdoors together at least an hour a week.

CORE PRINCIPLES	POSSIBLE ACTIVITIES
<p>Regular visits to green spaces benefit everyone.</p> <ul style="list-style-type: none"> • Provide opportunities to explore; • Tap into a child's natural curiosity and sense of wonder; have fun together; ask "I wonder..." • Visit the same place frequently; • Dress comfortably for all weather conditions; get raincoats and boots! • Provide time, space and materials for imaginative play and engagement; • Provide experiences rather than "teaching" – let the child lead; • Use positive and encouraging language: "Wow! Let's try this. Feel how soft it is." 	<p>Infant</p> <ul style="list-style-type: none"> • Lie on a blanket and watch the clouds; lie in the grass and look into the branches of a tree; • Hold a feather, a stick, a rock, a flower, a leaf; • Watch the birds fly by; • Be "stroller explorers" with a parent or older friend; explore your neighbourhood and local park. <p>Toddler/Preschool</p> <ul style="list-style-type: none"> • Turn over rocks and logs to see what is underneath (put them back when you're done); • Watch ants, beetles and other insects to see where they go; • Dig in soil, wade in water, pick up sticks, roll in the grass, squeeze and play with mud; • Climb, jump, hop, roll, laugh! • Enjoy "puddle duck days" in the rain together; • Play make-believe, explore and imagine.

2. Have positive experiences with animals at least twice each month.

CORE PRINCIPLES	POSSIBLE ACTIVITIES
<p>Guided positive interactions with animals help children understand the needs of other living things.</p> <ul style="list-style-type: none"> • Encourage a sense of respect for all living things – this is a foundation for developing empathy; • Use "what" questions e.g. what is the animal doing, I wonder what it eats, what sounds does it make, what is it feeling today? 	<p>Infant</p> <ul style="list-style-type: none"> • Meet gentle dogs, cats and other pets; • Watch birds come to a window-mounted birdfeeder; • Make animal sounds; • Visit zoos and parks and watch the animals. <p>Toddler/Preschool</p> <ul style="list-style-type: none"> • Care for pets; talk about what their needs are; • Follow an insect for as long as you can; what is it doing? • Visit farms and zoos; pretend you are the animals you see; • Look for worms and hold them in your hand; • Watch birds, squirrels and other animals; try to learn the names of common birds and animals together with parents or other adults; • Read books with stories and pictures about animals.

3. Exercise the senses every day.

CORE PRINCIPLES	POSSIBLE ACTIVITIES
<p>Sensory exploration is especially important in the early years.</p> <ul style="list-style-type: none"> Senses help us to make deep connections with the world around us; Parents and caregivers can encourage young children to experience taste, texture, smell, temperature (weather), rhythm and music, colours and patterns (indoors and outside), sounds and language; Greening pre-school play-grounds can provide great fun for families and caregivers as well as excellent opportunities for sensory and motor development in young children. 	<p>Infant</p> <ul style="list-style-type: none"> Swing on a swing; Put your toes in the water; Watch kids playing in the park; Touch the things in your yard; sit or crawl in the grass with bare feet; Smell flowers, smell the rain, smell the grass and the earth; Clap your hands; bang sticks together, shake a rattle. <p>Toddler/Preschool</p> <ul style="list-style-type: none"> Cup your hands behind your ears – what do you hear? Practice being an “all around watcher” – what can you see by looking on all sides? Make mud pies and decorate with flowers, grasses and leaves; sing songs, Experience rain and snow, smell flowers, splash in mud, feel tree bark, catch insects, dance together! Read and look at picture books together, make animal sounds, make and taste foods, pick and taste berries (at a Pick-Your-Own farm or with a knowledgeable adult); Jump in leaves, play hide and seek; Listen for bird song in the spring and insect song in the fall; can you imitate their sounds?

References: Community Interviews, Forest School Canada (2014), Learning Through Landscapes, Louv (2008), MECEEC (2002), NAAEE (2010), Participaction (2015), Ohio EE (2000), Ontario Ministry of Education (2014). How Does Learning Happen? Ontario's Pedagogy for the Early Years. Pennsylvania Land Trust (n.d.), Royal Society for the Protection of Birds (2010), White (2004b), Wilson (2007, 2008).

Community Resources for the Early Years (find contact info in Appendix G)

Camp Kawartha Environment Centre (Oaks and Acorns Program, Nature Playscape)	Landmark 1, 2, 3	Ontario Turtle Conservation Centre	Landmark 2
Conservation areas	Landmark 1, 2, 3	Parent-Child Mother Goose	Landmark 3
County Fairs, petting zoos	Landmark 2	Peterborough Family Resource Centre	Landmark 3
Ecology Park	Landmark 1, 2, 3	Peterborough Humane Society	Landmark 2
Indian River Reptile Zoo	Landmark 2	Peterborough Public Library	Landmark 2, 3
Kawartha Choice	Landmark 2, 3	Pick-your-own farms	Landmark 2, 3
(source for farms, farmer's markets, pick your own etc.)		(e.g. McLean's Berry Farm)	
Local farms	Landmark 1, 2, 3	Private yards	Landmark 1, 2, 3
Nature Play website	Landmark 1, 2, 3	Riverview Park and Zoo	Landmark 1, 2, 3
Nearby natural areas	Landmark 1, 2, 3	Think Outside	Landmark 1, 2, 3
Nearby parks and trails	Landmark 1, 2, 3	TRACKS	Landmark 1, 2, 3

For Parents and Caregivers

The early years are a busy time for families, when tiny children are totally dependent on adults, and even providing the basic necessities can be very demanding for parents and caregivers.

Luckily, the activities that build a solid foundation for children in their early years also have many benefits for parents in reducing stress and promoting physical and mental health. Gentle physical activity outdoors, enjoying each other and the wonders of nature can help put life back in perspective, while helping us relax and regain a positive outlook.

At this age, the attitudes that adults bring to their interactions with children are more important than specific activities. Think about going with the flow rather than sticking to a prescribed “to-do” list of activities. Follow the child’s natural interests and curiosities, and enjoy playing and exploring together. Remember that a few tumbles and scraped knees are normal and healthy. Try keeping some outdoor play clothes for toddlers, so you can relax when they stomp in mud puddles and play in the dirt. Opportunities for free outdoor play provide many benefits for healthy child development in the early years.

For Early Childhood Educators

A Sample of Links from How Does Learning Happen? Ontario’s Pedagogy for the Early Years

The Four Foundations (p 7-8):

Belonging refers to a sense of connectedness to others, an individual’s experiences of being valued, of forming relationships with others and making contributions as part of a group, a community, the natural world.

Well-being addresses the importance of physical and mental health and wellness. It incorporates capacities such as self-care, sense of self, and self-regulation skills.

Engagement suggests a state of being involved and focused. When children are able to explore the world around them with their natural curiosity and exuberance, they are fully engaged. Through this type of play and inquiry, they develop skills such as problem solving, creative thinking, and innovating, which are essential for learning and success in school and beyond.

Expression or communication (to be heard, as well as to listen) may take many different forms. Through their bodies, words, and use of materials, children develop capacities for increasingly complex communication. Opportunities to explore materials support creativity, problem solving, and mathematical behaviours. Language-rich environments support growing communication skills, which are foundational for literacy.

Some Basic Principles (p 10):

- Positive experiences in early childhood set the foundation for lifelong learning, behaviour, health, and well-being.
- Partnerships with families and communities are essential.
- Play and inquiry are learning approaches that capitalize on children’s natural curiosity and exuberance.

Expectations

- Cultivate authentic, caring relationships and connections to create a sense of belonging among and between children, adults, and the world around them; nurture children’s healthy development and support their growing sense of self; provide environments and experiences to engage children in active, creative, and meaningful exploration, play, and inquiry; foster communication and expression in all forms. (p 13)
- Connecting to the natural world contributes to children’s mental, physical, emotional, and spiritual health and well-being. Providing daily opportunities to explore, care for, and interact with the natural world helps to strengthen these connections. (p 21)

Landmarks for Junior & Senior Kindergarten (4 – 5 years)

4. Visit a favourite outdoor place each week throughout all seasons. Talk about what you discovered with a supportive adult.

CORE PRINCIPLES	POSSIBLE ACTIVITIES
<p>Develop a sense of the awe and wonder of nature by being outdoors in all seasons.</p> <ul style="list-style-type: none"> • Explore patterns, textures, materials; • Follow the child's interest; • Share names and stories for the things you see; • Look for treasures in nature; • Encourage feelings of comfort and safety outdoors. 	<ul style="list-style-type: none"> • Adopt a tree – get to know one tree and visit it each week through every season. Take pictures, draw it – how does the tree change? • Visit an outdoor/nature centre; • Participate in a nature scavenger hunt; • Explore a natural area – what treasures can you find? • Create a nature table or a “wonder bowl” – add things that you find each season – seeds, leaves, buds, special rocks, shells, fossils, feathers; • Throw a hula-hoop into a meadow. How many living things can you find inside the hoop? • Explore under rocks, logs and leaves – what can you find? Put them back when you're done; • Look up; what do you see? Watch the clouds; watch the stars; watch the moon; • Follow an animal's tracks with an adult after a fresh snowfall – who made the tracks? Where did it go? What was it doing?

5. Help to plant or harvest a garden and/or look after an animal.

CORE PRINCIPLES	POSSIBLE ACTIVITIES
<p>Develop empathy by watching and caring for living things.</p> <ul style="list-style-type: none"> • Encourage respect for all living things; • Emphasize the enjoyment of interacting with living things; • Ask inquiry-based questions: What does this eat? How does it move? Why is it this colour? I wonder how it's feeling? Where is it going? 	<ul style="list-style-type: none"> • Start a planter box in a window sill; • Make a bird feeder and watch who visits it; • Set up a simple aquarium. Raise goldfish; • Look after a pet rabbit, mouse or other animal; • Set up a terrarium; • Create a small food garden or a pollinator garden outside; make a container garden if you don't have a garden plot; • Raise chicks or butterflies; • Set up a bird bath and put in clean water every week; who visits it? • Have people who care for animals visit your class (Ontario Turtle Conservation, Wildlife rehabilitation, farmers).

6. Play in nature for a full hour at least twice a week.

CORE PRINCIPLES	POSSIBLE ACTIVITIES
<p>Imaginative play is important to child development.</p> <ul style="list-style-type: none"> • Allow plenty of time for unstructured, imaginative play; • Provide a variety of places and materials for creative play (places to hide, logs and rocks to climb, materials for building etc.). 	<ul style="list-style-type: none"> • Make a fort – try using sticks, leaves, snow; • Create a fairy garden; • Make a mud kitchen; • Build a simple natural play area; • Collect twigs, pine cones, bark, sticks – make them into something fabulous! • Pretend you are...!

7. Share a nature-based picture book, song, nature poem and/or a game each week. Do more if you can.

CORE PRINCIPLES	POSSIBLE ACTIVITIES
<p>Stories, pictures, songs and games help children love and understand the natural world. Focus on a variety of animals; people practicing stewardship and/or enjoying nature.</p>	<ul style="list-style-type: none"> • Invite environmental storytellers, singer/songwriters, puppeteers into your classroom/home; • Spend time with people who love nature; make up stories about what you see outside; • Visit the library and borrow some books about animals or outdoors – read them with a friend; • Learn songs and finger games about animals and being outdoors.

8. Create at least one nature art project every week.

CORE PRINCIPLES	POSSIBLE ACTIVITIES
<p>The arts help children learn to express feelings about themselves and their world. Artistic exploration also helps to develop empathy. All children need opportunities for creative expression.</p>	<ul style="list-style-type: none"> • Sketch or paint a natural scene near your school or home. Visit it every season; • Make a bird's nest in the spring; • Make stained glass windows in the fall using leaves, wax paper; • Try simple nature weaving; • Make simple nature sculptures out of natural material; • Make a bark rubbing from a favourite tree; • Try banging plant parts between pieces of paper with a mallet to see what colours you can make; • Make "transient art" – draw a picture in the sand, make a picture along a trail with rocks or twigs; • Paint with natural materials (grass, feather, twig) instead of a brush; try using crushed berries for paint.

Teachers: See Curriculum Links (Appendix H)

References: Chawla (2017b), Community Interviews, Community Playthings (website) "Making a Mud Kitchen," Dietze, B. Evergreen Interview, Dowdell et al. (2011), Forest and Nature School (2014), Kozak and Elliott (2014), Louv (2008), McKnight (2014) Ohio EE (2000), OME (2009), OME (2010), OME (2014), Participaction (2015), Pennsylvania Land Trust (n.d.), Rodenburg and Monkman (2016), Sobel (2015), White (2004b), Wilson (2007).

Community Resources for Ages 4 & 5 (find contact info in Appendix G)

Camp Kawartha Environment Centre Summer Camp	Landmark 4, 6, 7, 8	Otonabee Conservation	Landmark 4, 6
Camp Kawartha Summer Kindercamp	Landmark 6, 7, 8	Paddling Puppeteers	Landmark 7
Conservation areas	Landmark 6	Parent-Child Mother Goose	Landmark 7
County Fairs, petting zoos	Landmark 5	Peterborough Family Resource Centre	Landmark 6, 7, 8
Ecology Park	Landmark 4, 5, 6, 7, 8	Peterborough Junior Field Naturalists	Landmark 4, 6, 7, 8
Gamiing Nature Centre	Landmark 4, 6	Peterborough Public Library	Landmark 7
Horticultural Societies (e.g. Peterborough, Norwood, Omemee)	Landmark 5	Riverview Park and Zoo	Landmark 4, 5, 6
Jumping Mouse Outdoor School	Landmark 6	Think Outside	Landmark 4, 6, 7
Kawartha Pine Ridge District School Board Outdoor Education Centres	Landmark 6, 7, 8	TRACKS	Landmark 4, 5, 6, 7, 8
Local parks with natural areas (e.g. Trent Nature Sanctuary, Jackson Park)	Landmark 4, 6	Trail Networks	Landmark 4, 6
Ontario Turtle Conservation Centre	Landmark 5		



Landmarks for Grades One & Two (6 – 7 years)

9. Choose an outdoor place in nature that is special to you. Visit this at least twice every month, and try to visit throughout a whole year.

CORE PRINCIPLES	POSSIBLE ACTIVITIES
<p>Deepen relationships and understanding. This is an important age for beginning to develop a sense of place – an outdoor space that is familiar and special:</p> <ul style="list-style-type: none"> Physical activity continues to be very important. Children need plenty of time for active exploration in the outdoors – jumping, climbing, taking gentle risks with no adult “agenda”; Creative play grows from unstructured time outdoors; Natural curiosity and verbal skills produce many “why” questions – adult mentors are wonderful in providing simple answers that encourage further discovery and questioning; This is also a perfect age to find adult help in overcoming fears, such as snakes, spiders, darkness; Continue to develop and fine-tune the senses – looking carefully, waiting quietly, touching gently, listening intently. 	<ul style="list-style-type: none"> Set up a micro trail. Bring a visitor and guide them through special spots along the way; did they notice something you didn’t see? Use a magnifying glass – observe the veins of a leaf, the colours of a rock, the parts of soil, the petals of a flower; Make a colourful mural of all the things you saw in your special spot both living and non-living. Keep adding to this, each time you visit; Play ‘Imagine if’: Imagine if I was a tree, a rock, an ant, a chipmunk; make up a story from their point of view; Watch and keep a record of the animals who visit your special place. Do they act differently at different times of year? Watch and keep a record of how the plants change over the year; Sit very quietly in your special spot for at least 15 minutes. Do you see or hear anything different when you are quiet? Make an empty frame from cardboard. Hang this on a branch or on a string in your special spot. Where is the most beautiful view? Name 5 natural sounds you can hear from your special spot.

10. Plant, tend and harvest something you can eat (with help from an adult).

CORE PRINCIPLES	POSSIBLE ACTIVITIES
<p>Reinforce and expand the developing sense of empathy.</p> <ul style="list-style-type: none"> Children benefit from help in learning how we are the same as other living things, and how we differ; Caring for something alive involves thinking and talking about what it needs to be healthy. What happens to a plant without any water? Can it grow in the dark? What other living things interact with a plant? How do they affect it? 	<ul style="list-style-type: none"> Try growing something like beans, lettuce or radishes (these are easier to grow than some other vegetables); Watch your plant(s) grow. Who else visits or eats it? How fast does it grow? How can you help it grow? How does it taste when you eat it? Write a story with the plant talking; Prepare some of your vegetables in a meal for your family or friends (ask an adult to help you); If some of your plant didn’t survive, what do you think happened? What would you like to try next time? Watch a rock, a plant and an animal for two weeks; observe each day. How are they the same? How are they different? Which are alive, which are not? How can you tell? How do they change over time?

11. Find 3 ways to recognize and enjoy the change of each season.

CORE PRINCIPLES	POSSIBLE ACTIVITIES
<p>Celebrate Seasons.</p> <ul style="list-style-type: none"> As a child's understanding of time expands, noticing and celebrating seasonal changes strengthens a connection with the world around them. 	<ul style="list-style-type: none"> Take a picture of the same tree throughout each of the seasons. How is the tree the same? Different? Learn about the Anishinaabeg seasonal ceremonies and on-the-land/water activities. Why are they important? With an adult, make a list of outdoor activities that are unique to each season. During one full year, try at least two of those activities each season with friends or family. Here are a few ideas to get you started: make maple syrup in spring, sleep under the stars in summer, pick apples in fall, build a snow fort in winter; Make a display at home or at school with things that represent each season; Do something special for Earth Day; Celebrate the summer and winter solstice; what fun ways can you find to celebrate the year's shortest and longest days?

12. Who else lives in your neighbourhood?

CORE PRINCIPLES	POSSIBLE ACTIVITIES
<p>Recognize that our community consists of other living things as well as people.</p>	<ul style="list-style-type: none"> Do a neighbourhood scavenger hunt. Can you find 5 different plants and mammals/insects/birds living in your area? What makes each one different? Can you find a neighbourhood friend who can help you learn their names?

Teachers: See Curriculum Links (Appendix H)

References: Brussoni (2015), Community Interviews, Forest and Nature School (2014), Kozak and Elliott (2014), Louv (2008), NAAEE (2010, 2013), OME Curriculum Documents, OME (2014) How Does Learning Happen? Pennsylvania Land Trust (n.d.), Rodenburg and Monkman (2016), Sobel (1998a, 1998b), Williams and Brown (2011).

Community Resources for Ages 6 & 7 (find contact info in Appendix G)

Camp Kawartha Environment Centre	Landmark 9, 11	Local Maple Syrup Festivals (e.g. McLean's, Kennedy's)	Landmark 11
Children's Outdoor Charter	Landmark 9, 11	Local Winter Celebrations	Landmark 11
City of Peterborough Parks	Landmark 9, 11, 12	(Santa Claus Parades, Winter Carnivals)	
Community Gardens	Landmark 10	Nearby natural areas	Landmark 9, 11, 12
Conservation areas	Landmark 11	Nearby parks and trails	Landmark 9, 11, 12
Farmers' Markets	Landmark 10, 11	Nourish Project	Landmark 10
First Nations Cultural Centres	Landmark 11	Otonabee Conservation	Landmark 9, 11, 12
Ganaraska Forest Centre	Landmark 9, 11	Peterborough Junior Field Naturalists	Landmark 9, 11, 12
GreenUP	Landmark 10, 11	Peterborough Public Library	Landmark 10, 11, 12
Horticultural Societies (e.g. Peterborough, Norwood, Omeme)	Landmark 10	(books on gardening, seasons, urban wildlife)	
Kawartha Pine Ridge District School Board Outdoor Education Centre	Landmark 11	Riverview Park and Zoo	Landmark 9
Lang Pioneer Village	Landmark 11	Think Outside	Landmark 9, 11, 12
		TRACKS	Landmark 9, 10, 11, 12

Landmarks for Grades 3 & 4 (8 – 9 years)

13. Travel by yourself or with a friend at least twice a week on a familiar route. This can include walking, riding your bike or travelling on public transit.

CORE PRINCIPLES	POSSIBLE ACTIVITIES
Build self-confidence, environmental awareness, ability to make decisions and solve problems through independent mobility.	<ul style="list-style-type: none"> • If you have a dog, planning a route and taking your dog on a walk is a great way to try travelling outdoors on your own or with friends. Ask your parents to help you plan a route to try; • Try walking all or part of the way to school with friends; • How much do you remember from your trips? Make a map, draw a picture, keep a journal; • Research one of each type of thing that lives along your route: an animal, an insect, a bird, a flower, a tree. Talk to someone who can help you answer these questions: <ul style="list-style-type: none"> ◦ <i>What is its name?</i> ◦ <i>What does it need to survive: food, water, space, shelter?</i> ◦ <i>What is unique and/or special about each thing?</i> ◦ <i>Does it have a special connection to another living thing (a squirrel needs trees for food)?</i> ◦ <i>What changes along your route over time?</i>

14. Try at least five different kinds of outdoor recreation that don't require gasoline or electricity.

CORE PRINCIPLES	POSSIBLE ACTIVITIES
<p>Explore nature-based recreation for physical and mental health.</p> <ul style="list-style-type: none"> • Build skills for lifelong fitness and enjoyment of the outdoors. 	<ul style="list-style-type: none"> • Try these activities: swimming, row boating, tobogganing, bicycling, skate-boarding, snowboarding, hiking, skating, tree climbing, building forts, bird watching, tent camping, insect catching; • Make sure you try each one more than once! Which are your favourites and why? • Check out Otonabee Conservation's "Things to do in Natural Areas", or the Ontario Children's Outdoor Charter for ideas.

15. Try each of the adjacent activities.

CORE PRINCIPLES	POSSIBLE ACTIVITIES
Continue to explore the relationships between humans and other living things to develop a sense of place and belonging.	<ul style="list-style-type: none"> Grow a small garden of your own. Try a container garden, a food garden, or a garden to benefit bees, butterflies or other living things. Write down what you did, what the weather was like, what living things visited, what you learned, what you would do differently or the same if you tried it again; Set up a birdfeeder at home or at school; watch it every day. Write down who visits, what you observe when they visit, how often they come, how they interact and garden to benefit bees, butterflies or other living things. Write down what you did, what the weather was like, what living things visited, what you learned, what you would do differently or the same if you tried it again; Set up a birdfeeder at home or at school; watch it every day. Write down who visits, what you observe when they visit, how often they come, how they interact and anything else you notice. How many visiting birds can you learn by name? Catch insects: go to a nearby pond, forest or meadow with a teacher or parent. Bring along a net and viewing jar – catch as many different kinds of insects as you can. How do they move? How do they breathe? Are they camouflaged? What do you think they eat? Put them back in their habitat when you're done; Go fishing; write down where and when you go fishing, what you saw, what the water looked like, what bait you used, what fish you caught and what you did with them. Find out what kind of fish you caught or saw, what they eat and what eats them; Get to know a habitat. Visit one habitat – a forest, a meadow, a wetland. Walk along one straight line and make a quick list of everything you see: the flowers, bushes, trees, birds, insects. Make a mural of these living things. Include the sun, soil and water. Use string to connect one living and non-living thing to another and show how they are related. For example, a tree gets its energy from the sun, nutrients from the soil and water from the rain. It gives food to squirrels and birds. Insects live on its branches and bark.

Teachers: See Curriculum Links (Appendix H)

References: Chawla (2017b), Christian et al (2014), Community Interviews, Kozak and Elliott (2014), Lekies, Yost and Rode (2015), Louv (2008), Mackett et al (2007), OME Curriculum Documents, Pacilli et al (2013), Participaction (2015), Pennsylvania Land Trust (n.d.), Rodenburg and Monkman (2016), Rissotto and Tonucci (2002), Sobel (1998b), Stoecklin (n.d.), Witten et al. (2013).

Community Resources for Grades 3 & 4 (find contact info in Appendix G)

Active and Safe Routes to School	Landmark 13, 14	GreenUP	Landmark 15
Avant Garden Shop (for birdfeeder information)	Landmark 15	Horticultural Societies	Landmark 15
BIKE Community Cycling Hub	Landmark 14	(e.g. Peterborough, Norwood, Omemee)	
Birding Website (e.g. Cornell Lab or Ornithology)	Landmark 15	Kawartha Pine Ridge District School Board Outdoor	Landmark 14, 15
Brownsea Base at Rogers Cove Park	Landmark 14	Education Centres	
(canoeing lessons in summer)		Nourish Project	Landmark 15
Camp Kawartha	Landmark 14	Ontario Federation of Anglers and Hunters (OFAH)	Landmark 14, 15
Canadian Canoe Museum	Landmark 14	Otonabee Conservation	Landmark 15
City Trail Maps	Landmark 13, 14	Peterborough Field Naturalists	Landmark 15
City Transit Maps	Landmark 13, 15	Peterborough Pollinators	Landmark 15
4-H Clubs	Landmark 15	Think Outside	Landmark 13, 14 15
Gamiing Nature Centre	Landmark 14, 15	TRACKS	Landmark 14, 15
Ganaraska Forest Centre	Landmark 14, 15	YMCA (Swimming Lessons)	Landmark 14



Landmarks for Grades Five & Six (10 – 11 years)

16. Every living thing needs energy (including you!). Visit a place that uses 3 different kinds of renewable energy and investigate how it operates.

CORE PRINCIPLES	POSSIBLE ACTIVITIES
Understand the essential role of energy in our lives.	<ul style="list-style-type: none"> • Be an energy detective. Find out at home or at school what kind of energy is used for heating, cooling, lights, cooking and appliances. Using your electricity bills or meter, keep track of how much energy is used each day, each week, each month. How is that energy produced? Draw a map of where energy enters your home or school. What are the impacts of that source of energy? Make a plan to reduce the energy you use. Try out your plan and write a story about what happened; • Explore how you and your family use energy for travel. Keep a record of how often you use a car, a bus, a bicycle or other means of travel. Make a plan to reduce your dependence on fossil fuels for travel; • Explore renewable energy sources. What different types of renewable energy are there? (e.g. solar, wind, geothermal, hydroelectric) Find someplace in the local community that uses at least 3 forms of renewable energy; • Shipping food around the world uses a great deal of energy. Work with your family or class to prepare and eat a meal where most of the ingredients were grown nearby; • Tour a hydroelectric generating station and/or solar farm or biogas facility; • Try using an earth oven or solar cooker to prepare a meal.

17. Try at least three new outdoor activities that don't require fossil fuels. Include a sport, a craft and a survival skill.

CORE PRINCIPLES	POSSIBLE ACTIVITIES
Develop more complex outdoor skills to overcome fears and develop a sense of confidence, identity and the history of the land and its people.	<ul style="list-style-type: none"> • Try some new outdoor sports. Here are some ideas: canoeing, kayaking, cross-country skiing, archery, snowshoeing, geo-caching; which of these sports were first developed by First Peoples? • Work with an outdoor expert to learn to identify at least five different wild plants that are easy to find and safe to eat. How can you recognize them? Are there other similar plants? • Learn to make something from natural materials that you can use. Try building or weaving a mural, making a basket, building a pot, making a necklace or headband; • Create an outdoor shelter for various seasons.

18. Create a book, blog or video about a nearby natural area to encourage people to visit and appreciate it. Watch how people use the natural area and monitor the impacts they have on it.

CORE PRINCIPLES	POSSIBLE ACTIVITIES
Explore human impacts on the environment through planning and implementing a community project that promotes natural spaces.	<ul style="list-style-type: none"> • Use art, photography, literature and science to research and produce a field guide or trip guide; • Invite local experts to share what they know about the place – its history, what lives there, its special features; • Find and identify animal tracks in the natural area to help you learn who lives or visits there. • Work with others to produce maps, artwork, stories or poems for your book to reflect what you learned and how you feel about the area; • Think of ways to encourage others to visit the space and use the guide you have produced; • Does the area change when people visit it? How can people have negative impacts? How can they have positive impacts? • Develop a plan with friends and/or family for protecting this natural area.

19. Explore biodiversity by finding out what lives in a wetland, forest or meadow.

CORE PRINCIPLES	POSSIBLE ACTIVITIES
Expand understanding of the relationships between living things and their habitats.	<ul style="list-style-type: none"> • With a parent, teacher or leader, go to a pond. Take along a net, magnifier and a pond field guide: <ul style="list-style-type: none"> ◦ Dip your net in the pond. Try to find at least 10 different organisms that live there. Use a dichotomous key to help you. Go from the smallest (Daphnia, Hydra) to the biggest (diving beetles, frogs, tadpoles); ◦ Learn the calls of 5 local frogs. Visit a wetland at night with a parent or leader and identify which frogs are calling. Go to www.frogwatch.ca to report your findings. You're participating in Citizen Science! ◦ Explain 3 important roles of this wetland in the environment; ◦ Look at pond water under a microscope; ◦ Find out more about one turtle that lives nearby. 7 out of 8 Ontario turtles are listed as "species at risk." Find out why. Make a turtle poster for the turtle you studied. Tell people what they can do to help protect turtles; • Similarly, explore a different type of habitat: <ul style="list-style-type: none"> ◦ Bring collection jars, magnifiers and field guides; ◦ How many different living things can you find? Take pictures of them and then let them go; ◦ How does this habitat sound different than a wetland? ◦ Look under rocks or logs. Who lives there and why? ◦ Try sitting very still in this habitat and close your eyes. Focus all your attention on where you are. How does it smell? Do you feel differently when you sit very still?

Teachers: See Curriculum Links (Appendix H)

References: Community Interviews, Fisman (2005), Kozak and Elliott (2014), OME Curriculum Documents, Pennsylvania Land Trust (n.d.), Rodenburg and Monkman (2016), Sobel (2008).

Community Resources for Ages 11 & 12 (find contact info in Appendix G)

Browsea Base at Rogers Cove Park (canoeing lessons in summer)	Landmark 17	Nogojwanong Friendship Centre (Indigenous skills and knowledge)	Landmark 17
Camp Kawartha	Landmark 16, 17, 19	Otonabee Conservation	Landmark 18, 19
Camp Kawartha Environment Centre	Landmark 16, 17, 19	Ontario Federation of Anglers and Hunters	Landmark 17
Canadian Bushcraft	Landmark 17, 18, 19	Ontario Turtle Conservation Centre	Landmark 19
Canadian Canoe Museum	Landmark 17	Peterborough Field Naturalists	Landmark 17, 18, 19
First Nations (Alderville, Curve Lake, Hiawatha, Scugog)	Landmark 17, 18	Peterborough Junior Field Naturalists	Landmark 17, 18, 19
Gamiing Nature Centre	Landmark 17, 19	Peterborough Sewage Treatment Plant (biogas facility)	Landmark 16
Ganaraska Forest Centre	Landmark 17, 19	Peterborough Utilities (renewable energy initiatives)	Landmark 16
GreenUP	Landmark 19	Think Outside	Landmark 17, 18, 19
Kawartha Nordic (cross country skiing)	Landmark 17	TRACKS	Landmark 17, 18, 19
Kawartha Pine Ridge District School Board Outdoor Education Centres	Landmark 16, 17, 18, 19		



Landmarks for Grades Seven & Eight (12 – 13 years)

20. Plan, conduct and evaluate at least two of the adjacent projects.

CORE PRINCIPLES	POSSIBLE ACTIVITIES
Expand leadership and decision-making skills through planning and conducting projects to benefit the community. Develop a sense of hope, agency and empowerment through collective action.	<ul style="list-style-type: none"> • Work with friends to plan and map a local day trip for a group using transit, bicycle, foot or boat travel. Mark at least 10 signposts on your map (unique features that identify the route). Take at least two other people on your trip. Write down or record what you did, who came along, how it went, what you ate, and what you saw and learned on the trip. Geocaching is a fun focus for a trip! • Follow a local stream with friends to see where it comes from and where it goes. Do you see any problems along the way (garbage, erosion, pollution)? Meet with a local expert to talk about what you could do to benefit the stream. Plan and conduct a stream rescue project with friends. Document what you did and monitor its success; • Plan and manage a school recycling or composting project. Visit other schools to see what recommendations they have; document your project and evaluate your success. What challenges did you have? How could you overcome them? • Work with friends and experts to conduct a “Repair Café” where people can bring broken tools, bicycles or appliances to be repaired instead of discarded. Was this more difficult than you expected? Explore your experiences with photos or a blog; • Help to care for a living thing over an extended period (a young child, a sick or aging friend or relative, foster a needy animal, volunteer at a wildlife rehabilitation centre, a humane society, a garden or natural area, a farm). Document what you learned using photography and/or social media; • Research a personal care or fashion product that interests you. What can you discover about how it is made, who works on producing it, what by-products are produced and what happens to it after it is used? Produce a report on its “product life cycle”. Did you learn anything that others should know? Make a plan to communicate what you learned, and advocate to reduce negative impacts.

21. Learn about at least two other cultures by meeting and talking with someone whose culture is different from yours.

CORE PRINCIPLES	POSSIBLE ACTIVITIES
Explore relationships and interconnections between human communities.	<ul style="list-style-type: none"> What does the word “culture” mean? Why is culture important? Describe in words, video, drama or artwork how you would characterize your family’s culture. How does your family celebrate its culture (food, ceremonies, traditions, stories etc.)? Get to know someone whose background is First Nation, Métis or Inuit. How are their family’s stories different from yours? Talk with them about common interests you both have. Spend time together doing something you both enjoy; There are four First Nations communities in the Peterborough area. Each holds a Pow Wow every year to celebrate their culture, and anyone is welcome to attend. Visit a Pow Wow at one of these First Nations: Alderville, Curve Lake, Hiawatha, Scugog. Learn about the origins of the Pow Wow, and the different dance styles and their meanings. Talk to dancers and attendees. Ask what Pow Wow means to them. What did you learn from their ceremonies about their worldviews? What is their perspective towards the natural world? Talk to someone in your community who has come from a different country or has a culture or religion that is very different from yours. Learn about their history, challenges, favourite foods, music they like, ceremonies or other traditions from their culture. Think of a creative way to represent what you have learned about their life journey.

22. Become a “Citizen Scientist” by participating in a community project to monitor the health of wildlife species.

CORE PRINCIPLES	POSSIBLE ACTIVITIES
Explore tools for monitoring ecosystem health to deepen understanding of human/environmental interactions and potential solutions.	<ul style="list-style-type: none"> There are many local initiatives to monitor the populations of various wildlife species. Collecting data is an important way to evaluate whether a species is declining or stable. Work with friends to research some of the current “Citizen Science” projects in your community, and participate in at least one of them. Some ideas include: Frogwatch, annual bird and butterfly counts, turtle sightings, Journey North, Ice Watch; Contact regional First Nations communities to ask about manoomin (wild rice) monitoring and harvesting, trends in wildlife population numbers and the causes of changes.

23. Design your own healthy home.

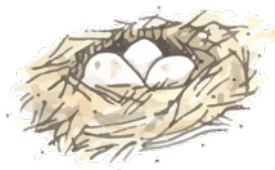
CORE PRINCIPLES	POSSIBLE ACTIVITIES
Expand understanding of sustainable lifestyles.	<ul style="list-style-type: none"> Can you design the ultimate energy efficient, healthy home (healthy for the planet and for humans)? Use materials at hand to create a 3-dimensional model. Try to incorporate natural materials, passive solar design, rainwater harvesting, renewable forms of energy, new ways to treat wastewater and human waste. In what way can your house emulate natural systems? What will happen to your house when its useful life is over?

Teachers: See Curriculum Links (Appendix H)

References: Community Interviews, Louv (2008), Hungerford and Volk (1990), Kozak and Elliott (2014), OME Curriculum Documents, Pacilli et al (2013), Pennsylvania Land Trust (n.d.), Rissotto and Tonucci (2002), Rodenburg and Monkman (2016), Sobel (1998a, 1998b)

Community Resources for Ages 12 & 13 (find contact info in Appendix G)

Abraham Festival	Landmark 21	Lang Pioneer Village	Landmark 21
Alderville Black Oak Savanna	Landmark 20, 21	New Canadians' Centre	Landmark 21
Camp Kawartha	Landmark 22, 23	Nogojwanong Friendship Centre	Landmark 21
Camp Kawartha Environment Centre	Landmark 22, 23	Ontario Federation of Anglers and Hunters	Landmark 20
Citizen Science Initiatives	Landmark 22	Ontario Turtle Conservation Centre	Landmark 20
City Trail Maps	Landmark 20	Peterborough Field Naturalists	Landmark 20, 22
City Transit Maps	Landmark 20	Peterborough Humane Society	Landmark 20
Endeavour Centre	Landmark 23	Peterborough Moves	Landmark 20
Farms at Work	Landmark 20	Petroglyphs Provincial Park	Landmark 21
First Nations (Alderville, Curve Lake, Hiawatha, Scugog)	Landmark 21	Recycle Rangers	Landmark 20
Flint Corn Project	Landmark 20, 21	Sacred Water Circle	Landmark 20, 21
Gamiing Nature Centre	Landmark 22	Sir Sandford Fleming College Sustainable Building Program	Landmark 23
Ganaraska Forest Centre	Landmark 22	Think Outside	Landmark 20, 22
GreenUP	Landmark 20	TRACKS	Landmark 21, 22
Kawartha World Issues Centre	Landmark 21	Your Healthy House	Landmark 23
Lakefield Animal Welfare Society	Landmark 20		



Landmarks for Grades Nine & Ten (14 – 15 years)

24. Calculate your Ecological Footprint.

CORE PRINCIPLES	POSSIBLE ACTIVITIES
Deepen understanding of how modern lifestyles affect the environment. Expand leadership and problem-solving skills by seeking solutions to ecological imbalances. Develop hope and empowerment by exploring the potential for people to have positive impacts on the environment.	<ul style="list-style-type: none"> • Visit http://www.footprintnetwork.org and follow the directions to calculate your ecological footprint; • Research how Canadian lifestyles consume global resources, and how this compares with other countries; • What does sustainability mean? • Document some of the ways that Canadians could live more sustainable lifestyles; • Make a goal for yourself on reducing your ecological footprint. Try it for a month and assess how successful you've been. See if you can reduce your footprint in other ways. Get your family involved too; • Draw a "mind map" of all the ways that you affect your environment and how it affects you; are there ways that you have a positive impact on your environment? • Explore how your school could reduce its ecological footprint. Is there a plan for energy or water conservation? Waste reduction? Local habitat protection or enhancement? • Research the "Footprint of Delight" concept that measures the positive impacts we can have. Do you think it is a useful addition to the Ecological Footprint concept?

25. Explore and develop at least three outdoor skills that are new to you.

CORE PRINCIPLES	POSSIBLE ACTIVITIES
Develop identity, expand skill, confidence and responsibility through outdoor recreation, creativity and survival skills.	<ul style="list-style-type: none"> • Try learning how to make a fire without matches or paper. Learn about fire safety and how to be responsible with fire when outdoors; • Learn about wild/natural foods in your area. Fishing, hunting and edible wild plants can all provide nutrition. Make sure you check out the hunting and fishing regulations in your area. Research the meaning of sustainable harvest. How can the environment provide our needs without being damaged by human impact? Talk to Indigenous hunters, fishers and trappers to learn their perspectives on harvesting wild foods; • Spend time with an expert to learn how to track animals. What did you learn about the animals' lives and habits? • Expand your skills with advanced canoeing, kayaking, backpacking, cross country skiing or white-water rafting; • Learn how to find your way in a natural area using maps, compass and/or GPS; • Learn how to recognize at least two constellations in the night sky in each of the four seasons. Learn how to tell the four directions using clues in the sky; • Learn new skills in sustainable food production.

26. Volunteer to help in your community in at least three different ways. Reflect on what you learned through music, poetry, a blog, journal, or social media.

CORE PRINCIPLES	POSSIBLE ACTIVITIES
Exploring and responding to local social and environmental issues can expand abilities for social analysis, understanding and empathy.	<ul style="list-style-type: none"> • Help someone younger than you to learn outdoor skills or games; • Help with the Peterborough Children's Water Festival in May; contact the Sacred Water Circle to learn about Indigenous teachings about water, and to find out how you can help; • Visit someone in a senior's residence and ask them to tell you stories from their childhood; record their stories for a local museum or historical society; • Get to know someone who is differently abled than you; learn about some of the challenges of being blind, deaf, physically or mentally challenged. Work together to develop a plan to raise public awareness and response to differing abilities in your community; • Volunteer on a farm or with an agricultural project with historical roots (e.g. Flint Corn Project); • Help to create a schoolyard garden or natural area in your own school or a nearby elementary school. Work with teachers, students, parents, neighbours, school staff and administration. Document the progress and results of the project; • Volunteer in a natural area to help with trail maintenance, ecological restoration or control of invasive species; • Help with a community tree-planting project. Participate in planning, planting, maintenance and monitoring. Do you think it was a successful project? Would you make any changes in future projects? • Help with ecological monitoring through water quality testing, Frogwatch, bird banding or other local projects.

Teachers: See Curriculum Links (Appendix H)

References: Chawla (2016), Community Interviews, Louv (2008), Kozak and Elliott (2014), Lekies et al (2015), Lugg (2007), O'Brien (2006), Ontario Curriculum Documents, Pennsylvania Land Trust (n.d.), Sobel (1998a).

Community Resources for Ages 14 & 15 (find contact info in Appendix G)

Activity Haven Seniors' Club	Landmark 26	Local farms	Landmark 25, 26
Brownsee Base at Rogers' Cove Park (canoeing lessons in summer)	Landmark 25	Local First Nations (Alderville, Curve Lake, Hiawatha, Scugog)	Landmark 26
Camp Kawartha	Landmark 25	Local seniors' residences	Landmark 25
Canadian Bushcraft	Landmark 25	Nogojiwanong Friendship Centre	Landmark 25, 26
Canadian Canoe Museum	Landmark 25	Nourish Project	Landmark 25
Farms at Work	Landmark 25, 26	Ontario Federation of Anglers and Hunters	Landmark 26
Flint Corn Project	Landmark 25, 26	Ontario Ministry of Natural Resources and Forestry	Landmark 26
Footprint of Delight	Landmark 24	Otonabee Conservation	Landmark 26
4-H Clubs	Landmark 25, 26	Peterborough Children's Water Festival	Landmark 25, 26
Gamiing Nature Centre	Landmark 25	Peterborough Field Naturalists	Landmark 26
Ganaraska Forest Centre	Landmark 25, 26	Sacred Water Circle	Landmark 25
GreenUP	Landmark 26	Scouts Canada	Landmark 25
Horticultural Societies (e.g. Peterborough, Norwood, Omemee)	Landmark 25, 26	TRACKS	Landmark 25

Landmarks for Grades Eleven & Twelve (16 – 17 years)

27. Plan and go on an extended trip in a wilderness area for at least 3–5 days. Options for travel include canoe, bicycle, skis, hiking, snowshoeing or any self-propelled mode of travel.

CORE PRINCIPLES	POSSIBLE ACTIVITIES
Advanced outdoor experiences (including planning, leading and evaluating) are important in enhancing leadership, conflict resolution, teamwork and decision-making. Respected mentors/advisors are important role models for these activities.	<ul style="list-style-type: none"> • Decide where and when your trip will take place; • Decide what type of gear you will need and how you will access it; • Plan how you will get to your starting point; • Plan your meals; • What safety concerns should you consider, and how will you address them? • Plan to leave cell phones or other electronic equipment at home (unless used solely in case of emergency); • Write about your trip afterwards – what you liked, challenges you experienced and how you dealt with them. What did you learn about yourself and others you travelled with? What would you change for a future trip? What would you do the same? What else did you learn from this experience? What impacts did your trip have on the environment?

28. Help to rehabilitate something that has been damaged, such as an animal, waterway or natural area, over an extended period.

CORE PRINCIPLES	POSSIBLE ACTIVITIES
Young adults can expand a sense of collective responsibility through identifying and seeking solutions to local environmental issues.	<ul style="list-style-type: none"> • Learn about what has caused the damage; • Work with an expert to decide on a suitable plan of action; • Help to organize and conduct a rehabilitation plan; • Document the process through a blog, photo essay, documentary or piece of artwork; • Monitor the project after the rehabilitation and explore its effectiveness.

29. Explore a local issue of social justice and develop a plan to raise public awareness and/or motivate public involvement.

CORE PRINCIPLES	POSSIBLE ACTIVITIES
Experiential learning, hands-on and in the community, is an effective way to promote leadership, confidence, empowerment and agency. Working with peers helps to harness energy and motivation.	<ul style="list-style-type: none"> Identify a local social issue that concerns or interests you. Examples may include homelessness, poverty, racial discrimination or age discrimination; Explore the issue with a local expert and/or teacher. What are the underlying factors? How can the community work toward resolving the problem? What skills are needed to make a positive change? What role could young people play in helping? Work with friends to plan and conduct a response using creative communication (social media, street theatre, photography, youth summit, letters to elected officials, film etc.) Propose a solution and explore how to put it into action.

30. Write an auto-biographical essay or create an art installation describing your ecological self.

CORE PRINCIPLES	POSSIBLE ACTIVITIES
Explore and develop bio-centric (rather than human-centred) views of the world.	<ul style="list-style-type: none"> Describe or illustrate how you view yourself in relation to nature/creation/the environment. Include some experiences influencing your relationship to nature; Try making a "mind map" of the connections between yourself and the natural world to help guide your essay or artwork; Imagine yourself ten years ago. How has your ecological identity changed in the past ten years? How do you think it will change in the future?

Teachers: See Curriculum Links (Appendix H)

References: Beames (2009), Chawla (2017b), Community Interviews, Hungerford and Volk (1990), Kozak and Elliott (2014), Lekies et al (2015), Louv (2008), Ontario Curriculum Documents, Pennsylvania Land Trust (n.d.), Sobel (1998a), Wilson (personal communication 2017).

Community Resources for Ages 16 & 17 (find contact info in Appendix G)

BIKE Community Cycling Hub	Landmark 27	Nourish Project	Landmark 29
Camp Kawartha	Landmark 27	Ontario Turtle Conservation Centre	Landmark 28
Canadian Canoe Museum	Landmark 27	Otonabee Conservation	Landmark 28
Farms at Work	Landmark 29	Parks Canada	Landmark 28
GreenUP	Landmark 28	Peterborough Field Naturalists	Landmark 27
Indian River Reptile Zoo	Landmark 28	Peterborough Humane Society	Landmark 28
Kawartha World Issues Centre	Landmark 29	Peterborough Social Planning Council	Landmark 29
Lakefield Animal Welfare Society	Landmark 28	Reframe Film Festival	Landmark 29
New Canadians' Centre	Landmark 29	Scouts Canada	Landmark 27
Local First Nations (Alderville, Curve Lake, Hiawatha, Scugog)	Landmark 29	TRACKS	Landmark 29
Nogojiwanong Friendship Centre	Landmark 29	YWCA	Landmark 29



Working Together

Developing this *Pathway* from a vision to a tangible plan has required a great deal of teamwork, goodwill and dedication. Refining and implementing the plan is the next step in this process, and once again, this will call upon our collective wisdom and cooperation.

The simple, yet powerful landmarks are designed so that every person in the community has a role to play in promoting and realizing the goal of a healthy future for all. We suggest the following steps in moving forward:

1. Confirm existing community supports for each landmark.

Each endorsing organization will confirm how they can support the plan. Can they provide support for specific landmarks? Provide mentors? Provide training for others? Provide access to outdoor spaces, equipment or other resources?

2. Identify gaps in existing resources and encourage the development of necessary supports.

While there are many excellent services and resources already available to support this *Pathway to Stewardship and Kinship*, we have identified a “wish list” of valuable supports and projects that could be developed by local organizations.

These include:

- A list of local natural areas suitable for visits by the general public with maps and access points. Which of these have trails or other services? Which are suitable for small children? Are there any fees for using these areas? Are there restrictions on visiting times?
- Access to mentors and role models. Supportive mentors are critically important to help children enjoy outdoor time, spark their imaginations, learn nature’s mysteries and grow to love the natural world. Some lucky children already have parents, relatives, family friends, teachers or leaders who play this role in their lives, but we need more people to fill in the gaps. Can we develop a library of mentors? Who is willing to lead a nature hike, tell a story, share a skill, visit a classroom or become a family nature friend?
- A series of regular neighbourhood walks throughout the community. How many people really know their neighbourhood? Do you recognize any of the trees, birds, animals or other wildlife and know what they need to live? Are there any interesting stories associated with your neighbourhood? Do you know your neighbours? Invite residents as well as guest experts to lead a “Magical Mystery Tour” of your neighbourhood. Who can organize this?
- More naturalized areas in public parks. Given the well-documented importance to children of free play in diverse natural spaces, the community needs natural play spaces in every neighbourhood. “Neighbourhood Nature Days” could be held here, with family picnics while the children play together. This must become an important focus for municipal planners and policymakers.



“Decades of observational studies show that children engage in more creative and socially cooperative play in natural settings than they do in built playgrounds.”

– Louise Chawla⁴⁸

- Designated “Nature Play” areas on public and private land. While sensitive natural areas require careful and respectful interaction from human visitors (staying on trails, looking but not picking, leaving things as you found them), communities would benefit from designated “nature play” areas for children, where they can build forts with branches, explore under rocks, play in mud puddles, pick flowers, collect treasures and generally play and explore freely. These opportunities provide enormous benefits for child development. Nature playscapes are another consideration for play areas to stimulate creative play.
- Meaningful opportunities for young people to volunteer in their community. Volunteer time is now required for graduation from secondary school, but it can be difficult to find deep learning experiences for young people. Hands-on involvement in addressing community issues important to youth is a critical aspect of developing leadership and stewardship. Community groups, individuals and agencies should make youth involvement an important part of their annual plans. This is not “free labour”, but a valuable opportunity to share skills, build friendships and create a sense of ownership and responsibility in young people towards their community.
- Lists of excellent fiction and non-fiction books to encourage deep connections to nature in children. Parents, teachers and librarians can help recommend favourite picture books that support developing stewardship and relationships with the world around us. Bedtime stories are magical opportunities for parents to deepen bonds with their children, and provide lifelong memories of security, affection and attachment to family and nature. A list of the community’s favourite books for each age would be another valuable resource to support this project.
- Training opportunities for parents, teachers and caregivers to facilitate creative outdoor play. This could include training in the planning and creation of nature playscapes.

3. Develop an implementation plan, which includes recognition of attaining a series of landmarks.

There are many ways this *Pathway* could be implemented – ranging from an ad hoc “do whatever you can” approach to a coordinated, community-wide initiative where every child’s attainment of landmarks is recognized and praised by the community in a meaningful way. This broader, more coordinated approach will require considerable discussion and planning between ages and sectors to ensure that collective action achieves broader and deeper impact than any group or sector working alone. Studies such as the EPODE initiative in France have shown a much greater impact on children’s health when schools, families and community groups work together than when each group works in isolation.⁴⁹

⁴⁸ Chawla, Louise (2017b). “Pivotal Experiences in the Development of Connection and Care for Nature in Childhood and Adolescence.” In *Relearn Nature* (in press in French translation), edited by Cynthia Fleury and Anne-Caroline Prévot. Paris: CNRS Editions, 8.

⁴⁹ J.-M. Borys, J.-M. et al. (2012), “EPODE Approach for Childhood Obesity Prevention: Methods, Progress and International Development.” *Obesity Reviews* 13(4), 299–315. <http://onlinelibrary.wiley.com/doi/10.1111/j.1467-789X.2011.00950.x/full>

The project may benefit from a website outlining landmarks, providing contact information for supporting resources, and allowing every young person to enter and track their progress as they complete each step of the *Pathway*. A “Passport” model is one option used in other countries for tracking the progress of a personal journey, where every child has a real or virtual passport, which is stamped after each landmark is attained. A community dinner or ceremony is another option for recognizing key points in the journey, similar to “rites of passage” practiced in many traditions. It will be important to consult children and youth to learn what kind of recognition would be valued and appreciated.

4. Conduct a pilot phase, which includes monitoring and evaluation.

A pilot phase would be useful to test the challenges of using and tracking the landmarks in selected schools, families and community groups. This would help identify and address any issues or challenges arising from the plan, and facilitate any required fine-tuning before a broader rollout in the region. This would also provide an opportunity to field-test evaluation tools to ensure that the project is resulting in positive change in the community. Listening, responding to and supporting families, teachers, mentors and community groups will be as important as making effective linkages between needs and resources.

5. Roll out the project community-wide.

Once the results of pilot testing are demonstrated and evaluated, a community-wide roll-out will involve broader collaboration and support networks. A model for effective governance needs to be developed, as well as planning for long-term financial viability and sustainability. Efficient sharing of resources among sectors will be critical to long-term success.

Some type of headquarters for the project will be needed to keep resources updated, expand on the options for landmark-linked activities, track progress, evaluate results and organize celebrations to mark achievements.

6. Monitor, evaluate and adjust as needed.

As this is an emerging strategy for promoting community-wide cultural change in relationships with each other and the land, it will be important to monitor progress and evaluate impacts on an ongoing basis. Results and new research may suggest adjustment to landmarks and support services as the project develops. Documenting experiences and progress will benefit the local initiative as well as being useful to other communities considering their own plans and activities.

7. Encourage other communities to participate and develop their own supports and resources.

While this *Pathway to Stewardship and Kinship* is community-based and designed to launch in the Greater Peterborough Area, the basic principles of child, stewardship and relationship development are the same everywhere. This strategy can be implemented much more widely, and we hope other communities will recognize its potential for positive impact.

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Physical
Health



Mental
Health



Community
Health



Environmental
Health

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B: Reviewers

We are particularly grateful to the expert reviewers who provided detailed comments and guidance on the original draft of this document. Their feedback has been of enormous assistance in shaping this final 2017 updated document.

This does not imply that all reviewers wholly endorse all aspects of the strategies proposed in this document. Integrating a wide variety of perspectives is an illuminating and challenging task. Our sincere thanks to all our reviewers for sharing their expertise.

Tayohseron:tye Nikki Auten	Mohawk, Turtle Clan Teacher of Mohawk Language
Louise Turner Chawla	Professor Emerita, Environmental Psychology and Design University of Colorado
Cam Collyer	Executive Director, Programs Evergreen
Peter Gray	Research Professor, Department of Psychology Boston College
Tim Grant	Co-Editor Green Teacher Magazine
Stan Kozak	Learning Innovation Consultant Learning for a Sustainable Future/L'éducation au service de la Terre
Kristi Lekies	Associate Professor, School of Environment and Natural Resources The Ohio State University
Grant Linney	Retired Outdoor and Environmental Educator Climate Reality Canada, Council of Outdoor Educators Ontario (COEO)
K. Dawn Martin	Mohawk from Six Nations of the Grand River Educator
Caleb Musgrave	Anishinaabe, Hiawatha First Nation Canadian Bushcraft
David Sobel	Senior Faculty, Education Department Antioch University New England
Nancy Stevens	Mno Waasemok Mizhakwadkwe, Bear Clan Counsellor Nijikiwendidaa Anishnaabekwewag Services Circle
TRACKS Program Educators (Trent Aboriginal Cultural Knowledge & Science)	Zhowshkawabunokew Kyla Judge Youth Leadership Program Coordinator Emily King Métis associated with the Georgian Bay Métis Community Kevin Cardoso settler, Trent University student Heathyr Francis settler, Outdoor Educator Cherylanne James Anishinaabekwe from Chippewas of Rama First Nation
Barbara Wall	Potawatomi PhD candidate, Indigenous Studies, Trent University
Ruth A. Wilson	Early Childhood Educator, Research Library Curator Children and Nature Network

C: Community Contributors

Our thanks to the many people in addition to our Steering Committee who contributed to this project by attending workshops, consultations and focus groups to give advice on the draft [Pathway](#) document during 2016-17. Apologies to anyone inadvertently missed in this list.

Marcy Adzich
Saoirse Aherne
Jaime Akiyama
Katie Allen
Wendy Baggs
Paul Baines
Todd Barr
Monique Beneteau
Craig Brant
Teresa Burke
Glen Caradus
Donna Churipuy
Julie Cosgrove
Barb Diceman
Jackie Donaldson
Jake Douglas
Kaia Douglas
Kait Dueck
Anne Elliott
John Ernsting
Wendy Fischer
Rosemary Ganley
Mason Godden
Jane Gray
Sister Linda Gregg
Jon Grimwood
Paul Hambidge
Brittany Harding
Johanna Hart
Greg Healey
Ann Hobday
Georgie Horton-Baptiste
Kate Huband
Jason Huffman
Kate Jarrett
Leslie LeClair
Jessica Lindeman
Anria Loubser
Charmaine Magumbe

Daniel Mansfield
Ray Marshall
Anna Martin
Kaia Martin
Maureen McDonald
Nadia McLaren
Cathy Mitchell
Mary Ellen Moes
Deanna Moher
Drew Monkman
Louise Musgrave
Katherine Orgill
Candace Passey
Kate Penton
Courtney Pickering
Lindy Powell
Mike Richardson
Kerri Riel
Anna Rodenburg
Sandra Robinson
Mieke Schipper
Philip Shaw
Linda Slavin
Robyn Smith
Paul Staples
Mark Strong
Lindsay Stroud
Dorothy Taylor
Anne Trudell
Andrea VanDerHerberg
Tom Whillans
Jeff Wiltshire
Ben Wolf

D: Interview Format

Interviewee _____

Interviewer _____

Introduction: Members of many different community organizations are working together to develop an “Environmental Framework” of important experiences in a child’s life which contribute to a sense of stewardship of the world. We are reviewing research and interviewing a variety of community leaders in the hopes of learning what a child needs to become a steward – someone who cares about others and the natural world and is able to protect and enhance their well-being.

1. **Question:** How would you rate your interest in the environment and environmental issues (low, moderate, high, very high)? Can you briefly explain what, at this stage of your life, maintains this level of interest?
2. **Question:** Would you briefly summarize your professional background (and relevant personal interests?).
3. **Question:** What experiences, if any, did you have as a child or youth that were important in creating your interest in the environment, and at what age did they occur?
4. **Question:** Children respond to the environment in different ways, depending in part, on their age. What opportunities and experiences do you believe are most important in fostering future stewardship at these stages of life:
 - Preschool children (birth to age 3),
 - Young elementary aged children (age 4-7),
 - Older elementary children (age 8-12),
 - Secondary students (age 13-18).
5. **Question:** Can you suggest how our community could be more effective in raising future stewards? Do you know of any unique initiatives going on locally that are helping achieve this?
6. **Question:** To what extent is it our community’s responsibility to foster stewardship in our children and youth?

Wrap-up: Thanks, follow-up, suggestions for other people to interview, etc.

Estimated Interview Time: 30 minutes

E: Interviewees and Affiliations

Municipal Councils

Henry Clarke	(Peterborough Deputy Mayor)
Mary Smith	(Selwyn Mayor)

School Boards

Jonathan Berlingeri	(Consultant – Ptbo. Victoria Northumberland & Clarington Catholic District School Board)
Rusty Hick	(Director – Kawartha Pine Ridge District School Board)

Municipal Employees

Paul Hambidge	(Peterborough Urban Forest Specialist)
Melanie Kawalec	(Peterborough Sustainability)
Mike Richardson	(Selwyn Recreation)
Susan Sauvé	(Peterborough Transportation)
Richard Straka	(Peterborough Planning)
Virginia Swinson	(Peterborough Waste Diversion)

Trent University Faculty

Ray Dart	(Business Administration)
Paul Elliott	(School of Education and Professional Learning) *project steering committee)
Michael Fox	(School of the Environment, Department of Biology)
Lisa Nisbet	(Psychology)
Erica Nol	(Biology)
Al Slavin	(Physics)
Tom Whillans	(School of the Environment)
(see also First Nations, below)	

Sir Sandford Fleming College Faculty

Kevin Callan	
Mary Lou Lummiss	(Early Childhood Education) *project steering committee

First Nations

Nicole Bell	(Kitigan Zibi First Nation; Trent U. – School of Education and Professional Learning)
Dan Longboat	(Six Nations of the Grand River; Trent U., Indigenous Environmental Science)
David Newhouse	(Onondaga; Trent U. – Indigenous Studies, Business Administration)
Liz Stone	(Amajiwnaag First Nation; Nijkiwendidaa Anishnabekwewag Services Circle)
Dorothy Taylor	(Elder, Curve Lake First Nation; Sacred Water Circle)
Shirley Williams	(Elder, Wiikwemikoong Unceded Reserve, Professor Emeritus, Trent U.)

Elementary Teachers

Terry Hobday	Nicola Jennings	Deryck Robertson
Kathy MacMillan-Jones	Sheila Potter	*project steering committee

Secondary Teachers

Jon Grimwood	Brent Harrald	John MacMillan-Jones	Pamela Maitland
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Trent University Students

Leeanne Bailey	Katelynn Cadreux	Kortney Dunsby	Eliza Nicholson
Alex Parniak	Eric Post	Katie Shaw	

Outdoor Educators

Jeff Bond	(KPR Outdoor Education)
Craig Brant	(Camp Kawartha Environment Centre)
Glen Caradus	(Camp Kawartha, Canadian Canoe Museum)
Julie Drain	(Riverview Park and Zoo)
Neil Fortin	(Camp Kawartha)
Heathyr Francis	(TRACKS and Ganaraska Forest Centre)
Anna Lee	
Emily Pearson	

Community Organizations

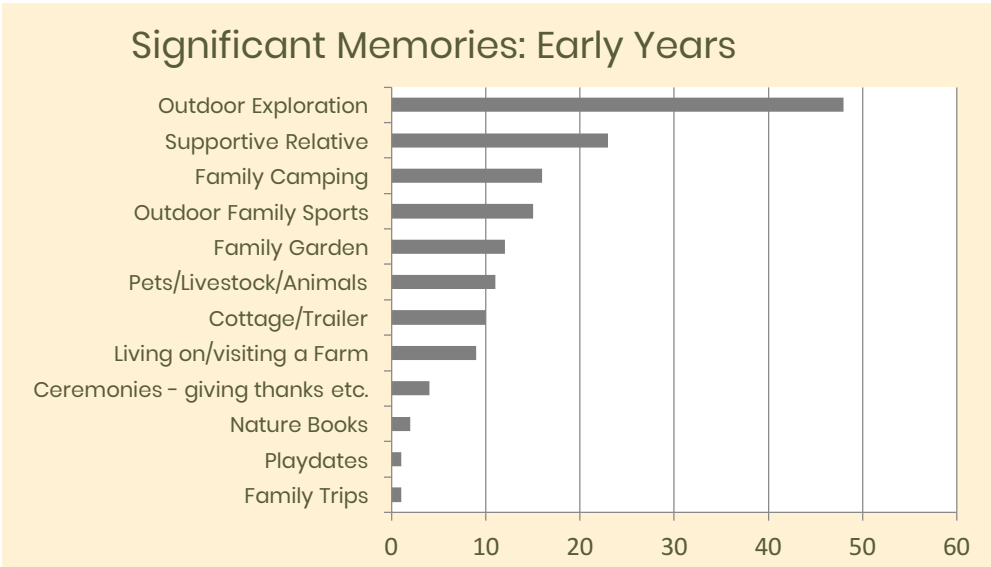
Aimee Blythe	(Seasoned Spoon Café)
Donna Chiripuy	(Peterborough Public Health)
Julie Cosgrove	(Kawartha World Issues Centre)
Jackie Donaldson	(GreenUP)
Anne Gallant	(Peterborough Public Health) *project steering committee
Mike Hendren	(Kawartha Land Trust)
Kate Jarrett	(Peterborough Public Library)
Barbara Lillico	(Peterborough Family Resource Centre)
Lindsay Maxim	(Ontario Turtle Conservation)
Jim Moloney	(Riverview Park and Zoo) *project steering committee
Tegan Moss	(BIKE Community Cycling Hub)
Terry Rees	(Federation of Ontario Cottagers' Associations)
Chris Risley	(Ontario Ministry of Natural Resources and Forestry – Species at Risk)
Jacob Rodenburg	(Camp Kawartha) *project steering committee
Brianna Salmon	(GreenUP)
Rosanna Salvaterra	(Peterborough Public Health)
Mieke Schipper	(Gamiing Nature Centre)
Ben Taylor	(Community Living)
Dianne Westlake	(Ontario Horticultural Association)
Gary Westlake	(Master Gardeners)
Ben Wolfe	(Axiom News)
Kim Zippel	(Peterborough Field Naturalists and Harper Park)

Community Activists and/or Independent Professionals

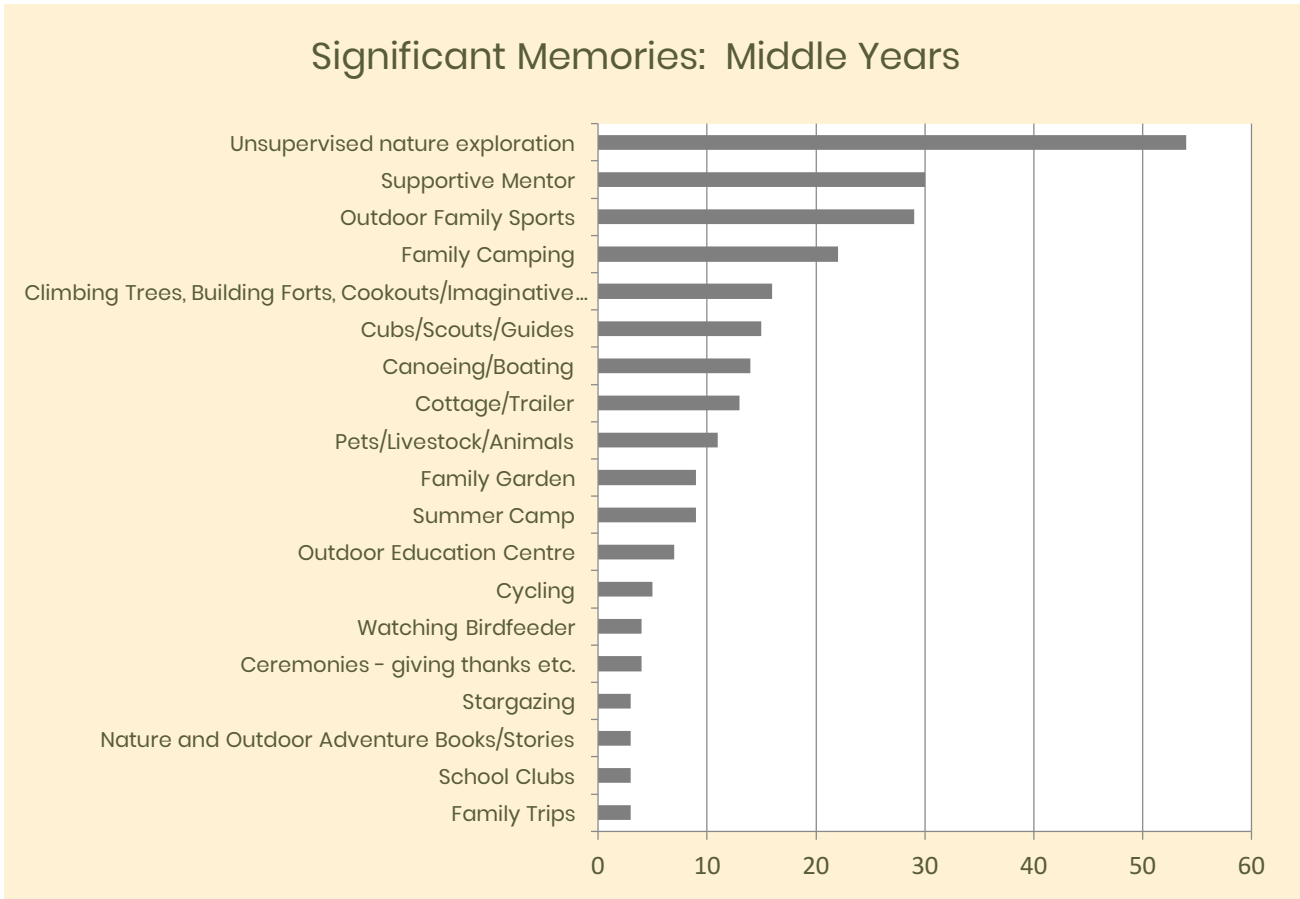
Paula Anderson	(Farmer, Indigenous Studies PhD candidate)
Ian Attridge	(Kawartha Land Trust, Environmental Lawyer and Trent Faculty)
Sheila Collett	(psychotherapist and counselor)
Cathy Dueck	(ecological educator, landscape consultant) *project steering committee
Andrew Jobes	(Biologist and Yoga instructor)
Drew Monkman	(nature writer, retired teacher)
Grant Murphy	(water quality consultant)
Brian Nichols	(artist, therapist, former ECE director – SSFC)
Linda Slavin	(Sustainable Peterborough, climate change activities)

F: Interview Results

Interviewees (80 in total) were asked to recall which memories from their **early childhood** had a significant impact on fostering their current interest in the environment and environmental issues. Understandably, fewer interviewees could recall memories from their earliest years than from their years of middle childhood.

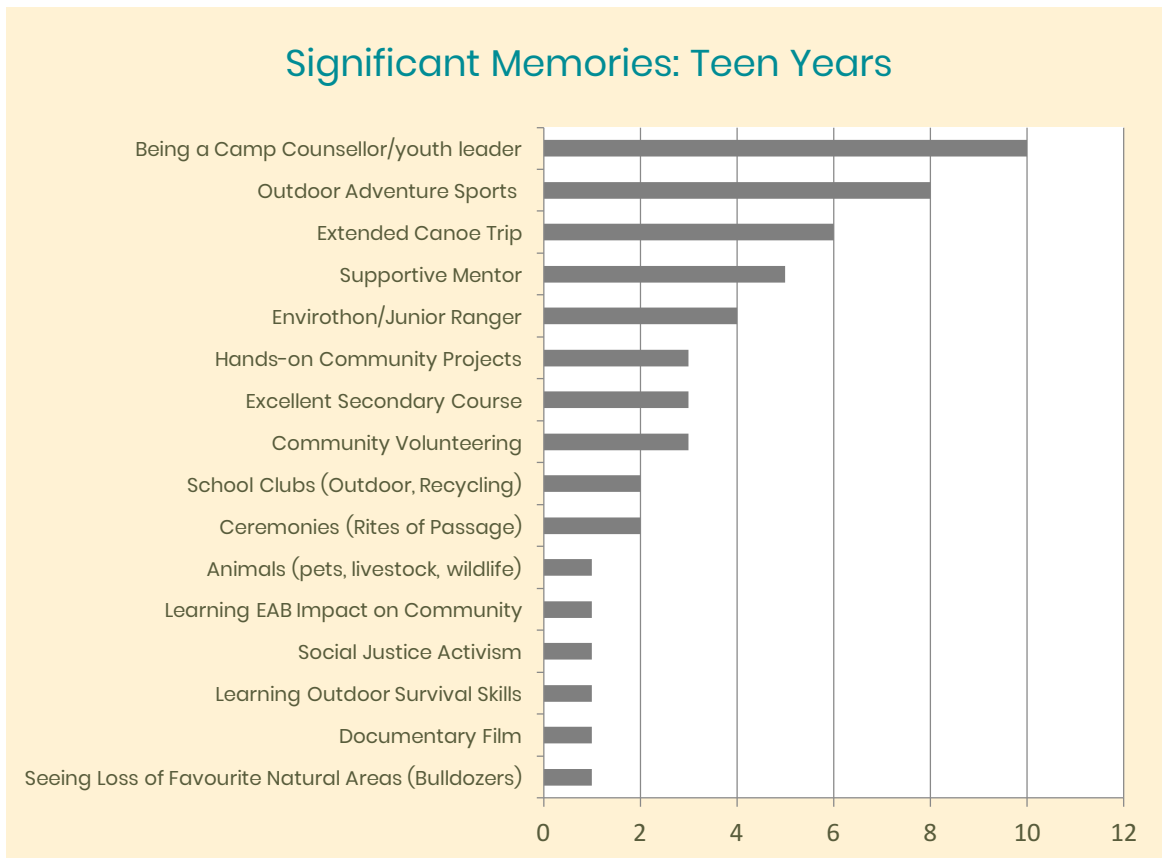


Interviewees (80 in total) were asked to recall which memories from their **middle years** had a significant impact on fostering their current interest in the environment and environmental issues. This time of childhood provided the richest and most diverse memories for interviewees. In addition to the dominant responses in the chart below, other individual answers

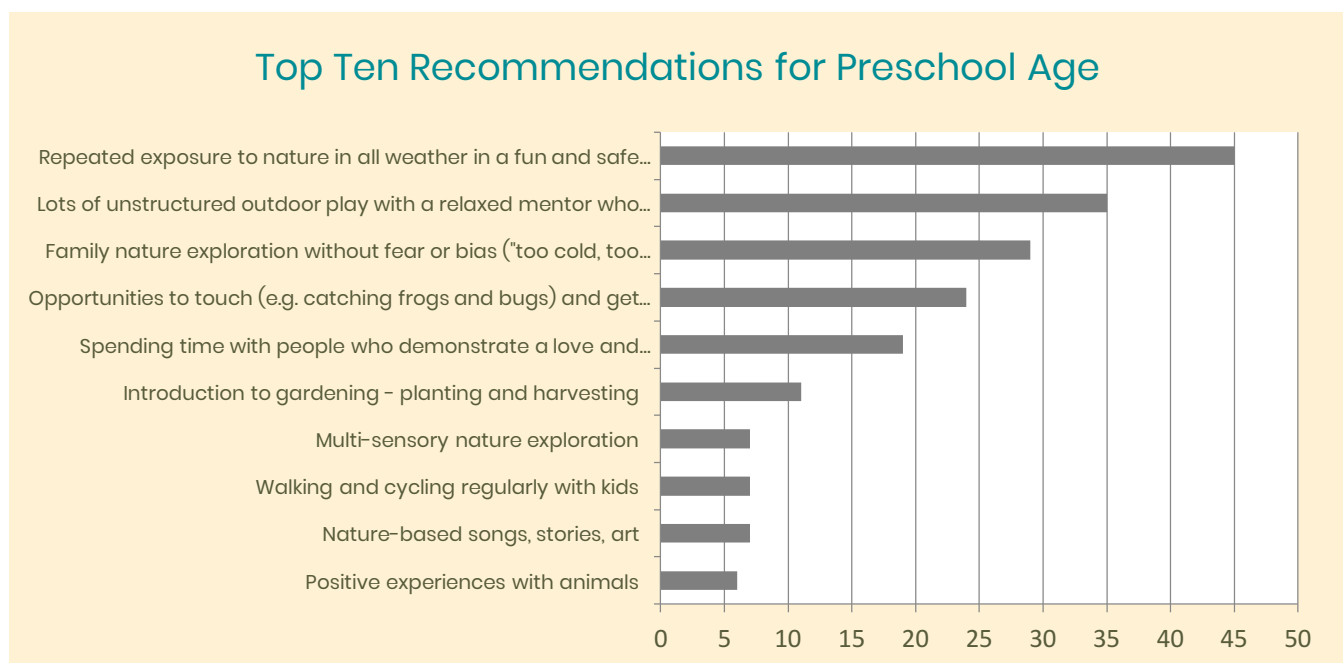


included: making maple syrup, nature and adventure television or film, the sounds of nature, seeing the loss of favourite greenspaces to development, keeping records for gardens or birdfeeders.

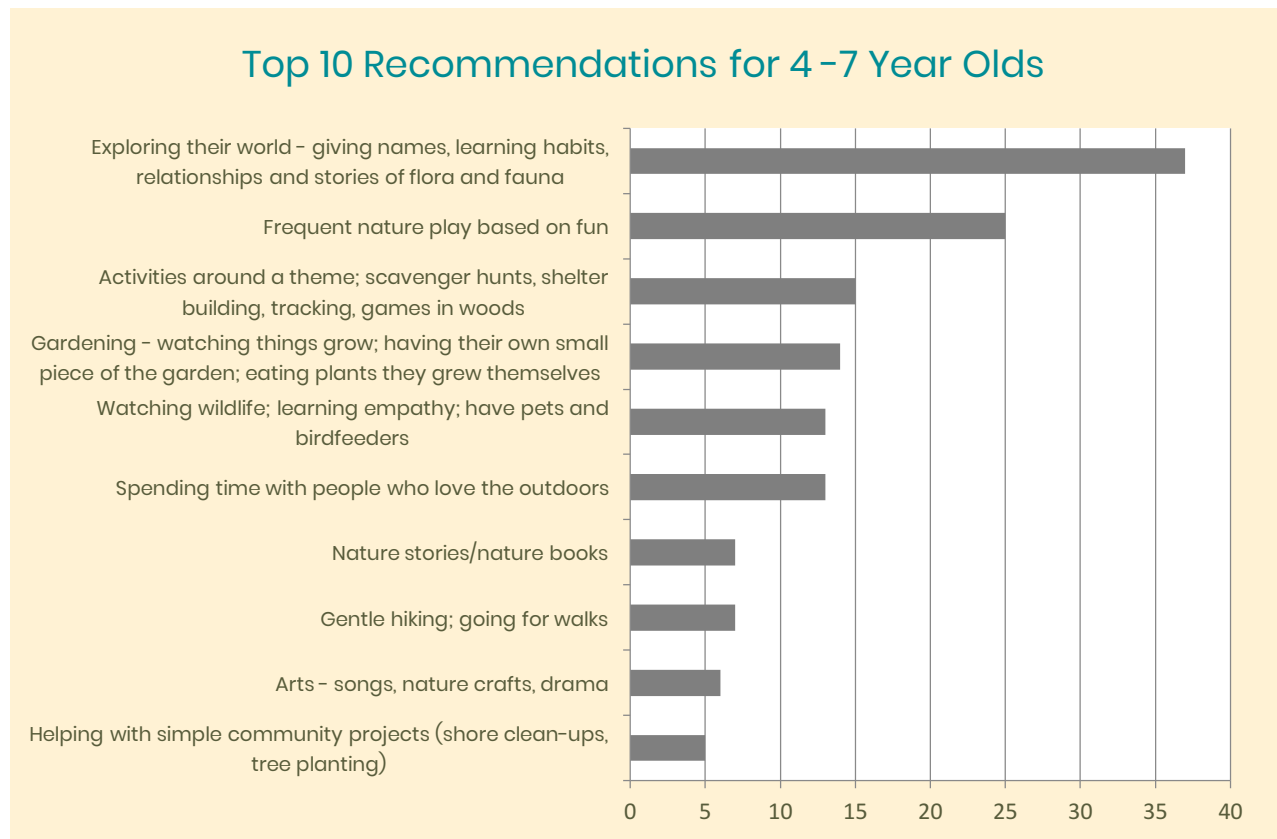
Interviewees (80 in total) were asked to recall which memories from their **teen years** had a significant impact on fostering their current interest in the environment and environmental issues. There were relatively fewer responses for this specific age group, as indicated below.



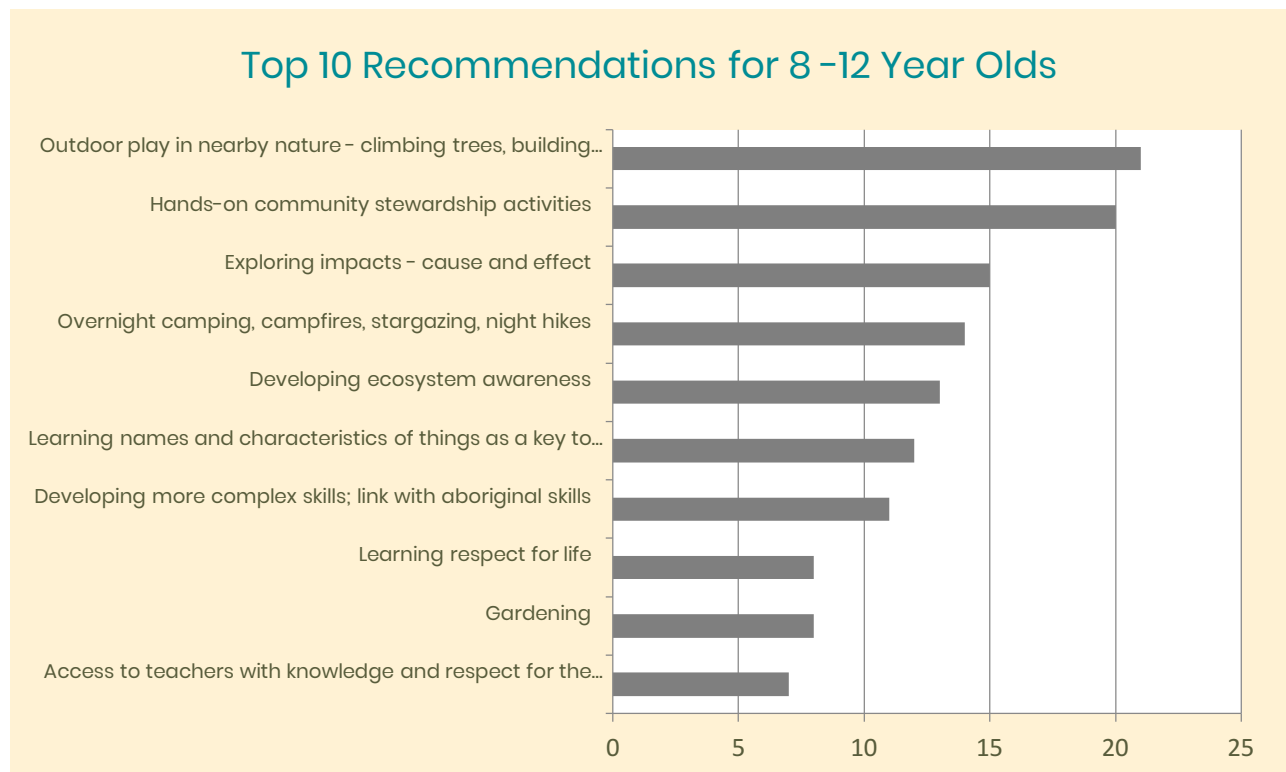
A total of 54 interviewees had recommendations for today's **preschool aged children** to help promote stewardship and relationship. These are the top ten responses.



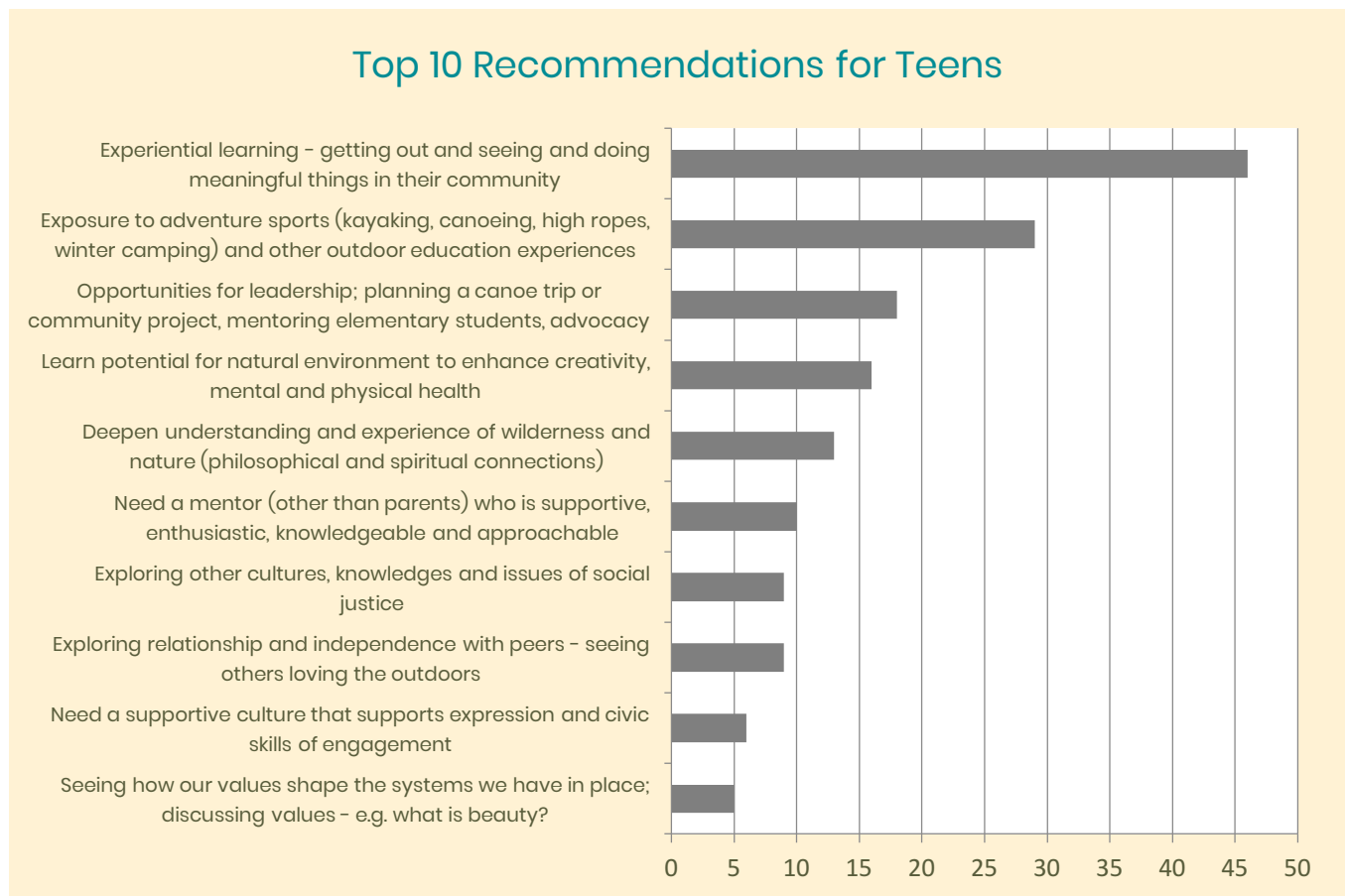
A total of 60 interviewees had recommendations for today's [young elementary children](#) to help promote stewardship and relationship. These are the top ten responses.



A total of 59 interviewees had recommendations for today's [older elementary children](#) to help promote stewardship and relationship. These are the top ten responses.



A total of 58 interviewees had recommendations for today's [secondary aged youth](#) to help promote stewardship and relationship. These are the top ten responses.



Interviewees were asked to what extent it is the community's collective responsibility to foster stewardship in children and youth. Of 75 responses, these were the results.



G: Community Resources

Since local community interactions are a key focus of this *Pathway to Stewardship and Kinship*, most of these resources are from the Peterborough-Kawartha region. A few particularly exceptional websites from outside the region are also included.

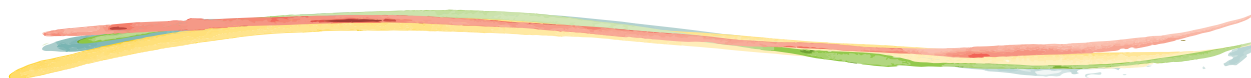
If you know of other important community resources that could directly support the landmarks in this document, please contact us at: peterboroughpathway@gmail.com

We expect our list of community resources will be continually evolving.

Abraham Festival	http://abrahamfestival.org/
Active and Safe Routes to School	http://www.peterboroughmoves.com
Activity Haven (seniors' activity centre)	http://www.activityhaven.com/
Alderville First Nation	http://www.aldervillefirstnation.ca/
The Art School of Peterborough	http://artschoolptbo.org/
Avant Garden Shop	http://www.avantgardenshop.com/ (birding and gardening supplies)
BIKE Community Cycling Hub	http://communitybikeshop.org/
Camp Kawartha	http://campkawartha.ca/ Outdoor Education & Summer Camp Two facilities: north of Lakefield and Trent University campus
Canadian Bushcraft	http://www.canadianbushcraft.ca/
Canadian Canoe Museum	http://www.canoemuseum.ca/
Citizen Science Programs:	
Frogwatch	http://naturecanada.ca/what-we-do/naturewatch/frogwatch/
Journey North	www.learner.org/jnorth/
Ontario Nature	http://www.ontarionature.org/protect/species/PDF/
Ice Watch	http://naturecanada.ca/what-we-do/naturewatch/icewatch/
Great Backyard Bird Count	http://gbbc.birdcount.org/
Plant Watch	www.naturewatch.ca/plantwatch/
Worm Watch	www.naturewatch.ca/wormwatch/
City of Peterborough:	
Parks	http://www.peterborough.ca/Assets/City+Assets/LIS/Documents/Parks+Location+Map+
Trails	http://www.peterborough.ca/Assets/City+Assets/TDM/Images/August+2012+City+of+Peterborough+Trails+26+Bikeways+Map.pdf
Transit	http://www.peterborough.ca/Living/City_Services/Transportation/Transit/Bus_Routes_Schedules.htm
County Fairs:	
Norwood	http://www.norwoodfair.com/
Peterborough	http://www.peterboroughex.ca/
Roseneath	http://roseneathfair.com/
Cornell Lab of Ornithology	http://www.birds.cornell.edu/Page.aspx?pid=1478
Curve Lake First Nation	http://www.curvelakefirstnation.ca/
Ecology Park	http://www.greenup.on.ca/ecology-park/
Ecological Footprint	http://www.footprintnetwork.org
Endeavour Centre	http://endeavourcentre.org/
Farms at Work	http://www.farmsatwork.ca/
Flint Corn Community Project	https://www.facebook.com/flintcorn/
Gamiing Nature Centre	http://www.gamiing.org

Ganaraska Forest Centre	http://www.ganaraskaforestcentre.ca/
Ganaraska Region Conservation Authority	http://www.grca.on.ca
GreenUP	http://www.greenup.on.ca/
4-H Ontario	http://www.4-hontario.ca/4h-in-my-area/
Hiawatha First Nation	http://www.hiawathafirstnation.com/
Horticultural Societies:	
Ennismore Horticultural Society	http://www.gardenontario.org/site.php/ennismorhs
Lakefield Horticultural Society	http://www.lakefieldhort.org/
Lindsay Horticultural Society	http://www.gardenontario.org/site.php/lindsay
Norwood Horticultural Society	http://www.gardenontario.org/site.php/norwood
Omeme Horticultural Society	http://www.omemeeblooms.ca/
Peterborough Horticultural Society	http://peterboroughhort.com/
Indian River Reptile Zoo	http://reptilezoo.org/
Jumping Mouse Outdoor School	http://www.jumpingmouseprograms.org/
Kawartha Choice	http://www.kawarthachoice.com/ (local farms, farmers' markets etc.)
Kawartha Land Trust	http://kawarthalandtrust.org/
Kawartha Nordic	http://www.kawarthanordic.ca/
Kawartha Pine Ridge Outdoor Education Centres:	
	http://www.kprschoools.ca/en/staff/departments/teachingandlearning/outdoorededucationcentres.html
Warsaw	
Gooderich-Loomis	
Laurie Lawson	
Wilmot Creek	
Kawartha World Issues Centre	http://www.kwic.info/
Lakefield Animal Welfare Society	http://www.lakefieldanimalwelfare.org/
Lang Pioneer Village	http://www.langpioneervillage.ca/
McLean Berry Farm	http://www.mcleanberryfarm.com
Millbrook Valley Trails	http://cavanmonaghan.net/en/thingstodo/resources/MillbrookTrailsbrochure.pdf
New Canadians Centre	http://www.nccpeterborough.ca
Nogojwanong Friendship Centre	http://www.ofifc.org/centre/nogojwanong-friendship-centre
Nourish Project (food program)	http://nourishproject.ca/
Ontario Children's Outdoor Charter	http://www.childrensoutdoorcharter.ca/
Ontario Federation of Anglers & Hunters	www.ofah.org/
Ontario Turtle Conservation Centre	www.kawarthaturtle.org (formerly Kawartha Turtle Trauma Centre)
Otonabee Conservation	http://www.otonabee.com/
Ontario Parks	www.ontarioparks.com/ (Mark S. Burnham, Emily, Petroglyphs, Kawartha Highlands)
Paddling Puppeteers	http://paddlingpuppeteers.com/
Peterborough Children's Water Festival	http://www.pcwf.net/
Peterborough Downtown Farmers' Market	http://ptbodowntownmarket.blogspot.com/
Peterborough Family Resource Centre	http://www.pfrc.ca
Peterborough Farmers' Market	http://www.peterboroughfarmersmarket.com/
Peterborough Field Naturalists	http://peterboroughnature.org/ (and Junior Field Naturalists)

Peterborough Humane Society	http://peterboroughhumanesociety.ca/
Peterborough Moves	http://www.peterboroughmoves.com
Peterborough Museum and Archives	http://www.peterboroughmuseumandarchives.ca/
Peterborough Parent-Child Mother Goose Program	c/o Nauni Parkinson ptbomothergoose@gmail.com
Peterborough Pollinators	http://www.peterboroughpollinators.com/
Peterborough Public Library	http://www.peterborough.library.on.ca/
Peterborough Social Planning Council	www.pspc.on.ca
Peterborough Utilities	http://www.peterboroughutilities.ca/ (tours of hydro-electric power station)
Pick Your Own Farms in Ontario	http://www.pickyourown.org/
Recycle Rangers	http://www.recyclerangers.ca
Reframe Film Festival	http://reframefilmfestival.ca/
Riverview Park and Zoo	http://www.peterboroughutilities.ca/Park_and_Zoo
Sacred Water Circle	http://www.sacredwater.ca/
Scouts Canada	http://www.scouts.ca/
Scugog First Nation	http://www.scugogfirstnation.com/
TRACKS	www.trentu.ca/ies/tracks.php (Trent Aboriginal Cultural Knowledge and Science)
Trent University Nature Areas	www.trentu.ca/natureareas/documents/TrailMap.pdf
Think Outside	http://www.thinkoutside.life/
YMCA of Central East Ontario	http://www.ymcaofceo.ca/ (swimming lessons, fitness programs)
YWCA Peterborough-Haliburton	http://ywcapeterborough.org/ (food programs and social justice)
Your Healthy House	http://www.yourhealthyhouse.ca/



H: Sample Ontario Curriculum Links (for Teachers)

FULL-DAY EARLY LEARNING – KINDERGARTEN

- The three goals outlined in Acting Today, Shaping Tomorrow are organized around the themes of teaching and learning, student engagement and community connections, and environmental leadership. The first goal is to promote learning about environmental issues and solutions. The second is to engage students in practicing and promoting environmental stewardship, both in the school and in the community. The third stresses the importance of providing leadership by implementing and promoting responsible environmental practices throughout the education system so that staff, parents, community members, and students become dedicated to living more sustainably.
- The Full-Day Early Learning–Kindergarten program offers many opportunities for accomplishing these goals. The learning environments for early learning include the schoolyard, fields and trails in the vicinity of the school, and various other outdoor venues. Teaching children to appreciate and respect the environment is an integral part of being active in these spaces. Appreciating the value of fresh air and outdoor spaces, understanding the environmental benefits of healthy practices such as active transportation (walking, biking) and the environmental implications of various food choices, being aware of the impact of using trails, and understanding the health risks associated with environmental factors such as sun exposure and air pollution are all components of environmental education that can be integrated with learning in Full-Day Early Learning–Kindergarten programs. To facilitate these connections, Early Learning–Kindergarten teams are encouraged to take children out of the classroom and into the world beyond the school to help them observe, explore, and appreciate nature.
- Taking field trips to interesting places in the community, inviting community experts to the classroom, and having community members bring in artifacts from the community related to topics of immediate interest to the children are examples of activities that promote learning and bring the local environment into the daily activities of young children.
- Play is a vehicle for learning and lies at the core of innovation and creativity. It provides opportunities for learning in a context in which children are at their most receptive.
- Participate in environmentally friendly activities in the classroom and the schoolyard (e.g., plant and tend to plants; use local products for snack time)
- The EL–K team supports the children’s environmental thinking by asking children to consider the impact on the environment when choosing tools, equipment, and material for their designs.

GRADE ONE

The Arts (2009)

Visual Arts

- Demonstrate an understanding of composition, using principles of design to create narrative;
- Art works or art experiences on a theme or topic;
- Express their feelings and ideas about art works and art experiences.

Physical Education (2015)

- Demonstrate an understanding of factors that contribute to their personal enjoyment of being active as they participate in a wide variety of individual and small-group activities;
- Student: ... “I love playing outside. When it is really hot, I play under the trees so I am in the shade.”...

Science and Technology (2007)

- Assess the role of humans in maintaining a healthy environment;
- Investigate needs and characteristics of plants and animals, including humans;
- Assess the impact on people and the environment of objects and structures and the materials used in them;
- Assess the impact of daily and seasonal changes on living things, including humans; Investigate daily and seasonal changes; demonstrate an understanding of what daily and seasonal changes are and of how these changes affect living things.

Social Studies (2013)

- Describe some aspects of the interrelationship between people and the natural and built features of their community, with a focus on how the features of and services in the community meet people’s needs.

GRADE TWO

The Arts (2009)

Drama

- Engage in dramatic play and role play, with a focus on exploring main ideas and central characters in stories from diverse communities, times, and places.

Visual Arts

- Create two- and three-dimensional works of art that express feelings and ideas inspired by activities in their community or observations of nature.

Physical Education (2015)

- Demonstrate an understanding of factors that contribute to their personal enjoyment of being active
- Identify ways of protecting themselves and others, including those with medical conditions, from safety risks while participating in physical activity

Science and Technology (2007)

- Assess ways in which animals have an impact on society and the environment, and ways in which humans have an impact upon animals and the places where they live;
- Investigate similarities and differences in the characteristics of various animals;
- Demonstrate an understanding that animals grow and change and have distinct characteristics;
- Assess ways in which the actions of humans have an impact on the quality of air and water, and ways in which the quality of air and water has an impact on living things;
- Describe some aspects of the interrelationship between people and the natural and built features of their community,

GRADE THREE

The Arts (2009)

Dance

- Imitate movements found in their natural environment in a variety of ways and incorporate them into a dance phrase (e.g., modify the movements of animals, snow falling to the ground, ice melting, plants growing; connect a series of insect-like movements together to make a phrase).

Visual Arts

- Create two- and three-dimensional works of art that express personal feelings and ideas inspired by the environment or that have the community as their subject (e.g., make a symmetrical sculpture of an insect or a flower, using natural materials such as wood).

Physical Education (2015)

- Actively participate in a wide variety of program activities (e.g., outdoor activities) according to their capabilities, while applying behaviours that enhance their readiness and ability to take part.

Healthy Eating

- Demonstrate an understanding of how the origins of food (e.g., where the food is grown, how it is made) affect its nutritional value and environmental impact.

Science and Technology (2007)

Understanding Life Systems: Growth and Changes in Plants

- Assess ways in which plants have an impact on society and the environment, and ways in which human activity has an impact on plants and plant habitats;
- Assess the impact of different human activities on plants, and list personal actions they can engage in to minimize harmful effects and enhance good effects;
- Assess the impact of soils on society and the environment, and suggest ways in which humans can enhance positive effects and/or lessen or prevent harmful effects.

Social Studies (2013)

Inquiry: use the social studies inquiry process to investigate some of the environmental effects of different types of land and/or resource use in two or more Ontario municipal regions, as well as some of the measures taken to reduce the negative impact of that use.

GRADE FOUR

The Arts (2009)

- Translate into dance a variety of movement sequences observed in nature.

Physical Education (2015)

- Identify factors that motivate participation in physical activity every day at school, at home, or in their communities;
- Identify ways of promoting healthier food choices in a variety of settings and situations.

Science and Technology (2007)

Understanding Life Systems: Habitats and Communities

- Analyse the positive and negative impacts of human interactions with natural habitats and communities (e.g., human dependence on natural materials), taking different perspectives into account (e.g., the perspectives of a housing developer, a family in need of housing, an ecologist), and evaluate ways of minimizing the negative impacts;
- Identify reasons for the depletion or extinction of a plant or animal species (e.g., hunting, disease, invasive species, changes in or destruction of its habitat), evaluate the impacts on the rest of the natural community, and propose possible actions for preventing such depletions or extinctions from happening;
- Demonstrate an understanding of habitats as areas that provide plants and animals with the necessities of life (e.g., food, water, air, space, and light).

Understanding Earth and Space Systems: Rocks and Minerals

- Assess the social and environmental impacts of human uses of rocks and minerals.

Social Studies (2013)

- Use the social studies inquiry process to investigate some issues and challenges associated with balancing human needs/wants and activities with environmental stewardship in one or more of the political and/or physical regions of Canada.

GRADE FIVE

The Arts (2009)

- Create two- and three-dimensional art works that express feelings and ideas inspired by their own and others' points of view.

Physical Education (2015)

- Demonstrate an understanding of factors that contribute to their personal enjoyment of being active as they participate in a wide variety of individual and small-group activities and lead-up games;
- Demonstrate an understanding of proactive measures that should be taken to minimize environmental health risks that may interfere with their safe participation in and enjoyment of outdoor physical activities.

Science and Technology (2007)

Understanding Life Systems

- Assess the effects of social and environmental factors on human health, and propose ways in which individuals can reduce the harmful effects of these factors and take advantage of those that are beneficial.

Understanding Structures and Mechanisms: Forces Acting on Structures

- Evaluate the impact of society and the environment on structures and mechanisms, taking different perspectives into account (e.g., the perspectives of golfers, local bird-watching groups, families, a school board), and suggest ways in which structures and mechanisms can be modified to best achieve social and environmental objectives.

Understanding Earth and Space Systems: Conservation of Energy and Resources

- Analyse the immediate and long-term effects of energy and resource use on society and the environment, and evaluate options for conserving energy and resources;
- Evaluate the effects of various technologies on energy consumption (e.g., improving our home's insulation allows us to conserve heat and reduce energy consumption; aerodynamic design can improve the energy efficiency of cars and buses; household appliances designed to make our lives easier use large amounts of energy);
- Identify renewable and non-renewable sources of energy (e.g., renewable: sun, wind, ocean waves and tides, wood; non-renewable: fossil fuels such as coal and natural gas).

Social Studies (2013)

- Gather and organize a variety of information and data that present various perspectives about Canadian social and/or environmental issues, including the perspective of the level (or levels) of government responsible for addressing the issues.

GRADE SIX

The Arts (2009)

Visual Art

- Use elements of design in art works to communicate ideas, messages and understandings;
- Create a digital photo montage that represents aspects of environmentalism.

Physical Education (2015)

- Describe factors that motivate them to participate in physical activity every day at school and during leisure time and that influence their choice of activities;
- Participate in sustained moderate to vigorous physical activity, with appropriate warm-up and cool-down activities, to the best of their ability for a minimum of twenty minutes each day;
- Demonstrate behaviours and apply procedures that maximize their safety and that of others during physical activity (e.g. wearing an appropriate and properly fitted helmet when taking part in activities such as bike riding, downhill skiing, or skateboarding).

Science and Technology (2007)

Understanding Life Systems: Biodiversity

- Assess human impacts on biodiversity, and identify ways of preserving biodiversity;
- Analyse a local issue related to biodiversity;
- Propose action that can be taken to preserve biodiversity, and act on the proposal;
- Assess the benefits that human societies derive from biodiversity and the problems that occur when biodiversity is diminished;
- Follow established safety procedures for outdoor activities and field work;
- Investigate the organisms found in a specific habitat and classify them according to a classification system;
- Identify and describe the distinguishing characteristics of different groups of plants and animals;
- Describe interrelationships within species;
- Explain how invasive species reduce biodiversity in local environments.

Understanding Matter and Energy: Electricity and Electrical Devices

- Evaluate the impact of the use of electricity on both the way we live and the environment;
- Assess the short and long term environmental effects of the different ways in which electricity is generated in Canada including the effect of each method on natural resources and living things in the environment;
- Assess opportunities for reducing electricity consumption at home or at school that could affect the use of non-renewable resources in a positive way or reduce the impact of electricity generation on the environment.

Social Studies (2013)

Heritage and Citizenship: First Nation Peoples

- Gather and organize information on global issues of political, social, economic, and/or environmental importance, including their impact and responses to them, using a variety of resources and various technologies;

- Describe characteristics of pre-contact First Nation cultures across Canada, including their close relationships with the natural environment.

GRADE SEVEN

The Arts (2009)

Dance

- Construct personal interpretations of the messages in their own and others' dance pieces including messages relevant to their community and/or the world and communicate their responses in a variety of ways; describe the evolution of dance.

Visual Arts

- Create art works using a variety of traditional forms and current media technologies that express feelings, ideas and issues, including opposing points of view;
- Identify and describe some of the ways in which visual art forms and styles reflect the beliefs and traditions of a variety of cultures and civilizations.

Physical Education (2010)

- Actively participate in a wide variety of program activities, according to their capabilities;
- Demonstrate an understanding of the factors that contribute to their personal enjoyment of being active as they participate in a diverse range of physical activities in a variety of indoor and outdoor environments;
- Identify factors that can affect health-related fitness;
- Demonstrate behaviours and apply procedures that maximize their safety and that of others.

Science and Technology (2007)

Understanding Life Systems: Interactions in the Environment

- Assess the impact of human activities and technologies on the environment, and evaluate ways of controlling these impacts;
- Demonstrate an understanding of an ecosystem;
- Design and construct a model ecosystem (e.g. a composter, a classroom terrarium, a greenhouse), and use it to investigate interactions between the biotic and abiotic components in an ecosystem;
- Identify biotic and abiotic elements in an ecosystem and describe the interactions between them;
- Describe the roles and interactions of producers, consumers, and decomposers within an ecosystem;
- Describe the transfer of energy in a food chain and explain the effects of the elimination of any part of the chain;
- Describe how matter is cycled within the environment and explain how it promotes sustainability;
- Describe ways in which human activities and technologies alter balances and interactions in the environment;
- Describe Aboriginal perspectives on sustainability and describe ways in which they can be used in habitat and wildlife management.

Understanding Structures and Mechanisms: Form and Function

- Analyse personal, social, economic and environmental factors that need to be considered in designing and building structures and devices

Understanding Earth and Space Systems: Heat in the Environment

- Assess the costs and benefits of technologies that reduce heat loss or heat-related impacts on the environment;
- Assess the social and environmental benefits of technologies that reduce heat loss or transfer (e.g. insulated clothing, building insulation, green roofs, energy-efficient buildings);
- Assess the environmental and economic impacts of using conventional (e.g. fossil fuel, nuclear) and alternative forms of energy (e.g. geothermal, solar, wind, wave, biofuel).

Geography (2004)

- Describe positive and negative ways in which human activity can affect resource sustainability and the health of the environment.

Mathematics (2005)

- Collection and analysis of data.

History (2004)

- Illustrate the historical development of their local community;
- Describe and analyze conflicting points of view about a series of historical events.

GRADE EIGHT

The Arts (2009)

Dance

- Use dance as a language to communicate messages about themes of social justice and/or environmental health;

Drama

- Engage actively in drama exploration and role play, with a focus on examining multiple perspectives and possible outcomes related to complex issues, themes, and relationships from a wide variety of sources and diverse communities;
- Identify and describe a wide variety of ways in which drama and theatre make or have made contributions to social, cultural, and economic life in a variety of times and places.

Physical Education (2010)

- Demonstrate an understanding of the components of a range of physical activities and apply this understanding as they participate in a variety of physical activities in indoor and outdoor environments;
- Apply a variety of tactical solutions to increase chances of success as they participate in physical activities.

Science and Technology (2007)

Understanding Structures and Mechanisms: Systems in Action

- Assess the personal, social and/or environmental impacts of a system, and evaluate the improvements to a system and/or the alternative ways of meeting the same needs;
- Assess the impact on individuals, society, and the environment of alternative ways of meeting needs that are currently met by existing systems, taking different points of view into consideration;
- Demonstrate an understanding of different types of systems and the factors that contribute to their safe and efficient operation;
- Identify social factors that influence the evolution of a system.

Understanding Earth and Space Systems: Water Systems

- Assess the impact of human activities and technologies on the sustainability of water resources;
- Evaluate personal water consumption, compare it with personal water consumption in other countries, and propose a plan of action to reduce personal water consumption to help address water sustainability issues;
- Investigate how municipalities process water and manage water;
- Use scientific inquiry/research to investigate local water issues;
- Use technological problem-solving skills to design, build and test a water system device that performs a practical function or meets a need;
- Use appropriate science and technology vocabulary in oral and written communication;
- Use a variety of forms to communicate with different audiences and for a variety of purposes;
- Demonstrate an understanding of the watershed as a fundamental geographic unit, and explain how it relates to water management and planning;
- Explain how human and natural factors cause changes in the water table.

History (2004)

- Describe the factors contributing to change in Canadian society.

Geography (2004)

- Create and use a variety of maps for specific purposes;
- Identify the push and pull factors that influence people to move;
- Explain how the components of culture can be affected by migration;
- Formulate questions to guide and analyze research on migration and mobility (e.g. What barriers exist today for new immigrants?).

GRADE NINE

Canadian and World Studies (2013)

Geography

- Assess the renewability and non-renewability of various natural resources in Canada;
- Assess the feasibility of using selected renewable and alternative energy sources to augment or replace existing power sources in various parts of Canada;
- Analyse the impact of selected population trends on people living in Canadian communities;
- Analyse the effects of food production practices, distribution methods, and consumer choices on the sustainability of Canada's food system;
- Analyse the effects of individual lifestyle choices on energy consumption and production and assess the implications for sustainability in Canada;
- Analyse the factors that affect the social and economic sustainability of communities;
- Propose courses of action that would make a community more sustainable.

Health and Physical Education (2015)

Healthy Active Living

- Demonstrate positive social behaviours and adherence to ethical and fair play standards that contribute to creating a rewarding and enjoyable environment for participation in physical activities;
- Participate regularly in sustained moderate to vigorous physical activity to the best of their ability for a minimum of twenty minutes;
- Describe the short-term and long-term benefits of developing both health-related fitness and skill-related fitness;
- Demonstrate behaviours and apply procedures that maximize their safety and that of others;
- Explain how active living and healthy eating contribute to a person's physical health and mental, emotional and spiritual well-being.

Science (2008)

- Identify various factors related to human activity that have an impact on ecosystems;
- Use direct observation, computer simulation or star charts to determine the location, appearance and motion of well-known stars and other celestial objects that are visible in the night sky;
- Assess some of the social, economic and environmental implications of the production of electrical energy in Canada from renewable and non-renewable sources;
- Produce a plan of action to reduce electrical energy consumption at home and outline the roles and responsibilities of various groups in this endeavour.

GRADE TEN

The Arts (2010)

Media Arts

- Design and produce original media art works on a specific theme (e.g., an environmental issue) by combining one or more of the principles of media arts and a variety of elements from the contributing arts.

Drama

- Select and use appropriate forms to present identified issues from a variety of perspectives;
- Use a variety of technological tools (e.g., light, sound, set design, props, models) to enhance the impact of drama works.

Integrated Arts

- Integrate media/materials, tools, and techniques from more than one arts discipline to create an integrated art work/production that communicates a specific message.

Music

- Explain how the study of music has contributed to their personal growth (including the development of their values), their ability to express themselves, their awareness of social and environmental issues, and their understanding of others.

Health and Physical Education (2015)

Healthy Active Living

- Demonstrate positive social behaviours and adherence to ethical and fair play standards that contribute to creating a rewarding and enjoyable environment for participation in physical activities;
- Participate regularly in sustained moderate to vigorous physical activity to the best of their ability for a minimum of twenty minutes;
- Demonstrate an understanding of factors that enhance mental health and emotional and spiritual well-being;
- Demonstrate the ability to analyze situations involving conflict within oneself or conflict with others and apply appropriate conflict resolution strategies.

Science (2008)

- Assess, on the basis of research, the effectiveness of some current individual, regional, national or international initiatives that address the issue of climate change;
- Describe the principal sources and sinks, both natural and anthropogenic, of greenhouse gases.

Canadian and World Studies (2013)

Civics

- Explain what it means to be a “global citizen” and why it is important to be one.

GRADE ELEVEN

The Arts (2010)

- Demonstrate an understanding of how media arts works reflect personal and cultural identity, and affect personal, cultural, and community values and their awareness of those values.

Canadian and World Studies (2015)

Geography

- Assess quality of life in the selected region, including factors that contribute to quality of life and policies/programs that aim to improve it;
- Analyse issues associated with sustainability and stewardship of natural resources in the selected region;
- Analyse aspects of inequality and economic sustainability in the selected region, including programs intended to promote equality and sustainability;
- Explain how climate, including climate change, and natural hazards affect the selected region;
- Analyse issues relating to natural and human impacts on the environment and the sharing of natural resources between population groups;
- Analyse strategies for the protection of natural and cultural resources that are essential to tourism, and assess their effectiveness;
- Analyse impacts of environmental conditions and concerns on the tourism industry;
- Use a variety of spatial technologies to help them assess human activities and plan and promote the sustainable use of the natural environment, including natural resources, in their local community or area;
- Use a variety of spatial technologies to analyse the impact of human activity on the environment in their local community or area and beyond, and identify possible solutions;
- Use a variety of spatial technologies to analyse global issues related to geography and their impacts on the local community or area.

History

- Analyse how interrelationships with other societies and with the environment contributed to the decline of three or more societies/civilizations, each from a different region and different period prior to 1500.

Health and Physical Education (2015)

- Participate actively and regularly in a wide variety of physical activities, and demonstrate an understanding of factors that can influence and support their participation in physical activity now and throughout their lives;
- Demonstrate an understanding of the importance of being physically active, and apply physical fitness concepts and practices that contribute to healthy, active living;
- Demonstrate responsibility for their own safety and the safety of others as they participate in physical activities;

- Demonstrate an understanding of factors that contribute to healthy development;
- Demonstrate the ability to apply health knowledge and living skills to make reasoned decisions and take appropriate actions relating to their personal health and well-being;
- Demonstrate the ability to make connections that relate to health and well-being – how their choices and behaviours affect both themselves and others, and how factors in the world around them affect their own and others' health and well-being;
- Demonstrate an understanding of various environmental factors that influence personal health;
- Demonstrate an understanding of the components of healthy communities and the factors that affect and sustain health within them.

Native Studies (2000)

- Demonstrate an understanding of how Aboriginal identity is linked to the physical environment;
- Demonstrate an understanding of Aboriginal peoples' strong relationship to the land;
- Explain how Aboriginal peoples' links to the land and to a sustainable environment are part of their cultural identity;
- Explain how Aboriginal peoples' relationship to the land traditionally sustained Aboriginal life in various environments across Canada and continues to be evident in the cultural practices of Aboriginal peoples today;

Science (2008)

Biology

- Analyse the effects of various human activities on the diversity of living things;
- Investigate through field activities the principles of scientific classification, using appropriate sampling and classification techniques;
- Demonstrate an understanding of the diversity of living organisms in terms of the principles of taxonomy and phylogeny;
- Analyse the roles of plants in ecosystems, and assess the impact of human activities on the balance of plants within those ecosystems;
- Demonstrate an understanding of the structure and physiology of plants and their role in natural environments.

Social Studies and Humanities (2013)

Equity Studies

- Analyse a range of social, political, economic, and environmental issues relating to gender in Canadian and global contexts;
- Demonstrate an understanding of the impact individual action can have on equity, social justice, and environmental issues, and of how the media can create awareness of these issues.

GRADE TWELVE

Canadian and World Studies (2015)

Geography

- Analyse strategies and initiatives that support environmental stewardship at a national and global level, and assess their effectiveness in promoting the sustainability of the natural environment;
- Assess ways in which stewardship practices can contribute to the sustainability of human settlements;
- Describe ways in which human societies modify their local environments in order to meet economic, social, political, and other needs, and assess the effects of these modifications on sustainability;
- Use the geographic inquiry process and the concepts of geographic thinking when investigating issues related to the environment and the management of natural resources;
- Assess various strategies used for protecting natural spaces and species, locally, nationally, and globally;
- Assess impacts of human population settlement on natural spaces and species;
- Analyse challenges involved in reducing pollution from human activities, and assess the effectiveness of various methods of pollution reduction;
- Evaluate impacts of various types of pollution on the natural environment and on human health;
- Describe key ecological and biological processes, and explain how they are affected by human activities;
- Assess a variety of strategies for resolving environmental and natural resource management issues, locally, nationally, and/or globally;

- Assess impacts of community land use and infrastructure on humans and the natural environment, and assess ways of reducing these impacts;
- Analyse the role of individuals, the local community, and governments in achieving sustainability, and assess opportunities for personal stewardship and involvement in sustainability initiatives;
- Use the geographic inquiry process and the concepts of geographic thinking when investigating issues relating to the natural environment and sustainability;
- Assess the contributions of stewardship initiatives by groups and individuals to the sustainable use and management of natural resources, locally, nationally, and globally;
- Assess the role of various strategies, organizations, and agreements in reducing the impact of human activity on the environment.

History

- Explain how various social and environmental factors affected the lives of people in two or more societies in different regions of the world and at different times up to the fifteenth century.

Health and Physical Education (2015)

- Participate actively and regularly in a wide variety of physical activities, and demonstrate an understanding of factors that can influence and support their participation in physical activity now and throughout their lives;
- Demonstrate an understanding of the importance of being physically active, and apply physical fitness concepts and practices that contribute to healthy, active living;
- Demonstrate responsibility for their own safety and the safety of others as they participate in Grade 12, Open physical activities;
- Demonstrate an understanding of factors that contribute to healthy development;
- Demonstrate the ability to apply health knowledge and living skills to make reasoned decisions and take appropriate actions relating to their personal health and well-being;
- Demonstrate an understanding of the concept of leadership and of the attributes, skills, and styles needed to be an effective leader;
- Demonstrate an understanding of group dynamics, and apply teamwork skills in a variety of contexts related to healthy, active living;
- Identify and explain the benefits of lifelong participation in active recreation and healthy leisure, and demonstrate an understanding of factors that enable and constrain participation in active recreation and healthy leisure activities;
- Demonstrate an understanding of mentorship and the methods used by effective mentors to contribute to the growth and development of others;
- Demonstrate the ability to help others develop and implement a personal healthy active living plan.

Science (2008)

Biology

- Analyse the role of metabolic processes in the functioning of biotic and abiotic systems, and evaluate the importance of an understanding of these processes and related technologies to personal choices made in everyday life;
- Analyse the relationships between population growth, personal consumption, technological development, and our ecological footprint, and assess the effectiveness of some Canadian initiatives intended to assist expanding populations.

Chemistry

- Analyse the cumulative effects of human activities and technologies on air quality, and describe some Canadian initiatives to reduce air pollution, including ways to reduce their own carbon footprint;
- Evaluate the impact on society, human health, and the environment of products made using organic compounds;
- Evaluate the importance of government regulations, scientific analyses, and individual actions in improving air and water quality, and propose a personal plan of action to support these efforts;
- Demonstrate an understanding of chemical reactions that occur in the environment as a result of both natural processes and human activities.

Environmental Science

- Analyse social and economic issues related to an environmental challenge, and how societal needs influence scientific endeavours related to the environment;
- Investigate a range of perspectives that have contributed to scientific knowledge about the environment, and how scientific knowledge and procedures are applied to address contemporary environmental problems;
- Demonstrate an understanding of major contemporary environmental challenges and how we acquire knowledge about them;
- Evaluate the impact of agricultural and forestry practices on human health, the economy, and the environment;
- Investigate conditions necessary for plant growth, including the soil components most suitable for various species, and various environmentally sustainable methods that can be used to promote growth;
- Demonstrate an understanding of conditions required for plant growth and of a variety of environmentally sustainable practices that can be used to promote growth;
- Analyse selected current environmental problems in terms of the role human activities have played in creating or perpetuating them, and propose possible solutions to one such problem;
- Investigate air, soil, and water quality in natural and disturbed environments, using appropriate technology;
- Demonstrate an understanding of some of the ways in which human activities affect the environment and how the impact of those activities is measured and monitored.

Physics

- Analyse technologies that apply principles of and concepts related to energy transformations, and assess the technologies' social and environmental impact;
- Analyse the social, economic, and environmental impact of electrical energy production and technologies related to electromagnetism, and propose ways to improve the sustainability of electrical energy production.

Social Sciences and Humanities (2013)

Equity Studies

- Analyse a range of historical and contemporary equity and social justice issues and the impact of economic and environmental factors on these issues.

Family Studies

- Demonstrate an understanding of global textile production and its social and environmental impact; Globalization and Social Responsibility;
- Demonstrate an understanding of the impact of globalization on the fashion industry and of strategies for reducing the negative impact of the industry;
- Demonstrate an understanding of the impact of food production on the environment;
- Demonstrate an understanding of practices related to responsible consumerism;
- Demonstrate an understanding of the components of personal well-being, how to achieve and maintain it, and its importance throughout the life course;
- Demonstrate an understanding of how developmentally appropriate environments and experiences promote healthy development in children.