

**Fetal Alcohol Spectrum Disorder (FASD): Examining How School Counsellors Can  
Support Students Diagnosed with FASD Through Life Skills and Social-Emotional  
Learning**

by

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**Fetal Alcohol Spectrum Disorder (FASD): Examining How School Counsellors Can  
Support Students Diagnosed with FASD Through Life Skills and Social-Emotional  
Learning**

APPROVED BY:

A handwritten signature in black ink, appearing to be 'R. [unclear]', written over the text 'APPROVED BY:'.



## **Dedication**

This Capstone is dedicated to my cousin and my family. To my cousin, who was diagnosed with fetal alcohol spectrum disorder and inspired me to research methods on support for FASD students in the school setting. To my family for all the support over the years and all the adversities we have faced that have made us come out stronger.

## **Abstract**

The research question I will address in this capstone is: How can school counsellors support students diagnosed with fetal alcohol spectrum disorder through life skills and social-emotional learning? I will explore what FASD is and how it impacts the individual diagnosed with FASD in the school setting. I also will examine the skills and strategies used in life skills and social-emotional learning programs to support individuals diagnosed with FASD. I will define what life skills and social-emotional learning is, the benefits of using these skills in a school setting, and how these programs impact a student diagnosed with fetal alcohol spectrum disorder. I have developed an 8-week program combining foundational skills from both life skills and social-emotional learning programs to help foster success in the school setting and in everyday life.

*Keywords:* Fetal Alcohol Spectrum Disorder, life skills, social-emotional learning

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# **Fetal Alcohol Spectrum Disorder (FASD): Examining How School Counsellors Can Support Students Diagnosed with FASD Through Life Skills and Social-Emotional Learning**

## **Chapter 1: Introduction**

### **Introduction**

Fetal alcohol spectrum disorder (FASD) is a prevalent neurodevelopmental disability with significant implications for learning and behaviour (Millar et al., 2017). FASD is considered to be a “hidden disability” because it can be difficult to diagnose, with certain individuals showing no physical indicators (Millar et al., 2017). Health Canada estimates that 1% of the population is affected by FASD, however, due to the difficulty in diagnosing, the exact number is unknown (Millar et al., 2017). Schools may be the first environment where deficits in learning and behaviour are noticed and explored by the educational team (Millar et al., 2017). Educators are a vital resource in helping to notice deficits in learning and behaviour, and provide foundational skills to support academics and everyday success for these individuals. By using life skills and social-emotional learning strategies, the education team may be able to help develop essential skills for these individuals to achieve success in their school experience and beyond.

### **Background Information**

FASD is a lifelong disability and it affects over 1% of the Canadian population (Millar et al., 2017). The 1% statistic could be much higher, as FASD is difficult to diagnose, with some individual’s showing no physical disabilities (Millar et al., 2017). Individuals diagnosed with

FASD show deficits in cognitive and behavioural processes, such as difficulties in learning, language, motor skills, behaviour, and neurophysiological functions (Pei et al., 2020). Deficits in learning, language, motor skills, behaviour, and neurophysiological function are directly related to the individual's school experience. Detection is crucial prior to entering school as this influences the accommodation and special education opportunities, that help to create a healthy educational trajectory of a child, as well as affecting health into adulthood (Pei et al., 2020). If FASD is not diagnosed before the individual starts school, the deficits may be noticed by educational staff and a referral may be made for a pediatric team to investigate. Early detection can mean appropriate supports are put in place right away at the school, which will impact the child's school experience (Millians, 2015). The child's school experience can have huge impacts on their quality of life (Millians, 2015). Student's diagnosed with FASD have diverse learning needs and may experience higher rates of disrupted school experiences (Millians, 2015). Interventions need to focus on offering skills and strategies that influence learning within the context of academic or school skill (Millians, 2015). Families, school personnel, and other professionals require training on the impact of FASD on development, learning, and school functioning (Millians, 2015). The school system should be providing proper educational opportunities for staff to support individuals diagnosed with FASD, and offer specialized programs for support in the child's learning (Millians, 2015).

### **Statement of the Problem**

How can the school system support students diagnosed with FASD? Children affected by FASD have diverse learning needs and may experience problems in school (Millians, 2015). Many students with FASD reported having disrupted school experiences, defined as being suspended, expelled, or dropping out of school (Millians, 2015). Supports should be provided by

the education system to allow individuals diagnosed with FASD to learn skills that foster success. Interventions need to focus on building a strong foundation to support underlying deficits that influence learning within the context of academic or school skill (Millians, 2015).

### **Purpose of the Paper**

The purpose of this paper is to explore how school counsellors can support students diagnosed with FASD through life skills and social-emotional learning. In this paper I aim to explore the research on students with FASD, and how life skills and social-emotional learning programs can have a positive effect on their educational experience. The research I have explored has guided my design of an 8-week program that aims to support high school students diagnosed with FASD with their academic careers and everyday life skills. By using a combined approach with life skills programs and social-emotional learning programs, the 8-week program I have designed aims to create a strong foundation of skills to provide academic success and support them throughout their lives.

### **Research Question or Thesis Statement**

In this paper I will explore the thesis statement, how can school counsellors support students diagnosed with fetal alcohol spectrum disorder through life skills and social-emotional learning? The research shows that students diagnosed with FASD have higher rates of disrupted school experiences and the education system should be providing specific interventions and programs for higher rates of success for these individuals (Millians, 2015). Through the research and literature I have explored in this paper, I developed a life skills and social-emotional learning program that will foster these foundational skills for success for students with FASD.

## **Theoretical Framework**

I chose the theoretical lens of Urie Bronfenbrenner's Ecological Theory to guide the foundation of my research paper. Urie Bronfenbrenner's Ecological Theory explores the idea that people are constantly influenced by their environment, it shapes us as a person and forms our identity, and bilateral relationships influence our development (Tudge et al., 2020).

Bronfenbrenner believed that there are five bioecological systems that influence us. There is the microsystem, mesosystem, exosystem, macrosystem, and chronosystem (Tudge et al., 2020). The five systems are constantly influencing our development overtime (Tudge et al., 2020). The Ecological Theory has practical implications for teachers and support staff that work with student, and they can be viewed as having good communication with parents, fostering trust between the staff and the student, creating a safe and trusting environment for the student, building resilience, being open to understanding where the student is coming from, and listening to the student (Trudge et al., 2020). The literature I researched for this paper guided my development of my 8-week program. Within this program, all of the practical implications in the Ecological Theory, for the counsellor and student relationship are a foundational piece to success in the Overcoming Adversity Club. Building trust and resilience, showing empathy for the student, and open communication with the parents/caregivers all play an important piece to the success of the program.

## **Significance of the Study**

Students diagnosed with FASD are at a higher risk for disrupted school experiences (Pei et al., 2020). Students with FASD have higher rates of suspensions, expulsion, and dropping out of school (Millians, 2015). The research I explored in this capstone is aimed at providing counsellors a program that can support these students through a combined approach using life

skills and social-emotional learning programs. The foundational skills provided in the 8-week program aim to reduce the rates of disrupted school experiences for students diagnosed with FASD. This information is valuable for high school counsellors, educators, and educational support staff to help implement strategies for success. Parents, caregivers, and students would also benefit from the foundational skills that are explored in this paper to support life skills at home and outside of the school environment.

### **Definition of Terms**

**Alcohol-Related Birth Defects (ARBD):** Alcohol-related birth defects (ARBD), which are congenital anomalies including malformations and dysplasia's of the cardiac, skeletal, renal, ocular, auditory, and other systems. (Rockville, M., 2011).

**Alcohol-Related Neurodevelopmental Disorder (ARND):** Is the brain damage caused by recognized alcohol consumption in pregnancy. ARND brain damage is equivalent to brain damage in full fetal alcohol syndrome but lacks growth deficiencies and facial birth defects. This is the most common form of FASD; hundreds of thousands of Canadians have ARND. Most are not diagnosed (FASD & Justice, n.d.).

**Executive Functioning (EF):** Constitute a broad area of psychological functioning, and are defined as higher order cognitive processes aimed at achieving goal-directed behaviour. They are intrinsic skills which help us navigate daily life (Miller et al., 2001).

**Fetal Alcohol Spectrum Disorder (FASD):** Fetal alcohol spectrum disorders are a group of conditions that occur in a person who was exposed to alcohol as a fetus. FASD is an umbrella term covering several defined conditions, including Fetal Alcohol Syndrome (FAS), partial FAS (pFAS), Alcohol-Related Birth Defects (ARBD), and Alcohol-Related Neurodevelopmental Disorder (ARND) (Pei et al., 2020).

**Life Skills:** Life skills are a comprehensive set of universal cognitive and non-cognitive skills and abilities, connecting behaviour, attitudes, and knowledge, which youth can develop and retain throughout their lives (Sharma, 2021).

**Social-emotional learning:** Social-emotional learning (SEL) involves the process by which people acquire and effectively apply the knowledge, attitudes, and skills to understand and manage their emotions, to feel and show empathy for others, to establish and achieve positive goals, to develop and maintain positive relationships, and to make responsible decisions. It also involves self-awareness, self-management, social awareness, relationship skills, and responsible decision-making (Schonert-Reiichl, 2017).

### **Outline of the Remainder of the Paper**

In the remainder of this paper I will take an in-depth look at fetal alcohol spectrum disorder in Canada and our school system; life skills and how they impact those individuals diagnosed with FASD; and social-emotional learning programs that can provide benefits for those diagnosed with FASD. In Chapter 3 I take the research I garnered for chapter 2 and bring it together to create an 8-week program, Overcoming Adversity Club. I developed the Overcoming Adversity Club in order to combine life skills and social-emotional learning to support individuals diagnosed with FASD in their everyday lives. The appendix of my paper provides all the necessary documents to run the 8-week program.

## **Chapter 2: Literature Review**

### **Introduction**

Fetal alcohol spectrum disorder (FASD) is difficult to diagnose and the exact percentage of individuals with FASD in Canada is unknown (Millar et al, 2017). Due to the difficulty to diagnose, it impacts why so many students with FASD slip between the cracks in the school system. In this chapter I explore Fetal alcohol spectrum disorder, and two approaches to support this disability within the school system, which are life skills and social-emotional learning. I will define FASD, explore the effects of FASD, review how FASD is diagnosed and what tools are used to help with the diagnosis, the prevalence of FASD in Canada, and how FASD impacts the school setting for the student. I will then examine how life skills are used in the school setting, the importance of executive functioning skills as life skills, how mathematics can be used as life skills, and explore the benefits of using life skills for students with FASD. I will also explore social-emotional learning and define social-emotional learning in this chapter. I look at social-emotional learning in the school setting, how teachers and the community can make a positive learning environment to maximize social-emotional learning, and explore the benefits of social-emotional learning for students with FASD.

### **Fetal Alcohol Spectrum Disorder**

#### **Introduction**

Fetal alcohol spectrum disorder (FASD) is known as the “hidden disability” because it can be difficult to diagnose (Millar et al., 2017). Teachers may have students struggling with the effects of prenatal alcohol exposure, and be completely unaware of the difficulties the student is

facing. In this section I will define what FASD is, explore the effects of FASD, how it is diagnosed, the prevalence of FASD in Canada, and how FASD shows up in the school setting.

### **What is Fetal Alcohol Spectrum Disorder?**

Fetal alcohol spectrum disorders are a group of conditions that occur in a person who was exposed to alcohol as a fetus (Pei et al., 2020). The term Fetal Alcohol Syndrome (FAS) was first coined by Jones and Smith in 1973 (Pei et al., 2020). At that time, FAS was a newcomer to the field of Neurodevelopmental Disorders (Pei et al., 2020). FAS falls under the broad diagnostic term of fetal alcohol spectrum disorder (FASD), which includes all intellectual and developmental challenges due to prenatal alcohol exposure (Pei et al., 2020). FASD is an umbrella term covering several defined conditions, including Fetal Alcohol Syndrome (FAS), partial FAS (pFAS), Alcohol-Related Birth Defects (ARBD), and Alcohol-Related Neurodevelopmental Disorder (ARND) (Pei et al., 2020). What these conditions have in common is that they are etiologically based, which means that alcohol consumption during pregnancy has impacted the development of the fetus (Helgesson et al., 2018).

FASD, is also called “The Hidden Disability” because there may be no physical characteristics to show an individual has FASD (Millar et al., 2017), which can make it very challenging to diagnose, especially from an early age (Millar et al., 2017). Alcohol consumption during pregnancy can affect the development of the brain of the fetus during growth and causes a lifelong disability (Millar et al., 2017). Individuals with FASD will experience some degree of challenges in their daily living and need support with motor skills, physical health, learning, memory, attention, communication, emotional regulation and social skills (Palmer et al., 2021). FASD can look different in each individual, which also contributes to the difficulties of diagnosis (Palmer et al., 2021). Each individual will find they have unique areas of both strengths and

challenges throughout their lives and will need support to reach their full potential (Palmer et al., 2021). FASD is the leading cause of developmental disabilities in Canada (Millar et al., 2017).

### **Effects of Fetal Alcohol Spectrum Disorder**

There are many varying effects of FASD on an individual. The effects of FASD vary in range and severity for each individual, likely depending on individual biology, genetic and epigenetic factors and environmental influences (Millar et al., 2017). When considering the effects of FASD on each individual we have to look at many factors that are impacting the mother and the fetus (Millar et al., 2017).

FASD is considered the leading cause of developmental disabilities in children in Canada (Millar et al., 2017). FASD shows conditions similar to other NDDs like Autism and Attention Deficit Hyperactivity Disorder (Millar et al., 2017), and these conditions include cognitive and behavioural processes, such as difficulties in learning, language, motor skills, behaviour, and neurophysiological functions (Pei et al., 2020). Similarities in conditions can make it challenging to diagnose, unless the mother is willing to share her history during pregnancy (Pei et al., 2020). There are many reasons as to why an individual may not want to share their prenatal history, and some of those may include but are not limited to: worries around being judged by family and the community, a lack of education around prenatal alcohol exposure, and embarrassment around an addiction (Pei et al., 2020).

FASD results in physical, emotional and intellectual disabilities that are unique to each child and where the effects may exist on a continuum from clinically indistinguishable to very severe (Millar et al., 2017). The specific range of impairments are influenced by multiple factors including timing of alcohol exposure, other substance exposures, individual maternal metabolism

of alcohol, maternal nutrition and environmental stressors during pregnancy (Millar et al., 2017). The effects of alcohol exposure on the fetus are permanent and can include but are not limited to: growth restriction, heart defects and other physical malformations, facial characteristics, central nervous system and neurodevelopmental abnormalities including cognitive and executive functioning deficits, communication, sensory processing differences, spatial awareness problems, and significant social adaptive challenges (Chudley et al., 2005). The effects of prenatal alcohol exposure can also lead to secondary disabilities such as mental health issues, school withdrawal, legal problems and substance abuse in response to a lack of community and societal understanding and accommodation (Mukherjee et al., 2005).

Changes in the structure and function in the brain may also occur with FASD (Jonsson et al., 2009). If this does occur, then it follows that it is by definition a brain-based physical disability (Jonsson et al., 2009). In most cases, however, it is invisible, and behaviours are typically the only symptoms (Jonsson et al., 2009). Schools may be the first to notice behaviour and academic constraints for the individual. At times, the school is the first point of contact to notice these behaviours and further testing may need to be done (Jonsson et al., 2009). Understanding FASD as a primary physical disability with behavioural symptoms redefines problems and solutions in a manner consistent with research (Jonsson et al., 2009). As noted, the behaviours are typically first noticed in the school setting, when the child is compared to abilities of the same aged peers.

## **How is Fetal Alcohol Spectrum Disorder Diagnosed?**

In Canada, guidelines for the diagnosis of FASD were originally published in 2005 and have been widely adopted by diagnostic clinics in Canada and other countries (Millar et al, 2017). Specific guidelines were a combination of previous approaches used, combining a system that would consider FAS, pFASD, and ARND (Millar et al, 2017). An updated Canadian diagnostic guideline was published in December 2015, which took into consideration new research and data, as well as clinical experience to improve clarity and consistency in FASD diagnosis across the lifespan (Millar et al, 2017). The updated 2015 guidelines included the adoption of the term FASD as a diagnostic label, with a specifier related to the presence or absence of sentinel facial features, and the addition of a non-diagnostic designation of “At-Risk for FASD and Neurodevelopmental Disorder”, to capture individuals who do not meet diagnostic criteria at the time of assessment, but are nonetheless at-risk and require future follow-up (Millar et al, 2017). Growth was excluded as a diagnostic criterion, and the neurodevelopmental domains were updated for assessment across the lifespan of the individual (Coons-Harding et al., 2019). The Canadian Diagnostic Guidelines specifically address criteria to be met in facial dysmorphology, growth and neurodevelopmental multidisciplinary assessment (Millar et al., 2017).

A diagnosis of FASD typically requires a comprehensive assessment that includes an evaluation of each of the domains, which then provides a detailed evaluation of the individual (Millar et al., 2017). The brain domains are assessed through the evaluation of ten domains of functioning: motor skills; neuroanatomy/neurophysiology; cognition; language; academic achievement; memory; attention; executive functioning (EF), impulsivity and hyperactivity; affect regulation; and adaptive behaviour, social skills, or social communication (Millar et al.,

2017). For an FASD diagnosis to be made, an individual must meet the criteria of pervasive neurodevelopmental dysfunction as demonstrated by severe impairment in 3 or more of the 10 brain domains specified (Coons-Harding et al., 2019).

In Canada, the first national diagnostic guidelines were published in 2005, which recommended a multidisciplinary approach (Pei et al., 2020). Within this diagnostic framework, individuals were assessed in four growth areas: growth deficiency, abnormal facial development, central nervous system or brain impairment, and prenatal exposure to alcohol (Pei et al., 2020). To determine an individual's profile of functioning and confirm a FASD diagnosis, a multidisciplinary approach is still recommended today, to gather information about the client's history, including reliable prenatal alcohol exposure history, and to implement a comprehensive battery of tests (Pei et al., 2020). The suggested clinical team composition varies depending on the client's age; however, an example of a full team for a school-aged client would include a clinic coordinator, pediatrician, psychologist, speech-language pathologist (SLP), occupational therapist (OT), and other members such as a social worker, mental health professional, or probation officer where relevant (Coons-Harding et al., 2019). The multidisciplinary team will also consider other prenatal risk factors (prenatal care and complications, and genetic risk factors) as well as postnatal risk factors (abuse, disrupted living arrangements, head injuries, and exposure to violence) within the diagnostic framework (Pei et al., 2020). The referral for the multidisciplinary assessment may have been put forward by the support team at the school where Level B testing would have been completed, as well as a possible Psycho-educational assessment done by a school psychologist. If the referral was put forward by the school, the multidisciplinary team would have access to those academic results, as well as observations from the teachers and support staff about the student.

To test multiple brain domains the “Wechsler intelligence scales are used (cognition, language, memory, attention), and the indirect measures used are observation (motor skills, language, attention, affect regulation, adaptive behaviour, executive functioning) and history/record review (motor skills, academic achievement, attention, affect regulation, adaptive behaviour)” (Coons-Harding et al., 2019, p. 42-43).

Many different tests are used to assess motor skills, for example the Bruininks-Oseretsky Test of Motor Proficiency – 2<sup>nd</sup> Ed. is the most commonly used with clinicians in Canada (Coons-Harding et al., 2019). To assess cognition the Wechsler Adult Intelligence Scale – 3<sup>rd</sup> and 4<sup>th</sup> Eds. is used with adults, and the Wechsler Intelligence Scale for Children – 4<sup>th</sup> and 5<sup>th</sup> Eds. for children (Coons-Harding et al., 2019). To assess language the Peabody Picture Vocabulary Test – 4<sup>th</sup> Ed. is the most commonly used (Coons-Harding et al., 2019). For academic achievement the Wechsler Individual Achievement Test – 3<sup>rd</sup> Ed. is used, and to assess memory the California Verbal Learning Test – 2<sup>nd</sup> Ed. and Children’s version are used (Coons-Harding et al., 2019). To assess attention the Conners– 3<sup>rd</sup> Ed. and Adult ADHD Rating Scales, as well as the Behavior Assessment System for Children – 2<sup>nd</sup> and 3<sup>rd</sup> Eds. (Coons-Harding et al., 2019). Executive functioning is assessed using the Behavior Rating Inventory of Executive Function – 1<sup>st</sup> and 2<sup>nd</sup> Eds. (Coons-Harding et al., 2019). Affect regulation is assessed using the Behavior Assessment System for Children – 2<sup>nd</sup> and 3<sup>rd</sup> Eds. (Coons-Harding et al., 2019). To assess Adaptive Behaviour, Social Skills, Or Social Communication the Adaptive Behavior Assessment System – 2<sup>nd</sup> and 3<sup>rd</sup> Eds. is most commonly used (Coons-Harding et al., 2019).

Individuals meeting the criteria for the different conditions under the FASD umbrella experience a number of cognitive, physical, behavioural, and social problems that affect their everyday lives in a negative way (Helgesson et al., 2018). Specific tests can give educational

support workers vital information on areas of strengths and weaknesses. Individualized planning through an Individual Education Plan (IEP) can then be put into place to help support success within the school setting.

### **Prevalence of Fetal Alcohol Spectrum Disorder in Canada**

Prevalence of FASD is inherently difficult to measure, mainly because of the challenges associated with recognition, screening and diagnosis (Palmer et al., 2021). There is no specific biological or genetic marker for FASD (Palmer et al., 2021). In addition, many children who were adversely affected by prenatal exposure to alcohol may not present with the physical characteristics of FASD such as dysmorphic facial features (Palmer et al., 2021). Canadian diagnostic guidelines require detailed information on prenatal alcohol exposure for confirmed diagnoses, which is not always available (Palmer et al., 2021). Factors such as these make identifying FASD challenging in all but the most severe cases (Palmer et al., 2021). Health Canada estimates that one percent of the Canadian population is affected by FASD; however, many of those affected with FASD have not been assessed and diagnosed (Millar et al., 2017). The prevalence of Fetal Alcohol Spectrum Disorder may be underestimated as it can be difficult to diagnose in early childhood (Pei et al., 2020).

According to the 2019 Canadian Health Survey on Children and Youth the prevalence of FASD among Canadian children and youth ages one to seventeen years living in private dwellings was 1 per 1000 (0.1%) (Palmer et al., 2021). The prevalence was significantly higher among those who identified as Indigenous and lived off reserve (1.2%) (Palmer et al., 2021). Researchers have suggested that the global prevalence of FASD among elementary students may be underestimated due to the difficulty to diagnose in early and middle childhood (Palmer et al., 2021). Challenges include high level of heterogeneity in clinical presentations of the FASD

population, and the difficulty detecting impairments across multiple domains of functioning at an early age (Palmer et al., 2021). Also, many features impacted by FASD, such as executive functioning and verbal reasoning are not seen in typically developing children until at least twelve years of age (Pei et al., 2020), which is why the school system is typically the first to start noticing concerns around the needs of the child. Each individual with FASD is unique, and this makes it difficult to differentiate needs with same age peers during the first several years in the school system.

There are also external factors that impact the diagnosis of FASD. Biological mothers and other caregivers reported feeling shunned and isolated due to the lack of awareness of FASD by many teachers and school personnel (Millians, 2015). The stigma associated with FASD may keep some caregivers from disclosing important information needed to obtain an accurate diagnosis and appropriate services (Millians, 2015). The value for individuals of being identified as having a condition within FASD remains controversial due to the parents fear of the stigma associated with the diagnosis, and the difficulty in diagnosis at a young age (Helgesson et al., 2018).

### **How does Fetal Alcohol Spectrum Disorder Show up in the School Setting?**

Schools may be the first environment where children with complex learning difficulties and disabilities (CLDD) are identified. CLDD describes children with coexisting conditions that can include but are not limited to attention deficit hyperactivity disorder (ADHD), autism spectrum disorder (ASD), and FASD (Millar et al., 2017). Detection is crucial prior to entering school as this influences the accommodation and special education opportunities, that helps to create a healthy educational trajectory of a child, as well as affecting health into adulthood (Pei et al., 2020). As we know from the research completed on the prevalence of FASD in Canada,

early detection can be difficult, and the needs of the child may not show up until later in their school years.

The effects from prenatal alcohol exposure can cause a range of neurobehavioral deficits that impact learning and functioning in school (Millians, 2015). As a result, children affected by FASD have diverse learning needs and may experience problems in school (Millians, 2015). Interventions need to focus on habilitation of the underlying deficits that influence learning within the context of academic or school skill (Millians, 2015). Families, school personnel, and other professionals require training on the impact of FASD on development, learning, and school functioning (Millians, 2015). Education around FASD is very important, so the larger community can help support the needs of the child.

Teachers and caregivers of children with FASD frequently report concerns about behaviour at school (Millians, 2015). Consistently, across studies, teachers have rated children with FASD as having difficulties paying attention and following directions (Millians, 2015), and these behaviours can have a negative impact on the child's school experience and many students with FASD reported having disrupted school experiences, defined as being suspended, expelled, or dropping out of school (Millians, 2015). A study done in 2004 by Streissguth, Bookstein, Barr et al., investigated adverse life events including disrupted school experiences, reported by patients with FASD referred for clinical services. The authors indicated that fourteen percent of the children between six and eleven years of age and sixty-one percent of the adolescents between twelve and twenty years of age reported having disrupted school experiences (Streissguth et al., 2004). The education system needs to educate teachers and support staff on providing accommodations and modifications to the curriculum, to promote success and a positive school connection for these individuals to reduce their disrupted school experience.

There are external barriers that impact the school experience for children with FASD (Millians, 2015). Caregivers reported having high levels of stress obtaining evaluations, services, and educational support for their children with FASD (Millians, 2015). Teachers expressed frustration with medical and clinical providers who work with children affected with FASD (Millians, 2015). Teachers reported that evaluations were difficult to understand because they were written in medical terminology (Millians, 2015). Teachers indicated that often diagnostic reports and recommendations did not provide specific information on how to address the learning problems associated with the effects of FASD in a classroom setting (Millians, 2015). Many teachers indicated they were unaware of having students with a diagnosis of FASD in their classes (Millians, 2015) and these indications are very important to provide an individual education plan by support staff, to promote school success. Reports have also indicated that there must be an improvement on communication between special education staff and the teachers and support staff involved with the child (Millians, 2015). A wraparound community approach needs to be implemented for higher chances of success in the school setting for the child with FASD.

Another external barrier is around feelings of judgement and self-blame felt by the biological mothers (Millians, 2015). Feelings of being judged by family members and school personnel when their children with FASD exhibited problems at school (Millians, 2015). The experience from the mothers also creates a barrier to provide proper supports at the school level (Millians, 2015). Communication is very important to create a program that will support the child, but feelings of judgement from the mother can impact the amount of communication between the school and home (Millians, 2015). Caregivers indicated that many teachers and school personnel had limited knowledge of strategies to support FASD children in the classroom

(Millians, 2015). Limited knowledge for caregivers indicates that professional development opportunities need to be provided for educational staff on how to support students with FASD in the classroom setting.

Children with FASD process information and learn differently when compared to children with other disorder types (Millar et al., 2017). Additionally, children with FASD illustrate significant individual variability, meaning that depending upon the different brain domains affected, each child may learn differently and subsequently the best approaches to learning may differ per child (Millar et al., 2017). Studies using individually administered standardized measures of academic achievement, school-wide criterion-referenced tests, and teacher rating scales have shown many children affected by FASD exhibit problems in school (Millar et al., 2017). Academic problems, notably in mathematics, have been identified, across age groups in children affected by FASD (Millians, 2015).

The combination of effects from FASD, negative environmental factors, and other possible co-occurring medical complications have a detrimental impact on children's learning, behaviour, and school functioning (Millians, 2015). As a result, many children affected by FASD are at risk for academic problems and school failure, especially if they do not receive appropriate supports and interventions (Millians, 2015). Goldschmidt et al., conducted a study that found heavy prenatal alcohol exposure during the second trimester of pregnancy, and a threshold effect of one drink per day during the third trimester, were related to lower scores on tests of word reading and spelling (1996). A study completed by Coles, Brown, Smith, et al. found that children 5 years of age affected by FASD showed deficiencies in sequential memory, early reading, and number skills (1991). Studies have shown that children with FASD have deficits encoding verbal information (Millians, 2015). Encoding language may display problems

following multistep directions or classroom discussions (Millians, 2015), and there are also deficits with selecting and organizing relevant information to express ideas in a logical sequence (Millians, 2015). Difficulties with expressing ideas in a cohesive manner would impact children's participation in class discussion and interactions with teachers and peers (Millians, 2015). Students with FASD are reported to have difficulties analyzing complex social situations and understanding different perspectives, which may lead to misunderstandings between classmates and problems negotiating peer conflict (Millians, 2015). Conflicts may also increase avoidance by peers and teachers' reports of behaviour problems (Millians, 2015). Some children with FASD exhibit problems with controlled attention, inhibition, and cognitive flexibility (Millians, 2015). Executive processes influence self-regulation or the ability to modulate emotions, behaviour, and arousal level across settings (Millians, 2015). Difficulties with self-regulation impact learning readiness, the skills to maintain consistent effort to complete school tasks, and the ability to calm and transition to paper and pencil tasks after high-level activities (Millians, 2015). Many children with FASD are reported to display behaviours that are described as impulsive, inattentive, and off-task in a classroom setting (Millians, 2015). Problems with language, communication, and social interactions interfere with functioning in a classroom setting (Millians, 2015). In a study conducted by Streissguth's et al. they found that "seventy percent of children and youth with FASD between the ages of six and twenty years, referred for clinical services, reported problems with attention, and fifty-eight percent of patients with FASD reported problems with peer interactions, and fifty-five percent reported displaying disruptive behaviours in the classroom" (Streissguth et al., 2004, p. 231).

Deficits are typically noticed at some point during the child's elementary school experience, yet FASD is a lifelong disability and many struggles are also seen at the middle and

high school levels (Millians, 2015). Many high school students with FASD reported being moved to special education classes when they struggled to meet the academic demands in school (Millians, 2015). Some reported being placed in special education due to their behaviour in school (Millians, 2015). Early intervention is so crucial to the success of the student with FASD. When supports and strategies are implemented early on, there is a higher chance of success in the school setting and a higher quality of school experiences.

## **Conclusion**

FASD, the “hidden disability” comes with many challenges for the individual. The current statistics do not reflect the possible prevalence of FASD in Canada, and this makes it difficult to pinpoint the exact number of students who may have FASD. There are many detrimental effects of FASD on the individual. FASD is a lifelong disability which requires specific strategies and learning opportunities to be available for the individual with FASD to achieve academic success, and prosperity in their everyday lives.

## **Life Skills**

### **Introduction**

Life skills are important for all individuals to learn to help with the demands of everyday life (World Health Organization, 2001). In this section I will explore what life skills are, how they are used in the school setting, how executive functions are life skills, mathematics in life skills, and the benefits of life skills for students diagnosed with FASD.

### **What are Life Skills?**

Life skills are abilities for adaptive and positive behaviour that enable individuals to deal

effectively with the demands and challenges of everyday life (World Health Organization, 2001). ‘Adaptive’ means that a person is flexible in approach and is able to adjust in different circumstances (World Health Organization, 2001). ‘Positive behaviour’ implies that a person is forward looking and even in difficult situations, can find a ray of hope and opportunities to find solutions (World Health Organization, 2001). Life skills are a comprehensive set of universal cognitive and non-cognitive skills and abilities, connecting behaviour, attitudes, and knowledge, which youth can develop and retain throughout their lives (Sharma, 2021). In particular, life skills are a group of psychosocial competencies and interpersonal skills that help people make informed decisions, solve problems, think critically and creatively, communicate effectively, build healthy relationships, empathize with others, and cope with and manage their lives in a healthy and productive manner (Sharma, 2021). Life skills may be directed toward personal actions or actions toward others, as well as toward actions to change the surrounding environment to make it conducive to health (World Health Organization, 2001). Life skills involve behaviours that allow one to function independently and require a greater reliance on planning and organizational skills as environmental demands increase, and the required adaptive behaviours become more complex over time (Kable et al., 2016).

Life skills have been identified as an essential resource for developing psychosocial, emotional, cognitive, behavioral and resilience skills to negotiate every day challenges and productive involvement in the community (Nasheeda et al., 2018). Life skills are known to be key contributors to negotiating and mediating challenges that young people face in becoming productive citizens (Nasheeda et al., 2018). Life skills are typically taught by the parents to their children, but caregivers of children with FASD reported that they had high levels of stress trying to teach them these skills, due to their frequent temper tantrums (Kable et al., 2016).

Neurodevelopmental problems that are seen with children with FASD, provide challenges for caregivers that are difficult to overcome without specific training (Kable et al., 2016), and this is why providing life skills education to both the individual with FASD as well as the family, is important for success in everyday life for the child with FASD.

The World Health Organization breaks life skills down into ten core sections. The first section is looking at self-awareness (Sharma, 2021). (1) Self-awareness: includes recognition of 'self', our character, our strengths and weaknesses, desires and dislikes (Sharma, 2021).

Developing self-awareness can help individuals recognize when they are stressed or feel under pressure (Sharma, 2021). Self-awareness is often a prerequisite to effective communication and interpersonal relations, as well as for developing empathy with others (Sharma, 2021).

(2) Empathy: can help individuals accept others, who may be very different from themselves (Sharma, 2021). Empathy can improve social interactions, especially, in situations of ethnic or cultural diversity (Sharma, 2021). Empathy can also help to encourage nurturing behaviour towards people in need of care and assistance (Sharma, 2021). (3) Critical thinking: is the ability to evaluate and analyze a situation by applying critical reasoning is a crucial skill in everyday life, as well as in education (Sharma, 2021). For students preparing for university, developing critical thinking skills is highly regarded as a key ingredient for academic success (Sharma, 2021). Critical thinking skills form an important part of decision making, problem solving and being able to qualify your judgments (Sharma, 2021). Critical thinking enhances language and presentation skills (Sharma, 2021). Thinking clearly and systematically can improve the way students express their ideas (Sharma, 2021). (4) Creative thinking: is an invaluable skill for college students (Sharma, 2021). Creative thinking is important because it helps individuals look at problems and situations from a fresh perspective (Sharma, 2021). Creative thinking is a way of

moving beyond barriers (Sharma, 2021). (5) Decision making: involves the process of choosing between two or more courses of action (Sharma, 2021). In many everyday decisions, individual's must decide their course of action in a split second (Sharma, 2021). For example, if you're driving and you need to decide whether or not to turn down a road or keep going straight, you need to make that decision within only a few seconds (Sharma, 2021). (6) Problem Solving: is the ability to solve problems (Sharma, 2021). Learning about different problem-solving strategies and when to use them will give individuals a good start in life (Sharma, 2021). Most strategies provide steps that help you identify the problem and choose the best solution (Sharma, 2021). (7) Interpersonal skills: are the skills we use every day when we communicate and interact with other people, both individually and in groups (Sharma, 2021). People with strong interpersonal skills are often more successful in both their professional and personal lives (Sharma, 2021). Interpersonal skills include a wide variety of skills, though many are centered around communication, such as listening, questioning and understanding body language (Sharma, 2021). Interpersonal skills also include the skills and attributes associated with emotional intelligence or being able to understand and manage your own and others' emotions (Sharma, 2021). (8) Effective communication: means we are either verbally or non-verbally able to express ourselves in the most effective manner (Sharma, 2021). Effective communication means being able to express opinions and desires and also fears and needs (Sharma, 2021). (9) Coping with stress: There are two parts to coping, one is being able to tolerate stress; to function reasonably well in stressful situations and get through them (Sharma, 2021). The second part is recovering, which is getting back to normal when the stressful situation is over (Sharma, 2021). Good coping skills prevent stress from getting us down and help us thrive, even in challenging times (Sharma, 2021). (10) Coping with emotions: is all about the capability to speak

or express the way one is feeling (Sharma, 2021). Coping with emotions is a life skill that leads to a healthy and prosperous life (Sharma, 2021). Emotions create responses in the brain called feelings (Sharma, 2021). These feelings are caused by physical changes in the body that include expressions of the face leading to chemical changes in the brain (Sharma, 2021).

### **Life Skills in the School Setting**

Life skills education has a long history of supporting child development and health promotion (Sharma, 2021). In 1986, the Ottawa Charter of Health Promotion recognized life skills in terms of making better health choices (Sharma, 2021). The 1989 Convention on Rights of the Child (CRC) linked life skills to education by stating that education should be directed towards the development of the child's fullest potential (Sharma, 2021).

Various methods have been employed to inculcate values through life skills or 21st century skills in school education such as sport, drama and fine arts, storytelling, experiential workshops, mentoring initiatives, interactive classroom learning and discussion (Sharma, 2021). There have been multiple innovations in the delivery of life skills in recent times, through games and simulations, experiential activities, and technology (Sharma, 2021). Some of the important methods for inculcating values through life skills are as through class discussion (Sharma, 2021). For example, the class examines a problem or topic of interest with a goal of better understanding an issue or skill, reaching the best solution, or developing new ideas and directions for group (Sharma, 2021). Class discussion increases student's interests and engagement (Sharma, 2021). Brainstorming is another technique used in life skills, by which a group attempts to find a solution to a specific problem by amassing ideas spontaneously (Sharma, 2021). Brainstorming is a process for generating creative ideas and solutions through intensive and freewheeling group discussion (Sharma, 2021). Every student is encouraged to

think aloud and suggest as many ideas as possible, no matter seemingly how strange or weird (Sharma, 2021). Brainstorming is a highly effective technique for maximizing group creative potential, not only to generate ideas but also to determine which ideas are most likely to succeed in a specific area of interest (Sharma, 2021). Case studies may be used in life skills education as well (Sharma, 2021). Case studies are where a situation analysis activities allow students to think about, analyze and discuss situations they might encounter (Sharma, 2021). Case studies are real life stories that describe in detail what happened to a community, family, school or individual (Sharma, 2021). Case studies are powerful catalysts for thought and discussion (Sharma, 2021). Students consider the forces that converge to make an individual or group act in one way or another and then evaluate the consequences (Sharma, 2021). By engaging in this thinking process, students can improve their own decision-making skills (Sharma, 2021). Another life skill that may be used in the education system is debate (Sharma, 2021). Debating is a process that involves formal discussion on a particular topic (Sharma, 2021). In a debate, opposing arguments are put forward to argue for opposing viewpoints (Sharma, 2021). A reasoned debate allows students to explore and gain understanding of alternative viewpoints and, for the participants, develops communication, critical thinking and argumentation skills (Sharma, 2021). All skills which have been identified are typical areas of weakness for FASD students when compared to same aged peers (Sharma, 2021).

Educational games are used in life skills and are defined as a set of competitive activities which consist of strict rules to reach desired goals such as acquiring or improving knowledge and skills (Sharma, 2021). Simulations, like educational games, consist of a different medium of instruction where the act of imitating a situation, event, and/or environment closely mirrors the real world (Sharma, 2021). Educational games are innovative teaching tools that have been

shown to promote critical thinking, enhance clinical confidence building and promote problem solving skills (Sharma, 2021). Role playing can also be incorporated into the life skills curriculum (Sharma, 2021). Role playing helps students explore human relations- by enacting problems and then discussing the enactment (Sharma, 2021). Students together can explore feelings, values and problem-solving strategies (Sharma, 2021). Role Playing as a model of teaching has roots in both personal and social dimensions of education (Sharma, 2021). Role playing helps individuals resolve personal dilemmas with the assistance of social groups (Sharma, 2021).

Life skills can be used in the traditional classroom setting, but also be provided in a special education setting and adapted for the needs of the specific individual. For those with FASD, having teachers incorporate these activities into their regular academic schedule, can help improve their school experience, as well as promote those important skills that are made on a daily basis for success (Sharma, 2021).

### **Executive Functioning in Life Skills**

Executive functions (EFs), constitute a broad area of psychological functioning and are defined as higher order cognitive processes aimed at achieving goal-directed behavior (Miller et al., 2001). Executive functions are intrinsic skills which help us navigate daily life (Miller et al., 2001). Executive functions give us skills for learning, work, recreation and relationships (Kusnyer et al., 2013). People use executive functioning skills to perform activities such as planning, organizing, strategizing, paying attention to and remembering details, and managing time and space (Kusnyer et al., 2013). Executive functioning skills are crucial to help us with our everyday decision making, and are an area that many students with FASD will need support developing (Miller et al., 2001).

Academic success today can be linked to a child's mastery of a wide range of skills that rely on their use of executive functioning strategies (Kusnyer et al., 2013). The crucial role of executive function processes begins in preschool years and increase as students' progress through middle and high school (Kusnyer et al., 2013). Executive functioning skills are generally taken for granted, as they can come so easily learnt to the general population (Kusnyer et al., 2013). Individuals with FASD can struggle profoundly with these daily life skills (Kusnyer et al., 2013). Individuals with FASD show executive functioning difficulties (Kusnyer et al., 2013). Deficits in executive function can interfere with successful completion of what generally would be labelled as simple tasks of daily living, academic achievement and problem-solving (Kalberg et al., 2006).

There are two executive functioning domains of cognition-based difficulties and emotion-related difficulties (Kalberg et al., 2006). Cognition-based executive functioning limitations may manifest in the child's inability to understand and hold in memory of the specific steps of a given task or sequence (Kalberg et al., 2006). Emotion-related deficits may manifest themselves in the inability to inhibit responses (Kalberg et al., 2006). Emotion-related deficits can be seen behaviourally when children speak or act out inappropriately, or when a child's behaviour is impulsive or overly active (Kalberg et al., 2006).

Cognitive flexibility, is the ability to think flexibly and to shift approaches and is a critical executive functioning skill for learning and success in school (Kusnyer et al., 2013). Students with FASD may have more difficulty shifting their thinking and then struggle to cope with unexpected changes in their schedules, routines or homework, and may be viewed as rigid thinkers, stubborn, or single-minded, when compared to their same age peers (Kusnyer et al., 2013).

Executive functioning also has sub-categories within it (Kusnyer et al., 2013). Struggles with these sub-categories can show up in individuals in different ways and at different stages of development (Kusnyer et al., 2013). Behaviour is an area of executive functioning that children with FASD may struggle with (Kusnyer et al., 2013). Students with FASD may struggle with impulse control, emotional control, planning/prioritizing, flexibility, working memory, task initiation, organization, and self-monitoring (Kusnyer et al., 2013). Many teachers and support staff will report behaviour issues within the school setting, due to these struggles (Kusnyer et al., 2013). Behaviours such as impulse control and emotional control may be the first noticed to start a discussion around further testing, and an individualized education plan (Kusnyer et al., 2013).

Researchers have begun to examine differences in executive functioning skills as a means of further elucidating the neurobehavioral profiles of this disorder (Khoury et al., 2016). Research to date has demonstrated that there are differences in the nature of the deficits (Khoury et al., 2016). For instance, children and adolescents with FASD experience significantly greater deficits in inhibition, working memory, and set shifting when compared to students with ADHD (Khoury et al., 2016). As we know, FASD can be difficult to diagnose, and educators can mistake FASD for ADHD, as well as other diagnosis, due to similar needs behaviourally and cognitively (Khoury et al., 2016). Research shows that individuals with FASD have higher needs in those areas of executive functioning skills when compared to their same age peers.

### **Mathematics in Life Skills**

Individuals with FASD face many challenges, including deficits in cognitive, physical, behavioral, emotional, and social functioning (Mattson, 2019). Included in those challenges are skills in mathematics (Mattson, 2019). Low math competence has been linked to negative outcomes in a number of areas of life (Mattson, 2019). Adults with poorer math skills are more

likely to report lower wages and rates of employment and more frequent health concerns and legal woes than those with higher math proficiency (Mattson, 2019). Children with FASD show abnormalities in the parietal and frontal areas of the brain, which are implicated in mathematical thinking (Dehaene et al, 2004). Implications in mathematical thinking are important for mathematics in life skills, and to support individuals with FASD with the foundational learning of math skills.

Math skills are important for functioning in everyday life as well as in various professions (Jansen et al., 2016). Everyday life is full of challenges that demand math-related activities (Jansen et al., 2016). Keeping a budget is important, whether it be paying a mortgage, rent, or buying groceries (Jansen et al., 2016). Budgeting requires an overview and weighing of financial income and costs (Jansen et al., 2016). Another example is planning, crucial for both adolescents and adults, demanding the reading of times tables or the assessment of activities lengths in order to arrive or finish in time (Jansen et al., 2016). Individuals with FASD show deficits in mathematics, and these skills are directly related to executive functioning skills (Jansen et al., 2016). As a final example of the importance of math skills, many individuals deal with the estimation of quantities when cooking or decorating their house (Jansen et al., 2016). Math skills are needed to function in everyday life.

Certain programs have been created to support students who struggle with basic understanding of mathematics, and can be implemented into life skills curriculum (Millians, 2015). The math interactive learning experience (MILE), a learning readiness and mathematics program designed for children affected by PAE, uses a technique called FAR, which refers to focus/plan, act, and reflect, to improve children's problems solving efficiency (Millians, 2015). During the focus/ plan stage, children are taught to attend to the important elements of a problem

(Millians, 2015). The act stage requires children to verbalize the steps they use to solve problems as they complete the task (Millians, 2015). The reflect stage requires children to share what they learned and discuss what strategies were effective to solve the problems (Millians, 2015). The interactions between teachers and children provide opportunities for frequent review in order to encode information (Millians, 2015). Also, the interactions help children engage and sustain mental effort to complete tasks, and the FAR approach has been found to improve children's problem-solving efficiency, learning readiness, and behavior (Millians, 2015). The use of FAR or a similar approach may be incorporated into learning tasks across academic subjects to help support students diagnosed with FASD (Millians, 2015).

Within the MILE program, specific interventions have been developed to address deficits in mathematics associated with the effects from PAE (Millians, 2015). The interventions for mathematics target deficits in visuospatial processing, working memory, and executive functioning and provide instruction to understand basic numerical and mathematical concepts (Millians, 2015). Despite the age of the learner, mathematics instruction needs to use carefully selected manipulatives, or small items such as blocks to provide a concrete representation of the skill or concept (Millians, 2015). Manipulative and selected objects need to be simple and without intricate visual details to prevent interference with learning (Millians, 2015). Using mediated learning strategies such as the FAR method, instructors can guide children to apply their understanding of a mathematical concept or skill to solve problems efficiently using manipulatives (Millians, 2015). Once children are able to demonstrate accurate application of the taught concept or skill using manipulatives, teachers need to provide direct instruction to transform the information into mathematical symbols (Millians, 2015). The focus of the interventions is to change ineffective thinking patterns and to teach children to use the skills

independently (Millians, 2015). Children who received interventions during clinical studies using this approach showed gains in their mathematic skills (Millians, 2015).

There are many strategies that can be used in the traditional classroom setting and in a special education setting. Using the MILE program and the Far approach can help students with FASD learn the foundations of math skills that they will use in their everyday lives (Millians, 2015).

### **Benefits of Life Skills for Students with Fetal Alcohol Spectrum Disorder**

Individuals with FASD may have disrupted experiences at school, as well as face many challenges with day-to-day tasks and academic skills (Millians, 2015). Teaching life skills and using programs such as MILE, as well as creating individualized programs for these students can have a positive impact on their school experience (Millians, 2015). A study done by Ordenewitz et al. proves that individualized life skills programs can have this positive effect (2021). There was strong support for effective life skills intervention in children and adolescents with FASD in different domains (Ordenewitz et al., 2021). When compared to their same aged peers, domain specific interventions such as the MILE program demonstrated evidence of academic improvement for children and adolescents with FASD (Ordenewitz et al., 2021).

The Winnipeg School Division identified that there was a need for specialized programs, such as a life skills program that recognized and addressed the unique needs of children with FASD (Millar et al., 2017). A specialized classroom was created in 1995 for students with FASD; the students received life skills, individualized programming, and support with academic success (Millar et al., 2017). The Winnipeg classrooms supported life skills development, and support with academic success (Millar et al., 2017). The result was a paradigm shift in understanding the needs of individuals with FASD (Millar et al., 2017).

The ultimate goal of educational planning and life skills programs is to support individuals with FASD to work towards a better quality of life (Kalberg et al., 2006). A better quality of life might look will be different for each individual because of the unique nature of that child's experiences, degree of need, family culture, and community culture (Kalberg et al., 2006). The life skills programs can teach individuals skills for daily life which will assist them to be successful not only in their school experience but beyond (Kalberg et al., 2006).

### **Conclusion**

FASD students face many challenges in their everyday life. Implementing life skills into the regular classroom routine has shown positive effects for these students (Millians, 2015). The use of programs such as MILE, and life skills programs as implemented by the Winnipeg School division should be taught to educators through professional development opportunities so teachers are better able to support students with FASD (Millians, 2015).

## **Social-Emotional Learning**

### **Introduction**

Social-emotional learning (SEL) has gained attention by educational institutions and has been implemented in the school system from pre-school and onward (CASEL, 2021). In this section I will explore what social-emotional learning is, what it looks like in the school setting, the importance of creating a positive learning environment for success of the SEL programming, and the benefits of SEL for students with FASD.

## **What is Social-Emotional Learning?**

Social-emotional learning (SEL) involves the process by which people acquire and effectively apply the knowledge, attitudes, and skills to understand and manage their emotions, to feel and show empathy for others, to establish and achieve positive goals, to develop and maintain positive relationships, and to make responsible decisions (Schonert-Reichl, 2017). It also involves self-awareness, self-management, social awareness, relationship skills, and responsible decision-making (Schonert-Reichl, 2017).

SEL is an integral part of education and human development (CASEL, 2021). SEL is the process through which all young people and adults acquire and apply the knowledge, skills, and attitudes to develop healthy identities, manage emotions and achieve personal and collective goals, feel and show empathy for others, establish and maintain supportive relationships, and make responsible and caring decisions (CASEL, 2021). SEL is student-centered and considers each child's growth personally and relationally as integral to his or her academic development (Haymovitz et al., 2017). When delivered with fidelity, SEL programs are considered among the most effective ways to improve outcomes for children across multiple domains of functioning (Calhoun et al., 2020). SEL programs should be an integral part of education for students with FASD due to these improved outcomes. For children and youth to achieve their full potential as productive adult citizens, educators must focus explicitly on promoting social and emotional competence (Schonert-Reichl, 2017). Extensive research evidence confirms that SEL skills can be taught and measured, that they promote positive development and reduce problem behaviours, and that they improve students' academic performance, citizenship, and health-related behaviours (Schonert-Reichl, 2017). From the research explored in the previous sections,

we know that these are areas where students with FASD need education and support to be successful in their everyday lives.

To assist in the broad dissemination of SEL curricula, the collaborative for academic, social, and emotional learning (CASEL) published a framework for organizing SEL competencies and systematically identifying well-designed, evidence based SEL programs (Lawson et al., 2019). Given the abundance of SEL programs, the CASEL Guide aimed to assist educators in selecting carefully evaluated curricula with well-documented impact and efficacy on student outcomes (Lawson et al., 2019). For each program, the guide presents information about program design and implementation support, as well as information about the evidence of effectiveness (Lawson et al., 2019). Additionally, the CASEL framework organizes the skills targeted by SEL programs into five interrelated sets of competencies: self-awareness, self-management, social awareness, relationship skills, and responsible decision-making (Lawson et al., 2019). The five competencies are the areas in which SEL programs put their educational focus.

SEL advances educational equity and excellence through authentic school-family-community partnerships to establish learning environments and experiences that feature trusting and collaborative relationships, rigorous and meaningful curriculum and instruction, and ongoing evaluation (CASEL, 2021). SEL can help address various forms of inequity and empower young people and adults to co-create thriving schools and contribute to safe, healthy, and just communities (CASEL, 2021).

## **Social-Emotional Learning in the School Setting**

SEL programs are increasingly being implemented in elementary schools to facilitate development of social competencies, decision-making skills, empathy, and emotion regulation and, in effect, prevent poor outcomes such as school failure, conduct problems, and eventual substance abuse (Calhoun et al., 2020). SEL programming is most often deployed in early elementary school, a critical period when academic engagement and social–emotional skills set the stage for long-term success (Calhoun et al., 2020). SEL programs are designed to foster skills and abilities in children with a wide range of behavioral, social, and learning needs in the classroom (Calhoun et al., 2020), which include students with FASD. The short-term goals of SEL programs are to promote students’ self-awareness, self-management, social-awareness, relationship, and responsible decision-making skills, and to improve their attitudes and beliefs about self, others, and school (Weissberg et al., 2013).

Schools can help prevent or reduce many different risky behaviours, for example, drug use, violence, bullying, and dropping out, when students are engaged in multiyear, integrated efforts to develop students’ social and emotional skills (Weissberg et al., 2013). Prevention of risky behaviours is best reduced through effective classroom instruction beginning in preschool and continuing through high school, student engagement in positive activities in and out of the classroom, and broad parent and community involvement in program planning, implementation, and evaluation (Weissberg et al., 2013).

Schools today are faced with the challenge of equipping students with the skills they need to succeed in life outside the classroom, while also teaching the academic material required (Haymovitz et al., 2017). More often, teachers are called on to establish environments in which students learn social and emotional skills alongside academics (Haymovitz et al., 2017). To be

effective, SEL skill development and interventions should occur in a safe, caring, supportive, participatory, and well-managed environment (Schonert-Reichl, 2017). A well-managed environment supports student's development and lets them practice the skills they learn without the fear of judgement (Schonert-Reichl, 2017). Effective practice, for instance, should include frequent opportunity for teachers to model appropriate behaviors and students to practice and develop positive relationships within the classroom and school community (Haymovitz et al., 2017).

Findings suggest that information provision to parents and their involvement in the program is another essential factor in program's success and promotion of SEL overall (Haymovitz et al., 2017). Faculty and school administrators should inform parents about the specifics of social-emotional programs as well as actively engaging them in programming and building a stronger school community (Haymovitz et al., 2017). As I demonstrated earlier in this chapter, caregivers of students with FASD often feel judged, and caregivers and educational staff lack the knowledge to support their child (Millians, 2015). Including the parents and caregivers in the SEL programming can bridge that gap and create a sense of community and support between home and the school. When schools promote students' academic, social, and emotional learning, students possess the basic competencies, work habits, and values for engaged postsecondary education, meaningful careers, and constructive citizenship (Weissberg et al., 2013).

### **Creating a Positive Learning Environment for Social-Emotional Learning**

SEL programming is based on the understanding that the best learning emerges in the context of supportive relationships that make learning challenging, engaging, and meaningful (Weissberg et al., 2013). Educators can help enhance SEL skills by helping to develop the short-

term goal competencies in every type of school, and in students of every background by coordinating two sets of educational strategies (Weissberg et al., 2013). The first educational strategy is systematically teaching, modeling, and facilitating the application of social and emotional competencies in ways that allow students to apply them as part of their daily repertoire of behaviours (Weissberg et al., 2013). The second set of educational strategies is establishing a safe, caring, and highly engaging learning environments, involving peer and family initiatives and schoolwide community building activities (Weissberg et al., 2013). The two strategies help promote positive learning environments, and further develop social-emotional competencies for all students (Weissberg et al., 2013).

Building a strong school climate requires schoolwide practices that strengthen relationships among students and teachers, students and students, and teacher and teachers (Weissberg et al., 2013). A strong school climate requires a commitment not only from classroom teachers but also from the school leaders who supervise them (Weissberg et al., 2013). A summary of 15 years of research on school reform identified five essential supports for effective school improvement: strong leadership, solid parent and community involvement, development of professional capacity, strong instructional guidance and materials, and a learning climate that reflects SEL components by being safe, welcoming, stimulating, and nurturing to all students (Weissberg et al., 2013). A focus on strong social and emotional development underlies many elements of these supports (Weissberg et al., 2013).

SEL skills can help both teachers and students manage themselves, their relationships and their work (Poulou, 2016). Poulou (2016) argued that secure teacher–student relationships are the foundation of SEL. Teachers can teach children to relieve stress, manage anger and deal with social interactions, as well as foster a sense of safety and well-being in children (Poulou, 2016).

The quality of teacher–student relationships in kindergarten potentially influence students’ achievement and behavioral outcomes (Poulou, 2016). The school environment and teacher–student connection are very important for success with SEL programming.

### **Benefits of Social-Emotional Learning for Students with Fetal Alcohol Spectrum Disorder**

SEL programs have the potential to promote resilience for students exposed to adversities improving self-regulation and social competency skills that, in effect, reduce a range of behavioral and peer problems (Calhoun et al., 2020). The research indicates that schools can promote students’ social and emotional competence, and that doing so increases not only their social-emotional learning skills but also their academic achievement (Schonert-Reichl, 2017). SEL also supports both prosocial and positive behavior and recruits newly developed executive and linguistic functions to exert effortful control over behavior in emotional contexts (Calhoun et al., 2020).

Sklad and colleagues analyzed 75 studies of SEL programs and found beneficial effects on seven major outcome areas for not just students with an FASD diagnosis, but the general student population: social skills, positive self-image, prosocial behaviour, antisocial behaviour, substance abuse, mental health, and academic achievement (Sklad et al., 2012). Research consistently indicates that evidence based SEL programs can instill strong values, foster relationships, and provide comprehensive support for students by leveraging the social resources of the school, family, and community (Haymovitz et al., 2017). Several meta-analyses indicate that universal SEL interventions are effective in improving a broad array of outcomes, including social skills, attitudes, behavior, and academic performance (Lawson et al., 2019). The research shows improvement in many domains that students with FASD have deficits in.

## **Conclusion**

The research shows that these student-centered outcomes from the SEL programming include enhanced positive attitude about self and others, connection to school, positive social behavior, academic performance, and attenuated stress and conduct problems (Haymovitz et al., 2017). SEL programming offers many benefits for students with FASD, and for the caregivers when they are involved in the curriculum. SEL programs can offer education on how to be successful with everyday life from childhood into adulthood for the individual with FASD.

### **Chapter 3: Summary, Recommendations and Conclusions**

#### **Summary**

The research indicates that individuals with FASD may experience disturbances in attention, cognition, learning, memory, language, motor co-ordination, complex problem-solving and abstract thinking, that impact functioning throughout their lifespan (Premji et al., 2007). In the previous chapters I explored what FASD is, and the benefits of life skills and social-emotional learning for students with FASD. The research indicates that when life skills and SEL is provided and taught comprehensively to students with FASD, there are many beneficial outcomes (Millians, 2015). Life skills and SEL programs have shown that individuals with FASD have enhanced positive attitude about self and others, a stronger connection to school, positive social behavior, increased academic performance, and less attenuated stress and conduct problems (Haymovitz et al., 2017).

The research has indicated the benefits of life skills and SEL programming; due to this research I have created an 8-week program which combines sections of life skills and SEL into one program to teach students with FASD some of foundational skills to be successful in the school setting and beyond. My 8-week program will help provide life skills and social-emotional learning to high school students with FASD. The goal of this 8-week program is to provide education around self-awareness, social-awareness, responsible decision-making skills, and life skills to support the areas of need for our students with FASD.

The 8-week program is called Overcoming Adversity Club and will be available for students in grades 10-12 with a diagnosis of FASD and parental consent. Communion between home and school is important to build healthy trusting relationships, and to educate the parents/caregivers on the material being taught.

Information would be sent home, and parents/caregivers would be encouraged to practice what has been taught at home. During the last week of group, the parents/caregivers will be invited into the space and students will share what they have learnt. The program would run after school from 3-4p.m, however, the time could of course be changed to meet the needs of the students involved.

## **Recommendations**

### **Overcoming Adversity Club (8-week program)**

#### **Week 1: Relationship and Trust Building**

Creating a working alliance between counsellor and client(s) is essential for impacting the effectiveness of the counselling sessions (Whiston et al., 2016). A working alliance is a key piece in my 8-week program, and creating a caring, trusting, and safe environment for all participants should be a top priority. Borden (1979) stated that a working alliance is made up of goals, tasks, and bonds. The goals refer to the degree to which there is agreement between the client and the counsellor on achievement of goals, the tasks denote how the counsellor and client go about accomplishing those goals, and the bonds are the emotional connections or relationships between the client and the counsellor (Whiston et al., 2016). The goal of the first session is to create a foundation where a caring, trusting, and safe environment will be built with all the participants and continue to grow throughout the 8 weeks. Below is the lesson plan outline.

<b>Lesson #1: Relationships and Trust Building</b>	
Objective	To introduce each other/get to know each other. Go over the eight-week program. Create a community contract. Build trust.
Materials	projector, screen, laptop, Appendix A handout. Large paper and markers for Community Contract. Pieces of paper and pencils/pens.
Environment Structure	Ensure you have a private space that can accommodate your numbers, preferably with one large table, as opposed to separate desks. Having

	a large table will help create a sense of community. It would be beneficial to have a projector, screen, and laptop ready.
Introduction/Welcome (5-10 minutes)	Welcome students as they arrive into the space. Have them choose a seat around the large table where they are comfortable. Once everyone has arrived, welcome everyone and thank them for coming, then introduce yourself. Share three interesting facts about yourself. For example: I am Ms. Storey, a district counsellor. In my spare time I like to skydive, and hangout with my dog. Then the next person would introduce themselves.
Lesson Introduction (5-10 minutes)	Once everyone has had their turn, the counsellor will go over the goals and structure of the eight-week program. (See Appendix A). Give some time for students to ask clarifying questions.
Community Contract (15-20 minutes)	Community Contract: You will need a large piece of paper and markers for this activity. -A community contract is where students brainstorm together about respect, trust, safety, confidentiality, and all sign off on the contract. Be sure to include confidentiality rules. For example: What we discuss in this club stays in this club. We will not share other people's stories outside of this space. We will not share any information on social media. When the group has ended, we will still uphold each other's confidentiality. Use prompts such as what does respect, trust, safety look like. Once the contract has been made, have each student sign the contract on the large sheet of paper.
Core Lesson (15-20 minutes)	Two Truths and One Lie trust building activity: Each student writes down two truths and one lie about themselves. The group then takes turns to guess which of the three statements is a lie. The nature of the activity encourages individuals to try and come up with outrageous facts and fibs in order to confuse their peers. The game gives students insight into their peers' lives and personalities beyond the school environment, building enhanced repertoires and increasing the feeling of trust within the team.
Conclusion (5-10 minutes)	Give this time to talk about how "Two Truths and One Lie" activity felt. What went well? Was it easy or difficult to tell which one was the lie? Did you learn new facts about your peers? When the discussion is over, thank everyone for coming and remind them of the date and time for the meeting next week.

## Week 2: Brain-Based Learning

Brain-based learning is understanding how our brain works, receives new information, and processes that information (School of Education, 2021). The focus is on learning our stress levels and coping strategies for the different parts of our brain that we are using (School of Education, 2021). In this week's session, students will learn about the structure of the brain, what parts control what, and coping strategies for self-regulation. Understanding how our brain works, will help educate students with FASD to know how to manage different situations. This will help provide supports and understanding for these students in many areas where they face deficits at school and in everyday life.

<b>Lesson #2: Brain-Based Learning</b>	
Objective	To learn about the different parts of the brain and talk about their functions. We will also discuss what happens to our brain when we feel stress and brainstorm coping strategies.
Materials	laptop, screen, projector, Appendix B, Appendix C, Appendix D, pens/pencils/markers
Environment Structure	Ensure you have a private space that can accommodate your numbers, preferably with one large table, as opposed to separate desks. Having a large table will help create a sense of community. It would be beneficial to have a projector, screen, and laptop ready. Have the community contract up where all students can see it. Review throughout as needed.
Introduction/Welcome (10 minutes)	Welcome the students into the space and allow them to settle. Do a quick review of last week, and have everyone say their name, so we can get that sense of community. Review the community contract and ask students if they would like to add anything to it? If there is something to add, make sure each student puts their signature beside the new item, to create trust and responsibility for one another. Then go over what is being taught today. For example, "We are going to learn about our brain today. We will learn the structure, and what each part does. We are also going to talk about what happens when we get stressed, and brainstorm coping strategies that can help us regulate ourselves.
Grounding Activity (5 minutes)	Mention to the students that it is important to be present in the moment to help us learn. We need to let go of the stressors we are worried about outside of this room. One way to be present is to practice grounding techniques. The technique that we will try today is called The Five Senses. Ask students to sit comfortably with their feet

	<p>planted on the floor. We are going to go through our senses, but make sure you think about it in your head and not out loud. Give a moment for silence then begin. Start with: I want you to notice five things you can see (give some time for this). Notice four things you can feel (give some time for this). Notice three things you can hear (give some time for this). Notice two things you can smell (give some time for this). Notice one thing you can taste (give some time for this). When you are ready, I would like you to bring your awareness back to this space, this moment.</p>
<p>Core Lesson (40 minutes)</p>	<p>-Brainstorming: What do you know about the brain? Type this out on your laptop and have it projected onto the screen for all to see. Have discussions around what the students come up with.</p> <p>-Hand out Appendix B. You will then go into a discussion about each part of the brain. Project Appendix B onto the screen.</p> <p>    Boss of the Brain: Your conscience is the ultimate information-processing function of your brain. It should be the boss of your brain. This is where executive functioning happens in real-time. Executive Functioning is the higher function of your brain that helps you control and regulate your behaviors and emotions. Scientists believe that Executive Functioning lies in the prefrontal cortex of your brain. We will come back later to talk more about our prefrontal cortex.</p> <p>    Attention Tool: This is the part of the brain which helps you focus and stay on task. This is also in the prefrontal cortex. Can you think of times in your day when we would use this part of our brain? (Short discussion).</p> <p>    Talking: This is the part of the brain which controls your speech. This is your ability to talk.</p> <p>    Large and small muscle tool: This is also called your cerebellum. It is the part of your brain which controls muscle movement. Can you think of some of your large and small muscles it might control? (Short discussion).</p> <p>    Sensory Tool: This is the part of our brain which controls our senses. What are our five senses? (Short discussion). Answer: sight, touch, smell, taste, and hearing.</p> <p>    Math/Spelling: This is the section of the brain which lights up when we are doing math and word-based problems. That's right, it has its very own region of the brain. What are activities you do during your day when this part of your brain would light up/be in use? (Short discussion).</p> <p>    Listening: This is the part of the brain that controls our ability to listen. Have you ever had experiences when it is difficult to listen? What do you think might be happening in your brain during those times? (Short discussion).</p> <p>    Memory Tool/ Feelings: Our memories are part of our hippocampus, and feelings are part of our amygdala. The amygdala</p>

regulates emotions, such as fear and aggression. Sometimes you might hear it called our lizard brain. Memory is stored in many parts of our brain, but the main parts are the hippocampus, amygdala, cerebellum, and prefrontal cortex. We are going to come back and discuss our feelings or amygdala part of our brain a bit more.

Seeing/Reading: The seeing and reading part of our brain is exactly what it sounds like. It controls our vision and being able to read and process the words that we are seeing. How often in a day do you think we use this muscle in our brain (Short discussion).

Balance and coordination: This is actually still part of our cerebellum. It is near the back of our skull. It controls balance and posture. It also monitors voluntary movement, eye movement, and speech control. When we think about balance, what comes to mind? How do we use this throughout our day? (Short discussion).

-Brain Break: We have been sitting for a while and it is really important to take breaks to help our brain stay focused and stay in the present. We are going to get moving. We will start with 10 jumping jacks. 9 high knees. 8 arm circles forward/ then 8 backwards. 7 star jumps. 6 burpees. 5 squats. 4 sumo squats (wide legs). 3 deep breaths in. 2 touch your fingers to your thumb. 1 take a seat.

-Core Lesson: Brain-Based Learning continued.

-Handout Appendix C. What we are going to do now is talk about two important parts of our brain. The boss of the brain, and the feelings part of our brain. You can just keep this paper off to the side for now.

-Question: What is the function of the boss of the brain?

Answer: Processing information, and executive functioning.

-Executive functioning skills are important because they help us navigate everyday life. perform activities such as planning, organizing, strategizing, paying attention to and remembering details, and managing time and space (Kusnyer et al., 2013). In groups of two or three, you are going to be given a piece of paper with an executive function skill on it. I want you to brainstorm why this is an important skill and if you know of any strategies that you use at home or in the classroom that help support that skill. Handout Appendix D. Give about ten to fifteen minutes for this activity. Then you will discuss as a group.

Here are some examples of what some good strategies for each section:

Time-management: calendars, reminders in the cell phone, daily schedules (visual), setting a timer, the counsellor can give a ten and five minute warning when doing an activity, etc.

Paying-Attention: brain breaks, fidgets, being able to move, gentle reminders about the task, being in nature, being allowed to take a break outside, etc.

	<p>Remembering important information: highlighting important facts, reminders in phone, creating a “cheat sheet” with the important facts to remember, repetition, connecting the important fact with something personal, mnemonic devices, note taking, etc.</p> <p>Planning/organizing: calendars, reminders in the phone, graphic organizers, visuals, having a check-list or to-do list, etc.</p> <p>-After the allotted time, have groups present their ideas, and share. Add any other ideas on the projected screen that others may have. Have students write down their favourite strategies in the boss of the brain section on the blank brain sheet. Allow time for discussion and questions. Discuss how these help us every day and in the classroom.</p> <p>-Question: What does our memory tool/feelings section of the brain do?</p> <p>Answer: It regulates our emotions like fear and aggression. It also stores memories.</p> <p>-Understanding our emotions and being able to regulate them are important skills to masters. (Have a little discussion as to why this is important). This time we are just going to brainstorm as a group, strategies that you use that help you regulate when you are feeling aggression, fear, frustration, etc. Start with what strategies they know of. Write them down on the projected screen.</p> <p>Here are some examples:</p> <p>-going for a walk, walking away from the situation, a change of scenery, getting outside in nature, using a fidget, “Zones of Regulation” (if they are familiar with them), talking it out with a friend, speaking to an adult, ignoring someone that may be causing the anger, music, deep breathing, grounding activities, etc.</p> <p>-Have students share their ideas and discuss them. Have them write down their favourite strategies in the memory tool/feelings section of the blank brain handout.</p>
<p>Conclusion (5 minutes)</p>	<p>The students are going to take Appendix C home where they wrote their strategies and add more ideas that they may use at home. They are encouraged to talk to their parent(s)/caregiver(s) about these strategies and brainstorm together what works at home. They will share any added information next week.</p> <p>Ask the students to share one new strategy that they are going to try at school. Then thank everyone for coming and remind them about the meeting time next week and the homework.</p>

### Week 3: Social Skills: Perspective Taking

Perspective taking is part of social-emotional learning. Students with FASD may struggle with this skill and need support with developing it (Calhoun et al., 2020). This week is going to focus on perspective taking, and practicing seeing different sides of a difficult situation.

<b>Lesson #3: Perspective Taking</b>	
Objective	To learn about perspective taking. What is perspective taking and how can it help us in our daily lives? We will practice perspective taking with different scenarios and discuss them as a group.
Materials	laptop, screen, projector, pens/pencils/markers, Appendix E.
Environment Structure	Ensure you have a private space that can accommodate your numbers, preferably with one large table, as opposed to separate desks. Having a large table will help create a sense of community. It would be beneficial to have a projector, screen, and laptop ready. Have the community contract up where all students can see it. Review throughout as needed.
Introduction/Welcome (5 minutes)	Be sure to greet everyone as they arrive. Allow for a few minutes to settle. Have everyone sit comfortably and start with a check-in, one word to describe how the student is feeling in this moment.
Grounding Activity (2 minutes)	5 Finger breathing. Have students sit comfortably with feet planted on the floor. Practice deep breathing by putting your hand out in front of you. With a finger, follow your fingers up and down. Starting from the pinkie to the thumb. With each motion up the finger breath in, pause, then breath out (a cleansing breath) on the way day, and repeat until you get to the thumb.
Homework (5 minutes)	Project the blank brain which students had written down strategies from last week. Do a quick review and ask if any students want to share some other strategies that they came up with. Add them to the brain and discuss.
Core Lesson (40 minutes)	<p>Question: What do you think perspective taking is? (Allow some time to discuss).</p> <p>-Handout Appendix E. Cut each of the cards out before hand. Hand them out to groups of two and have them read and discuss the questions. Allow about fifteen to twenty minutes for group work. If a group finishes early, hand them another perspective card to work on.</p> <p>-Once the groups have had enough time to chat, they will read and present their perspectives. Allow about twenty minutes for this.</p>
Conclusion (5-10 minutes)	Allow another five minutes to talk about the big idea of why perspective taking is an important skill to have, and how we use it

	<p>every day. Bring the learning together. How can perspective taking help us with a difficult situation we have faced? Then go over the homework. Allow everyone to go around the room and share one thing that stuck with them from today's learning.</p> <p>-Homework: Think about a situation at home where you could use perspective taking to help solve the conflict. Be prepared to share next week.</p>
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#### Week 4: A Healthy Routine

Many life skills that come easily to the general population may be a struggle for those individuals with FASD (Sharma, 2021). Supporting students with FASD create a healthy routine that fits their lifestyle, can help develop those necessary executive functioning skills for success in and out of school. This week students will be reviewing what their own daily routine looks like and trying and make healthy and appropriate changes to their routine to help support these necessary life skills.

<b>Lesson #4: Healthy Routine</b>	
Objective	To learn about healthy relationships with family, friends, and the community. We will also learn about creating a healthy daily routine.
Materials	laptop, screen, projector, pens/pencils/markers, Appendix F
Environment Structure	Ensure you have a private space that can accommodate your numbers, preferably with one large table, as opposed to separate desks. Having a large table will help create a sense of community. It would be beneficial to have a projector, screen, and laptop ready. Have the community contract up where all students can see it. Review throughout as needed.
Introduction/Welcome (5 minutes)	Greet everyone as they come in and get settled. Allow a few minutes to get settled, and to chat with friends.
Grounding Activity (5 minutes)	Have everyone sit comfortably with feet flat on the floor and arms by their side with palms up. They may close their eyes if they like. We are going to do a body scan. Start with the feet and slowly guide students up their body. Have the students notice where they feel stress and tightness. Is there anyway they can relax more? Take a moment to notice each part of the body. In the lower half of the body is there tension in their feet, glutes, or lower back? When on the upper half, focus on shoulders, neck, and jaw, as a lot of tension is held there. Where do they feel the tension and can they take a deep breath and

	bring that breath to that part of the body to relax. Ask them to soften those parts and relax into it using their breath. Notice their breathing. Is it fast or slow? Try to slow the breathing down. You can count a deep breath in for 3 seconds, hold it, and then release for 3 seconds. When they are ready welcome them back into the space.
Homework (5-10 minutes)	Give time for students to share their homework. Have them share a time when they could have used perspective taking at home or at school to help with a conflict. Discuss.
Core Lesson (35-40 minutes)	<p>Hand out Appendix F. Give an example of what your own personal daily schedule looks like. Then ask the students to take some time and write in a few days of what their routine looks like. (Be sure to monitor the room and help with scribing, etc. as needed). Give about fifteen minutes for this part.</p> <p>-After students have filled out a few days, allow for volunteers to share their routines. Then ask the question: Do you think your routine is healthy? Is it beneficial for you, or are there times when you could change something in your routine for a positive purpose? Discuss.</p> <p>-Discuss why incorporating fitness, outside time, family/friends time is important in a daily routine. Allow students to share their thoughts and have an open conversation. Take the opportunity for in the moment learning. For example, a student may have a lot of computer, video games, and social media time. Have an open discussion about why it is beneficial to reduce screen time and have more time outside. You can project Appendix G up and create a discussion around this.</p> <p>-Hand out another copy of Appendix F and ask student to create a healthier routine. What are one or two things you can change or add into your regular daily routine? How will this be a positively impact you?</p> <p>-Once students have completed this, allow time for those who wish to share what they are going to change.</p>
Conclusion (5-10 minutes)	<p>Homework: Encourage students to implement the new changes to their schedule, and come back next week ready to discuss if they followed through with their new routine, how it felt, and if there was a positive outcome.</p> <p>-Conclusion: Thank everyone for sharing their time and the space with you. Review a few healthy routine changes that could be made and encourage students to give at least one of their changes a try. Remind about date and time for the next meeting.</p>

## Week 5: Math in the Real World

The research shows that students with FASD face many challenges in life, and that includes math-related activities (Jansen et al., 2016). Math skills are important to function in everyday life; we need to support those foundational skills for our students with FASD (Jansen et al., 2016). This week's lesson will focus on learning how to budget with groceries.

<b>Lesson #5: Math in the Real World</b>	
Objective	To learn how to budget by comparing grocery prices. Discuss the importance of knowing where to shop when on a budget.
Materials	laptop, screen, projector, pens/pencils/markers, extra laptops for researching food prices at local grocery stores, Appendix H (Change grocery stores to your local area), calculators.
Environment Structure	Ensure you have a private space that can accommodate your numbers, preferably with one large table, as opposed to separate desks. Having a large table will help create a sense of community. It would be beneficial to have a projector, screen, and laptop ready. Have the community contract up where all students can see it. Review throughout as needed.
Introduction/Welcome (5 minutes)	Greet everyone as they come in and get settled. Allow a few minutes to get settled, and to chat with friends.
Grounding Activity (5 minutes)	Concentrate on your breath. Sit in a comfortable position, close your eyes, and slowly inhale through your nose for three seconds. Try to inhale in an even controlled manner. Feel the air enter your nose and try to identify when your inhalation begins and when it ends. Next, exhale in a controlled manner for three seconds through your mouth. Feel your breath exit your lungs and escape through your lips. Try to identify when your exhalation begins and ends. Concentrate on your breath, counting your inhalations and exhalations. Try not to let your thoughts drift elsewhere. Try to perform this exercise for three to five minutes. Welcome the students back to the present.
Homework (10 minutes)	Invite students to share about their experiences of implementing a health routine into their schedule. What did they change? How did it go? How does it feel? Will they continue to practice the new routine?
Core Lesson (35 minutes)	Hand out Appendix H, pencils, and calculators. You can project it on the screen to guide students through the activity. Hand out a laptop for each group. They can do this individually or in groups of two. -Brainstorm: Question #1: Why do you think it is important to look at different grocery stores to shop? Allow a few minutes for students to

	<p>answer. Discuss. Question #2: Why should we know the prices of staple food items? Discuss.</p> <p>-Explain the activity and steps to the students. Students will use the laptops to look at different grocery stores in the area. They will then pick the grocery stores they want to look at, and three staple items to research for prices. They will then gather the prices for each store and calculate the difference for each store. They will then reflect on the activity.</p> <p>-While students are working, be sure to rotate around the room and help where necessary.</p> <p>-Follow up: Once the students have completed the activity, go over the reflection questions. Allow students to share their thoughts and discuss as a group.</p>
Conclusion (5minutes)	<p>Homework: Ask students to apply what they have learned about budgeting with groceries into their home life. Encourage them to share with their parent(s)/guardian(s) how they can save money by comparing prices for staple foods.</p> <p>-Conclusion: Thank everyone for sharing their time and space with you and remind them about the next meeting date and time.</p>

## Week 6: Fun with Games

Individuals with FASD may struggle with relationship building and social skills (Weissenberg et al., 2013). Playing board games can teach student turn taking, following rules, making decisions, and creating friendships, which are part of social-emotional learning programs (Weissenberg et al., 2013). This week, students will get to play board games with each other to work on those skills to support social-emotional learning.

<b>Lesson #6: Fun with Games</b>	
Objective	To learn how to play together with respect and practice turn taking, as well as following a set of rules.
Materials	laptop, screen, projector, board games (Connect 4, Battleship, Guess Who, Jenga, deck of cards)
Environment Structure	Ensure you have a private space that can accommodate your numbers. This week it is preferred to have several separate desks set up, to accommodate the games. It would be beneficial to have a projector, screen, and laptop ready. Have the community contract up where all students can see it. Review throughout as needed.

Introduction/Welcome (5 minutes)	Greet everyone as they come in and get settled. Allow a few minutes to get settled, and to chat with friends.
Grounding Activity (5 minutes)	Sit comfortably in your chair with your feet planted on the ground. Feel free to close your eyes if you are comfortable. Sit tall in your chair. Focus on your breathing. Take three deep breaths in, and breath out any negativity you may be feeling. Where did your thoughts go during those breaths? Let those thoughts go and be present. Where are you tense? Is it your jaw, your shoulders, your fists? Release that tension. Is there anywhere in your body you can soften. Soften into your body. Take three more breaths with me (key the breaths). Let's take one more deep cleansing breath to let go off all that tension, all those worries (key a deep cleansing breath).
Core Lesson (45 minutes)	<p>Brainstorm with the students, what are fun about board games? What can be frustrating about board games? Discuss.</p> <p>-Put students into pairs, preferably someone they have not worked with yet. Have one as A and one as B. Students will rotate around clockwise (A), and counter-clockwise (B) to the different games. Allow 7-8 minutes at each station. Be sure to display a timer on the projector so students can keep track of time.</p> <p>-Station #1: Connect 4, Station #2: Battleship. Station #3: Guess Who, Station #4: Jenga, Station #5: Cards for War. Go over each game and a quick run down of the rules. Then allow students to start at their stations.</p> <p>-Be sure to rotate around and help where needed while students play games. Give updates regularly about how much time is left in the game.</p> <p>-Once students have rotated to each station and have completed the 5 stations, sit them down and have a discussion about how it went. How was it playing with different students? Was it easy to follow the rules? Were there any issues that came up that needed a solution to the problem? What did you most enjoy? After the discussion, talk about social skills, following rules, problem-solving, and working together. Discuss why these are important skills to have to get us through our everyday lives.</p>
Conclusion (5minutes)	<p>Homework: Encourage students to play a co-operative game with a family member or friend. Think about practicing the social skills they discussed in today's lesson.</p> <p>-Conclusion: Thank everyone for sharing their time and space with you. Remind them about next week's meeting date and time.</p>

## Week 7: Social Skills and Problem-Solving

Students with an FASD diagnosis may have deficits in the area of social skills (Sklad et al., 2012). Research has shown that social-emotional learning can have beneficial effects for social skills, positive self-image, prosocial behaviour and antisocial behaviour (Sklad et al., 2012). Practising case studies which involve conversations around problem-solving, can help build these social skills (Weissberg et al., 2013). This week's lesson will focus on practicing conversations around problem-solving with peers and family.

<b>Lesson #7: Social Skills and Problem Solving</b>	
Objective	We will learn how to deal with difficult situations. We will look at different case studies, and as a group brainstorm how we might approach solving the problem.
Materials	laptop, screen, projector, Appendix I (cut out a copy of each conversation for each group), blank piece of paper, pens/pencils
Environment Structure	Ensure you have a private space that can accommodate your numbers, preferably with one large table, as opposed to separate desks. Having a large table will help create a sense of community. It would be beneficial to have a projector, screen, and laptop ready. Have the community contract up where all students can see it. Review throughout as needed.
Introduction/Welcome (5 minutes)	Greet everyone as they come in and get settled. Allow a few minutes to get settled, and to chat with friends.
Grounding Activity (5 minutes)	Rainbow Activity. Ask the students to sit comfortably with their feet on the floor. You are then going to go through the colour's of the rainbow and ask students to look around the room and spot the colour. If it is a nice day, you can do this outside as well, then move back into the space.
Core Lesson (40 minutes)	Start by asking the students, have you ever faced a situation where you had a different opinion from a friend or family member? What happened? How did you react? How did the other person react? Was there a different, more amicable way this difference in opinion could have been handled? Discuss. Talk about the importance of being able to problem-solve in a calm and respectful manner. -Ask students to get into groups of two or three and hand out Appendix I (conversation scenarios 1-10 for each group. Give them about 5 scenarios per group, and then give extra scenarios for groups that finish earlier than others). Hand out a blank piece of paper and pencils/pens for each group. Ask groups to go through each conversation scenario and discuss/write down how this conversation could continue in a way that is respectful for both individuals. Walk

	<p>around and monitor groups while they work through the scenarios. Give plenty of time for them to work through each scenario, and prompt as needed.</p> <p>-Once the groups have worked through the scenarios, they will share their ideas with the class. Start with scenario 1 and ask what the groups came up with and repeat for each scenario. Be sure to discuss and share perspectives as needed. At the end discuss how these scenarios can be used in everyday life. Allow students to share a conflict they may be dealing with currently, that they would like help working through/getting another perspective on.</p>
Conclusion (10 minutes)	<p>-Homework: Ask the students to go home and be conscious about a situation that might come up. Did they use perspective taking and problem-solving? Did it work? Did it help to solve any issues that may have occurred if they had approached the situation in a more defensive way?</p> <p>-Conclusion: Go around the room and ask those that would like to share, one important thing they learned that stuck with them today. Thank them for sharing their time today and remind them that the meeting next week is a pizza party, and parent(s)/guardian(s) are welcome to attend. Remind date and time.</p>

### **Week 8: Wrap-Up/ Pizza Party**

Involving parent(s)/guardian(s) into the learning is an important part of creating a community atmosphere, and part of the social-emotional learning programs (Weissberg et al., 2013). This week parent(s)/guardian(s) are invited to join the pizza party. It would be beneficial to call the week before and remind them that they are encouraged to join if possible. This week will be sharing the past 7 weeks of learning, and what really stuck out with them. They will also fill out a feedback form, so we can improve the program in the future.

<b>Lesson #8: Wrap-Up and Pizza Party</b>	
Objective	To share what we have learnt. Parents/guardians are encouraged to attend. We will have a pizza party and prepare to take what we learnt and apply it to our everyday lives.

Materials	laptop, screen, projector, Appendix J, Appendix K, pens/pencils, pizza, box to collect feedback forms, pop/water, snacks, plates, napkins, etc. for food and drinks.
Environment Structure	Ensure you have a private space that can accommodate your numbers, preferably with one large table, as opposed to separate desks. Having a large table will help create a sense of community. It would be beneficial to have a projector, screen, and laptop ready. Have the community contract up where all students can see it. Review throughout as needed.
Introduction/Welcome (5 minutes)	Greet everyone as they come in and get settled. Allow a few minutes to get settled, and to chat with friends.
Grounding Activity (5 minutes)	Mention to the students and guests that it is important to be present in the moment to help us learn. You can share with the guests that this is a practice we have been doing every week to start our sessions. We need to let go of the stressors we are worried about outside of this room. One way to be present is to practice grounding techniques. The technique that we will try today is called The Five Senses. Ask students to sit comfortably with their feet planted on the floor. We are going to go through our senses, but make sure you think about it in your head and not out loud. Give a moment for silence then begin. Start with: I want you to notice five things you can see (give some time for this). Notice four things you can feel (give some time for this). Notice three things you can hear (give some time for this). Notice two things you can smell (give some time for this). Notice one thing you can taste (give some time for this). When you are ready, I would like you to bring your awareness back to this space, this moment.
Core Lesson (40 minutes)	Introduce yourself after the grounding activity and allow everyone to go around and introduce themselves. Allow everyone to come up, get food and drinks and settled. Once everyone is done, project onto the screen Appendix A. You will now go through each week and have the students describe what they did and what they learnt. Have a discussion about how these lessons have given them skills to help with everyday life. -Then handout Appendix J to all the students, and Appendix K to the parent(s)/guardian(s). Ensure they all have a pen/pencil. Explain that these feedback forms are anonymous and will be used to enhance the program in the future. Allow some time for them to complete the form, and when complete they can put them in the box.
Conclusion (10 minutes)	Go over the community contract again and ensure that students understand that what was shared here is confidential, even after this program finishes. Thank everyone for attending and sharing their time and space with you. Allow a few minutes for questions as individuals head out.

## **Implications**

Research findings from both the life skills and SEL programs have guided my creation of the 8-week program to support students with the FASD diagnosis. Counsellor(s) running the program should have training on FASD, as well as a foundational knowledge in both life skills and SEL programs. Counsellor(s) must also be aware that FASD is a spectrum disorder, and the students who are referred for the 8-week program may have varying degrees of needs. Being able to modify the program and accommodate the needs of the students are important factors to ensure the program will run successfully. Being culturally aware will also be a key to running this program successfully. Counsellor(s) should have some knowledge of the diversity of students that will be in the program. Counsellor(s) must be sensitive to cultural backgrounds and be respectful of how the content taught may be received by the students. If the counsellor feels like they do not have the knowledge of each culture, ensure that the counsellor(s) reach out to supports within the school, such as the Indigenous Liaison Worker, or to a community cultural center to educate themselves and become culturally aware. Demographics are another implication that can impact the 8-week program. Counsellor(s) should be aware of the student's backgrounds. The counsellor should consider if they are with their biological parents, a split household, or a student in foster care. The Overcoming Adversity program encourages parent/guardian participation, yet some of these students may not have this support in their current living situations. Students also need to consider their own needs and if this program will be a good fit for them. Students should ensure that they can make every meeting and self-advocate if they do not understand something or need further support from the counsellor(s). Another implication is to consider updating information as new life skills and SEL programs are introduced. The program needs to be fluid and able to change classes based off new information

and research that has been proven to be beneficial for students diagnosed with FASD. With appropriate training and professional development opportunities, counsellors should be able to use the foundations in this 8-week program and update as needed.

## **Conclusions**

FASD shows up in the school setting in many different ways. Many students with this disability may go undiagnosed their entire lives, and struggle with their school experience (Millains, 2015). Students with FASD may struggle with problem-solving, executive functioning, social skills, basic mathematic skills, and a variety of other learning needs (Ordenewitz et al., 2021). The research has shown that by providing life skills and social-emotional education in the school setting for students with FASD can result in less disrupted school experiences for these students (Millians, 2015). The education system needs to provide professional development training to teachers and educators on how to implement appropriate strategies for students with FASD. Life skills and SEL programs can provide essential foundational learning for students with FASD, to promote success in the school setting as well as in their personal lives (Millians, 2015). The Winnipeg School Division began providing specialized classrooms in 1995, to support students with FASD in learning life skills and SEL (Millar et al., 2017). The resulting paradigm shift in understanding the needs of individuals with FASD needs to be implemented into the general education system to ensure the school system is providing appropriate supports to students with deficits due to their FASD diagnosis (Millar et al., 2017). My 8-week program is intended to provide a mixture of life skills and social-emotional learning for high school students diagnosed with FASD. The hope is to provide a foundation and learning for students to be successful in their every day lives. Just like the Winnipeg School Division has offered specialized classrooms for students with FASD, this

program is indented to be used in any high school to provide a foundation in life skills and SEL to support students with FASD academic deficits. The 8-week program may offer students a chance for a less disruptive school experience, and provide skills that they will use in and outside of the school setting throughout their lives. The feedback forms from both the students and the parents are important to review, as they can provide important information on how to improve the program in the future. No program is perfect, and this is just a start to providing students with FASD the important skills to promote success in their everyday lives.

## References

- Bordin, E. S. (1979). The generalizability of the psychoanalytic concept of the working alliance. *Psychotherapy: Theory, Research & Practice*, 16, 252–260. doi:10.1037/h0085885
- Calhoun, B., Williams, J., Greenberg, M., Domitrovich, C., Russell, M. A., & Fishbein, D. H. (2020). Social Emotional Learning Program Boosts Early Social and Behavioral Skills in Low-Income Urban Children. *Frontiers in psychology*, 11, 561196. <https://doi.org/10.3389/fpsyg.2020.561196>
- Collaborative for Academic, Social, and Emotional Learning (CASEL) (2021). Allstate Foundation. <https://casel.org/>
- Chudley, A., Conry J., Cook, J., Looock C., Rosales, T. & LeBlanc, N. (2005) ‘Fetal alcohol spectrum disorder: Canadian guidelines for diagnosis.’ *Canadian Medical Association Journal*, 172 (5 Suppl), p. S1-19. doi: 10.1503/cmaj.141593.
- Coles CD, Brown RT, Smith IE, et al. Effects of prenatal alcohol exposure at school age. I. Physical and cognitive development. *Neurotoxicol Teratol*. 1991;13:357-67. doi: 10.1016/0892-0362(91)90085-b.
- Coons-Harding, K. D., Flannigan, K., Burns, C., Rajani, H., & Symes, B. (2019). Assessing for fetal alcohol spectrum disorder: A survey of assessment measures used in Alberta Canada. *Journal of Population Therapeutics and Clinical Pharmacology*, 26(1), e39-e55. <https://doi.org/10.22374/1710-6222.26.1.4>
- Dehaene, S., Molko, N., Cohen, L., & Wilson, A. (2004). Arithmetic and the brain. *Current Opinion in Neurobiology*, 14, 218–224. doi:10.1016/j.conb.2004.03.008

FASD & Justice (n.d.) Fetal Alcohol Spectrum Disorder: The Law Foundation of Ontario.

Retrieved from <https://www.fasdjustice.ca/en-ca/glossary/29-arnd.html>

Goldschmidt L, Richardson GA, Stoffer DS, et al. Prenatal alcohol exposure and academic achievement at age six: a nonlinear fit. *Alcohol Clin Exp Res.* 1996;20(4);763-70.

DOI:10.1111/J.1530-0277.1996.TB01684.X

Haymovitz, E., Houseal-Allport, P., Lee, R. S., & Svistova, J. (2017). Exploring the perceived benefits and limitations of a school-based social–emotional learning program: A concept map evaluation. *Children & Schools, 40*(1), 45-54. <https://doi.org/10.1093/cs/cdx029>

Helgesson, G., Bertilsson, G., Domeij, H., Fahlström, G., Heintz, E., Hjern, A., Nehlin Gordh, C., Nordin, V., Rangmar, J., Rydell, A., Wahlsten, V. S., & Hultcrantz, M. (2018).

Ethical aspects of diagnosis and interventions for children with fetal alcohol spectrum disorder (FASD) and their families. *BMC Medical Ethics, 19*(1).

<https://doi.org/10.1186/s12910-017-0242-5>

Jansen, B. R., Schmitz, E. A., & Van der Maas, H. L. (2016). Affective and motivational factors mediate the relation between math skills and use of math in everyday life. *Frontiers in Psychology, 7*. <https://doi.org/10.3389/fpsyg.2016.00513>

Jonsson, E., Dennitt, L. & Littlejohn, G. (eds) (2009) Fetal Alcohol Spectrum Disorder (FASD): Across the Lifespan. Edmonton, AB, Canada: Institute of Health Economics.

<http://www.ihe.ca/documents/FASDproceedings.pdf>

Kable, J. A., Taddeo, E., Strickland, D., & Coles, C. D. (2016). Improving FASD children’s self-regulation: Piloting phase 1 of the GoFAR intervention. *Child & Family Behavior*

*Therapy, 38*(2), 124-141. <https://doi.org/10.1080/07317107.2016.1172880>

- Kalberg., W., & Buckley, D. (2006). Educational planning for children with fetal alcohol syndrome: Strategies for action plan. *Ann Ist Super Sanita*, 42(1), 58-66.  
<https://pubmed.ncbi.nlm.nih.gov/16801727/>
- Khoury, J. E., & Milligan, K. (2016). Comparing executive functioning in children and adolescents with fetal alcohol spectrum disorders and ADHD: A meta-analysis. *Journal of Attention Disorders*, 23(14), 1801-1815. <https://doi.org/10.1177/1087054715622016>
- Kusyner, L., & Stanberry, K. (2013). Executive Functioning 101. The National Center for Learning Disabilities. <https://www.chconline.org/resourcelibrary/executive-function-101-e-book-downloadable/>
- Lawson, G. M., McKenzie, M. E., Becker, K. D., Selby, L., & Hoover, S. A. (2019). The Core Components of Evidence-Based Social Emotional Learning Programs. *Prevention Science*, 20(4), 457-467. <https://doi.org/10.1007/s11121-018-0953-y>
- Mattson, D. (2019). Small Group Administration of a Mathematics Intervention in a School Setting. Education and Research Archive. [https://era.library.ualberta.ca/items/d40b0222-25ff-4172-9572-c1c3209baf8b/view/d700fbef-5bfb-493a-99cf-cac0a4884131/Mattson\\_Danielle\\_R\\_201903\\_Masters.pdf](https://era.library.ualberta.ca/items/d40b0222-25ff-4172-9572-c1c3209baf8b/view/d700fbef-5bfb-493a-99cf-cac0a4884131/Mattson_Danielle_R_201903_Masters.pdf)
- Millar, J. A., Thompson, J., Schwab, D., Hanlon-Dearman, A., Goodman, D., Koren, G., & Masotti, P. (2017). Educating students with FASD: Linking policy, research and practice. *Journal of Research in Special Educational Needs*, 17(1), 3-17.  
<https://doi.org/10.1111/1471-3802.12090>
- Miller, E. K., & Cohen, J. D. (2001). An integrative theory of prefrontal cortex function. *Annual Review of Neuroscience*, 24, 167-202. doi:10.1146/annurev.neuro.24.1.167

- Millians, M. N. (2015). Educational needs and care of children with FASD. *Current Developmental Disorders Reports*, 2(3), 210-218. <https://doi.org/10.1007/s40474-015-0055-5>
- Millians, M. N., & Coles, C. D. (2014). Case study: Saturday cognitive habilitation program for children with prenatal alcohol exposure. *Psychology & Neuroscience*, 7(2), 163-173. <https://doi.org/10.3922/j.psns.2014.02.02>
- Mukherjee, R. A., Hollins, S. & Curfs, L. (2012) ‘Fetal alcohol spectrum disorders: is it something we should be more aware of?’ *The Journal of the Royal College of Physicians of Edinburgh*, 42 (2), p.143-50.  
<http://www.fasaware.co.uk/attachments/article/3/62anadienn.pdf>
- Nasheeda, A., Abdullah, H. B., Krauss, S. E., & Ahmed, N. B. (2018). A narrative systematic review of life skills education: Effectiveness, research gaps and priorities. *International Journal of Adolescence and Youth*, 24(3), 362-379.  
<https://doi.org/10.1080/02673843.2018.1479278>
- Ordenewitz, L., Weinmann, T., Schluter, J., Moder, J., Jung, J., Kerber, K., Greif-Kohistani, N., & Heinen, F. (2021) Evidence-based interventions for children and adolescents with fetal alcohol spectrum disorders-A systematic review. *European Journal of Pediatric Neurology*, 33, 50-60. <http://doi.org/10.1016/j.ejpn.2021.02.001>
- Palmeter, S., Probert, A., & Lagacé, C. (2021). FASD prevalence among children and youth: results from the 2019 Canadian Health Survey on Children and Youth. *Health promotion and chronic disease prevention in Canada: research, policy and practice*, 41(9), 272–276.  
<https://doi.org/10.24095/hpcdp.40.9.05>

- Pei, J., Reid-Westoby, C., Siddiqua, A., Elshamy, Y., Rorem, D., Bennett, T., Birken, C., Coplan, R., Duku, E., Ferro, M. A., Forer, B., Georgiades, S., Gorter, J. W., Guhn, M., Maguire, J., Manson, H., Santos, R., Brownell, M., & Janus, M. (2020). Teacher-reported prevalence of FASD in kindergarten in Canada: Association with child development and problems at home. *Journal of Autism and Developmental Disorders*, *51*(2), 433-443. <https://doi.org/10.1007/s10803-020-04545-w>
- Poulou, M. S. (2016). Social and emotional learning and teacher–student relationships: Preschool teachers’ and students’ perceptions. *Early Childhood Education Journal*, *45*(3), 427-435. <https://doi.org/10.1007/s10643-016-0800-3>
- Premji, S., Benzies, K., Serrett, K., & Hayden, K. A. (2007). Research-based interventions for children and youth with a fetal alcohol spectrum disorder: Revealing the gap. *Child: Care, Health and Development*, *33*(4), 389-397. <https://doi.org/10.1111/j.1365-2214.2006.00692.x>
- Rockville, M. (2011). Recognizing Alcohol-Related Neurodevelopmental Disorder (ARND) in Primary Health Care of Children: Consensus Statement. Retrieved from [https://www.niaaa.nih.gov/sites/default/files/ARNDCConferenceConsensusStatementBooklet\\_Complete.pdf](https://www.niaaa.nih.gov/sites/default/files/ARNDCConferenceConsensusStatementBooklet_Complete.pdf)
- Schonert-Reichl, K. A. (2017). Social and Emotional Learning and Teachers. *The Future of Children*, *27*(1), 137–155. <http://www.jstor.org/stable/44219025>
- School of Education (2021). *What is Brain-Based Learning? An online program from American University*. <https://soeonline.american.edu/blog/brain-based-learning>

- Sharma, K. (2021). Inculcation and promotion of values through life skills education at the school level. *MIER Journal of Educational Studies Trends & Practices*, 93-101.  
[https://doi.org/10.52634/mier/2021/v11/i1\(a\)spl/1948](https://doi.org/10.52634/mier/2021/v11/i1(a)spl/1948)
- Sklad, M., Diekstra, R., De Ritter M., Ben, J., 7 Gravesteijn, C. (2012). Effectiveness of school-based universal social, emotional, and behavioural programs: Do they enhance students' development in the area of skill, behavior, and adjustment? *Psychology in the Schools*, 49 (9), 892-909. <http://dx.doi.org/10.1002/pits.21641>
- Streissguth AP, Bookstein FL, Barr HM, et al. Risk factors for adverse life outcomes in fetal alcohol syndrome and fetal alcohol effects. *J Dev Behav Pediatr*. (2004), 25(4)228-38.  
 doi: 10.1097/00004703-200408000-00002.
- Tudge, Jonathan, and Edinete Maria Rosa. "Bronfenbrenner's Ecological Theory." *The Encyclopedia of Child and Adolescent Development*, 2020, pp. 1–11.,  
<https://doi.org/10.1002/9781119171492.wecad251>.
- Weissberg, R. P., & Cascarino, J. (2013). Academic learning + social-emotional learning = national priority. *Phi Delta Kappan*, 95(2), 8-13. <https://doi.org/10.1177/003172171309500203>
- Whiston SC, Rossier J, Barón PMH. The Working Alliance in Career Counseling: A Systematic Overview. *Journal of Career Assessment*. 2016;24(4):591-604.  
 doi:10.1177/1069072715615849
- World Health Organization (2001). *Skills-based health education including life skills: An important component of a Child-Friendly/Health-Promoting School*.  
<https://apps.who.int/iris/bitstream/handle/10665/42818/924159103X.pdf>

## **Appendix A**

### **Overcoming Adversity Club**

Welcome! We are so happy to have you join us for the eight-week program. Below is a timeline of what each week will look like.

#### **Week 1: Relationship and Trust Building (Insert Date and Time)**

Goal: Get to know our group. We will introduce each other and play some trust building games. We will also create a community contract together.

#### **Week 2: Brain Based Learning (Insert Date and Time)**

Goal: To learn about our brain. How does it work? What happens when we get upset? How can we regulate ourselves? What are strategies to help us deal with difficult situations?

#### **Week 3: Social Skills: Perspective Taking (Insert Date and Time)**

Goal: To learn about perspective taking. What is perspective taking and how can it help us in our daily lives? We will practice perspective taking with different scenarios and discuss them as a group.

#### **Week 4: A Healthy Routine (Insert Date and Time)**

Goal: To learn about healthy relationships with family, friends, and the community. We will also learn about creating a healthy daily routine.

**Week 5: Math in the Real World (Insert Date and Time)**

Goal: To learn how to budget by comparing grocery prices. Discuss the importance of knowing where to shop when on a budget.

**Week 6: Fun with Games (Insert Date and Time)**

Goal: To learn how to play together with respect and practice turn taking, as well as following a set of rules.

**Week 7: Social Skills and Problem-Solving (Insert Date and Time)**

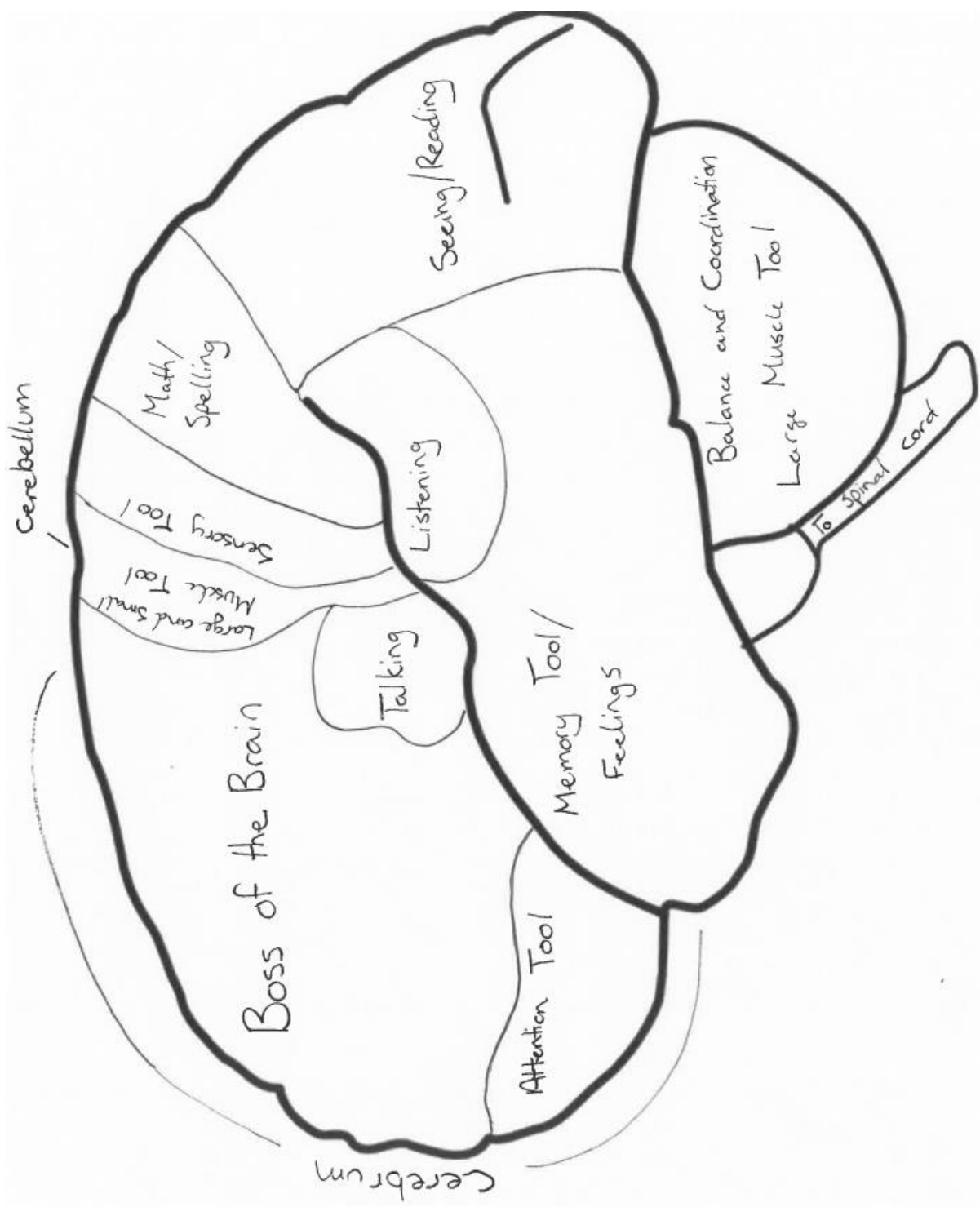
Goal: We will learn how to deal with difficult situations. We will look at different case studies, and as a group brainstorm how we might approach solving the problem.

**Week 8: Wrap-Up (Insert Date and Time)**

Goal: To share what we have learnt. Parents/guardians are encouraged to attend. We will have a pizza party and prepare to take what we learnt and apply it to our everyday lives.

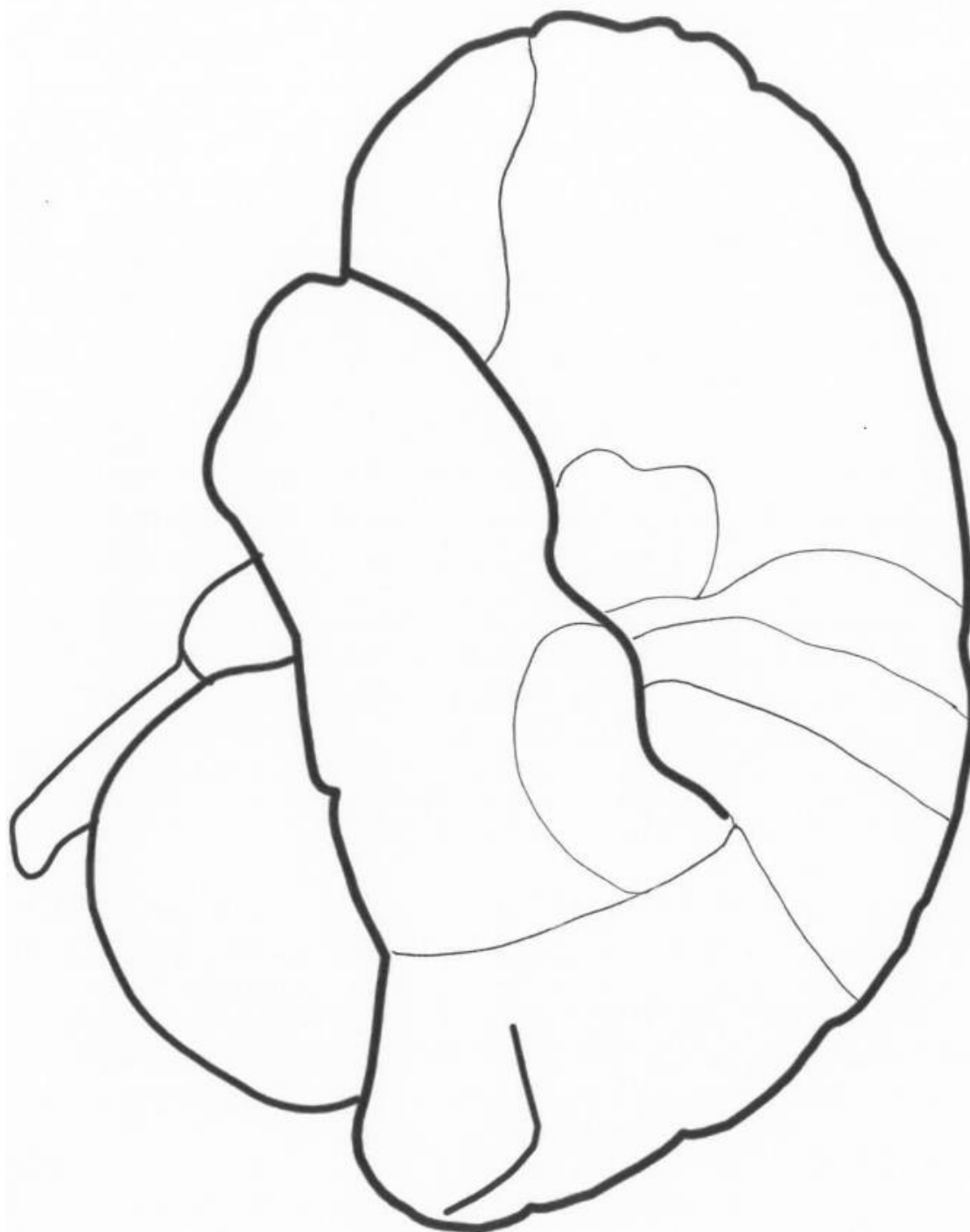
### Appendix B

#### Brain-Based Learning



### Appendix C

#### Brain-Based Learning



**Appendix D**

**Cut out each category, and hand one skill to each group.**

<b>Skill</b>	<b>Strategies</b>
<b>Time-management</b>	
<b>Paying Attention</b>	
<b>Remembering important information</b>	
<b>Planning/Organizing</b>	

## Appendix E

### Perseptive Taking Cards

<p>Joshua and Luke have been best friends since they were 5. They are now 15. Recently, Luke has been finding Joshua quite frustrating to spend time with. Little things that Joshua does are becoming quite annoying for Luke. Luke has just snapped at Joshua over something small.</p> <p>Tell 3 different things that Joshua is thinking. Tell 3 different things that Luke is thinking.</p>	<p>Cassie and Johanna both auditioned for the netball team. Cassie got a position on the team, but Johanna did not.</p> <p>Tell 3 different things that Cassie is thinking. Tell 3 different things that Johanna is thinking.</p>	<p>Jessica and Chloe have agreed to go for a run together. Chloe is into fitness and loves to push herself. Jessica does not love fitness but loves catching up with Chloe.</p> <p>Tell 3 different things that Jessica is thinking. Tell 3 different things that Chloe is thinking.</p>
<p>Michael and Suzanne are practicing for a duet in the ensemble performance on Saturday night. Michael is great at piano and wants to be a musician one day. Suzanne finds piano difficult. She is only learning the piano to make her parents happy.</p> <p>Tell 3 different things that Michael is thinking. Tell 3 different things that Suzanne is thinking.</p>	<p>Vinny has just asked his parents if he can go to an unsupervised party on Saturday night. His parents have said no.</p> <p>Tell 3 different things that Vinny is thinking. Tell 3 different things that Vinny's parents are thinking.</p>	<p>Lisa and Jordan are at a cosmetic store. Lisa thinks it's okay to do a face full of makeup using testers before they go to a party. Jordan disagrees.</p> <p>Tell 3 different things that Lisa is thinking. Tell 3 different things that Jordan is thinking.</p>
<p>Damian hates being at home – he always fights with his brothers, and his parents make him do a lot of chores around the house. Korinne loves being at home. It is Friday afternoon.</p> <p>Tell 3 different things that Damian is thinking. Tell 3 different things that Korinne is thinking.</p>	<p>Pam and Angela are on their way to their grandma's house. Pam loves catching up with her grandma. Angela does too, but she knows she talks a lot, and she has a lot of homework to do today.</p> <p>Tell 3 different things that Pam is thinking. Tell 3 different things that Angela is thinking.</p>	<p>Zac and Dylan work together. Zac tends to spend his work shifts speaking badly about others. Dylan finds the way Zac speaks about others disrespectful.</p> <p>Tell 3 different things that Zac is thinking. Tell 3 different things that Dylan is thinking.</p>

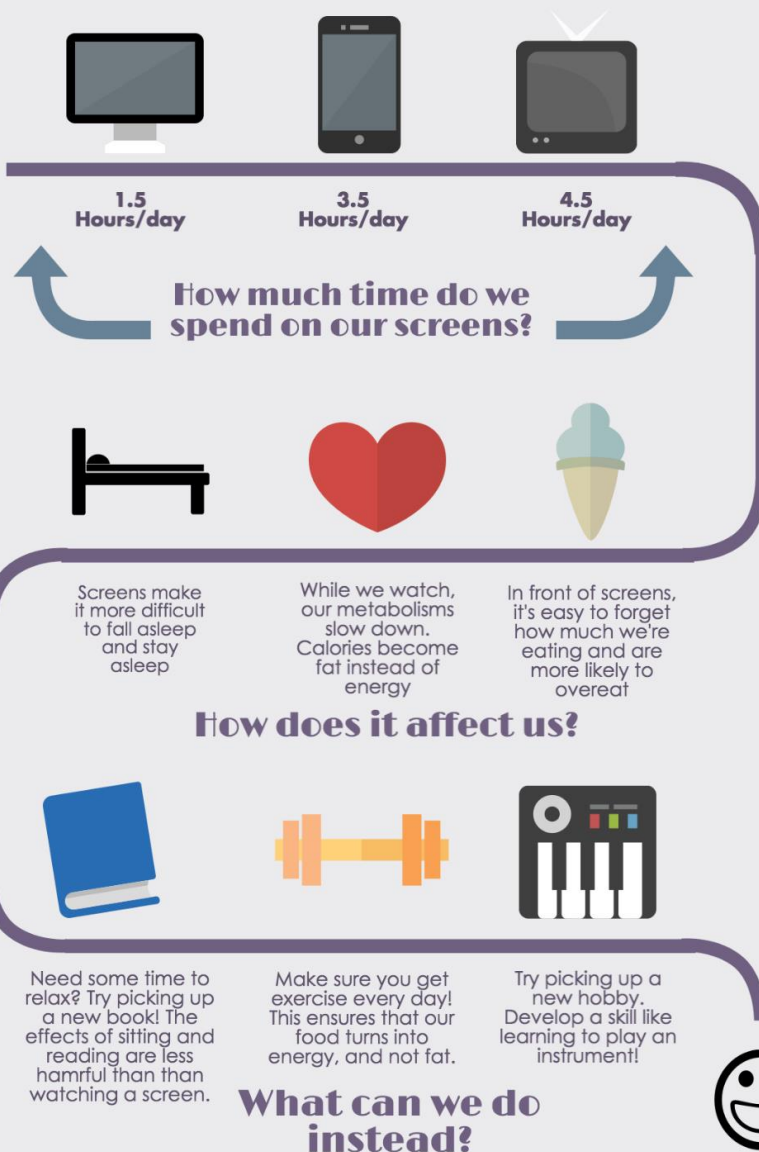
## Appendix F

TIME	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
6:00							
7:00							
8:00							
9:00							
10:00							
11:00							
12:00							
1:00							
2:00							
3:00							
4:00							
5:00							
6:00							
7:00							
8:00							
9:00							
10:00							

## Appendix G

# SCREEN TIME & OUR HEALTH

How TV, Computers, and Phones are damaging our health



## Appendix H

### Math in the Real World

Name: \_\_\_\_\_

#### Grocery Comparison Shopping

Use weekly advertisements from three different grocery stores from the following lists (one from each category) to comparison “shop.” List items that are advertised by both stores. Add up the prices to see how one store compares with another.

#### Steps:

1. Fill out the table with your choice for each category.
2. Pick three common items from each store. (milk, cereal, deli meat, cheese, etc)
3. Visit each selected stores website to find the cost of the item
4. Repeat for each store
5. After gathering prices for each store, calculate the difference for each store.
6. Then complete reflection worksheet

#### Grocery Categories

Category I	Category II	Category III
<ul style="list-style-type: none"> <li>• Bylery's/Lunds: <a href="http://www.lundsandbyerlys.com">www.lundsandbyerlys.com</a></li> </ul>	<ul style="list-style-type: none"> <li>• Cub Foods: <a href="http://www.cub.com/">www.cub.com/</a></li> </ul>	<ul style="list-style-type: none"> <li>• Target: <a href="http://www.target.com/">www.target.com/</a></li> </ul>
<ul style="list-style-type: none"> <li>• Jerry's Food: <a href="http://www.jerrysfoods.com/">www.jerrysfoods.com/</a></li> </ul>	<ul style="list-style-type: none"> <li>• Rainbow Foods: <a href="http://www.rainbowfoods.com/">www.rainbowfoods.com/</a></li> </ul>	<ul style="list-style-type: none"> <li>• Wal-Mart <a href="http://www.walmart.com/">www.walmart.com/</a></li> </ul>
<ul style="list-style-type: none"> <li>• Kowalski's Market <a href="http://kowalskis.com/">kowalskis.com/</a></li> </ul>		<ul style="list-style-type: none"> <li>• Aldi: <a href="http://www.aldi.us">www.aldi.us</a></li> </ul>

Grocery Store Table

	<u>Item 1:</u>	<u>Item 2:</u>	<u>Item 3:</u>
<u>Store 1:</u>			
<u>Store 2:</u>			
<u>Store 3:</u>			
<u>Total Budget</u>			



### Appendix I

conversation  
scenario cards 

FOR SOCIAL SKILLS DEVELOPMENT  
AND MAINTAINING CONVERSATIONS

### SCENARIO 1

**You and Mom are going to the supermarket to buy groceries together.**

YOU: I WANT TO BUY PIZZA AND CHIPS BEFORE WE LEAVE.  
MOM: SORRY, WE HAVE TO LEAVE NOW TO TAKE GRANDMA TO A DOCTOR'S APPOINTMENT.

**How can you respond to maintain the conversation?**

### SCENARIO 2

**You and your sister are going to watch a movie on the TV.**

YOU: I WANT TO WATCH AN ACTION MOVIE!  
SISTER: OH MAN, I WOULD RATHER WATCH A FUNNY MOVIE INSTEAD TODAY.

**How can you respond to maintain the conversation?**

### SCENARIO 3

**You and your friend are going to play a board game together**

YOU: I LIKE PLAYING GAMES!  
FRIEND: ME TOO, I JUST BOUGHT A NEW GAME YESTERDAY!

**How can you respond to maintain the conversation?**

**SCENARIO 4**

**You are in class working on a homework assignment. You need help from your teacher. You raise your hand.**

YOU: EXCUSE ME, I HAVE A QUESTION.  
TEACHER: YES, HOW CAN I HELP YOU?

**How can you respond to maintain the conversation?**

**SCENARIO 5**

**You are in class and everyone is taking turns talking about their favorite movie.**

YOU: I LIKE TO WATCH DISNEY MOVIES.  
FRIEND: THAT'S REALLY COOL, WHAT DISNEY MOVIE DO YOU LIKE THE MOST?

**How can you respond to maintain the conversation?**

**SCENARIO 6**

**You are having dinner with family and ask your aunt what her favorite food is.**

SHE SAYS: TAKE A GUESS! WHAT FOOD DO YOU THINK I LIKE THE MOST?

**How can you respond to maintain the conversation?**

**SCENARIO 7**

**You decided to go roller skating with a friend. You don't know how to roller skate.**

FRIEND: I'M SO EXCITED TO GO ROLLER SKATING! WHAT TRICK DO YOU WANT TO TRY FIRST?

**How can you respond to maintain the conversation?**

**SCENARIO 8**

**You are in shopping for new clothes with your mom.**

YOU: I REALLY WANT TO BUY THIS BLUE SHIRT!  
MOM: WHAT ABOUT THIS PAIR OF OVERALLS INSTEAD?

**How can you respond to maintain the conversation?**

**SCENARIO 9**

**You are in class reading a story with your teacher.**

YOU: I WOULD REALLY LIKE TO READ A SUPERHERO BOOK!  
TEACHER: WE CAN READ ONE NEXT TIME, IS THERE ANOTHER BOOK YOU WANT TO READ TODAY?

**How can you respond to maintain the conversation?**

**SCENARIO 10**

**You are on a phone call with a family member.**

THEY SAY: I WOULD LOVE TO SEE YOU SOON! WHAT CLASSES ARE YOU TAKING IN SCHOOL AND HOW HAS IT BEEN GOING?

**How can you respond to maintain the conversation?**

## Appendix J

### Student Feedback Form

This form is anonymous. Please fill it out and hand it into the teacher. Please circle or check one number from 1-5 for each question below.

Questions					
1. Were the skills taught helpful for success during your day?	① Strongly Agree	② Agree	③ Neither	④ Disagree	⑤ Strongly Disagree
2. Were the skills taught helpful for use at school?	① Strongly Agree	② Agree	③ Neither	④ Disagree	⑤ Strongly Disagree
3. Did the skills help with positive peer relationships?	① Strongly Agree	② Agree	③ Neither	④ Disagree	⑤ Strongly Disagree
4. Did the skills help with relationships at home?	① Strongly Agree	② Agree	③ Neither	④ Disagree	⑤ Strongly Disagree
5. Did you feel comfortable and safe in the classroom environment?	① Strongly Agree	② Agree	③ Neither	④ Disagree	⑤ Strongly Disagree

What was your favourite part about the eight weeks?

What would you like to learn more of or have available if you were in this program again?

Any other feedback you would like to add? Thank you for coming to the 8 week program!

## Appendix K

### Parent/Guardian Feedback Form

This form is anonymous. Please fill it out and hand it into the teacher. Please circle or check one number from 1-5 for each question below.

Questions					
1. Did you see your child using any of the strategies learned at home?	① Strongly Agree	② Agree	③ Neither	④ Disagree	⑤ Strongly Disagree
2. Was your child able to complete the homework?	① Strongly Agree	② Agree	③ Neither	④ Disagree	⑤ Strongly Disagree
3. Did you see an improvement in behaviour over the 8 weeks?	① Strongly Agree	② Agree	③ Neither	④ Disagree	⑤ Strongly Disagree
4. Did your child have a positive change in their routine over the 8 weeks?	① Strongly Agree	② Agree	③ Neither	④ Disagree	⑤ Strongly Disagree

<b>5. Did you feel this 8 week program was beneficial for you child?</b>	① Strongly Agree	② Agree	③ Neither	④ Disagree	⑤ Strongly Disagree
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Is there anything you would like to see added into or changed in this program?

Any other feedback would be appreciated. Thank you.