After-School Program Manual to Assist Facilitators in the Implementation of High-Quality Activities Based on Best Practices

By Melaney Huller

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Dedication

I would like to dedicate this thesis to all of the professors in the Honours Bachelor of Behavioural Psychology program, who over the years shared their knowledge and passion for the field of Behavioural Psychology.
Abstract

Time outside of school presents opportunities for both negative and positive outcomes in the lives of children. After-school programs if properly structured have the opportunity to provide children with a safe and nurturing environment that can provide benefits to the growth and development to the children who attend. It was hypothesized that the creation of this manual would assist program staff by establishing a comparatively consistent set of after-school program quality indicators, so that program management and staff can effectively plan implement and engage in activities that are beneficial to elementary school-aged children, who reside in low-income neighbourhoods and attend the Boys and Girls Club Rideau Heights after-school program location. A review of current research identified a gap in the research literature pertaining to best practices of after-school program curriculum. The benefits to growth and development that an after-school program can provide to children suggested that there was a need for determining elements of after-school programming that provide the most impact to children’s emotional, physical, and cognitive skill growth and development. This thesis sought to determine what benefits after-school programs have on children who were of regular attendance, and what specifically defines an after-school program what is considered to be of high-quality. In addition to the development of a research-based resource manual for program staff to utilize while designing and implementing after-school program activities. The manual created foci on specific after-school program activities, which research conducted has determined to provide the most opportunity for the development of essential skills for elementary school-aged children. When taking into consideration the commonalities in the literature that have been reviewed in this thesis, it indicates that key characteristics can and do define what is considered quality in relation to after-school programming.
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Chapter I: Introduction

Communities across Canada are becoming increasingly aware of how important time spent outside of school is to children. Time spent outside of school presents opportunities for both positive and negative outcomes in the lives of children and families (Huang & Dietel, 2011). After-school programs provide children a safe environment to spend time following regular school hours, while parents are still at work, or caught up in other commitments. Huang and Dietel (2011) reported that students who participated in after-school programs had significantly higher reading achievement and were rated as having better chances of success than students who did not attend after-school programs, especially for children who reside within low income neighbourhoods. Quality after-school programs help keep children safe, inspire them to learn, help working families, and can help children and youth reach their full potential (Huang & Dietel, 2011).

Over a period of ten years, there has been a steady growth in the need for after-school child care; this increase may be due to the rising employment rates among women, and the requirement of a dual income household (Bushnik, 2006). Due to the increase of dual income households, the number of children attending after-school programs has greatly increased in recent years, currently serving an estimated 4 million children (Huang & Dietel, 2011). In order to meet these increasing demands, identification of best practice elements and effectiveness of afterschool programs need to be determined.

Statistics Canada Minister of Industry (2017) reported that nearly 1.2 Canadian children younger than 18 lived in low-income households. As reported by Afterschool in Communities of Concentrated Poverty (ACCP, 2014), children living in low income neighbourhoods tend to score lower academically compared to children living above the poverty line. Families from low income neighbourhoods are more likely to experience additional challenges, such as, mental health and addiction issues, which in turn can create inconsistent structure and parental support (ACCP, 2014). Additionally, children who grow up in low income neighbourhoods also have been found to have decreased success related to academic achievement, which can affect potential career and job opportunities in early adulthood (ACCP, 2014).

The purpose of this project is to develop a manual which includes informative elements of after-school programs which will focus on the needs of children from low-income households. The manual will be created for elementary school-aged children, based on current research for the program facilitators to view and take into consideration when creating after-school program activities for elementary school-aged children which ranges from 6 to 14 years of age. It is hypothesized that using this manual when creating after-school program activities will allow for programs to be tailored to fit to the needs of the children attending, specifically those who come from low-income households.
Chapter II: Literature Review

Over the last ten years, parents, child development professionals, policy makers, and politicians have focused on increasing attention on the importance of after-school hours of children aged six to ten years of age, defining this daily time period as “risk and opportunity” (Hofferth, 1995). Attention to how children spend their time during after-school hours has led to a renewed interest in after-school programs, particularly those serving low-income children (Halpern, 2002). Given renewed social interest and growing participation in after-school programs, it is relevant to examine the importance of their role in low-income children’s lives and reflect on what that role should be in the coming years.

In the first few years of a child’s life, more than one million neural connections are formed every second. Social and emotional skills developed through activities and interactions experienced in early education help in cognitive skill formation and development. This lays the groundwork for moving forward with further brain development (Center on the Developing Child, 2007). Research conducted by Hair, Hanson, Wolfe, and Pollak (2015) linked early brain development to a number of factors related intellectual development in children, which occur at higher rates among low-income families; their findings suggest that the brain development of children living in poverty lagged behind that of their higher-income peers. Hair et al. (2015) suggested that frequent, early and repeated exposure to stress and environmental risks, that may include, violence, separation from their families, instability, and less social support, are all contributing factors to a child’s cognitive development. Additionally, Hair et al. (2015) also reported cognitive stimulation as a contributing factor in early brain development; due to financial hardship, children from low-income households may have less opportunities to engage in cognitively stimulating programs and activities. For example, a study conducted by Brown (1999) found that many low income parents do not speak as often to their young children and are not as likely to jointly participate with their children in literary activities such as reading aloud, or visiting the library, compared to middle-income parents. Low-income households also tend to have smaller and less stimulating play spaces for young children, a fewer number of learning resources (age appropriate toys and books), and are less likely to have access to a home computer or the Internet (Hair et al., 2015). It is for these reasons that Hair et al. (2015) reported children raised in low-income families are more likely to struggle with learning, behavioural, mental and physical health problems.

Impact of After-school Programs

High quality after-school programs have the potential, to help children develop to their fullest potential, if structured according to the population it is serving. After-school programs can have positive effects on academic, social, and behavioural outcomes; however not all programs that set out to accomplish such, do so. Program quality can vary both within and across program locations (Huang & Dietel, 2011). Some after-school programs show positive results in many aspects, while other programs are associated with positive results for some aspects but not all (Palmer et al., 2009). Studies of after-school program effectiveness document a variety of benefits associated with program participation. According to research conducted by Palmer et al., (2009), program effectiveness offers sufficient evidence that after-school programs are beneficial to those who attend them regularly; however, not all programs are equally as effective, Palmer et al. (2009) found that issues associated with programming are related to outcome-driven programs; it is suggested that after-school programs usually focus on a narrow set of outcomes, typically academic, which did not explore the full range and complexity of relevant
developmental tasks. Palmer et al. (2009) found that program success levels varied depending on participants’ access to and continuous participation in the program, in addition to the amount of family, school and community involvement. Variability in outcome was also associated with specific program factors, including the level of supervision, structure of the program, the quality of staff training, and the extent to which program activities were matched to the program’s goals and objectives (Palmer et al., 2009).

Larson and Wilson-Ahlstrom (2005) examined key development tasks associated with children’s age periods, and how they can assist in achieving age-appropriate competencies. Larson and Wilson-Ahlstrom (2005) determined that during childhood, key developmental tasks include acquiring habits of physical and psychological health, forming positive outlook towards school and achievement, getting along with others, including peers and adults, and acquiring appropriate value systems about rules and conduct. It is suggested that mastering these abilities allows an individual to take advantage of personal and environmental supports that encourage positive functioning in the future, decrease the risk of developing problem behaviours and increasing the chance for healthy adjustment in the future. As stated by Larson and Wilson-Ahlstrom (2005), consistent participation in after-school programs during kindergarten and the first grade is linked to increased reading and math achievement. Furthermore, a moderate level of afterschool program participation during the first grade has also been linked to increased levels of social abilities several years later (Larson and Wilson-Ahlstrom, 2005).

These reviews of after-school program effectiveness research suggest that programs can benefit children in terms of their social and emotional development, academics, health behaviours, and overall safety. The variability in effectiveness highlights the need for a better understanding of how successful after-school programs actually work, while keeping focus on how to define the success of an after-school program.

Quality After-school Program Elements that Promote Child Development

Many after-school research and literature reviews related to programming are able to provide insight into the types of elements that contribute to the consistency, or lack thereof. However, research does support key program activities that can be implemented in order to increase program quality and promote growth and skill development in children from low-income households. With that being said, these evaluations were limited in determining why after-school programs work and, more specifically, which program elements are most effective in producing positive results?

A systematic review of after-school program research, by utilizing meta-analytic techniques in order to obtain program practices associated with positive results was conducted by, Breckett, Hawken, and Jacknowitz (2001). Careful consideration was given to both the quality and amount of the accessible proof supporting each practice. To be incorporated into their inclusion criteria, a program practice must be referenced in no less than three publications. Each practice was given a score demonstrating the dimension of research which supported the practice (Breckett et al., 2001). From the systematic review conducted by Breckett et al. (2001), three characteristic categories were determined for inclusion criteria, staff characteristics, community contacts, and program characteristics. Included in staff characteristics was training and education. Community contacts focused on family involvement, use of volunteers and partnerships with community-based organizations. Program characteristics inclusion criteria focused on providing a variety of after-school program activities, flexibility within programming and ensuring a positive emotional climate. Additionally, child to staff ratio was also included in
their criteria, while focusing on the total number of children enrolled in programming, the mixing of ages, and age appropriate activities. Lastly, after-school programs with clear goals and evaluation was also included.

Definitions of program quality also began to emerge from the field of child development and after-school programming, in which practitioners and evaluators have cultivated quality standards by using process measures to document what occurs in after-school programs (Kristi, 2009).

These process measures were originally established from the researcher’s values and assumptions of what characteristics define quality programming (Kristi, 2009). A handful of researchers have analyzed common characteristics included in the measuring of instruments and created a list of key features that were assessed in these instruments (Yohalem & Wilson-Ahlstrom, 2009 as cited in Kristi, 2009). Yohalem and Wilson-Ahlstrom (2009) selected instruments which were research-based; it was determined by Yohalem and Wilson-Ahlstrom (2009) review of nine instruments, that six common characteristics of program quality were accounted for in all nine instruments. These six common characteristics included: focus on staff-student relationships, safe and supportive environment, active, sustained engagement in program activities, encouragement of pro-social behaviours, predictable program structure and routine (Yohalem & Wilson-Ahlstrom, 2009 as cited in Kristi, 2009).

Research of a similar nature conducted at the Harvard Family Research Project, analyzed 42 different statements of after-school program quality, which was then compiled into a list of 15 repeated characteristics (Kristi, 2009). The 15 repeated characteristics included: programming, activities and opportunities, relationships, positive development, family, school and community involvement, staffing, physical space and environment, program administration and management, safety, health and nutrition, program planning and structure, assessment, evaluation and accountability, organizational capacity, supervision and behaviour management, sustainability, equal access, and financial management (Kristi, 2009).

This list of 15 evaluation areas overlaps substantially with the domains reflected in the result determined by Yohalem and Wilson-Ahlstrom (2009). Taken together, these formulations of the quality of the after-school programs show a common vision of the essential characteristics of high-quality after-school programs. These definitions of program quality draw our attention to the areas of program characteristics which have been shown to be significant in achieving positive results.

The characteristics of the after-school program discussed above share clear similarities in relation to after-school program functioning considered essential for program quality. They all address the crucial importance of programs that provide safe, supportive relationships and a positive emotional climate for young people. Almost all of the quality characteristics underline the contributions of staff to establishing a positive emotional environment. Some research mentions structural factors—such as well-trained staff, low staff-to-child ratios and adequate staff support, in order to help staff, build strong relationships with young people. Much of the research also included establishing a positive emotional environment in terms of the form of staff to child interaction which occurred during after-school programming. Other program quality research also highlighted the importance of focused, purposeful programming for after-school programmes. Program management with a focused and purposeful approach was also emphasized as significant, in addition to the importance of focused and planned program activities. Targeting a specific set of social skills, building on earlier gains, meeting age-specific
developmental needs, maximizing engagement, and providing diversity to participants are activities that could be chosen to meet particular after-school program goals.

**Physical Health.** Healthy eating habits and a healthy level of physical activity are important elements to any child’s life, not just after-school. Unhealthy eating habits and low levels of physical activity among children have been linked to health concerns including obesity, diabetes, hypertension, poor emotional health, and reduced social well-being (After-School Programs Healthy Eating and Active Living Guidelines, 2016). Health behaviours such as eating patterns and physical activity levels that are established in childhood often transfer into adulthood. According to the Ottawa Public Health Agency of Canada (2015), poverty and low-income are strongly linked to poor health, which is a result of their families not having access to healthy food and/or safe spaces to engage in physical activity in their homes or neighbourhoods. After-school programs have an important role to play in providing healthy food and opportunities for physical activity for children (After-School Programs Healthy Eating and Active Living Guidelines, 2016).

Starting with the physical aspects of programming, positive settings must be free from violence and unsafe health conditions. Ensuring that after-school programming takes place in a safe and healthy environment allows for safe peer group interactions and decreases confrontational peer interactions. Based on Health Canada (2007), a well-balanced snack includes food from at least two food groups from Canada’s Food Guide. Canada’s food groups include, vegetables and fruits, grain products, milk and milk alternatives, and meat and meat alternatives. Providing children with healthy foods and beverages provides fuel for optimal growth and brain development, nutrients for strong bones, teeth and muscles, and decreases the risk of chronic diseases (After-School Programs Healthy Eating and Active Living Guidelines, 2016).

Providing children with the opportunity to be physically active for two to three hours per week, can assist not only in their physical healthy, but also contribute to social skills, improve their self-esteem, and decrease the risk of developing chronic illness later on in life (Health Canada, 2007). After-School Programs Healthy Eating and Active Living Guidelines (2016) suggests that after-school programs offer at least 30 minutes of active time, where children have the opportunity to practice different fundamental movement skills.

**Psychological Safety and Support.** Psychological safety, the feeling that taking interpersonal risks will not result in embarrassment, ridicule, or shame, feeling psychologically safe allows individuals to engage, connect, change and learn (Wanless, 2016). When children feel psychologically safe, they expect that taking an interpersonal risk will not pose an intolerable level of threat to their identity or sense of self (Wanless, 2016). If a child sees an activity he/she is interested in engaging in, a perceived threat to their sense of psychological safety may discourage them from acting on that desire to engage, ultimately, when faced with the feeling of not feeling psychologically safe, children may end up unengaged in opportunities that allow them to learn and grow (Wanless, 2016). When after-school programs encourage and create an environment in which children feel psychologically safe, it allows for the opportunity for children to participate and be active in, feeling the freedom to choose when, with who, and in which contexts to construct meaningful and productive experiences (Wanless, 2016). Research conducted by Wanless (2016) suggests that when children are in an environment in which they feel psychologically safe they are more likely to enact self-regulated strategies such as offering ideas, admitting and learning from mistakes, asking for help, engaging in learning opportunities,
and providing feedback to others, and speaking up. Throughout development, individuals are required to grow and maintain resilience and adjust to loss (Wanless, 2016).

A study conducted by Cohn-Vargas and Steele, (2016), which determined four components that help establish a psychologically safe environment for children, these components included: relationships created at after-school program between peers, and staff, child-centred teaching, program management, and the use of diverse resources. It is suggested by Cho-Vargas and Steele (2016) that positive relationships between staff and the children attending program and their peers helps to establish a safe and inclusive environment. After-school program staff exhibiting and availability to support learning is said to occur when staff show a genuine concern and caring towards the children in attendance, connecting with them, listening to what they are saying and acknowledging their efforts and accomplishments. The staff can create a welcoming fun environment through the use of humor and providing individual attention to each of the children. Program staff show they are available to support learning when they are responsive and engaged with both academic and social experiences of the children attending program and provide encouragement and belief in the child’s potential. The most imperative quality is the staff’s ability to make each child feel equally cared for and believed in, regardless if they are having difficulty academically or socially (Cho-Vargas & Steele, 2016). After-school program staff can help ensure that positive peer relationships are established. Staff can incorporate through play or other activities, the learning of skills and positive values that can help children learn how to treat one another when working through disagreements and resolving conflicts (Cho-Vargas & Steele, 2016). Tailoring each after-school program activity to the needs, interests and wants of the children attending can help ensure that the programs taking place at after-school care are child-centred. Child-centred programming also helps children to learn self-efficacy; their belief in their ability to achieve goals and accomplishments (Cho-Vargas & Steele, 2016).

Physical Safety. Environmental disarray, which includes housing disorder, neighbour disorder, relationship instability, and increased exposure to violence, has been proposed as a central factor that can affect children’s health and development (Coley, Lynch, & Kull, (2015). A number of studies have identified an association between negative environmental disarray and children’s physical, socio-emotional, and cognitive well-being (Coley, Lynch, and Kull, (2015). Research conducted by Coley et al., 2015 suggests that experiences of negative environmental disarray are especially common among low-income families, with economic, and housing. A study conducted by Martin, Razza and Brooks-Gunn (2012) as cited in Coley et al., (2015) household disorder and chaos through lack of organization and presence of ambient noise was linked to increased occurrences of aggressive behaviours, attention difficulties and inhibited language development in young children as well as increased psychological distress.

After-school program locations play a part in determining the effectiveness of the program. The location the program operate in should allow for a positive inclusive environment where social skills can be taught practiced and refined, in order to help children, care for one another in an emotionally and physically safe environment. In psychologically safe after-school programs, the goal of program management is to help attendees learn self-discipline by learning positive interpersonal competencies reflecting on their behaviour, while learning from their mistakes as opposed to punishment, Cho-Vargas and Steele, (2016) suggest that this can be accomplished by making all behavioural expectations clear. Utilizing diversity as a resource, by using art, music and games that program children can suggest or provide, can help make the environment/program feel as if they are a part of it (Cho-Vargas & Steele, 2016). By
incorporating the necessary components after-school programs can ensure that they are providing a psychologically safe environment, creating a holistic experience and sense of belonging for each child.

**Family, School and Community Involvement.** Another area within quality characteristics describe by the previously stated research includes strong partnership and involvement with families, school, and other community organizations. For several reasons, these partnerships and additional involvement are considered important. Family partnerships can facilitate the involvement of children in after-school programs. School partnerships enable after-school program staff to coordinate their services’ content with school-based learning. Links to other community agencies can help after-school programs make their services more available to young people by bring awareness to them, and by using after-school program to strengthen the skills they have learned in other contexts.

Another area frequently mentioned is the importance of the active participation and involvement in after-school program activities. It is emphasized in the research that positive results are more likely to occur if children enrolled in after-school programs participate consistently and over a longer period of time. Several cited articles indicated that in order to promote participant engagement it is important to offer a wide range of after-school program activities. Program quality formulations consistently link participant’s commitment to quality in the areas of supportive relationships, focused programming and external partnership within the community.

Healthy, physically safe environment, coupled with the availability of nutritious snacks and opportunities for physical activity, was also a characteristic of quality after-school program which appeared consistently in much of the research. Sufficient space, supervision and physical safety was shown to be consistently linked to the quality of the after-school program. While literature on after-school program does not describe physical safety indicators in detail, the definition of program quality appears to take physical safety as a crucial, foundational characteristics of after-school program quality.

The last point of research commonalities, in terms of defining after-school program quality presented above, is the standard of program management, especially management practices that support program sustainability and continuous program improvement. For example, having evaluation practices and implementing reoccurring assessments of program practices in addition to keeping up with the most recent research.

When taking into consideration the commonalities in the literature that has been reviewed in this thesis, it indicates that the key characteristics can and do define what is considered quality in relation to after-school programming. By establishing a comparatively consistent set of after-school program quality indicators, program management and staff can effectively plan, implement and engage in activities that are beneficial to all individuals and aspects of after-school programs.

The activities offered should facilitate their development in one or more of the following areas: emotional, language, cognitive, physical, and motor development, to ensure that children get the most out of after-school (Center on the Developing Child, 2007).

**After-school Program Activities that Promote Child Development.** Implementing after-school program activities that promote growth and development make for happier, healthier children who are better equipped to have success in their education, professions, and relationships.
Outlined below are after-school program activities that research has shown can assist in the growth and development of the previously mentioned fundamental areas, in addition to the specific developmental function these activities enhance.

**The Arts.** Recent years have seen a lot of discussion regarding the role and value of the arts — music, visual arts, drama, and dance. As school districts have begun to allocate funds to academic-focused programs, many of them have reduced arts availability, particularly in low-income areas. The arts could be accessible through summer programs or private lessons for many middle and upper class families. For those families who are unable to afford or have access to these resources, the option to provide their children with the opportunity to do so may be at a loss (Stiegelbauer, 2008). Through Heath, Shirley and Roach (1999), analysis of three after-school programs that incorporated music, visual arts, drama, and dance into their program, they found that the arts program had impactful effects on participates attitude, self-confidence, and skill development.

Research presented by Champions of Change: The Impact of the Arts on Learning, conducted a five-year study by seven different teams of researchers, investigating the impact of art education programs in both school, and after-school program settings. Of these findings, a study conducted by Catterall as cited in Stiegelbauer (2008), a relationship of engagement in the arts to student academic performance and attitudes. Another study focused on school programs operating in low-income communities. It looked at the qualities that made programs in the arts, sports, and community service effective sites for learning and development. This study was conducted by Shirley Brice Heath, as cited in Stiegelbauer (2008), and depicted ways that art incorporation influenced success both in and out of school settings. These studies found that learners, especially students from low-income communities, could achieve high levels of success, as a result of skills developed and built upon through their engagement with arts programs.

It is important to note that use if the arts as a learning strategy is different from that is typically used in a formal school setting. Students engaged in learning experiences in these studies that expanded their outlook in both personal and academic ways. Many of the strategies used in art programs would not have been acceptable in a formal school environment (Stiegelbauer, 2008).

Research conducted by Deasy (2002), further illustrated how the arts work to extend the social and academic skills of students. This overview summarized and analyzed 62 research studies, conducted in a variety of in school and after-school program settings. As a whole, these studies presented common themes related to positive skill acquisition and development for students who participated in learning through art programs. The arts contributed to the basic understanding of reading and motivation for achievement by nurturing competency and commitment, particularly for children who come from low-income households. In fact, these children also showed an increase in attendance and less disruptive behaviours. Results showed that arts activities had significant results with children learning English, students from low-income households, special education and students who responded better to different learning strategies. Literacy skill development was also said to be positively affected by the implementation of arts, in the areas of reading and writing skills, language development, as well as general academic performance. Proving arts learning was found to nurture motivation, including active engagement and sustained attention, it also showed to increase student participation and interest in learning. In the same way, learning in certain arts activities fostered the growth of students in self-confidence, self-control, self-identity, conflict resolution,
collaboration, empathy, social tolerance, and moral development. There is also strong evidence that engagement in arts programs may positively enhance a number of cognitive skills. These skills include reasoning ability, intuition, perception, imagination, inventiveness, creativity, and problem-solving skills.

Many of the studies analyzed (Deasy, 2002), showed that music had positive effects on brain functions related to the relations of ideas and objects in space in time. This includes solving problems, mathematics, and creative scientific processes. Dramatic play showed consistent effects on narrative understanding, character and motivation identification, reading and writing skills, interpersonal skills and collaboration. Dance and movement showed contribution to increased self-confidence, persistence, social tolerance and appreciation of individual and group social development. Arts and crafts findings suggested an increase in reading readiness, communication and writing skills.

It is suggested by Stiegelbauer (2008), findings that the best arts program outcomes are experiential, active, hands-on, and promote independence. Additionally, it is note that implementing the arts during after-school program not only provides benefits to the students, but the families and community by enhancing a positive environment.

While after-school arts-based program, research is more limited than arts research in general, there are a number of similar findings. A strong theme is the value of the arts in after-school program setting, especially for students facing the largest odds in society – low-income households. Where many students are disengaged during the school day and do not have access to the resources required to explore the arts independently, after-school programs incorporating this, provides them with this opportunity.

Overall implementing arts-based programs which include music, dance, and visual arts in after-school environments have shown to have particular benefits for students who come from low-income households in providing the opportunity to further learning and skill development through fun, engaging activities.

**Science and Discovery.** A literature review conducted by Falkenberg, McClure, and McComb (2006) identified a major emphasis of science programs being implemented in after-school programs, which was an increase in student learning and achievement. It was also noted that providing science-based programming allowed science rich experiences to prepare children to become scientifically literate which will assist in living in a highly technological world. Falkenberg et al., (2006) suggests that by involving children in science based programs it can assist with the development of critical thinking skills. The practice of scientific inquiry should not be limited to use within a formal school setting. A study conducted by Scruggs and Mastropieri as cited in Falkenberg et al., (2006) reported finding a significantly increased rate of learning when an inquiry-oriented approach with students with learning disabilities. A study conducted by Amaral, Garrison and Klentschy (2002), utilizing inquiry science teaching methods with rural students grades 1-6 showed an increase in grade levels in science, writing, reading and mathematics. Most notably, their research showed that the greater the length of time students were involved in this type of program, continued to positively affect their grade levels. Science is an area that can provide opportunities to integrate and strengthen knowledge and skills in other areas of learning and skill development. Everyone has the desire and need to investigate and learn about the world around them, in order to do so equipment and the ability to apply certain skills is required. This is very much the same for students being able to support their evidence and conclusions, which suggest the need to use language and writing skills (Falkenberg et al., 2002). Reading and writing skills are also imperative and can be integrated into learning through
science. Many of the process skills required for scientific inquiry are similar to reading and strengthen each other when taught together.

**Building and Constructing.** Play is the most important factor in children’s development. Play becomes the means for developing self-regulation as the child learns to set aside personal needs in order to find satisfaction through the continuation of play. Imaginary play involves symbolism, this type of play facilitates the development of symbolic and abstract thought (Hansel, 2016). Much like scientists, children are curious of the world around them and are constantly exploring it in order to make sense of the unknown. Engaging in experiments through play, children can learn from their mistakes and their successes. Arts such as music, dance, dramatic play etc. allow children to find ways to express their ideas through role play, media and materials. It is suggested that strong social emotional skill development can be supported through high-quality pretend play as key concept for learning. When children spend time engaging in pretend play, they are developing essential cognitive skills referred to as executive functioning. A key aspect of executive functioning is self-regulation, which is the ability to purposefully monitor one’s own behaviours (Hansel, 2016).

**Outdoor Exploration.** Outdoor exploration allows for continuous opportunities to further expand growth and skill development through play, when the opportunity to participate in outdoor play is provided, in addition to the endless sensory experiences it offers can teach and refine children’s developmental skills, such as social, literacy and language skills. As children explore the outdoors, they interact with one another, sharing and discussing ideas and findings, as well as problem solving over differences (Cross, 2012). Many other concepts can be integrated outdoors which assist with the development of similar skills. Children can engage in dramatic play while outdoors. Through dramatic play children can take turns, role play, practice literacy and language skills and expand the world around them (Cross, 2012). Children can also investigate and learn about things related to science and discovery while outdoors, such as how plants grow and different bugs. Outdoor play also promotes children’s physical development. Climbing, running, jumping and swinging all work the large muscle group which is required for healthy growth.

Time outdoors is essential for young children’s growth and development. It allows them the independence to select their own activities and use their imagination without adult distraction.

**Puzzles and Game Play.** Fostering children’s learning through visual, entertaining, and attractive can increase a child’s motivation to participate. Puzzles for young children are considered educational materials, which can be used for different age groups and contribute positively to their cognitive, language, motor and social-emotional development (Why puzzles are good for your child’s development, 2013).

Cognitive learning, through choice and evaluation, is characterized by understanding, and organizing ideas and applying knowledge. Children learn the power of choice and strategy when playing with puzzles. Research has determined that when a child acts on or manipulates the world around them, their brain development is significantly influenced. This key opportunity is provided through the use of puzzles. When working with puzzles children learn to work directly with their environment, changing its shape and appearance. This type of play also provides the potential for the development of children’s mental rotation skill. This is due to the fact that puzzle play involves pieces that are mentally and physically transformed to fit into specific locations and provides immediate feedback on whether a piece fits, this also assists with the development of fine motor skills and dexterity. This immediate feedback allows the child to see
if their mental and physical transformation results are accurate. In addition to engaging children in a spatial activity that involves physical and mental transformations, puzzles can also increase help with language development, as children they learn the identifying names of puzzle pieces (corner, curve, side, top, bottom, long, short, etc.).

Additionally, children can engage in this activity independently or in a group setting. When engaging in group puzzle play it allows children to interact with each other and give them the opportunity to collaboratively complete the puzzle, this contributes to receptive and expressive language skill development. When engaging in independent puzzle play children practice skills such as sharing, cooperation, and waiting for their turn, rule following, concentration, self-confidence and self-regulation (Levine, Ratliff, Huttenlocher, & Cannon, 2012).

In a study conducted by Levine et al., (2012), which investigated the effects of puzzle prototype activities on preschoolers’ developmental areas (cognitive, language, motor, social and emotional development), revealed that a significant increase in the scores at all developmental areas of the children who participated in the puzzle implementation program. This finding may indicate that puzzle implementation provides a significant contribution for the development of children.

**Staff Training.** The quality of after-school programs depends a great deal on professional development. Effective professional development improves the quality of after-school programs by facilitating the performance and knowledge of staff. Furthermore, professional development is vital for improving learning outcome for program participants (Bradshaw, 2015).

The establishment of HIGHFIVE dates back to 1990, when the Government of Ontario proposed legislation to create consistency in children’s recreation and sport programs. It would be very difficult for recreation and sport programs to comply with such legislation. How and where sport and recreation program operate can vary greatly, flexibility is critical to these programs’ unique factors. Opportunities for children to participate in recreation and sports programs without this flexibility would be limited. As a result, Parks and Recreation Ontario established a study – “Quality Assurance in Children’s Recreation” in order to determine standards for children’s recreation and sports. Research conducted aimed to answer questions in key areas: How does sports and recreation assist child development? What are current existing models? What is the field’s level of knowledge and commitment to healthy development? The Findings of The Quality Assurance in Children’s Recreation study was used in the development of HIGHFIVE. The study’s main focus was on literature views of healthy child development in relation to recreation and sport programs. Findings indicated that child the following determinants be incorporated into program design: positive adult and peer relationships, physical activity, competence and achievement, meaningful participation and the opportunity for self-definition (Making a Difference, 2012).

HIGHFIVE staff training is a recognized standard across Canada that helps to ensure that staff are knowledgeable about implementing sport and recreational activity with children that promote healthy development. HIGHFIVE training provides staff with resources to guide them when running recreational and sport related programs with children. HIGHFIVE accredited programs establish the benchmark for sport and recreation programs that have reached recognized levels of quality (Making a Difference, 2012).

Additionally, most agency when working with vulnerable populations, more specifically children require staff to have up to date Cardiopulmonary Resuscitation Certificate Level C and Standard First Aid. It is also required to have current and up to date records of immunizations,
and to be able to provide a clean Canadian Police Information Centre (CPIC) with vulnerable sector check.

Early experiences have a lasting impact on children, therefore it is important that after-school programs implement activities that are designed to foster development of these fundamental areas can further assist children in growing up to be happy and healthy adults.
Chapter III: Methodology

Participants
This manual was created as a support tool to assist the Boys and Girls Club Rideau Heights location staff in the creation and implantation of after-school program activities that will take part during after-school program with elementary school-aged children who range in age from six to fourteen years old. After-school program participants are separated into groups. Groups are determined and separated based upon the child’s grade. Specifically, groups are a combination of group 1: grade one and twos, group 2: grade three’s and four’s and group 3: grade 5, 6, 7, and 8. Developmental age of each child is taken into consider when considering group assignment.

Program Facilitators. The program described in the manual should be administered by one or two grade group leaders. Program facilitators should possess the necessary qualifications and education requirements outlined by the Boys and Girls Club which include, a the completion of post secondary education in a related field, e.g., Early Childhood Education, Bachelor of Education, Recreational Leadership Diploma, Child and Youth Care Diploma, Behavioural Science Technology/Behavioural Psychology. Additional requirements include, current CPR/First Aid Certificate (Standard First Aid/CPR Level C), up-to-date immunizations and police check with vulnerable sector check is required as well. Although the manual is intended for use with this specific group of facilitators, it was designed to be easily understood and implemented by a variety of professional working within the field.

Design
The author of the manual completed a 14-week placement at the Boys and Girls Club Rideau Heights location during the research and design of the manual. The purpose of the manual is to provide agency staff with an easy-to-use research-based guide and review of best practices to design and implement quality after-school program activities that are tailored to children who reside within low-income communities.

Empirical research. A literature search was conducted in order to gather information on the effectiveness and best practices of specific elements included in after-school programs serving elementary school-aged children who reside in low-income neighbourhoods. The information was gathered through the use of EBSCO database, which was available at St. Lawrence College. In addition to articles, information from books was collected at St. Lawrence College library and government websites were accessed to gather information. The inclusion criteria for the articles used included, participants who were of elementary school-age (6 – 13 years old), attended an after-school program, and who resided in a low-income household. Articles including the physical, and psychological effects, lack of resources available at home, and barriers faced by low-income households were also included. Furthermore, articles reviewing current and past after-school programs successes and faults was also reviewed and included.

In the early stages of research, the search terms used in in EBSCO database consisted of After-school Program Effectiveness and Low-income children, this search resulted in few articles. Of the initial search, articles which did match the inclusion criteria were included in the thesis proposal. Due to the lack of articles initially found that met the inclusion criteria, placement staff were used as resources in order to assist in broadening the terms and topics used in the EBSCO database literature search. Such terms and topics included, after-school program resources, staffing, and availability. In total, 19 articles, 1 book and 2 professional websites
were used for the literature review. The selected articles focused on core elements included in after-school programming that were found to benefit children from low-income households. The articles used were published in English, in peer-reviewed journals and within the last 20 years.

Due to time constraints, the author was unable to implement the procedures outlined in the manual in order to evaluate the effectiveness; however, the manual was created based on researched-based evidence (Chapter II), in addition to informal input from current Boys and Girls Club staff who work at the Rideau Heights location.

**Setting**

Depending on the element of the activity being implemented during after-school program, the setting may vary. The setting varied from taking place within the community centre Pods, which are small rooms equipped with tables and chairs for the children, or in the community centre gymnasium using the available equipment (e.g., basketballs, volleyballs, soccer balls, skipping ropes, hula-hoops, and floor hockey equipment).

**Materials**

Materials required to run after-school program activities varied depending on the activity being implemented. Such materials included, but were not limited to, the use of this manual for reference when after-school program staff are designing activities to be implemented during program time, art and craft supplies (e.g., paper, crayons, markers, paint, scissors, glue, Popsicle sticks, pipe-cleaners etc.) and gymnasium equipment provided by the community centre.

**Procedures**

The resource manual was designed for quick and easy use for after-school program facilitators from varying disciplines who provide after-school care to children who attend the Boys and Girls Club Rideau Heights location. Best practice and research-based evidence was used in the creation of this manual to ensure that it fit the needs of the population.

The after-school program activity facilitator manual includes four sections. Firstly, there is an introduction and literature review. The introduction section provides an overview of the purpose, rationale, table of contents and objectives of the manual. The literature review summarizes relevant research that provided guidance in the construction of the manual. Additionally, the introduction also describes the target participants for whom the program activities were designed.

The second section of the manual pertains to details regarding procedures for planning after-school program activities, how to include each element that research found to be beneficial for after-school program activities, specific to children who reside within low-income households. Included in this section is a template for facilitators to use when planning activities to ensure that each element is incorporated into their activities. The specific implementation of program activities should be tailored to the facilitators group they are working with, ensuring that it is age, and cognitive skill ability appropriate.

The third section contains all references used in the manual. Lastly, a survey and comment form was included, allowing the facilitator to evaluate how the program activity and manual met the needs of the facilitator. Collecting feedback program activity outcome and manual use will allow for any future improvements and changes to be made.
Chapter IV: Results

Manual

The final version of the *Best Practices After-School Program Staff Resource Manual* can be found in Appendix A. The manual was created for after-school program facilitators in order to assist staff with the planning and implementation of quality after-school program activities with elementary school-aged children. Included in the resource manual are literature overviews supporting the research-based practices found within the manual, breakdowns of activities/centres, including specific skill sets that assist in their development while engaging in play, materials required, and additional notes that after-school program facilitators may require.
Chapter V: Discussion

Thesis Summary

The purpose of this thesis is to provide after-school program staff with a resource manual, which includes structured instructions for implementing high quality after-school program activities that would benefit the growth and development of elementary school-aged children (6-14 years old) who reside in low-income households and attend and participate in after-school programming at the Boys and Girls Club Rideau Heights location. The research outlined in the literature review of this thesis provided the foundational support, structure and program guidelines outlined in the manual that has been created. Based on this research, it was hypothesized that developing a resource manual that included beneficial activities and structure to after-school program activities would have potential, in future, to effectively increase the quality of after-school programming being implemented.

The manual sought to provide staff members with an easy-to-use, evidence-based resource. The resource manual includes an introduction section, which touches on what an after-school program is, who it serves and the importance of its role for children and resource guidelines for planning and implementing quality activities in which children can engage in to further their independence. Feedback surveys are also included, to gather frontline information from staff, this feedback will provide comments and or suggestions for any modification or future beneficial implementations of programming.

Strengths

The overall strength of this project is the information obtained for the creation of this manual used empirical research on best practices in order to address the needs identified by the agency of requiring after-school program activities that specifically targeted the needs of children who reside in low-income households. Additionally, staff at the agency were also consulted in order to determine which specific areas of programming would benefit from this resource the most. The use of best practices and research basis of this thesis is a core strength. Furthermore, straight forward (step-by-step) details and instructions were included in the manual, allowing for quick and easy reference by the staff. Lastly, a strength of the manual is the establishment of a permanent resource for after-school program staff that can be generalized across agency locations and built upon in the future.

Limitation and Challenges

This facilitator’s manual was customized to meet the needs of a specific after-school program which operates out of a community centre and serves mostly children who come from low-income households. Additionally, the empirically supported activities may be generalized to assist in the development of children from all economic status. A major limitation of this manual was that its elements were not able to be incorporated in to the agency’s current programming as a result of time constraints. As a result, no formal data or feedback was collected. Another limitation of this thesis project included the lack of an established empirical measurement in order to formally measure implementation outcome. Establishing a formal measurement of the effectiveness of after-school program quality and best practices would allow for the measurement of implementation outcome; this would allow for pre- and post- data to be collected which would further assist in determining if the implementation of this manual assisted with social/emotional, physical, cognitive, and language growth and development of the children who attended and participated in after-school program regularly. Economic barriers represent another limitation of this manual, as it requires the after-school program to have access to
specific items in order to implement the recommended activities, allotted agency funding would play a significant factor in determining in activity specific materials could be obtained.

**Multilevel Challenges to Service Implementation**

There are many challenges that can arise when developing a facilitator’s manual for after-school program staff.

- **Client Level.** When creating an after-school program manual it can provide many benefits in creating consistent levels of quality across agency programming. However, by creating a manual that is easily generalizable to the majority of children in program attendance it may be difficult to accommodate children who are not to the same cognitive, emotional, or physical development level of their peers.

- It can be challenging to develop a customized manual when being involved with many other staff members of an agency. After-school programs require staff that have experience in a variety of areas pertaining to children, not all staff are confident in implementing every aspect of program activities (i.e., sports-related compared to arts and crafts).

- **Program Level.** It is difficult to design after-school program activities that can be implemented at a location that has limited funding; therefore, finding empirically supported activity approaches that are budget friendly was a challenge. Funding also directly affects the implementation of after-school program activities as additional support staff can not always be provided in order to provide individualized attention to children who many require it.

- **Organizational Level.** A major challenge at this agency, specific to the Rideau Heights location is a lack of resources. The lack of resources and materials available for the implementation of programming also impedes the amount of flexibility, in terms of being able to modify activities to meet the different developmental, and cognitive levels of each child. This agency’s biggest challenge is a lack of staff, funding and space to provide more services. Rideau Heights is one of the agency’s smaller locations, supply staff is not provided at this location for when a permanent staff member is sick, or unable to attend work. As a result, the program groups in which the children are placed are based upon age get merged together. As a result of merging two program groups together, staff are often unable to implement a variety of program activities as a result of not being provided adequate supplies to do so, and/or the space required to do so is not available as the after-school program operates out of the community center. More importantly, if groups are merged, developmentally appropriate activities might not be able to be implemented.

- **Societal Level.** Challenges exist for agencies when attempting to incorporate new forms of program activities, which stem from the after-school program acquiring their funding from fund raising within the community, and private funding. This specific location operates and serves families who reside in subsidized housing, due to the financial strain families in this area experience, a significant amount of funds is difficult to raise in order to support new and progressive program activities such a activities requiring the use of technological devices (IPad, computers, etc.).

**Contribution to the Behavioural Psychology Field**

This thesis was designed to address the gap in the literature pertaining to the standard of after-school program activities currently being implemented. Available research was used to inform the development of the manual; however, due to insufficient research determining exactly what makes an after-school program ‘high quality’, more specific recommendations and guidelines regarding after-school program best practice for low-income children was required. This evidence-based manual contributes to research in the field of behavioural psychology and
provides the potential for future formal evaluations of the material outline in the manual. Moreover, the overall goal behind this manual’s creation corresponds to the fundamental principles behind the field of behavioural psychology. Both this manual’s purpose and the psychology field’s purpose is to improve clients’ quality of life. More specifically, the creation and implementation of this after-school facilitator’s resource manual is hypothesized to provide a means of offering after-school program activities effectively at a level of best practices.

**Practical Applications and Recommendations for Future Research**

The purpose of this staff resource manual was to provide the agency with an effective method of program activity implementation with children who attend after-school programs that is located and serves families located in low-income neighbourhoods. Implementing the most beneficial programing activities with program participants is also a valued venture as it assists with the growth and development of cognitive, social, emotional and physical growth and development that the child may not have the opportunity to further develop at home. Furthermore, future research should be conducted to establish a means of formal measure in order to collect data which would allow for program effectiveness on cognitive, social, emotional, physical and language growth and development to be determined.
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Acknowledgements

This manual contains After-School Program activity guidelines based upon research of best-practices in order to promote growth and skill development in children who attend After-School Programming.

Special thank you to The Boys and Girls Club Rideau Heights Kingston, Ontario for welcoming me and allowing me to complete my placement with them, and to Rachel Williamson Ph.D. my college supervisor for time and dedication she provided in support of the completion of this manual.

This manual was created by Melaney Huller as part of the requirements for the Honours of Bachelors Behavioural Psychology Degree at St. Lawrence College.
Purpose

The purpose of this manual is to provide after-school program staff with a resource manual, which includes structured empirically supported concepts for implementing high-quality after-school program activities that are beneficial the growth and development of the children who attend and participate in program regularly. The research outlined in the literature review of this thesis supports the use of the structure, and program guidelines outlined in the manual that has been created. Based on this research, it was hypothesized that developing a resource manual that included beneficial activities and structure to after-school program activities would have potential, in future, to effectively increase the quality of after-school programming being implemented.

The manual sought to provide the staff members with an easy-to-use evidence-based resource. The resource manual includes an introduction section, which summarizes the purpose of this manual, and who it is designed for, it also touches on what an after-school program is, who it serves and the importance of its role for children and resource guidelines for planning and implementing quality activities in which children can engage in independently. Feedback surveys are also included.
What’s Included in Manual

This manual includes information about after-school program activities that promote child growth and skill development. It has been organized by activity type. Within each activity type a description is provided, along with rationale and background research. Also included is a description of each essential skill in which the activity assists in the growth and development of, followed by an example of the activity and materials required to implement it.

The information included in this manual was guided by the concepts and structure of HIGH FIVE® a quality standard for children’s sport and recreation Founded by Parks and Recreation Ontario August 2014.¹ and Learning Centers concept was adapted from: http://creativecommons.org/licenses/by/2.0

¹ Making a Difference (2012). Research Summary for the development and implementation of HIGHFIVE. Parks and Recreation Ontario
Introduction

What is an After-School Program?

This manual provides after-school program staff with supportive guidelines when planning after-school activities that are exciting and effective. After-school programs encompass a wide range of offerings for elementary school-age children that takes place after school.

After-school programs can be defined broadly as, any program that provides child care for elementary school aged children during the time following a regular school day. After-school programs include everything from an after-school club at local recreation center to summer camps.

A more specific definition would add that an after-school program meets the supervision expectations of working parent(s) who want enrichment for their children or have been recommended by the school. Thus, by definition, after-school programs run before school, and often during non-school days, which as holidays or summer vacation. Ultimately, after-school programs are designed to offer a safe and secure place that children can attend on a regular basis following school hours.

Usually these programs include a variety of enrichment activities that help keep children safe, while providing them with the opportunity to develop positive and consistent relationships with staff and peers. After-school programs also offer time for physical recreation and unstructured play, promote development of skills and exploration of interests, enhance positive character traits and life skills, in addition to assisting in increasing academic skills.

After-school program group sizes can vary, depending on the number of children attending and the age of the children. The space in which after-school program activities take place, should include appropriate furniture and equipment to the scale of the children that will be utilizing it. Elementary school aged children should spend after-school program time engaged in developmentally appropriate activities. During after-school program time, snack based on the Canadian Food Guide and time to do homework may be provided. Children may also be provided with the opportunity to engage in and enjoy audiovisual entertainment, play games, and participate in active games and outdoor sports.
Who Do After-School Programs Serve?

After-school programs are generally designed to serve children and youth in kindergarten through to grade eight. Often, after-school programs will work in cooperation with a specific school or group of schools. It is important to note that after-school programs don’t simply serve the children, but also the parents of the children who attend, and thus should be designed to meet the needs of both the children and parents.

Why Implement an After-School Program?

Benefits of an after-school program are widespread. Quality after-school programs provide a safe, nurturing place of supervision for elementary school aged children where there are opportunities to reinforce learning from school, teach social skills and encourage positive relationships. Research has reported that students who participate in after-school programs have significantly higher reading achievement and are rated as having increased chances of success than students who do not attend after-school programs, especially for children who reside within low income neighbourhoods.

Statistics Canada reported in 2017 that nearly 1.2 Canadian children younger than 18 years old live in low income households. It was also determined that children living in low income neighbourhoods tend to score lower academically, when compared to children living above the poverty line. Families from low income neighbourhoods are also more likely to experience additional challenges, such as mental health and addiction issues, which in turn can create inconsistent structure and overall nurturing parental support. By providing after-school programs tailored after-school programs that meet the needs of the population it would be serving, it can provide children who attend with the opportunity to gain valuable skills required to be successful in life.

Designing a quality after-school program can be difficult, especially when working with a limited budget. This guide can be created to help staff design a high-quality after-school program experience for elementary school ages children.
Components of Quality After-School Programming

1. Quality After-School Program Standards
A quality program is based upon well-planned, consistent and organized operation within a safe, friendly and nurturing environment, with caring and well-trained staff. Furthermore, program quality can also be increased by including parental and community involvement and a variety of program activities. To help ensure that after-school program activities are meeting a certain level of quality, staff should be trained according to the population in which they are working with. In terms of After-school program staff, such training may include a certificate of completion of the HIGH FIVE Principles of Healthy Child Development, CPR and first aid. Program staff would also benefit from a knowledge and understanding of how to effectively manage difficult behaviours. While this manual provides many resources as a start for achieving a certain level of quality in regards to after-school program activities, it is crucial that continuous evaluation of the program occurs to ensure program quality. Refer to Appendix A for a program feedback/comment survey form.

2. Fulfilling the Diverse Needs of Children
Providing children with a safe and secure environment in addition to the feeling of being accepted by staff and peers is crucial. Children develop socially, emotionally, physically, and cognitively at different rates, no two children are the same; they have unique personalities and qualities. These variables, combined with the variety of age groups after-school programs provide care too presents challenges. After-school program activities should focus on the developmental needs of the children. A quality after-school program will provide a safe and friendly environment, in addition to activities to facilitate, social, emotional, physical, and cognitive and language development. To assist in meeting the challenges of working with children from varying age and developmental stages, staff should have an understanding of the different ages and stags of children. Refer to Appendix B for a chart providing ages and stages of child development to assist with the establishment of groups.
3. **Staff Training**

**HIGH FIVE**

This training course focuses on understanding children and how to create programs that support healthy child development. High Five is a standard committed to assisting children along the path of healthy development by ensuring that program staff develop a high level of knowledge and expertise in child development, assisting parents in making informed choices and providing program staff with the tools for enhancing and maintaining a high level of program quality. HIGH FIVE is based on 5 principles of health child development that are essential for program quality. The 5 principles of healthy child development set out by the HIGH FIVE principle include:

- **A Caring Adult**: The existence of a caring adult who provides supportive relationships is a key element that has stood out in defining quality after-school programs for children. The establishment of caring, positive, and supportive relationships with adults can help children ages 6 to 12 develop positive social skills, self-esteem, and self-confidence. A program’s quality is dependent upon effective interactions between staff and program participants within the environment that staff creates.

- **Peers**: Positive peer interactions is also a key element in providing effective after-school programming. Friends expand a child’s world beyond their family. Friendships are a child’s first world interactions apart from their immediate family. Positive peer relationships help to establish one’s sense of inclusion, acceptance, and provide the opportunity for fun in constructive play, and the opportunity to develop and practice pro-social skills.

- **Participation**: Children need to be provided with the opportunity to make choices, and accomplish things independently. By doing so, it helps support positive self-expression, physical activity, and interaction with others.

- **Play**: Providing the opportunity for play allows children to shape their environment using their imaginations. Additionally, play is essential to the acquisition and development of motor and social skills, cognitive function, and creativity.

**CPR and First Aid Certificate and Training**

Certification and Training in CPR and First Aid help to ensure the health and safety of all children while in attendance at after-school programs. Staff must also obtain a clear CPIC with vulnerable sector check.
4. Healthy Snacks

Offering healthy snacks during after-school program hours is essential to keeping children engaged and filled with the energy they need. Providing healthy snacks can be particularly important since there may be some children who do not have access to nutritious food on a daily basis. Not having access to nutritious foods on a daily basis has the potential to impact their growth, behavior and social interactions. Having after-school program staff model positive healthy snack choices is an excellent first spend in showing kids how easy it is to make good snack choices. In accordance with the Canadian Food Guide, children between the ages of 4-18 years of age should consume at least 2 – 3 snacks of age appropriate size, per day in-between regular meals. Children’s snack should contain at least one serving from 2 out of 4 food groups of Canada’s Food Guide, and must include at least one serving from the Vegetables and Fruit food group. Appendix C: Snack Plan Sample.

Cooking

Having kids help in the planning, and execution of a healthy meal can be an excellent way to get them excited about making healthy food selection, in addition to teaching them safe food handling and how be safe when preparing a meal.

Figure 1 Healthy Snacks Clip Art Image. Retrieved from http://clipart-library.com/clipart/health-clipart-55.htm. Copyright- free image

Figure 2 Health Canada. Eating Well with Canada’s Food Guide. 2007.
After-School Program Environment

The layout and design of the space in which after-school programs operate is of great importance. There are certain basic items that may be required by either regulation or best practices, or both. Considerations of such should include, developmental appropriateness, regulation with Ontario standards, the size of the space the program operates in, as well as program budget.

The National Association for the Education of Young Children (NAEYC) defines developmentally appropriate practices as three components. These components include: being appropriate to the child, appropriate to the group, and appropriate to the culture. That being said, there can be no set rule for what developmental appropriateness looks like, however there are guidelines that can assist in providing a safe and supportive learning environment.

The environment in which an after-school program operates can have a powerful influence on a child’s experience and attitudes which in turn can affect their learning and creativity process.

Areas of After-School Program Space

A quality after-school program:

- Provides a sense of physical safety and emotional safety with the surrounding adults and peers
- A place of supportive relationships, intentionally structured to build positive and supportive relationships
- Staff trained in the skills necessary to build a sense of relationship and community and provide activities designed and delivered to support key developmental, learning and skill-building for children.

Emotional Environment
Providing a positive emotional environment for after-school programming includes staff having an understanding of child development and behaviours and the factors which affect it. The engagement of staff with children is intentional, and should be emotionally nurturing, fostering positive self-concept, and contribute to the development of trusting relationships.

Physical Environment
Children’s behavior is strongly affected by the environment. A well-planned environment can encourage positive behaviours; children need a physical environment that matches their size, and abilities. Furthermore, the environment should also facilitate child supervision.
After-School Program Space Arrangement

The establishment of learning/play center or areas off activity is a common approach to program arrangement in a dedicated space. These areas include prepared environments in which children can choose activities based on their interests and free flow from one area to another. Consider including both fixed areas and areas that rotate regularly throughout the week during programming, this can create a sense of permanence and belonging for children.

Entry Area

The center in which the after-school program operates, would benefit from a point of entry that serves as a welcome and transition space. The entry and the functions required to take place in this area are critical to the smooth operation of the after-school program. The entry area should be able to accommodate the following activities: signing children in and out of program, storing program participant’s personal belongings, communicating with parents, and posting notices or other important information. In addition to practical functionality, the entry area also helps to set the environmental tone for the program, therefore a sign with the name of the after-school program is a perfect opportunity to make a statement about what sets it apart from others. This area also provides the perfect spot to hang children’s art work and feature information about photos about the staff in order to help parents to get to know them.

Food Prep Area

A welcoming area for meal and snacks can be created by arranging tables for 4 to 6 children rather than having them in large groups. An area where a monthly or weekly menu can be posted for staff and children. Ensuring that both staff and children wash their hands before and after eating will help to stop the spread of germs. This area should also include adequate storage for food prep supplies.

Storage

It is important to provide storage for children's personal belongings. If possible, small storage cubbies and hooks can be utilized, and located near the entrance area, or if children are broken off into groups, storage can be located near each group’s home based. Providing storage space for program participates helps to keep each child's belongings together, and also creates a sense of belonging as they have a space to keep their coat and backpack of their own while attending program.

Family Communication Center

Utilizing an area for family communication is key. Fast and easy communication between parents and after-school program staff is important for smooth transitions. Important communication between families and staff is easy with the use of a message center, which way include a bulletin board, 3-ring binder or basket of folders for individual/private messages. If an area of the entrance can be designated to this, it may encourage family communication and draw parents in for discussion and program involvement.
Learning Through Play

Play/Learning Centers

When designing developmentally appropriate after-school programming for elementary school-age children, play centers can be a major benefit. Rooms if available or areas within a large room can be divided into centers that can provide a variety of learning opportunities for children in order to maximize interest and engagement. Centers provide children with the opportunity to learn through play, while still being able to make choices of their own regarding activities they want to participate in. This also provides children with the opportunity to problem solve, exchange ideas with peers, and to learn appropriate social behaviours.

Play centers can provide opportunities for children to engage in activities at their own interest level and their own pace. An effective staff is able to bring about individual learning through staff guided interactions and activities. However, most activities should be child initiated, allowing the child to decide which center to engage in, for how long, what materials they would like to use, and what the activity will be, while some planned activities may require more staff involvement in order to help develop interest among children.

While majority of the materials in learning/play centers remains consistent, some things can be rotated regularly to maintain child interest. Play centers provide children with flexibility in the time spent on an activity, as well as the freedom to participate in a variety of self-selected activities.

Common Centers

There are several common centers often seen in after-school programs. The boxes below include centers that would benefit the majority of children in attendance at after-school programs. The size of agency space and number of children enrolled and attending after-school program will determine the number of centers that may be included during programming.
When deciding which centers to include during after-school programming, remember to be mindful that children should all have:

<table>
<thead>
<tr>
<th>Opportunities for independent and collaborative play</th>
<th>Opportunities for quiet play that is separated from active play</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Opportunities to grow in all developmental domains</td>
</tr>
</tbody>
</table>

During play center time, each child selects a center to play in. Staff should set limits on the amount of children who make all work in one center at a time in order to avoid too many at one time. The amount of children at a single center at one time will depend on the size of the center and the amount of materials available at that center. There should be more available spaces across all centers than there are children enrolled in and attending after-school program, this will allow for them to move between centers without having to wait for another child to move.

In order to select a play center activity, children need to know how many can be at one center at one time. This requires a planned system that the children can manage and should include a visual aid, this can be done with the use of clothes pins. Providing the clothes pin at the entrance of the centre, representing how many children able to utilize the center at one time, when a child enters the center, they can remove the clothes pin, and pin it to their shirt, when they are finished at that specific center they can clip the clothes pin back where they got it from. When there are no clothes pins left at the entrance to the center children know that the center is currently full.

When children are engaging in the pay centers, after-school program staff should still be engaged in what they are doing. This can be done by:

<table>
<thead>
<tr>
<th>Encouraging children to share ideas with their peers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engaging in conversation about what the child is currently playing with</td>
</tr>
<tr>
<td>Extend learning by introducing new materials</td>
</tr>
<tr>
<td>Model pro-social behaviour</td>
</tr>
<tr>
<td>Support problem solving efforts</td>
</tr>
<tr>
<td>Observe and record development and interest</td>
</tr>
</tbody>
</table>
Description

Blocks come in a variety of shapes, colors and textures so children can use them to learn through their sense. Playing with blocks help children develop their vocabularies, improves math skills, and even teaches them about gravity, balance, and geometry. Building is all about size, shape, weight, leverage, and balance, and as children works this out, their building and block play will become more and more complex.

Rational/ Background Research

When provided with the opportunity to engage in creative block play, children are able to practice self-regulation as well as other social skills. Children who are fully engaged in creative block play are highly motivated to communicate with those around them, sharing what they have created. Through language, drawing, and writing children can express what they have created while allowing for further development of these communication skills. At this time children are also learning to under abstract symbols that are used in reading and writing and essential skill for everyday life. This skill is used to follow a GPS map, or finding your way through a building. However, in today’s world it is becoming even more important in fields such as engineering, medicine, and the arts. Mark Tompkins as cited in Hansel (2016) characterizes a block play area as the laboratory for spatial thinking, this is due to spatial concepts children encounter and experiment with when they construct with blocks.²


Essential Skill Development

Social & Emotional: Children communicate, and problem solve for materials they want to use, they independently determine how many children can work in the area, care for the materials and follow the safety rules. Since one child’s idea of how to build a bridge may differ from that of their peer, it provides the opportunity for the child to expand their knowledge and learn to respect others differing views.

Physical: Children’s motor skills are able to become more developed as they carry and carefully place building blocks together. It also provides the opportunity for the further development of eye-hand coordination when carefully balancing blocks.

Cognitive: Children create mental pictures of what they see as they experience the world around them. Playing with building blocks provides an opportunity to recreate the ideas they have formed from these experiences in concrete form. The ability to recreate these ideas of their experiences is the basis for abstract thinking. Furthermore, playing with building blocks helps to promote a concrete understanding of concepts essential to logical thinking. Through play, children are able to learn about sizes, shapes, numbers, order, area, length and patterns.

Language: Children get very excited when asked to talk about and explain their constructions. This increases their vocabularies and provide the opportunity to learn new words.

Types and Amounts of Building Blocks

When deciding the type and the amount of blocks to have in the centre, you must consider the age, and the number of children who will be utilizing it. Having a sufficient quantity of blocks (200-300) in a variety of sizes and shapes to allow for three or more children to participate in the centre at one time. Additionally, setting up this centre on a carpet will help keep the blocks sturdy, and reduce noise levels if blocks falls.

With younger children it is helpful to begin with only a couple of different shapes, adding more of a variety as they develop their skill set.

Building block play provides the opportunity for children to be creative and engage in imaginative play, it is beneficial to provide an assortment of accessories to support or prompt creativity. Accessories may include, signs, flags, Popsicle sticks, figurines etc.

Storage: Sturdy and clean containers or storage space is required to keep materials organized and to assist with clean-up, it may be helpful to have containers or shelves labelled with pictures or words. It is important to not keep to many materials in the centre at one time, as they could be over stimulating for children.
Description
Young children learn by imagining and doing. Dramatic play can be defined as a kind of play in which kids accept and assign roles and then act them out. It’s a time when they break through the walls of reality, pretend to be something or someone other than themselves, and dramatize situations and actions to go along with the roles they’ve chosen to play. While some may view this type of play as superficial, it remains an integral part of the developmental learning process by enabling children to develop skills in timely, natural ways in areas such as abstract thinking, literacy, and math.

Rational / Background Research
Research showed that music had positive effects on brain functions related to the relations of ideas and objects in space in time. This includes solving problems, mathematics, and creative scientific processes. Dramatic play showed consistent effects on narrative understanding, character and motivation identification, reading and writing skills, interpersonal skills and collaboration³.

Essential Skill Development
When children are provided with the opportunity to engage in dramatic play, it can deepen their understanding of the world and help to develop skills that will serve them throughout their lives:

Social & Emotional
Engaging in dramatic play with peers allow children the opportunity to practice problem solving skills in order to negotiate roles, agree on tops, and cooperate to portray different situations. Dramatic play allows children to recreate life experiences and try to cope with their fears by acting out roles and situations that they may worry about. By assuming a role related to a situation that the child worries about can provide the child with a sense of control in the situation. Research show that children who engage in dramatic play often show more empathy towards other, because they have played the role of someone else. Dramatic play also helps to develop cooperation skills, and control impulses in comparison to children who are not provided with the opportunity to engage in this type of play.

Physical
When engaging in dramatic play children can practice their fine motor skills from doing up buttons and snaps on dress-up-clothes and dressing dolls. They also practice hand-eye coordination and visual discriminations skills when they put away props and materials.

³ Deasy, R.J. Ed. (2002). Critical Links: Learning in the Arts and Student Academic and Social Development. The Arts Education Partnership
Things to Consider for Dramatic Play Area

Providing children with the opportunity to engage in dramatic play shows many benefits. Providing children with the opportunity to re-enact real life experiences, beginning with experiences within their home life. Therefore, dress up clothes and materials for pretending to play a mom and dad role, dad & dad, or mom & mom role are some of the first things that should be included. Other items should include props that imitate other roles or household items such as play kitchen, crib, grocery cart etc. When considering items to be included in this play area, always consider the child safety first, and the items should promote healthy food choices.

Dramatic Play Materials

Ensure that all items in this center are able to be clean-up and stored. Provide storage boxes for items based upon categories (house, doctor office, grocery store etc.).

Dramatic Play Box Examples:

- Zoo: stuffed animals, empty pet food containers, pet toys, food bowls, child sized broom, animal books.
- Grocery Store: calculator/cash register, bag, empty food containers, coupons, play money, plastic food.
- Fire Station: fire hat, hose, pants, boots, stuffed dog, flashing light, radio
- Doctor/Nurse Office: child sized scrubs, paper and clip board, tape measure, stethoscope
Activities in arts and crafts can help children develop a range of personal and interpersonal skills that will prove invaluable later in life. Arts are open-ended, less structured, goal-free activity. Art usually involves a variety of non-set instructions and materials with the focus of expression through free creation. While craft activities require more specific materials, are more structured and have a predefined goal – such as making a card out of construction paper.

**Rationale and Background Research**

In Childhood and Society, the development fields of children between the ages of five and twelve fall into four main categories, according to Eric Erickson: cognitive (thinking), emotional (feeling), social (relating) and sensory - motor (coordinating). All these developmental areas are affected by the arts and crafts activities.4

**Essential Skill Development**

Arts and Crafts can provide children with a unique and fun opportunity to learn and improve essential developmental skills

*Cognitive:* Children are using thinking skills to plan, organize, their impressions as they translate their ideas and feelings into art. When drawing or painting children as able to make choices, try out ideas, plan and experiment, this allows them to learn about cause and effect.

*Social/Emotional:* Art is a way for children to express feelings. This can provide the opportunity for thought and emotion reflection through the use of colour and texture choices. Ex: when children are happy they are more likely to use bright colours. Arts & crafts also allow children to express original and individual ideas in their art.

*Physical:* Small muscle movements are used as children tear or cut paper, draw lines and shapes, these actions help children with the development of their fine motor control that is required for writing.

*Language:* Children like to talk about and explain their creative creations. Explaining these crafts help foster their vocabulary development.

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Considerations for Arts and Craft Center

Depending on the age of the child, less focus should be put on the finished product of the art or craft created. This is because skill development is the main goal, so ensuring that materials are of high-quality and age appropriate (age appropriate scissors, glue etc.).

Group craft activities are helpful approach in teaching skills such as fine motor skills and following directions, they are not considered Art. To be classified as an Art activity, children need to have free independence in creating what they are thinking in their own unique way. Crafts often limit children’s opportunity for independent creative expression higher order thinking, therefore this type of activity should be limited.

Art Center Materials

<table>
<thead>
<tr>
<th>Drawing Tools</th>
<th>Paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Crayons</td>
<td>- News paper</td>
</tr>
<tr>
<td>- Pencils</td>
<td>- Construction paper</td>
</tr>
<tr>
<td>- Pencil crayons</td>
<td>- Card Stock</td>
</tr>
<tr>
<td>- Markers</td>
<td></td>
</tr>
<tr>
<td>- Pastels</td>
<td></td>
</tr>
<tr>
<td>- Chalk</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Craft Supplies</th>
<th>Paints</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Glue sticks</td>
<td>- Nontoxic paints in a variety of colours</td>
</tr>
<tr>
<td>- Scissors</td>
<td>- Adding a drop of dish soap helps to remove any paint on clothes when washed</td>
</tr>
<tr>
<td>- Pipe cleaners</td>
<td></td>
</tr>
<tr>
<td>- Hole punch</td>
<td></td>
</tr>
<tr>
<td>- Glitter</td>
<td></td>
</tr>
<tr>
<td>- Magazines</td>
<td></td>
</tr>
<tr>
<td>- Modeling clay</td>
<td></td>
</tr>
<tr>
<td>- etc</td>
<td></td>
</tr>
</tbody>
</table>


Figure 5. Crafts Clipart. Retrieved from [http://clipart-library.com/clipart/59087.htm](http://clipart-library.com/clipart/59087.htm). Copyright – free image
Description
Puzzles provide many benefits that can be derived from them from early childhood to adulthood. Not only do puzzles exercise our minds, but they also challenge our thinking. As children develop, puzzles offer them many advantages.

Rationale/Background Research
Research has determined that when a child acts on or manipulates the world around them, their brain development is significantly influenced. This key opportunity is provided through the use of puzzles. When working with puzzles children learn to work directly with their environment, changing its shape and appearance. This type of play also provides the potential for the development of children’s mental rotation skill. This is due to the fact that puzzle play involves pieces that are mentally and physically transformed to fit into specific locations and provides immediate feedback on whether a piece fits, this also assists with the development of fine motor skills and dexterity. This immediate feedback allows the child to see if their mental and physical transformation results are accurate. In addition to engaging children in a spatial activity that involves physical and mental transformations, puzzles can also increase help with language development, as children they learn the identifying names of puzzle pieces (corner, curve, side, top, bottom, long, short, etc.).

Essential Skill Development
Engaging in puzzles and games provide children with the opportunity to strengthen all areas of their development.

Social and Emotional: Sharing and taking turns while playing a game or building a puzzle help to teach children cooperation and problem-solving skills. They develop confidence when they successful complete a task using self-correcting toys such as puzzles and sorting activities.

Physical: Engaging in pegboard activities, lacing beads, or connecting interlocking cubes allow children to practice eye-hand coordination, which helps to refine small muscles skills.

Cognitive: As children build with blocks and create puzzles they experiment with construction and invention and use creative problem-solving skills. This allow helps in the progression of their emerging math skills such as counting, matching, creating patterns, and classifying objects.

Language: When explaining and describing how they are creating their craft or puzzle, children use words to describe what they are doing. They can verbally describe and compare the size, shape and colours they are using in their arts and crafts.

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Considerations for Puzzles & Games Center

Materials in this play center should allow children to develop their fine motor skills as well as math skills.

Materials should be stored with a variety of items in 3 different categories: small building toys, manipulatives to sort and classify, and puzzles and games that vary in difficulty.

**Library & Quiet Area**

**Description**
Providing children with the opportunity to read daily and engage in literacy activities can help with the development of their vocabulary, increase comprehension, and development an understanding of story structure and flow. While children practice these skills throughout the school day, after-school programs can provide an environment and opportunities to further the practice of reading and writing.

**Rationale/Background Research**
The period between the ages of 4 and 8 is a critical time in the development of literacy for a child. The amount of learning related to literacy that takes place over these years is exceptional, moving from a child developing oral language skills to the development of understanding of letters and their sounds, to reading basic information. It is at the age of 8 years old that children shift from learning to read, to reading to learn. The effects of not reading this point in literacy development by the third grade can affect their future academic development. Therefore, supporting literacy development in children, particularly those who struggle to learn to read is essential.²

**Essential Skill Development**
Providing time in a library allows children the opportunity to further develop their literacy skills. Literacy development also aids in the growth and development of the following areas:

- **Social and Emotional:** from reading books children are able to learn about people with similarities and differences. It provides comfort to children to learn that others have experience or fears that are similar to their own, and how they potentially managed these fears and experiences. It also allows for the opportunity for them to develop empathy for the challenges and struggles that make life difficult sometimes. Library time also allows for the development of social skill through sharing books with their peers.

- **Physical:** Through using materials in the library such as books, children are able to further develop their fine motor skills when flipping pages. They also use their eye muscles as they follow the images and words in the books they read.

- **Cognitive:** Children are able to learn and better understand the world around them by reading books. Reading helps children develop an understanding of picture related works (e.g. seeing a picture of a horse and seeing the written word horse). Reading also allows for children to make predictions, thinking about cause and effect (e.g. the three little pigs, when the pig builds his house out of straw, the wolf will blow it down). When children engage in story time, having the story read to them, they can establish a connection between the story and things they already know. When children engage in storytelling, it allows them to learn sequence as they retell the events of the story in order.

- **Language:** When children are provided dedicated library time, all aspects of literacy: reading, writing, listening, and speaking can be strengthened. Children’s language comprehension grows as they listen to stories that use new words and concepts. Phonological awareness is also developed when children explore new words and rhythms.

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Considerations for Library and Quiet Area

It is essential that the library area include a variety of different types of books: fantasy, factual information, nature, science, and stories about real life which include characters of different races, cultures and abilities. Books included in this area should be kept in good condition, displaying books with their covers showing catches children's attention and encourages them to engage in the reading the book. This area should also include and comfortable place for children to sit while reading or listening to a book. Providing pillows or bean bag chairs allow children to sit comfortably by themselves, or to move them to sit with their peers.

Considerations When Selecting Material

- Reflect diverse groups of people
- Avoid books that include violence
- Mirror children's lives and experiences
- Contains interesting pictures
- Show diverse groups of people working together
- Gender bias
- Cultural stereotypes
Science and Discovery

Description
The overall goals of development for children through science is to further their conceptual understanding of the world around them, to increase their comprehension of how science is practiced and to develop their abilities to conduct scientific investigations.

Providing children with the opportunity to engage in science and discovery which combines science investigations with content or skills from other activities. Children can investigate and make discoveries while engaging in outdoor play, learning about how plants grow, etc.

Rationale/Background Research
A study conducted by Scruggs and Mastropieri as cited in Falkenberg et al., (2006) reported finding a significantly increased rate of learning when an inquiry-oriented approach with students with learning disabilities. A study conducted by Amaral, Garrison and Klentschy (2002), utilizing inquiry science teaching methods with rural students grades 1-6 showed an increase in grade levels in science, writing, reading and mathematics. Most notably, their research showed that the greater the length of time students were involved in this type of program, continued to positively affect their grade levels. Science is an area that can provide opportunities to integrate and strengthen knowledge and skills in other areas of learning and skill development.

Essential Skill Development
Through Science and Discovery children can do what scientists do. They ask questions, plan and conduct investigations, gather information, construct explanations, and communicate findings. They can also learn important scientific concepts as they study plants, animals, magnets, properties of materials, how things work and more.

- Social and Emotional: As children explore, make discoveries and solve problems they learn to work together with their peers.

- Physical: The development of fine motor skills can be used when children use different materials such as eyedroppers, tweezers etc. They also develop dexterity and eye-hand coordination as they turn gears, take things apart, and pick things up using tools.

- Cognitive: Children use processing skills when they are observing and ask questions about tasks, they are engaging in. As they watch plants or animals grow, they are able to make predictions about how they change and move and react to different variables. Children can learn how to organize their thoughts through classifying, and comparing objects, then represent their findings in drawing, writing and creating models of their findings.

- Language: Children enjoy sharing about their creations and discoveries. When talking about their experiences, they ask questions using new words to describe how things look, taste, touch and smell.
Considerations for Science and Discovery

When organizing materials included in the Science and Discovery Center materials should be kept according to their type. Collection of natural objects (seashells, rocks, leaves), tools, books etc.

### Natural Objects
- flowers
- moss
- leaves
- seeds

### Living Things
- plants
- flowers
- terrarium
- worms
- ant farm

### Science Materials
- Trays to hold items for examination
- microscope
- magnifying glass
- greenhouse
Music is an essential part of every child’s development. Music and movement can help with child development. Providing children with the opportunity to learn about music, dance and musical instruments gives them different ways of expressing themselves.

**Rationale/Background Research**

Reach has shown that exposure to music can improve children’s ability to learn. Music and movement instructions has been shown to improve children’s memory, cognitive development, learning skills and expressive ability. A study conducted at the University of Southern California’s Brain and Creativity Institute (2016), found that music, and musical experiences during childhood can actually accelerate brain development, most notable in the areas of language acquisition and reading skills.

**Essential Skill Development**

Providing children with the opportunity to engage in music and movement can assist and contribute to their development in the following ways:

- **Social and Emotional**: Music and movement activities are experiences that can promote group engagement. By including a variety of types of music, it can evoke different feelings and actions in children. Upbeat lively music can lift children’s spirits and increase their desire to engage and participate. Quiet, smooth tempo music can create a relaxing environment which allows children the opportunity to relax if need be. When engaging in music and movement children can use their bodies to express a variety of emotions – excitement, anger, and sadness. Through music and movement children can learn songs and dances, which they can then share among family and friends, this can help to boost their self-esteem. Music and movement also assist in the development of social skills when children engage in musical games requiring simple cooperation, for example “Ring around the Rosy”.

- **Physical**: Moving to the music and participating in mother movement activities promotes children’s gross motor development. Movement activities coupled with music, such as follow the leader and London Bridge is falling down, can aid in the improvement of large muscle skills, balance and coordination. Musical instruments can strengthen small muscle skills as children learn to use them.

- **Cognitive**: While engaging in music and movement children can further development their problem-solving skills. They are able to use logic and seasoning to determine specific instruments sounds. Children can create patterns and rhythms through singing, and further their understanding of number and patterns as they clap their hands and stomp their feet to the beat of the music.
Language: Music and movement can assist children in the development and refining of their listening skills as they notice changes in tempo or pitch of music and learn to adapt their dancing or clapping accordingly. New words and concepts can also be taught through songs and movements, for examples singing Head, shoulders, knees, and toes. Participating in repeat after me songs provide opportunity for following directions to be practiced. Music also allows for children to develop phonological awareness as they play with the sounds and rhythms of language and learn concepts about words and letters as they see the words of their favorite song on a chart or in a book.

Material Considerations for Music and Movement

Music and movement provides children with the opportunity to further develop skills through a variety of fun ways and should be an integral part of their life. Engaging in Music and Movement should provide children with the opportunity to participate in singing, dancing, and playing/learning about instruments. When selecting music, a variety of music should be included. Before using with children, all music should be screened making sure that is appropriate. Rhythm instruments should also be provided in addition to any age appropriate instruments.
Outdoor Play

Description
Changes in current society is effecting childhood experiences. With the increase of technology the amount of time children spend outside is diminishing. Encouraging children to engage in outdoor play provides the opportunity for cognitive, physical, and social skill development.

Rationale/Background Research
According to the literature, one of the main advantages of outdoor play is that it provides space for children to move freely, incorporating physical activity (play). Incorporating physical activity with learning has been described as one of the most natural and powerful forms of learning for young children (Cross, 2012).

Essential Skill Development
Providing a safe outdoor area for children to be able to use while at after-school program offers many ways to enrich their time there, and support their development and learning:

Social and Emotional: A sense of accomplishment and growing competence can be experienced by children when they are provided with the opportunity to spend time outdoors every day. Engaging in activities children participate in while outdoors such as swinging, playing catch, completing the monkey bars etc. can provide children with a sense of pride when they master the skill required to complete the activity. Social skills grow as children share equipment with their peers, and work together as a team in activities like sports, building sand castles, etc.

Physical: The number of children who are overweight and not physically active enough is slowly increasing. A contributing factor to this problem is that children do not get the large muscle activity time that is required for healthy development. Part of this problem is due to the increase of children engaging in the use of technological devices, another part, especially in neighborhoods that are considered low-income, is that a safe area for children to go play is not closely available. Therefore, taking advantage of the time children can spend outdoors when a safe space is provided is essential. Children’s gross motor skills develop as they run, leap, hop, jump, swing, slide and climb while engaging in outdoor play. Engaging in these activities allow children to take risks and try new skills.

Cognitive: The outdoor environment can act as a natural laboratory for scientific exploration for children as they can observe and explore it first-hand. Children can find and study bugs, butterflies, worms, plant seeds, and watch things grow, and learn about how the seasons change and specific seasonal changes.

Language: As children engage in outdoor play, they see and learn new things. Learning the names of bugs, plants and trees and using words to describe characteristics of these help to further develop children’s language.
Outdoor Play Area Consideration
Having a safe outdoor play area that can be used by children during after-school program hours can be impactful to all other areas of program activities such as science. Science experiences can be conducted indoors during after-school program, however being able to only use indoor areas for such does have its limitations when trying to incorporate the study of nature and natural events. Outdoor play also has the ability to incorporate dramatic play scenarios, this can be further supported by providing materials that children can bring outdoors. Outdoor playtime is an opportunity for children to release energy. It is also important to be very observant regarding safety. Outdoor play areas should be monitored and/or checked regularly to ensure there are no possible dangers (broken playground equipment, sharps, etc.).
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APPENDICES
Appendix A: Feedback Checklist and Comment Form: After-school Program Implementation

Feedback Checklist and Comment Form

Date: ______________

Yes or No  Record Yes or No for all of the following

- Are the indoor and outdoor areas safe?
- Are bathrooms nearby?
- Are children supervised by staff at all times?
- Are there written health, safety and emergency rules?
- Is the staff trained and qualified for the age they are working with?
- Are there enough staff for the # of children in the program?
- Does the staff talk to the children often and in a friendly, helpful way?
- Do the staff listen to the children, answering their questions and requests?
- Does the staff encourage children to be independent?
- Are children of all genders given equal opportunity to try the same activities?
- Does it appear that the staff does not use punishment that hurts, frightens or humiliates?
- Are children encouraged to solve problems without being forced to do so?
- Are children relaxed and happy while they play?
- Are there fun and exciting activities to choose from?
- Is there enough equipment and materials to make the play areas interesting?
- Is there enough space for children to play in groups or individually?
- Is there an area aside for quiet activities?
- Do parents receive feedback on their children?
- Are there opportunities for parents to participate from time to time?

Provide any comments or feedback in the space provided below

____________________________________________________________________

____________________________________________________________________

____________________________________________________________________

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____________________________________________________________________
## Appendix B: Ages and Stages Developmental Chart

### School Aged

<table>
<thead>
<tr>
<th>Physical</th>
<th>Cognitive</th>
<th>Social</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slow, steady growth: 3-4 inches per year</td>
<td>Use language as a communication tool</td>
<td>Friendships are situation specific</td>
</tr>
<tr>
<td>Use physical activities to develop gross and fine motor skills</td>
<td>Perspective taking: 5-8 yr: can recognize others' perspectives, can't assume the role of the other 8-10 yr: recognize difference between behavior and intent; age 10-11 yr: can accurately recognize and consider others' viewpoints</td>
<td>Understands concepts of right and wrong</td>
</tr>
<tr>
<td>Motor &amp; perceptual motor skills better integrated</td>
<td>Concrete operations: Accurate perception of events; rational, logical thought; concrete thinking; reflect upon self and attributes; understands concepts of space, time, dimension</td>
<td>Rules relied upon to guide behavior and play, and provide child with structure and security</td>
</tr>
<tr>
<td>10-12 yr: puberty begins for some children</td>
<td>Can remember events from months, or years earlier</td>
<td>5-6 yr: believe rules can be changed</td>
</tr>
<tr>
<td></td>
<td>More effective coping skills</td>
<td>7-8 yrs: strict adherence to rules</td>
</tr>
<tr>
<td></td>
<td>Understands how his behavior affects others</td>
<td>9-10 yrs: rules can be negotiated</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Begin understanding social roles: regards them as inflexible; can adapt behavior to fit different situations; practices social roles</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Takes on more responsibilities at home</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Less fantasy play, more team sports, board games</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Morality: avoid punishment; self interested exchanges</td>
</tr>
</tbody>
</table>

Contents in these tables was adapted from: Judith S. Rycus, Ph.D., and Ronald C. Hughes, Ph.D (1998). The field guide to child welfare volume III: Child development and child welfare, *Child Welfare League of America Press*
<table>
<thead>
<tr>
<th>Emotional</th>
<th>Possible effects of maltreatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self esteem based on ability to perform and produce</td>
<td>Poor social/academic adjustment in school: preoccupied, easily frustrated, emotional outbursts, difficulty concentrating, can be overly reliant on teachers; academic challenges are threatening, cause anxiety</td>
</tr>
<tr>
<td>Alternative strategies for dealing with frustration and expressing emotions</td>
<td>Little impulse control, immediate gratification, inadequate coping skills, anxiety, easily frustrated, may feel out of control</td>
</tr>
<tr>
<td>Sensitive to other’s opinions about themselves</td>
<td>Extremes of emotions, emotional numbing; older children may “self-medicate” to avoid negative emotions</td>
</tr>
<tr>
<td>6-9 yr: have questions about pregnancy, intercourse, sexual swearing, look for nude pictures in books, magazines</td>
<td>Act out frustration, anger, anxiety with hitting, fighting, lying, stealing, breaking objects, verbal outbursts, swearing</td>
</tr>
<tr>
<td>10-12 yr: games with peeing, sexual activity (e.g., strip poker, truth/dare, boy-girl relationships, flirting, some kissing, stroking/rubbing, re-enacting intercourse with clothes on)</td>
<td>Extreme reaction to perceived danger (i.e., “fight, flight, freeze” response)</td>
</tr>
<tr>
<td></td>
<td>May be mistrustful of adults, or overly solicitous, manipulative</td>
</tr>
<tr>
<td></td>
<td>May speak in unrealistically glowing terms about his parents</td>
</tr>
<tr>
<td></td>
<td>Difficulties in peer relationships; feel inadequate around peers; over-controlling</td>
</tr>
<tr>
<td></td>
<td>Unable to initiate, participate in, or complete activities, give up quickly</td>
</tr>
<tr>
<td></td>
<td>Attachment problems: may not be able to trust, tests commitment of foster and adoptive parent with negative behaviors</td>
</tr>
<tr>
<td></td>
<td>Role reversal to please parents, and take care of parent and younger siblings</td>
</tr>
<tr>
<td></td>
<td>Emotional disturbances: depression, anxiety, post traumatic stress disorder, attachment problems, conduct disorders</td>
</tr>
</tbody>
</table>
## Adolescents

<table>
<thead>
<tr>
<th>Physical</th>
<th>Cognitive</th>
<th>Social</th>
</tr>
</thead>
<tbody>
<tr>
<td>Growth spurt:</td>
<td>Formal operations: precursors in early adolescence, more developed in middle and late adolescence, as follows:</td>
<td>Young (12 – 14): psychologically distance self from parents; identify with peer group; social status largely related to group membership; social acceptance depends on conformity to observable traits or roles; need to be independent from all adults; ambivalent about sexual relationships, sexual behavior is exploratory</td>
</tr>
<tr>
<td>Girls: 11-14 yrs</td>
<td>Think hypothetically: calculate consequences of thoughts and actions without experiencing them; consider a number of possibilities and plan behavior accordingly</td>
<td>Middle (15 – 17): friendships based on loyalty, understanding, trust; self-revelation is first step towards intimacy; conscious choices about adults to trust; respect honesty &amp; straightforwardness from adults; may become sexually active</td>
</tr>
<tr>
<td>Boys: 13-17 yrs</td>
<td>Think logically: identify and reject hypotheses or possible outcomes based on logic</td>
<td>Morality: golden rule; conformity with law is necessary for good of society</td>
</tr>
<tr>
<td>Puberty:</td>
<td>Think hypothetically, abstractly, logically</td>
<td></td>
</tr>
<tr>
<td>Girls: 11-14 yrs</td>
<td>Think about thought: leads to introspection and self-analysis</td>
<td></td>
</tr>
<tr>
<td>Boys: 12-15 yrs</td>
<td>Insight, perspective taking: understand and consider others' perspectives, and perspectives of social systems</td>
<td></td>
</tr>
<tr>
<td>Youth acclimate to changes in body</td>
<td>Systematic problem solving: can attack a problem, consider multiple solutions, plan a course of action</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cognitive development is uneven, and impacted by emotionality</td>
<td></td>
</tr>
<tr>
<td>Emotional</td>
<td>Possible effects of maltreatment</td>
<td></td>
</tr>
<tr>
<td>-----------</td>
<td>--------------------------------</td>
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</tr>
<tr>
<td>Psycho-social task is identity formation</td>
<td>All of the problems listed in school age section</td>
<td></td>
</tr>
<tr>
<td>Young adolescents (12-14): self-conscious about physical appearance and early or late development; body image rarely objective, negatively affected by physical and sexual abuse; emotionally labile; may over-react to parental questions or criticisms; engage in activities for intense emotional experience; risky behavior; blatant rejections of parental standards; rely on peer group for support</td>
<td>Identity confusion: inability to trust in self to be a healthy adult; expect to fail; may appear immobilized and without direction</td>
<td></td>
</tr>
<tr>
<td>Middle adolescents (15-17): examination of others' values, beliefs; forms identity by organizing perceptions of ones attitudes, behaviors, values into coherent “whole”; identity includes positive self image comprised of cognitive and affective components</td>
<td>Poor self esteem: pervasive feelings of guilt, self-criticism, overly rigid expectations for self, inadequacy</td>
<td></td>
</tr>
<tr>
<td>Additional struggles with identity formation include minority or bi-racial status, being an adopted child, gay/lesbian identity</td>
<td>May overcompensate for negative self-esteem by being narcissistic, unrealistically self-complimentary; grandiose expectations for self</td>
<td></td>
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<tr>
<td></td>
<td>May engage in self-defeating, testing, and aggressive, antisocial, or impulsive behavior; may withdraw</td>
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<td></td>
<td>Lack capacity to manage intense emotions; may be excessively labile, with frequent and violent mood swings</td>
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<tr>
<td></td>
<td>May be unable to form or maintain satisfactory relationships with peers</td>
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<tr>
<td></td>
<td>Emotional disturbances: depression, anxiety, post traumatic stress disorder, attachment problems, conduct disorders</td>
<td></td>
</tr>
</tbody>
</table>
## Appendix C: Snack Plan Sample

<table>
<thead>
<tr>
<th>Day</th>
<th>Snack 1</th>
<th>Snack 2</th>
<th>Snack 3</th>
<th>Snack 4</th>
<th>Snack 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>Apple slices, Peanut butter</td>
<td>Whole wheat crackers, Orange</td>
<td>Salsa, Beans, Corn tortilla chips</td>
<td>Tuna salad w/mayo, Cilantro, Chees</td>
<td>Beef, Salsa, Baby carrots, Se</td>
</tr>
<tr>
<td>Tuesday</td>
<td>Celery, Raisins, String cheese</td>
<td>Egg salad w/mayo, Whole wheat bread, Cucumber slices</td>
<td>Water</td>
<td>Water</td>
<td>Water</td>
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<tr>
<td>Wednesday</td>
<td>Oranges, Tuscuit crackers</td>
<td>Water</td>
<td>Water</td>
<td>Water</td>
<td>Water</td>
</tr>
<tr>
<td>Thursday</td>
<td>Tomato wedges, String cheese</td>
<td>Water</td>
<td>Water</td>
<td>Water</td>
<td>Water</td>
</tr>
<tr>
<td>Friday</td>
<td>Whole wheat, spaghetti</td>
<td>Water</td>
<td>Water</td>
<td>Water</td>
<td>Water</td>
</tr>
</tbody>
</table>
Appendix D: Canada Food Guide Charts

What is One Food Guide Serving?
Look at the examples below.

- Fresh, frozen or canned vegetables: 125 mL (1/4 cup)
- Leafy vegetables: Cooked: 125 mL (1/4 cup), Raw: 250 mL (1 cup)
- Fresh, frozen or canned fruits: 1 fruit or 125 mL (1/4 cup)
- 100% Juice: 125 mL (1/4 cup)
- Bread: 1 slice (35 g)
- Bagel: 1/3 bagel (45 g)
- Flat breads: 1/8 pita or 1/8 tortilla (35 g)
- Cooked rice, bulgur or quinoa: 125 mL (1/4 cup)
- Cereal: Cold: 30 g, Hot: 175 mL (1/4 cup)
- Cooked pasta or couscous: 125 mL (1/4 cup)
- Milk or powdered milk: 250 mL (1 cup)
- Canned milk: 125 mL (1/4 cup)
- Fortified soy beverage: 250 mL (1 cup)
- Yogurt: 175 g (1/4 cup)
- Kefir: 175 g (1/4 cup)
- Cheese: 50 g (1 1/2 oz.)
- Cooked fish, shellfish, poultry, lean meat: 75 g (2 1/2 oz.)/125 mL (1/4 cup)
- Cooked legumes: 175 mL (1/4 cup)
- Tofu: 150 g or 175 mL (1/4 cup)
- Eggs: 2 eggs
- Peanut or nut butters: 30 mL (2 Tbsp)
- Shelled nuts and seeds: 60 mL (1/4 cup)

Advice for different ages and stages...

Children
Following Canada’s Food Guide helps children grow and thrive.
Young children have small appetites and need calories for growth and development.
- Serve small nutritious meals and snacks each day.
- Do not restrict nutritious foods because of their fat content. Offer a variety of foods from the four food groups.
- Most of all... be a good role model.

Women of childbearing age
All women who could become pregnant and those who are pregnant or breastfeeding need a multivitamin containing folic acid every day.
Pregnant women need to ensure that their multivitamin also contains iron. A health care professional can help you find the multivitamin that’s right for you.
Pregnant and breastfeeding women need more calories. Include an extra 2 to 3 Food Guide Servings each day.
Here are two examples:
- Have fruit and yogurt for a snack, or
- Have an extra slice of toast at breakfast and an extra glass of milk at supper.

Men and women over 50
The need for vitamin D increases after the age of 50.
In addition to following Canada’s Food Guide, everyone over the age of 50 should take a daily vitamin D supplement of 10 μg (400 IU).
Appendix E: HIGHFIVE Program Planning

Program Plan

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity Type</th>
<th>Activity</th>
<th>HIGH FIVE® Moments</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>

![HIGH FIVE® Logo]

The best way to play™

Consider the HIGH FIVE 16 Questions when planning:

**Making a Difference** (2012). Research Summary for the development and implementation of HIGHFIVE. *Parks and Recreation Ontario*
Making a Difference (2012). Research Summary for the development and implementation of HIGHFIVE. Parks and Recreation Ontario
Sample

Activity Plan

Activity Name: **Activity Cards**

Activity Type:
- ■ Opening Activity
- ■ Main Activity
- ■ Transition Activity
- ■ Closing Activity
- ■ Building trust

Age Group: 12-16

Theme: Moderate to Vigorous Physical Activity

Activity Design Goals

- ■ Learning each other's names
- ■ Team building and cooperation
- ■ Learning a new skill
- ■ Embracing differences and accepting diversity
- ■ Other: Fundamental Movement Skills - Balance, Running

Step by Step Instruction

- With participants, create a set of activity station cards or posters related to endurance, strength, and flexibility activities.
- Assign hearts, diamonds, spades and clubs to the different activities (endurance, strength, flexibility).
- Post the station cards around the room, ensuring there is enough room in front of each.
- Place the deck of cards face down in the centre of the playing area.
- Divide participants into pairs.
- Partners take turns running to the deck, selecting a card, and then running to the activity station that corresponds to the symbol on their card. Pairs perform repetitions of the activity based on the number indicated on their card.
- The other partner then runs to the deck of cards and chooses another card and the process is repeated.

Use of Space

- A large playing area where participants can move around safely.
- Make sure there is enough space around each activity card for multiple groups to participate.
- Make sure space is free of debris, possible hurtful objects and is clean.
- Remind participants to take care of others and to be respectful, do not push others or grab a card from another player's hand.

Equipment Required

- Deck of playing cards.
- Poster paper.
- Writing utensils.

Modifications

- Have participants select the activity station tasks and design the cards/posters themselves.
- Divide participants into teams and have one team member run to the middle and grab both a card and an activity slip. The entire team must then complete that activity the number of times indicated on the card.
- Insert jokers as water break cards.

People and Groupings

- Play in pairs.

Making a Difference (2012). Research Summary for the development and implementation of HIGHFIVE. **Parks and Recreation Ontario**
SAMPLE ACTIVITIES
PUZZLES AND GAMES

Keep all puzzles in individual envelopes. Can be organized based upon difficulty and age group

Color the activities and school subjects according to the color code.

Blue = That’s like me!  Green = That’s sometimes like me.  Yellow = That’s NOT like me!

- Working in a small group
- Math
- Playing sports
- Drawing
- Speaking in front of the class
- Computers
- Creating things
- PE
- Social Studies
- Doing homework
- Reading library books
- Watching TV
- Indoor activities
- Playing video games
- Playing an instrument
- Wintertime
- Cooking or baking
- Riding a bike
- Science
- Being a leader
- Taking care of animals
- Singing
- Sleeping late
- Week days
- Acting or being in a play
- Reading out loud in class
- Weekends
- Dancing
- Playing board games
- Outside activities
- Science labs
- Can speak another language
- Summertime
- Working by myself
- Keeping a diary or journal

Thumbs Up/ Down

PURPOSE: This game helps children to develop decision making skills, express their opinions visibly, and be aware of different opinions. It can also help children understand the strength of peer pressure.

RECOMMENDED GRADE: K - 6

MATERIALS: A list of age appropriate questions or statements (Ice cream is better than popsicles)

PROCEDURE:

1. Sit the entire group in a circle on chairs
2. Explain the rules
   a) Staff will make a statement or ask a question, children will indicate if they agree or not
   b) If they strongly agree they are to clap and cheer loudly
   c) If they agree they are to raise their thumb up
   d) If they disagree they give a thumbs down
   e) If they have no opinion they are to fold their arms and say nothing at all
3. When all of the questions have been asked, it is time to discuss the process:
   a) Was it hard to do? Allow each child to talk by going around the circle quickly
   b) Did their friends vote differently?
   c) Did they find themselves changing their votes?
   d) What did they feel while doing this game?
4. Go around the circle again and have every child state something that they did or did not like about the activity.

COMMENTS: This game lets children see how easily they are swayed by a group. It works as a great confidence building especially for children who are reluctant to vocalize their opinions due to peer pressure. Make sure the questions are non-threatening and not likely to change any current rules in the game. Also a great ice breaker activity.

Copyright free
I like my Neighbor

PURPOSE: To include every child, promote awareness of similarities and differences.

MATERIALS: Enough chairs or spaces to sit for each child

RECOMMENDED GRADE: K - 6

PROCEDURE:

1. Have children sit in circle on chairs
2. The staff begins, so there is one chair too few in the circle.
3. Explain the rules:
   a) The person with no chair will say, "I like my neighbors, especially those with_____ (i.e. brown hair).
   b) When the person in the middle says something that the children have, they are to get up quickly and move to another chair.
   c) The children must get up, and may not sit in their own chair again, and may not stay in the middle on purpose.
   d) One person is left with no chair again. It is their turn to call something out.
   e) There should be no pushing, running, sliding, or sitting on another child.

COMMENTS: This is a very noisy and active game. It allows all of the children to feel like part of the group and to experience engaging in the activity.

Thumbs up/Down Game. Retrieved from: https://www.e1b.org/Portals/0/Files%20by%20Division/School%20Support/Healthy%20Schools/Playworks%20Playbook.pdf Copyright - free
ARTS AND CRAFTS

Paint
Painting is a fun way for children to engage in imaginative exploration and creativity. There are many different types of paints and endless possibilities. Most painting projects are easily set up, covering tables and floors also makes it an activity that is easy to clean up. It is helpful to have an easel set up. Using Primary colours for younger children is an excellent way to for kids to learn colour mixing. Finger painting is still fun for elementary school aged children, especially if a variety of paint, paper and surfaces are provided. Paint can be mixed with items such as white foam shaving cream, glitter can also be added for extra textures and effects.

Types of Paints to Try
- Watercolours
- Acrylic paints
- Fabric paints
- Powered or liquid tempera
- Oil paint
- Water based inks
- Food colouring
STEAM Pendulum Painting

Step 1: Find a place to hang your pendulum string so that it is just above a flat surface with a string between 8 and 12 inches long.
Step 2: Tie washer to your string.
Step 3: Bend paperclip into a “W” shape and slip it onto the washer.
Step 4: Poke a little hole in the bottom of a paper cup with a pencil.
Step 5: Poke a hole on each side of the top of the cup and slip the paper clip through the holes to make a bucket on your pendulum.
Step 6: Holding a finger over the hole on the bottom of the cup, grasp the cup and pour a bit of paint in the cup – it should be the consistency of ink.
Step 7: When releasing your cup, aim it at a slight curve so that it will travel in a circular direction.
Step 8: Once finished, keep the painting flat while drying.
Step 9: Plan out a picture to integrate with your spiral background using a cut-out of a drawing or a stencil to trace onto your paper in pencil. Trace with Sharpie for a bold outline.
Step 10: Paint in shapes and parts of the background to complete a colorful, complete work of art.

Note: If you have painted with acrylic-based paints, using water color over the paint will not disturb your spirals. If you have used tempera or other non-permanent paint, take care to go around the lines so they do not blur.

Materials

<table>
<thead>
<tr>
<th>Paper</th>
<th>Place to hang a pendulum</th>
</tr>
</thead>
<tbody>
<tr>
<td>String</td>
<td>Metal washer</td>
</tr>
<tr>
<td>One large paperclip</td>
<td>Paint mixed with equal parts water</td>
</tr>
<tr>
<td>Small waxed paper cups</td>
<td>One sharp pencil</td>
</tr>
<tr>
<td>Newspaper for protecting surfaces</td>
<td>Sharpie markers</td>
</tr>
<tr>
<td>Watercolour paint</td>
<td></td>
</tr>
</tbody>
</table>
Growing Watercress Shapes is such as cute activity to do. It is perfect for bringing a little bit of science fun into classrooms, day-cares, at home or any other educational centres. Each day children will be excited to have a look at how the seeds grow into small green bushes of watercress. When you are finished with the activity, children can eat the watercress shapes.

Growing Watercress Shapes provides a wonderful opportunity for children to talk about their observations and predicting what will happen next. They will also watch as the watercress starts to form the shapes and numbers of the cookie cutters.

**WHAT YOU WILL NEED:**

You will need, a large tray, cookie cutters, water, paper towels and 4 packets of watercress seeds.

- Lay out paper towels over the tray, overlapping about 3 layers.
- Place out the different cookie cutters.
- Add water until the paper towels are soaked.
- Carefully sprinkle the watercress seeds evenly into the cookie cutters.
• Growth may vary depending on the amount of natural light and time of the year. We completed our activity in winter which I feel contributed to our results.

• Add more water as necessary over the growing period to avoid the watercress drying out.

• Make a class book showing the changes over time. Starting with a seed and eating the watercress.

• Complete an oral recount of what happened.

• Make a set of cards showing the different stages of growing the watercress shapes. Children can sequence the cards in order of what happened.

Learning:

Watercress grown into the shape of numbers 1, 2 and 3!

Science activities are a great opportunity for children to make connections between real life experiences that is or has happened around them. It encourages children to ask questions and promote scientific thinking such as making predictions, observations, comparison, reasoning, data gathering, experimentation and evaluation.

• Language development: Using descriptive words to express ideas and opinions.

• Make connections with real life experiences.

• Promote scientific thinking: predictions, observations, comparison, reasoning, data gathering, experimentation and evaluation.

• Grow cycle from a seed to plant.

2015 Royal Horticultural Society. https://schoolgardening.rhs.org.uk/Resources/Lesson-Plan/Colour-all-around-us?returnUrl=%2FResources%2FFind-a-resource%3Fso%3D0%26p%3D0%26ps%3D10%26f%3D1,7-%26page%3D1
Rainbow Flowers

Placing white roses into coloured water is a great science activity to demonstrate absorption. Children will be amazed and excited to see the changes developing in the petals of the flowers. It is a great learning opportunity to explore the concept of absorption, promote scientific thinking skills such as predicting, observations, and reasoning.

MATERIALS:
You will need white roses (you can use other flowers such as carnations or celery which works really well), food colouring, water and glass jars.

Roses can be observed over a few days and watched as the changes take place. The longer the roses are in the coloured water the darker the rose petals will get. It is AMAZING to see the effects of the coloured water as it is absorbed through the petals of the roses, it leaves behind vein like markings of colour on the petals as the coloured water moves through the capillaries of the petals.

LEARNING SKILLS

• Using descriptive words to express ideas and opinions.
• Make connections with real life experiences.
• Promote scientific thinking – predictions, observations, comparison, reasoning, data gathering, experimentation and evaluation.
These pictures can be used with any type of blocks or building materials to build the structures shown. Children can use their imagination and the materials they have to build what they see. Pictures can be printed and cut out.
Great Wall of China. Retrieved from: https://stock.adobe.com/ca/images/id/46985578?as_campaign=pixabay&as_content=api&tduid=1a03865cd7bf5b8d0f56f9b690f7ebcb&as_channel=affiliate&as_campclass=redirect&as_source=arvato. Copyright – free image


