DHS-7596A-ENG 1-17

Early Childhood Indicators of Progress

Minnesota's Early Learning Standards: Birth to Kindergarten

January 2017

MINNESOTA

651-431-3809

Attention. If you need free help interpreting this document, call the above number.

ያስተውሉ፡ ካለምንም ክፍያ ይህንን ዶኩመንት የሚተረጉምሎ አስተርጓሚ ከፈለጉ ከላይ ወደተጻፈው የስልክ ቁጥር ይደውሉ።

ملاحظة: إذا أردت مساعدة مجانية لترجمة هذه الوثيقة، اتصل على الرقم أعلاه.

သတိ။ ဤစာရွက်စာတမ်းအားအခမဲ့ဘာသာပြန်ပေးခြင်း အကူအညီလိုအပ်ပါက၊ အထက်ပါဖုန်းနံပါတ်ကိုခေါ်ဆိုပါ။

កំណត់សំគាល់ ។ បើអ្នកត្រូវការជំនួយក្នុងការបកប្រែឯកសារនេះដោយឥតគិតថ្លៃ សូមហៅទូរស័ព្ទតាមលេខខាងលើ ។

請注意，如果您需要免費協助傳譯這份文件，請撥打上面的電話號碼。

Attention. Si vous avez besoin d’une aide gratuite pour interpréter le présent document, veuillez appeler au numéro ci-dessus.

Thov ua twb zoo nyeem. Yog hais tias koj xav tau kev pab txhais lus rau tsab ntaub ntawv no pub dawb, ces hu rau tus najnpawb xov tooj saum toj no.

ဟ်သူဉ်ဟ်သးဘဉ်တက့ၢ်. ဖဲနမ့ၢ်လိဉ်ဘဉ်တၢ်မၤစၢၤကလီလၢတၢ်ကကျိးထံဝဲဒဉ်လံာ် တီလံာ်မိတခါအံၤန္ဉ်,ကိးဘဉ်လီတဲစိနိၢ်ဂ်ၢ်လၢထးအံၤန္ဉ်တက့ၢ်.

알려드립니다. 이 문서에 대한 이해를 돕기 위해 무료로 제공되는 도움을 받으시려면 위의 전화번호로 연락하십시오.

ໂປຣດຊາບ. ຖ້າຫາກ ທ່ານຕ້ອງການການຊ່ວຍເຫຼືອໃນການແປເອກະສານນີ້ຟຣີ, ຈົ່ງໂທຣໄປທີ່ໝາຍເລກຂ້າງເທິງນີ້.

Hubachiisa. Dokumentiin kun bilisa akka siif hiikamu gargaarsa hoo feete, lakkoobsa gubbatti kenname bibili.

Внимание: если вам нужна бесплатная помощь в устном переводе данного документа, позвоните по указанному выше телефону.

Digniin. Haddii aad u baahantahay caawimaad lacag-la’aan ah ee tarjumaadda qoraalkan, lambarka kore wac.

Atención. Si desea recibir asistencia gratuita para interpretar este documento, llame al número indicado arriba.

Chú ý. Nếu quý vị cần được giúp đỡ dịch tài liệu này miễn phí, xin gọi số bên trên.

LB2 (8-16)

ADA Advisory

For accessible formats of this publication or additional equal access to human services, write to dhs.child.care@state.mn.us, call 651-431-3809, or use your preferred relay service. (ADA1 [9-15])

Table of Contents

Early Childhood Indicators of Progress

Minnesota's Early Learning Standards

Introduction

The early childhood years (from birth to the start of kindergarten) are an important time of rapid growth and learning. Children's brains are developing more quickly at this time than at any other. They are exploring what they can do with their bodies and creating relationshi s with loved ones. They are investi ating how the world works and their place in that world. Because of this complex and rapid development in young children, a shared set of expectations of what young children can know and do is necessary to build successful early childhood education programs and supports. In Minnesota, this set of shared expectations is called the *Early Childhood Indicators of Progress: Minnesota's Early Learning Standards* (ECIPs). The areas of learning or domains covered by the ECIPs include physical and movement development; language, literacy and communications; cogniti e; mathematics; science; social systems; approaches to learning; the arts; and social and emotional development.

"We must ensure that all students enter school physically healthy, with key language and literacy skills as well as the social and emotional capacity to approach learning - and life - with confidence, curiosity and enthusiasm." (Council of Chief State School Officers 2010, 1)

The first years of life are critical for later outcomes. Young children have an innate desire to learn. That desire can be supported or undermined by early experiences. High-quality early childhood education can promote intellectual, language, physical, social, and emotional development, creating school readiness and building a foundation for later academic and social competence. By defining the desired content and outcomes of young children's education, early learning standards can lead to greater opportunities for positive development and learning in these early years (NAEYC & NAECS/SDE 2002, 2).

How children learn in the early years

Every moment for a young child is a learning moment. Every interaction and experience gives them information, increases their understanding, and provides them with foundational skills that they will use for the rest of their lives.

> **"We now know that rich and engaging early learning experiences and nurturing, responsive relationships with parents and caregivers are as important to a young child's developing mind as nutritious meals and good health care are to their developing bodies." (Council of Chief State School Officers 2010, 3)**

When nurtured and guided, children flourish. They thrive in supportive relationshi s and grow in confidence. Through hands-on interactions with objects and people, they begin to figure out how the world works.

Play, Exploration and Active Learning

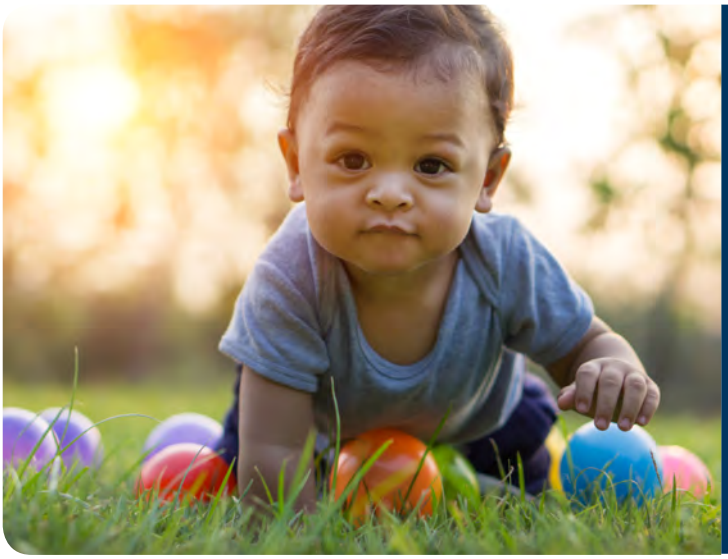
The most e ecti e curricular approaches in early childhood are based on young children as active learners emphasizing play, exploration, and constructi e learning more so than didactic, teacher-led, passive learning experiences. The ECIPs support play, exploration, and active learning for children from birth through kindergarten entry.

> **"...a preponderance of research has shown that there is a false dichotomy between more rigorous academic learning and play...Students are more likely to learn important academic skills and content through play than by having teacher-directed instruction outside of a playful context, as with, for instance, the filling out of a worksheet." (Lieberman and Cook 2016, 9)**

For infants and toddlers, play and exploration are rooted in strong a achments to family members as well as teachers and providers. The young, non-mobile infant observes and explores the adults who care for him, touching, listening, looking, and taking in all that is around him. He also explores his own body, figuring out what he can do with his hands, his arms, his torso, and his toes. As older infants begin to crawl and walk, they are able to interact more with the physical environment and explore their surroundings, still needing the base of support provided by familiar and trusted adults. Toddlers are even more active as they play and explore with a greater range of motion and physical capabilities. Their increasing communication skills and growing independence allow them to be more adventurous and always more able to explore with a solid base of adult support. E ecti e teachers and providers structure the environment with safety in mind and o er intriguing objects appropriate for the age group. They interact with children as they play and explore, giving descriptions that increase vocabulary, engaging in longer conversations as children's language usage increases, and encouraging curiosity and problem solving. Carefully planned experiences and toys increase the opportunity for children to learn.

E ecti e teachers and providers of infants and toddlers use the ECIPs to plan appropriate play experiences. They observe children at play and during routines, and refer back to the standards to identi y what skills and knowledge the child is demonstrating and what he or she is ready to do next. Based on their observations and reflections elated to the ECIPs, they o er more play experiences and observe again. The ongoing planning/observation/ eflection cycle is at the heart of best practices

For preschoolers, play and exploration are the most meaningful ways for children to acquire skills and knowledge as well as to practice skills and refine understanding of new concepts. Rather than view play as nonacademic, e ecti e teachers and providers of preschoolers recognize that high quality play experiences present many learning opportunities that have long-lasting e ects for children. Research has found greater academic achievement in the primary grades for children who engaged in child-initiated, producti e play in the preschool years (Copple and Bredekamp 2009). Links have been made between play and the development of basic literacy skills, creati e problem-solving, prosocial behavior, self-regulation, and executi e function. Young children's



Children are such curious creatures. They explore, question and wonder, and by doing so, learn...For too many children, curiosity fades. Curiosity dimmed is a future denied. Our potential — emotional, social, and cognitive — is expressed through the quantity and quality of our experiences. And the less-curious child will make fewer new friends, join fewer social groups, read fewer books, and take fewer hikes. The less-curious child is harder to teach because he is harder to inspire, enthuse, and motivate. (Perry 2001, 1)

engagement in high quality play supports their curiosity as they experiment and hypothesize. Play provides strong motivation for learning and multiple opportunities for practice and skill development.

Teachers and providers who work with preschoolers plan for play experiences with learning in mind. Using the indicators in the ECIPs to plan, they can sca old learning by individualizing play activities and carefully choosing materials, offering ideas, and interacting with children.

Purposes for Early Learning Standards

The ECIPs were developed and revised so that Minnesota's children are served by teachers and providers with a shared set of expectations. The ECIPs are based on the most recent research and demonstrate a continuum of learning that includes expectations for all children. They are a framework that fulfills multiple purposes:

1. **Provide a resource** for early childhood professionals as they work with young children and their families across the state.
2. **Support** quality improvement initiati es in early childhood care and education
3. **Align** across the full educational spectrum from birth through secondary levels.

The ECIPs as a Resource

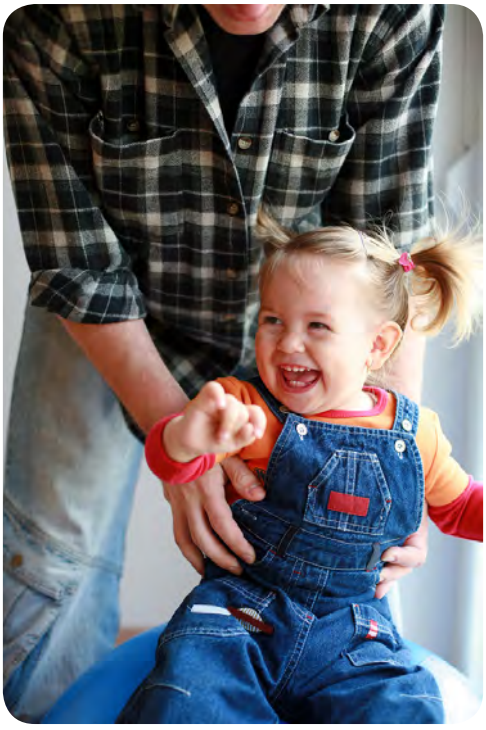
The ECIPs offer research-based information about expectations for children's capabilities at different ages and across varying domains of development. They provide a progression of learning so that teachers and providers in Minnesota have a common framework and vocabulary by which they can plan curriculum that is developmentally appropriate for children of different ages, that is a enti e to the individual needs of children, and that is culturally relevant for children's varying life experiences. The continuum of learning in the ECIPs and the alignment to kindergarten standards helps teachers talk with parents and families about generally accepted expectations, their child's progress, and individualized planning for next steps.

The ECIPs as a Support to Quality Improvement Initiatives

As a framework for accountability, the ECIPs are designed to inform curricula design and assessment selection. While not an assessment tool, the ECIPs serve as the foundation for the authentic assessment processes.

The Alignment of the ECIPs

The ECIPs align with the Minnesota K-12 Academic Standards and with the Common Core State Standards Initiati e for Kindergarten through Twelfth Grade (CCSS) for English Language Arts. They reflect the child development knowledge that defines the foundational skills necessary to build toward the Minnesota K-12 Academic Standards and the CCSS expectations



Background of the ECIPs Revision

The preschool version of the ECIPs was initially developed in 2000, and revised in 2005; the infant and toddler version was developed in 2007. These were revised and expanded into a single continuum of expectations in the 2016 version of the ECIPs.

The revision process of the ECIPs used commi ees composed of professionals from school districts, Head Start and child care, including diverse content specialists, teachers, providers, coaches, faculty, trainers and administrators, convened to address specific domains. Proposed indicators were reviewed by additional content experts. Finally, the standards were reviewed for plain language to ensure the standards are as clear as possible.

The 2016 revision includes the following changes:

- The infant and toddler and preschool versions are combined into one set of standards for birth to kindergarten entrance.
- The display of the standards was revised.
- The age ranges were increased to make the ECIPs more helpful in planning.
- The primary audience was clarified to be teachers and providers in early childhood programs.

Guiding Principles for ECIPs Development

The ECIPs revision is based on the following guiding principles. The ECIPs:

□Recognize that young children are:

- Competent and capable of positive developmental outcomes and deserve high expectations
- Individuals who develop at different rates and will vary in their progress within learning domains.
- Best understood and supported within the context of their family, culture and community.
- In a rapid period of brain development and need nurturing environments with appropriate interaction and encouragement to take full advantage of this growth period.
- Acti e learners who learn best in environments where they can construct their knowledge and practice their skills in a variety of ways, with teachers and providers who respect and respond to their needs.

> **"For optimal development and learning of all children, individuals who work with children must respect, value, and support the culture, values, beliefs, and languages of each home and promote the meaningful, relevant, and active participation of families." (Division for Early Childhood 2010, 1)**

□Support equity and excellence for all children in the state of Minnesota.

High-quality early childhood education supports the optimal development of each and every child regardless of income, ability, race, culture, or special needs. The ECIP promote equity and excellence so that every child has access to teachers and providers whose expectations are the same for each and every child. These expectations are the foundation on which teachers and providers build the supports for individual children while working toward generally accepted expectations for all. The ECIP are written in a way so that teachers and providers can plan experiences that reflect the families' cultures, interests and perspecti es. This is necessary so that children are then be er able to focus, interact, play and learn.

□Describe observable behaviors.

The ECIP are written in language that allows for consistent understanding and implementation by teachers and providers. Because the indicators are forma ed across a continuum of age groups, the standards make it possible for children to demonstrate an outcome through a variety of culturally appropriate ways and with a variety of materials. This helps teachers and providers use authentic assessment practices based on ongoing observation and documentation. In addition, the language of the ECIP allows for flexibility as teachers and providers work closely with a child's family to learn more about how the child is developing in his or her family, neighborhood, religious sect or ethnic group.

□Demonstrate a continuum of learning from birth to kindergarten entrance.

Whenever appropriate, they have consistent domains across ages and components. In this way, teachers and providers can refer to the continuum in the ECIPs as they observe what the child can do, have a general idea of what to expect next, and identi y ways to support each child's learning and development.

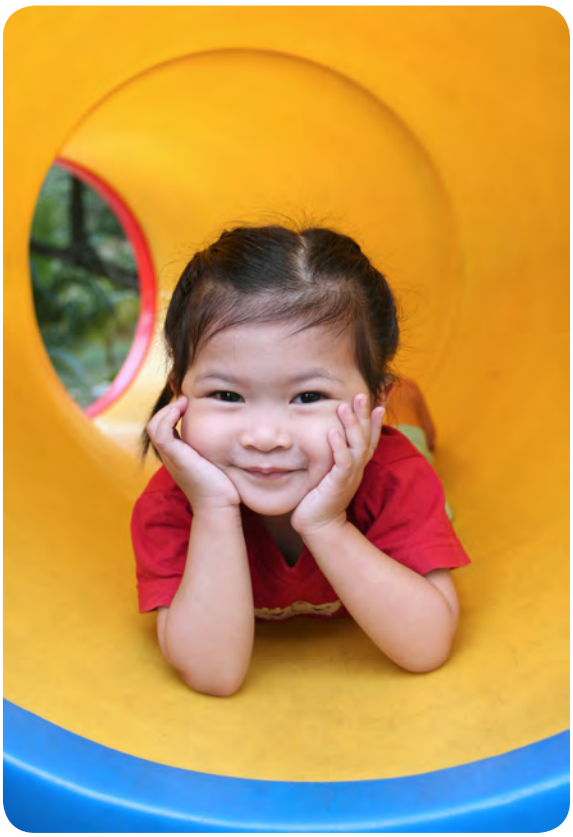
While young children's development follows a predictable sequence, development is not uniform. Each child's pa ern and pace of development varies. There may be strengths in certain domains and opportunities in others. Sometimes children have an identified delay or disability that requires adaptations and accommodations. The continuum in the ECIPs helps teachers and providers address individual differences among children in their program.

□Demonstrate a continuum of learning from birth to kindergarten entrance.

Learning is strongest when integrated across domains or broad areas of growth and development. Development in one domain influences development in other domains. For example, children with a strong self-concept and expanding oral language skills may engage in more successful social interactions with peers and adults. The ECIPs address this interrelatedness in the inclusion of some similar indicators across different domains. As teachers and providers observe children's performance related to the ECIPs, they recognize children's strengths, build upon them, and maximize connections across domains.

What the ECIPs Are and What they Are Not

The ECIPs demonstrate a **continuum of increasingly complex learning** for children from birth to kindergarten entrance. They address the development and learning of ALL children, including typically developing children, dual language learners, children with disabilities, and children with high needs.



They are not an all-inclusive resource about children's development. The standards reflect a selection of **important developmental expectations** that highlight the learning and skills children need in order to be prepared for kindergarten and to continue as life-long learners.

There are appropriate and inappropriate uses of the ECIPs. They are not intended to be used as a curriculum or an assessment tool. However, they should be used to **inform curricular decisions** and to correlate with authentic assessment procedures and content.

The ECIP are not to be used to determine children's eligibility for various programs or services or to deny children access to programs or services.

Opportunities for Children

- Children and families will experience consistent expectations for the child's development regardless of the early childhood program the child a ends.
- All children will have access to challenging content and the supports they need to learn that content.
- Children will experience a coherent progression of learning expectations throughout early childhood, aligned to those in kindergarten and the primary grades.

How to Read the New ECIPs

The organization of the domains is designed to be easy-to-understand and aid in planning for individuals and small groups of children. The ECIP are now displayed as an age continuum within each domain and include the following elements:

- **DOMAINS** are major areas of development.
- **COMPONENTS** are specific areas of learning within each domain.
- **SUBCOMPONENTS** are consistent strands within a component across the full age-range continuum
- **INDICATORS** are expectations for observable outcomes for the child at specific ages. For quick reference, indicators are now numbered within the domain and subcomponent.
- **INDICATOR NUMBERS** identi y the location of an indicator within the domain, component and subcomponent.

The learning domains included in the ECIP are:

1. Social and Emotional Development
2. Approaches to Learning
3. Language, Literacy and Communication
4. Creativity and the Arts
5. Cogniti e Development: Mathematics, Science and Social Systems
6. Physical and Movement Development

There are five age ranges identified, one for each year of a child's life from birth to kindergarten entry. The age ranges in the new ECIPs are:

- 0-1 year
- 1-2 years
- 2-3 years
- 3-4 years
- 4-5, K-readiness

Note: In the Language, Literacy and Communications domain, the first two age ranges are slightly different that in the other domains. This is because of the large amount of research that highlighted these age ranges as important in language development.

Remember, children's development is highly variable. Children will not always demonstrate indicators identified or their chronological age. They may show some behaviors identified or younger children or may demonstrate some skills and knowledge beyond their present age. The ECIPs are forma ed in a continuum across different age ranges so that teachers and providers can identi y where each child is performing and easily see what the next expectation is in the continuum. They can also see the indicator(s) in a previous age range, which can guide teachers to plan for missed or needed experiences and adapt curricula accordingly.

How Different Groups Can Use the Standards

The primary audience of The Minnesota Early Childhood Indicators of Progress (ECIP) is teachers and providers in early childhood care and education programs that serve children from birth to kindergarten entrance. The settings or these programs may include school districts, child care, community preschools and Head Starts. Administrators, directors, principals, educational leaders, policy makers, community members, and other stakeholders will use the ECIPs when planning for or assessing the e ecti eness of current policies and resources related to the optimal development of young children.

Communication with families should include discussion of the ECIP so parents have the information they need to support their children's learning and development. Potential uses of the ECIP by different groups are described more fully below.

Families

Family engagement is an essential component of successful implementation of the early learning standards. Families of young children in Minnesota be er understand their children's development and communicate more fully when teachers and providers share this framework with them. The standards create a common vocabulary for the families and the staff so that communication flows easily. As they work in partnership with teachers and providers, families see high quality early childhood practices in action.

Teachers and Providers

The ECIPs should be used frequently as a tool to assist in meeting the individual needs of all children. Teachers and providers will use the ECIPs in three primary ways:

1. To guide planning for learning experiences and e ecti e caregiving and teaching strategies.
2. To provide direction for authentic assessment of young children.
3. To support family engagement.

In addition, teachers and providers will be impacted by the ways that the ECIPs influence program standards and evaluation. Plans for staff training and development sessions, as well as higher education coursework in Minnesota will integrate the ECIPs into all areas of best practices for those working with young children.

Curriculum Planning

When planning for curricular approaches for infants, toddlers, and preschoolers, teachers and providers can turn to the ECIPs to identi y the concepts, knowledge, and skills appropriate for children at different ages. Teachers and providers use the broad developmental trajectories identified in the ECIPs to plan for individual children and determine the best ways to support each child's continued growth. In addition, by considering the diverse cultural backgrounds of the children and their families, teachers ensure that the curricular approaches are culturally inclusive as they plan activities and experiences.

The ECIPs support strong communication among all professionals within and across early childhood programs when everyone uses the common vocabulary of the ECIPs.

Authentic Assessment

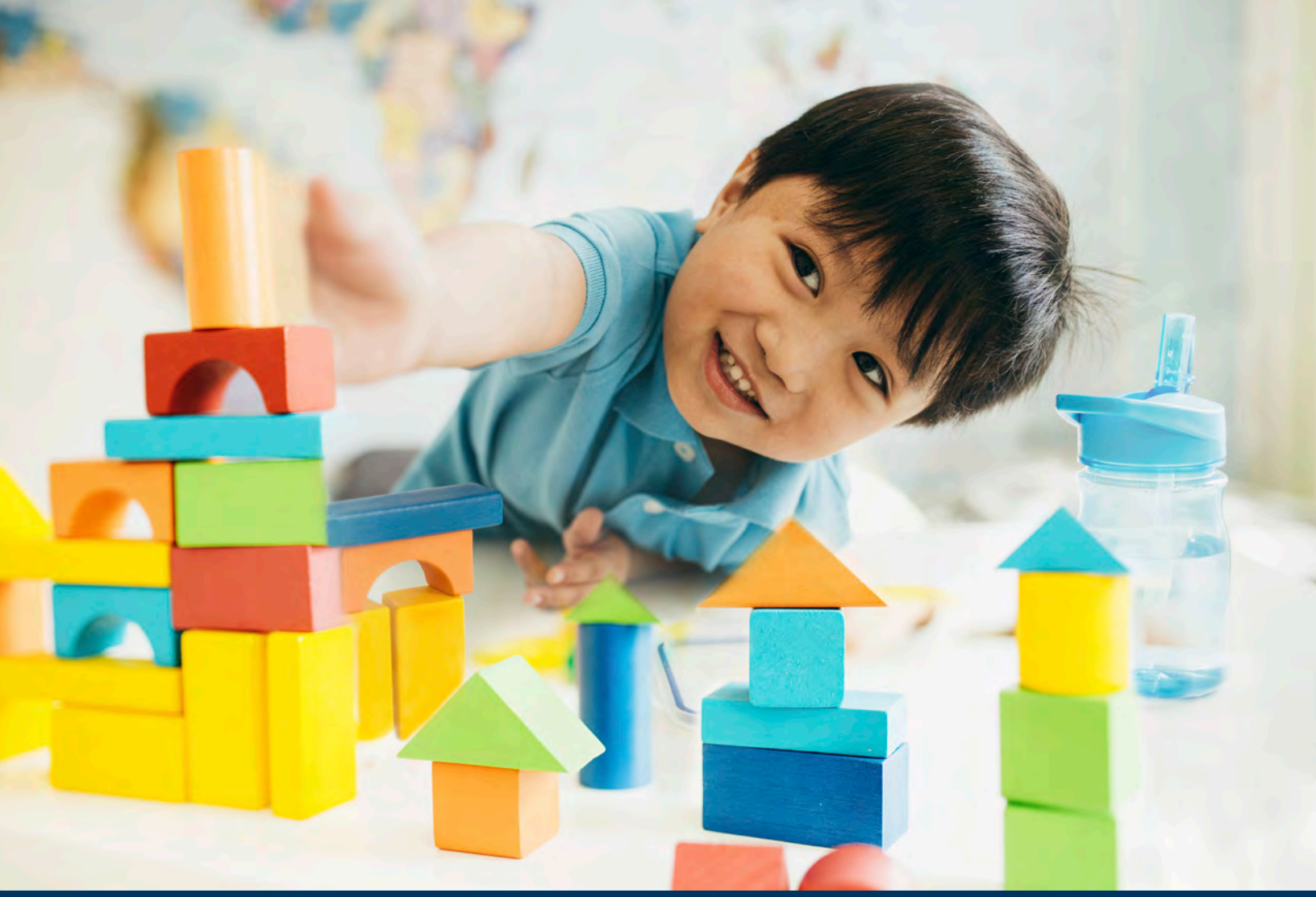
The ECIPs provide direction for teachers and providers when using authentic assessment procedures to monitor young children's progress. Assessment tools aligned with the ECIPs should be selected to ensure standards, curricula, assessments and teaching strategies create a coherent experience for the children and enable teachers and providers to impact children's learning and growth. Teachers and providers can engage in criterion-referenced, observational assessment that is authentic, grounded in the everyday practice of observation, documentation, and collection of work samples.

Staff Training and Development

Higher education coursework and ongoing staff training and development are important ways to further the professionalism of teachers and providers in early childhood education programs. The ECIPs will be integrated into these learning experiences for teachers and providers, offering a framework of child development expectations and developmentally appropriate practices. Higher education coursework and staff development sessions increase familiarity with the ECIPs as well as address the implications of the standards for curriculum and assessment.

How the ECIPs Relate to Program Standards and Program Evaluation

Program standards and the ECIPs share the same goal: to improve outcomes for young children. The ECIPs are a framework that supports high quality programming for young children, within any set of program standards. Programs may be accountable to the Head Start Program Performance Standards or to accreditation processes such as those established by the National Association for the Education of Young Children (NAEYC) and the National Association of Family Child Care (NAFCC). In fact, these program standards create the conditions for successful implementation of the ECIP by creating high quality learning environments for young children.



Conclusion

The ECIPs are a solid foundation for the Minnesota early childhood care and education programs that offer services for young children and their families. The indicators in the ECIPs clarify expectations for all children's development while supporting teachers and providers in offering the highest quality services for young children and their families. Improved programs, teacher interactions and individualized planning result in be er outcomes for young children.

The ECIPs are the basis for pedagogy, curriculum, child assessment, teacher preparation curricula, and evaluation in Minnesota. We hope that teachers and providers use the standards to communicate with parents and family members so that, together, they make a difference in the lives of children. In addition, community members and policymakers will use the standards to make neighborhoods and cities robust places for children and families to thrive. The goal of these united e orts to implement the Minnesota Early Indicators of Progress fully is to support each child to grow, develop and learn while reaching his or her full potential

Early Childhood Indicators of Progress: Minnesota's Early Learning Standards

Introduction to Approaches to Learning Domain

"My friends and I decided to build a house on the floor at our preschool. We had some small wooden blocks, some magnetic blocks, and some Legos that we stacked up to make walls. Lydia said, "We need a roof." I said, "Good idea, Lydia! We could make it out of magnet blocks." She agreed and together with our friend, Kylee, we started laying the magnet blocks across the walls we had built. But the roof kept falling down. Kylee said, "I think our walls are too far apart." We all helped to move them closer and rebuild the roof for our house. It worked! We continued to build more rooms and put roofs on them for the next twenty minutes."

In the early years, children are learning so many things. Their brains are rapidly developing and multitudes of cogniti e connections are being created. They're learning to use their bodies. They're learning the ins and outs of relationshi s and to express their feelings. Communicating with others and processing language is a big step. Skills and concepts are acquired rapidly during early childhood if children are given the opportunity to explore.

But most importantly, young children are learning how to learn and manage their learning. The domain of Approaches to Learning focuses on the very traits that children must develop so that they can be successful as learners in later schooling and throughout their lives:

- Curiosity
- Engagement
- Persistence
- Inventi eness
- Organizing informatio

There is research to support the importance of children's approaches to learning and success in school. One study found that children with higher levels of a enti eness, task persistence, eagerness to learn, learning independence, flexibility, and organization, generally did be er in literacy and math at the end of the kindergarten school year and the beginning of their first-grade year. In addition, children who approach learning tasks or novel situations with these positive approaches to learning are be er able to regulate their learning experiences, and more quickly acquire general knowledge and cogniti e skills. (Conn-Power 2006, 2)

The expectations that are set out in the Approaches to Learning domain of the Minnesota Early Childhood Indicators of Progress (ECIPs) show the ways that children demonstrate these approaches at different ages. There is no alignment with the indicators in this domain with the Minnesota Academic Standards for Kindergarten because there is no similar domain in K-12 Standards. Instead, early childhood professionals can turn to other resources for kindergarten expectations

The Approaches to Learning Domain includes four components:

- AL 1-2 Initiati e and Curiosity - Showing an active interest in surroundings, people, and objects. Demonstrating an eagerness to learn.
- AL 3-6 A enti eness, Engagement and Persistence - Focusing and maintaining a ention, makes constructi e choices, plans to achieve a goal.
- AL 7-9 Creativity - Demonstrating originality and inventi eness in a variety of ways. Appropriately expressing one's unique ideas.
- AL 10-13 Processing and Utilizing Information – Gathering, storing, and organizing information that is perceived through the senses in order to use or apply in new situations. Constructing and using knowledge.

The sub-components and indicators identified or the ages of birth through kindergarten entry address the specific expectations across the developmental spectrum.

- For infants, indicators focus on the ways that infants show interest in their environment, interact with others and objects for short periods of time, begin to manage frustration, begin to generalize experiences, and recognize cause and e ect relationshi s.
- The indicators for toddlers include how they are beginning to examine the characteristics of objects, make some independent choices, handle transitions, seek out others to play and carry out play plans, pretend, and identi y and communicate about problems.
- The indicators for preschoolers focus on how children show their eagerness to investi ate new things, engage in play with peers for extended periods of time, persist, experiment with new ways to combine materials, and contribute relevant information to discussions.

The skills and concepts in the Approaches to Learning Domain are highly interrelated to children's development in other domains. Teachers and providers of young children must remain a enti e to this important area so they build practice in these skills throughout the curriculum and children develop this important foundation

> Children's ability to stay focused, interested, and engaged in activities supports a range of positive outcomes, including cogniti e, language, and social and emotional development. It allows children to acquire new knowledge, learn new skills, and set and achieve goals for themselves. Many early learning experts view approaches to learning as one of the most important domains of early childhood development. (Head Start 2015)

Resources:

Conn-Powers, Michael. 2006. All Children Ready for School: Approaches to Learning. Early Childhood Briefing Paper Series. Bloomington: Indiana Institute on Disability and Community.

Head Start. 2015. Approaches to Learning. https://eclkc.ohs.acf.hhs.gov/hslc/hs/sr/approach/elof/a2_learning.html

Domain: Approaches to Learning

Components AL1-2: Initiative and Curiosity

Subcomponent	0-1 year	1-2 years	2-3 years	3-4 years	4-5 years, K Readiness
AL1 **Inquisitiveness** Child explores the environment and seeks interaction with people and objects; willingly tries new things	**AL1.1** Shows interest in the environment primarily through looking and listening **AL1.2** Responds to people by looking kicking legs, vocalizing, reaching **AL1.3** Demonstrates readiness for new experiences	**AL1.4** Uses senses to explore their environment **AL1.5** Seeks and taking pleasure in new skills	**AL1.6** Approaches new materials in the environment with interest	**AL1.7** Investi ates and experiments with materials with enthusiasm **AL1.8** Tries different ways of combining materials **AL 1.9** Asks question	**AL1.10** Scans environment and notices new objects, materials and activities right away. Asks about them **AL1.11** Eager to investi ate new things and have new experiences
AL2 **Wonderment** Child expresses interest in novelty	**AL2.1** Vocalizes in response to a new person, toy or experience	**AL2.2** Bangs, moves, throws and dumps materials with pleasure	**AL2.3** Turns objects around, upside down and inside out to examine characteristics	**AL2.4** Verbally expresses interest when encountering novel objects or events	**AL2.5** Independently seeks out new experiences, objects, or materials for own enjoyment

Components AL3-6: Attentiveness, Engagement and Persistence

Subcomponent	0-1 year	1-2 years	2-3 years	3-4 years	4-5 years, K Readiness
AL3 **Attending** Child focuses visual and auditory a ention on relevant aspects of the environment	**AL3.1** Recognizes primary caregiver and familiar objects by touch, sight, sound, smell	**AL3.2** Stays focused on activities or a short period of time	**AL3.3** Maintains a ention for longer periods of tim	**AL3.4** Returns to an activity a er an interruptio **AL3.5** Engages in play with peers for extended period of time **AL3.6** A ends in a large group for short periods	**AL3.7** A ends in large group activities led by teacher for sustained periods **AL3.8** Particip tes in large group activities and discussions **AL3.9** Listens to others
AL4 **Self-direction** Child makes choices based upon own interests	**AL4.1** Shows preference for people, objects, and food	**AL4.2** Makes choices seeking occasional assistance from adult	**AL4.3** Makes choices independently	**AL4.4** Engages in self-initi ted activities for sustained periods of tim	**AL4.5** Creates a plan to achieve a goal and follows through to completio
AL5 **Diligence** Child is focused and producti e	**AL5.1** Repeats actions intentionally to achieve goals	**AL5.2** Interacts with others, objects or activities for short periods of time	**AL5.3** Seeks assistance then persists to complete task	**AL5.4** Works at a task despite distractions	**AL5.6** Conscientiously a empts to complete assigned tasks
AL6 **Resilience** Child responds to challenge by adaptin	**AL6.1** Calms self when frustrated	**AL6.2** When upset, can recover in a reasonable amount of time	**AL6.3** Handles transitions comfortably	**AL6.4** Copes with change, persists and moves ahead **AL6.5** Approaches new tasks with confidenc	**AL6.6** Maintains a positive outlook in spite of challenges **AL6.7** Demonstrates ability to adjust to changes

Components AL7-9: Creativity

Subcomponent	0-1 year	1-2 years	2-3 years	3-4 years	4-5 years, K Readiness
AL7 **Immersion** Child becomes absorbed in the process of exploratio	**AL7.1** Looks and listens with intensity	**AL7.2** Explores environment with purpose	**AL7.3** Shows preference for certain activities, objects and materials through sustained involvement	**AL7.4** Repeatedly becomes engrossed in activities of own choosing. **AL7.5** Rarely shows boredom when engaged in preferred activities	**AL7.6** When interested in a topic seeks opportunities to learn more and sati fy own curiosity
AL8 **Playfulness** Child demonstrates a sense of humor and imagination in their play	**AL8.1** Smile, coos and laughs **AL8.2** Begins to be playful with familiar people and objects	**AL8.3** Explores and uses materials in new and unconventional ways **AL8.4** Observes others when they are laughing and smiles or laughs too	**AL8.5** Shows interest in other's play and seeks out others to play **AL8.6** Uses a variety of voice inflections and facial expressions in play; laughs	**AL8.7** Tries out various pretend roles **AL8.8** Experiments with new ways to combine materials when playing	**AL8.9** Approaches tasks with imagination and inventi eness
AL9 **Production** Child expresses ideas, thoughts and opinions and creates products that are unexpected, original and relevant	**AL9.1** Shows excitement and pleasure at making something happen (acti ates mobile by kicking foot, drops toy and hears a "bang")	**AL9.2** Wants to do things by self and has own way of doing thing **AL9.3** Begins to play with toys, objects and materials in new, ways.	**AL9.4** Begins to organize play and carry out own plans	**AL9.5** Engages in inventi e social play **AL9.6** Engages in inventi e play with materials **AL9.7** Tries out different ways to accomplish a task	**AL9.8** Becomes absorbed in the process of creatin **AL9.9** Purposefully works to create unique products of own choosing

Components AL10-13: Processing and Utilizing Information

Subcomponent	0-1 year	1-2 years	2-3 years	3-4 years	4-5 years, K Readiness
AL10 **Working Memory** Child stores and retrieves information in order to use it purposefully	**AL10.1** Demonstrates understanding of object permanence	**AL10.2** Uses some prior experiences to build new knowledge and solve problems **AL10.3** Anticip tes familiar, daily events	**AL10.4** Able to remember and pretend a sequence of events **AL10.5** Recites simple songs, rhymes, a short sequence of le ers, numbers, etc.	**AL10.6** Recalls and follows multi step directions of increasing complexity **AL10.7** Recites complete songs or rhymes	**AL10.8** Independently carries out all of the steps in daily routines such as putting toys away, preparing for lunch, etc **AL10.9** Particip tes in discussions about familiar topics and contributes relevant informatio
AL11 **Symbolic Representation** Child uses sounds, actions, objects and materials (paint, clay, blocks, etc.) to express their ideas and understanding as well as to make new connections	**AL11.1** Imitates actions or makes a sound to represent or stand for an object or event (“Arf” for dog)	**AL11.2** Acts out a sequence of related actions to recreate personal experiences (feeding teddy bear with a spoon, etc)	**AL11.3** Begins to use one object to stand for another in play (block as a telephone) **AL11.4** A er exploring and experimenting with materials, labels their creatio	**AL11.5** **Begins to intenti**onally plan how to use materials to express an idea(may have a story in mind when pretending **AL11.6** Notices written words represent objects, people or events and begins to use in play	**AL11.7** Plans and creates elaborate play plots, stories, block structures and art projects **AL11.8** Begins to use print as a tool to express thoughts, ideas and to intentionally communicate

Subcomponent	0-1 year	1-2 years	2-3 years	3-4 years	4-5 years, K Readiness
AL12 **Cognitive Flexibility/ Reasoning** Child considers more than one possible outcome to a problem or situation; begins to create theories for why things happen; can recognize how one thing relates to or a ects another thing	**AL12.1** Recognizes their actions can cause a specific response	**AL12.2** Notices similarities and differences **AL12.3** Anticip tes what will happen next	**AL12.4** Makes inferences based on what is seen, heard, smelled, etc. **AL12.5** Considers possibilities for why something happened	**AL12.6** Predicts and hypothesizes what will happen next **AL12.7** Forms theories about why things happen	**AL12.8** Draws conclusions and can explain their thinking **AL12.9** Considers another point of view and will change opinion or idea when faced with new informatio **AL12.10** Collaborates with others to investi ate a situation or problem
AL13 **Problem Solving** Child seeks and finds solutions to problems	**AL13.1** Notices and pays a ention to things that seem amiss	**AL13.2** Examines objects that don't respond as usual; a empts to make object work as expected	**AL13.3** Communicates to others that there is a problem and request that they solve it	**AL13.4** Makes guesses about how a problem might be solved and with support is willing to follow through to a solutio	**AL13.5** Independently a empts to solve problems **AL13.6** Explains the possible solution and the outcome **AL13.7** Evaluates the outcome of a empted solutions and makes revisions if necessary

Early Childhood Indicators of Progress: Minnesota's Early Learning Standards

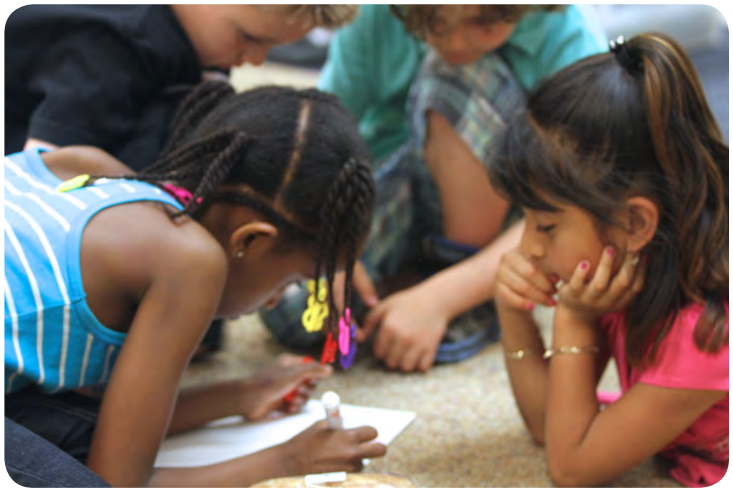
Introduction to The Arts Domain

"I am four-years-old and I like to make things. I make towers and buildings with blocks. I make snakes and balls with modeling dough. I make sounds and rhythms when I pound on a drum. I make up stories and act them out when I put on dress-up clothes or play with puppets. I really like to look at the pictures in books, to sing songs, to dance and move to music, and to paint and draw with different kinds of materials. Sometime I want to sing because I'm happy and sometimes I like to paint people that I'm thinking about. Sometimes I feel better when I'm I've pretended with my friend. At my preschool program, I have time to do these things and my teachers help me, encourage me, give me new ideas and things to work with, and join me in joyfully experiencing creativity in many ways."

"Every child is an artist. The problem is how to remain an artist when he grows up." -Pablo Picasso

Children's development related to creati e expression in the arts begins in their very first days. They interact with their family members in loving care that may include the soothing sounds of lullabies and the rhythmic movements of being rocked and pa ed. As their visual capabilities develop, they see the colors and shapes in their home environment and in nature. As their mobility increases, they move their bodies and experiment with what their muscles can do to get places and to express themselves. And, as children are able to make use of various tools, they make marks on paper, engage their senses with finger paint and modeling dough, and explore and create with various toys and objects. Books, photographs, music and media surround young children and expose them to the creativity of others. The arts for the young child are an integral part of living in the world and figuring out one's own capabilities for self-expression.

The expectations that are set out in the Early Indicators of Childhood of Progress (ECIPs): Minnesota's Early Learning Standards recognize that in the early years, children are developing skills in the arts that allow them to explore a variety of ways to be creati e and to express themselves. For this domain, the term "arts" is used to include all types of artistic expression that can be used in an early childhood classroom (paintin , drawing, making to music, dancing, pretend play, photography, building, etc. In addition, exposure to a variety of experiences help children further their appreciation of the arts and set life-long pa erns for enjoying the arts. The indicators in this domain are aligned with the Minnesota Kindergarten Academic Standards. The ECIPs provide guidance so that teachers and providers can know appropriate expectations for young learners and understand how best to support children in their development in the arts.



The Arts Domain includes three components:

- A1-2: Exploring the Arts
- A3-4: Using the Arts to Express Ideas and Emotions
- A5: Self-Expression in the Arts

The subcomponents and indicators identified or the ages of birth through kindergarten entry address the specific expectations across the developmental spectrum.

- For infants, indicators focus is on the ways that children begin to explore their senses, and their own preferences
- The indicators for toddlers include how they begin to explore art materials including finger paint, crayons, music, dancing and clay.
- The indicators for preschoolers focus on how children intentionally use the arts, develop the vocabulary to describe their own creations and begin to combine artistic elements.

Creati e thinking and innovation are skills that are promoted in educational standards that lead to workforce readiness and academic success. Skills in the arts are seen as highly interrelated with development across domains. Teachers and providers can infuse arts experiences into all parts of their curricular planning for young children and bring about meaningful engagement. Arts experiences are motivating and allow children to learn in fun and interesting ways.

> When students experience learning through creativit , they will be be er prepared for meeting the challenges of society and participating in the workforce (NEA 2012). Embracing creativity as a 21st century skill by addressing academic and arts standards in one lesson can inspire, moti ate, and engage children in the learning process and move them forward in their learning and in their future careers. (Hunter-Doniger 2016, 35)

The indicators in the ECIPs help teachers and providers, along with children's family members, understand the expectations for arts development that are appropriate for the youngest learners.

Resources:

Hunter-Doniger, Tracey. 2016. "Snapdragons and Math Using Creativity to Inspire, Motivate, and Engage." Young Children. 71, no. 3: 30-35.

Domain: The Arts

Components A1-2: Exploring the Arts

Subcomponent	0-1 year	1-2 years	2-3 years	3-4 years	4-5 years, K Readiness	K Alignment
A1 Interest in Art: Child shows an interest in learning about different arti tic experiences	**A1.1** Acti ely explores their environment (through song, music, movement etc) to enrich their senses	**A1.2** Begins to choose senses to explore	**A1.3** Investi ates di erent art experiences	**A1.4** Select their own art experience during play	**A1.5** Integrates a variety of art experiences during play	
A2 Understanding Differences: Child can distinguish di erences within each area of arti tic expression	**A2.1** Notices differences	**A2.2** Show a preference for toys, people, experiences	**A2.3** Chooses a artistic expression of their choice	**A2.4** Uses art-related vocabulary when discussing different media (stage, easel, brush, etc.	**A2.5** Discuss differences among artistic expression	**K1.1.1.1 – K1.1.5.1** Identi y the elements of dance, media arts, music, theater, visual arts **K1.2.5.1** Identi y the tools, materials and techniques from a variety of two- and three-dimensional media such as drawing, printmaking, ceramics or sculpture

Components A3-4: Using the Arts to Express Ideas and Emotions

Subcomponent	0-1 year	1-2 years	2-3 years	3-4 years	4-5 years, K Readiness	K Alignment
A3 Using Art: Child demonstrates interest and emotions in artistic expression	**A3.1** Responds to music by vocalizing, moving body, smiling or frowning at pictures, colors, shapes, etc.	**A3.2** Shows emotion when engages in arti tic expression	**A3.3** Chooses to spend time in artistic expression with available materials (paint, crayons, dramatic play, music etc.) and shares ideas	**A3.4** Demonstrates their preference by combining artistic elements (color, sound, media etc.)	**A3.5** Elects to spend time in artistic expression with purpose and analyzes their work	**K2.1.2.2** Revise creati e work based on feedback of others
A4 Patterns: Child understands pa erns in artistic media	**A4.1** Imitates sounds, motions and gestures	**A4.2** Shows preference for familiar sounds, motions and gestures	**A4.3** Begins to duplicate arti tic pa erns	**A4.4** Extends their arti tic pa erns with sounds, music, motions, gestures and materials	**A4.5** Creates their own arti tic pa erns	**K1.1.3.1** Identi y the elements of music including melody, rhythm, dynamics, tone color, texture, form and their related forms (and other standards in the strand Artistic Foundations)

Component A5: Self-Expression in the Arts

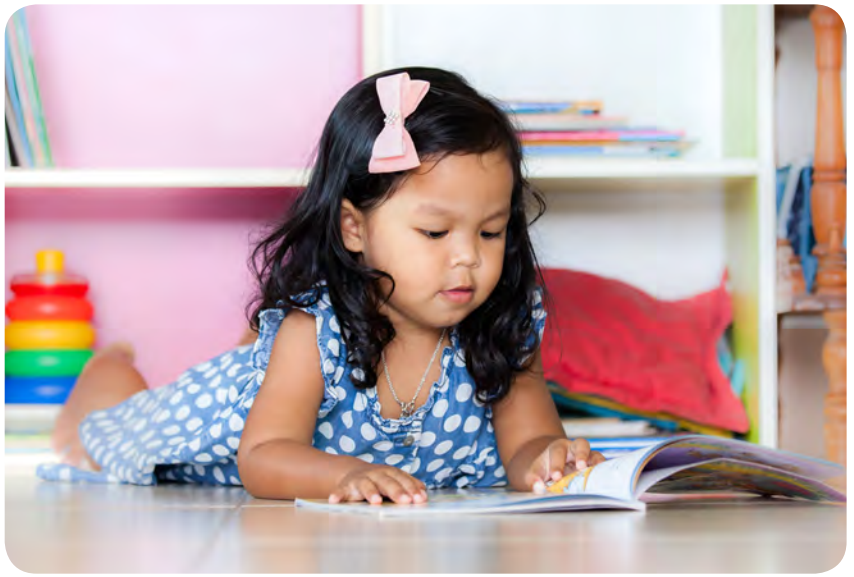
Subcomponent	0-1 year	1-2 years	2-3 years	3-4 years	4-5 years, K Readiness	K Alignment
A5 Self-Expression: Child uses art for self-expression	**A5.1** Expresses emotions when exposed to the arts	**A5.2** Shows preference in a variety of the arts to express oneself	**A5.3** Shares feelings and ideas through the arts	**A5.4** Describes own feelings through arti tic expression	**A5.5** Intentionally uses art for self-expression	**K3.1.2.1** Share and describe a personal media work

Early Childhood Indicators of Progress: Minnesota's Early Learning Standards

Introduction to Language, Literacy and Communications Domain

"Amaani, my family child care provider, talks and sings with me and the other children in her care every day. I am three-and-one-half years old and go to her home with my little baby brother and several other children of differing ages. My family speaks English only but I love to listen to the lilt in Amaani's voice when she talks with me in English and as she sings my baby brother to sleep with a song from her native Somalia. I hear different sounds and am learning some Somali words as well as some Spanish ones as my best friend, Gabriella, and her family speak that language. Amaani makes sure that we can all communicate with each other. My favorite times of the day are book times. Amaani has many different kinds of books and lets us look at them ourselves, reads them to us, and helps us understand the stories and learn new words. Sometimes we act stories out. Sometimes the story has a song that we sing or items that we can count. I really like the pictures in books about plants and animals and houses and big trucks. Amaani has markers and crayons that we can use to write and draw. I can make some of the letters in my name, Emily, but not perfectly. Amaani says that's okay. That I'm learning just right for a three-, almost four-year-old. Gabriella can make her "G" but my little brother just makes marks on the paper. But Gabriella and me know which name cards belong to us and to the other children. We like to pass them out. When we do it right, Amaani claps and smiles."

Language, literacy, and communication skills begin in the very first months of life and strong development of young children's skills and abilities depends on interactions with families, teachers, caregivers and friends. The expectations that are set out in the Minnesota Early Indicators of Child Progress (ECIPs) recognize that young children are developing foundational knowledge and skills that will lead to more rigorous academic study in the English Language Arts domain in the elementary school years. The alignment of the ECIPs with the Minnesota Academic Standards for Kindergarten is included and, as the kindergarten standards are revised, this alignment will be updated. The ECIPs provide guidance so that teachers and providers know appropriate expectations for young learners.



The Language, Literacy, and Communications domain includes four components:

1. Listening and Understanding; Recepti e Language LLC 1-2
2. Communicating and Speaking; Expressive Language LLC 3-4
3. Emergent Reading LLC 5-13
4. Writing LLC 14

The subcomponents and indicators identified or the ages of birth through kindergarten entry address the specific expectations across the developmental spectrum.

- For infants, indicators focus more on the children's recepti e language and beginning communication skills with loved ones and caregivers. Interactions with books and early phonological awareness are seen within the context of relationshi s with caregivers.
- As toddlers grow in their capabilities to express themselves in words and phrases, vocabulary in their home languages is emphasized, both from the recepti e as well as the expressive mode. Phonological awareness is seen in the ways that children engage with word play, songs and rhymes. As caregivers provide opportunities to interact with books and story-reading experiences, they help build initial concepts of print and early comprehension. Toddlers make initial a empts at writing as they scribble and draw with various writing tools.
- Preschoolers show their rapidly expanding vocabulary in the ways they can respond to adult directions and engage in conversations. They express their wants and needs more clearly and in greater complexity as their understanding of grammar and syntax grows. They show enjoyment in being read to and may read the pictures or retell the stories in books they know well. They begin to make sense of le ers and print as they play with reading and writing and engage in word play with the sounds of language as they develop phonological awareness.

The domain of Language, Literacy and Communications is foundational to children's development in all domains. Their development of oral language and the ability to communicate with others helps children function socially and in their daily lives. Their growing vocabulary includes the language of other domains. They incorporate mathemati al and scientific erminology as they learn more about the world around them. They grow in understanding of roles and responsibilities as they engage in dramatic play and imitate family life.

Certainly reading and writing are important long-term goals in school experiences. The indicators in the ECIPs are designed to work toward those goals with the foundational skills appropriate for the youngest learners. It's important for teaches and providers to remember that literacy in the early years is built on the foundation of oral language.

"Early literacy is an emerging set of relationshi s between reading and writing. These relationshi s are situated in a broader communication network of speaking and listening, whose components work together to help the learner negoti te the world and make sense of experience (Thelen & Smith 1995; Lewis 2000; Siegler 2000). Young children need writing to help them learn about reading, they need reading to help them learn about writing; and they need oral language to help them learn about both." (Roskos, Christie, and Richgels 2004, 1)

Resource:

Roskos, Kathleen A., James F. Christie, and Donald J. Richgels. 2003. Essentials of Early Literacy Instruction. Young Children, Vol. 58, No. 2: 52-60.

Domain: Language, Literacy and Communications: Cognitive

Component L1: Listening and Understanding; Receptive Language

Subcomponent	Birth to 6 months	6-15 months	15-24 months	2-3 years	3-4 years	4-5, K-Readiness	K Alignment
L1 Language comprehension: Child understands the meaning of words and phrases (recepti e) and uses those words and phrases to communicate e ecti ely (expressive)	**L1.1** Turns toward and focuses on nearby adult caregiver who is speaking **L1.2** Watches caregiver actions and gestures	**L1.3** Responds to nonverbal and verbal cues **L1.4** Responds to conversation, questions, and requests **L1.5** Responds to an object or action label such as ball or eat	**L1.6** Responds to increasingly complex sentences **L1.7** Responds to descripti e language about objects, actions, and concepts	**L1.8** Shows understanding of questions and statements about people, objects, ideas, and feelings **L1.9** Points to or places an object in/out, under/ over and top/ bo om when asked **L1.10** Notices when adults use unusual or uncommon words	**L1.11** Responds to direct questions and follows simple directio **L1.12** Points to or places objects before, a er, above, and below based on verbal cues	**L1.13** Follows directions that involve two or more steps **L1.14** Responds to increasingly complex prepositional directions, such as beside, around and next to	**K 0.8.1.1.d** Follows basic oral directio **K 0.8.1.1.a** Follows agreed upon rules for discussions **K 0.8.1.1.d** Follows basic oral direction

Components L2-3: Communicating and Speaking; Expressive Language

Subcomponent	Birth to 6 months	6-15 months	15-24 months	2-3 years	3-4 years	4-5, K-Readiness	K Alignment
L2 **Social conversation:** Child meaningfully engages in talk with others to express feelings, wants and ideas	**L2.1** Coos and gurgles, babbles, and imitates facial expressions to caregivers **L2.2** Begins a conversation through body movements	**L2.3** Uses sounds, gestures, or actions to communicate and express needs and wants **L2.4** Makes different sounds in response to objects, people, or activities	**L2.5** Uses real or made-up words or signs to express basic wants and needs **L2.6** Adds to or extends conversations with others	**L2.7** Uses sounds, signs, words, phrases for desires and interests **L2.8** Begins to ask "why" question **L2.9** Starts conversations with others	**L2.10** Continues conversations with comments or question	**L2.11** Negoti tes, shares, plans, and solves problems with others **L2.12** **Asks and** answers questions to seek help or get informatio	**K 0.8.1.1.b** Continue a conversation through mul ple exchanges **K 0.8.3.3** Ask and answer questions in order to seek help, get information, or clarify something that is not understood

Subcomponent	Birth to 6 months	6-15 months	15-24 months	2-3 years	3-4 years	4-5, K-Readiness	K Alignment
L3 Vocabulary and syntax: Child understands word order and grammati al rules	**L3.1** Imitates and repeats pitch and duration of caregiver sounds	**L3.2** Uses a few words or word approximations to represent concepts **L3.3** Names a few objects and people **L3.4** Imitates animal and other environmental sounds	**L3.5** Constructs simple two-word sentences (object and action **L3.6** Rapidly increases use and number of sounds and words	**L3.7** Uses increasingly complex and varied vocabulary and language **L3.8** Rapidly increases use of descripti e words such as giant, scary, silly **L3.9** Uses verbs such as have, had, or will in everyday conversatio	**L3.10** Uses short sentences to shares information about experiences, people, places, and things **L3.11** Uses increasingly precise adverbs such as quietly, loudly, quickly **L3.12** Uses more new and precise words **L3.13** Correctly uses some past tense and irregular verbs (go, went, gone)	**L3.14** Uses sentences that express logical relationshi s between concepts **L3.15** Uses increasingly specific words to name objects and their features and function **L3.16** Shares information about experiences, people, places, and things in sequence	**K 0.8.4.4** Describes familiar people places, things, and events and, with prompting and support, provide additional detail **K 0.10.4.4** Identifies new meanings for familiar words and apply them accurately **K 0.8.6.6** Speaks audibly and express thoughts, feelings, and ideas clearly, and responds to poems, rhymes and songs

Components L4-8: Emergent Reading

Subcomponent	Birth to 6 months	6-15 months	15-24 months	2-3 years	3-4 years	4-5, K-Readiness	K Alignment
L4 Motivation, engagement: Child has an interest in and sustained a ention for literacy acts	**L4.1** Likes to be read to and shown pictures	**L4.2** Makes sounds while looking at text or images **L4.3** Points to a few pictures in books and in response to adult question **L4.4** Demonstrates interest and involvement with books and other print materials	**L4.5** Relates an object in a book or print to the real object **L4.6** Imitates reading	**L4.7** Shows interest in both pictures and text **L4.8** Asks for or picks out favorite texts **L4.9** Focuses on a book while listening to the reader	**L4.10** Shows persistence with longer and more complex narrati es and informational text **L4.11** O ers a personal response to stories read aloud	**L4.12** Acti ely particip tes in reading activities with enjoyment and purpose **L4.13** Retells familiar stories using the book as a guide	**K 0.1.10.10** Acti ely particip tes in group reading activities with purpose and understanding including the appropriate selection of text for personal enjoyment, interest and academic tasks
L5 Phonological awareness: Child is able to hear and understand the discrete sounds that make up language	**L5.1** Looks at caregiver's lips and face when caregiver is speaking **L5.2** Pays a ention to sounds in the environment and the spoken language from caregivers	**L5.3** Shows interest in songs, rhymes, chants, and stories **L5.4** Recognizes sounds used by speakers of child's home language	**L5.5** Imitates sounds heard in the environment **L5.6** Identifie sounds heard in the environment	**L5.7** Repeats different sounds in rhymes and familiar words **L5.8** Distinguish s between spoken language and environmental sounds **L5.9** Recalls previously heard words, songs, and rhymes	**L5.10** Shows interest in and associates sounds with words **L5.11** Playfully explores sounds, words, and language, including rhyme and alliteratio	**L5.12** Identifies and continues sound pa erns in words **L5.13** Plays with the sounds in spoken language, independent of meaning	**K 0.3.0. 0** Demonstrate understanding of spoken words, syllables, and sounds (phonemes)

Subcomponent	Birth to 6 months	6-15 months	15-24 months	2-3 years	3-4 years	4-5, K-Readiness	K Alignment
L6 **Letter recognition:** Child recognizes the shapes of le ers and recalls the names of le ers	**L6.1** Recognizes familiar faces	**L6.2** Shows interest in familiar photos, pictures, and drawings	**L6.3** Recognizes familiar photos, pictures, drawings	**L6.4** Recognizes symbols, colors, and shapes	**L6.5** Points to and names some le ers (especially in their own name)	**L6.6** Recognizes how features of a le er combine to make a specific le er **L6.7** Di erenti tes between le ers and other symbols	**K 0.3.1.1.(d)** Recognize and name all upper and lower case le ers of the alphabet
L7 **Concepts of print:** Child understands the fundamentals of print, such as orientation, organization, and features of print	**L7.1** Explores books by grasping and bringing to mouth to suck and chew	**L7.2** A empts to hold board books with both hands **L7.3** Turns pages of board books	**L7.4** Turns book or text right side up	**L7.5** Identifies front and back of book **L7.6** Demonstrates understanding that print has meaning	**L7.7** Looks at books or shares them from front to back	**L7.8** Recognizes some parts of a book and conventions of print **L7.9** Knows that English print is left to right and top to bottom **L7.10** Points to words and a empts to read, or asks, “what does it say?”	**K 0.3.1.1 (a-d)** Demonstrates understanding of the organization and basic features of print

Subcomponent	Birth to 6 months	6-15 months	15-24 months	2-3 years	3-4 years	4-5, K-Readiness	K Alignment
L8 Comprehension of narrative text: Child understands the events and order of events in a story		**L8.1** Pays a ention to stories read out loud **L8.2** Points to or gestures toward characters during reading	**L8.3** Understands stories read or told **L8.4** Talks about, gestures, or points to characters and events during reading or storytelling **L8.5** Relates objects in stories to objects in the real world **L8.6** Talks about characters and events during reading	**L8.7** Asks and answers questions during story reading **L8.8** Acts out, draws, or describes parts of a story **L8.9** Can identi y and describe basic information from the text	**L8.10** Retells important information from a story **L8.11** Tells simple stories and experiences about own life **L8.12** Responds to and uses vocabulary related to key concepts in the text	**L8.13** Predicts what will happen next in a story using words or drawings **L8.14** Retells a story using a variety of media, materials, and props **L8.15** Restates and describes the concepts from the text	**K 0.1.3.3** With prompting and support, identi y characters, settings and major events in a story **K (0.1.2.2 0.2.1.1, 0.2.2.2, 0.2.3.3)** With prompting and support, retell familiar stories, including key details **K 0.1.1.1** With prompting and support ask and answer questions about key details in a text

Component L9: Writing

Subcomponent	Birth to 6 months	6-15 months	15-24 months	2-3 years	3-4 years	4-5, K-Readiness	K Alignment
L9 **Writing conventions:** Child understands the forms and function of wri en language	**L9.1** Grasps and squeezes a toy or object **L9.2** Uses hands or feet to make a connection with objects or people	**L9.3** Coordinates eye and hand movements and has control over grasp	**L9.4** Uses small muscles to do simple tasks **L9.5** A empts to use a variety of writing tools such as crayons and markers	**L9.6** Uses scribbles, shapes, or pictures to represent thoughts and ideas **L9.7** Demonstrates interest in writing as a way of communicatin	**L9.8** Uses le er-like symbols to make le ers or words **L9.9** Uses drawing to represent writin	**L9.10** Writes own name, and words about things that interest them **L9.11** Understands there are di erent purposes for writin , such as stories, lists, signs, etc. **L9.12** Uses invented spelling **L9.13** Uses words, pictures, le ers, or le er-like symbols to communicate information and ideas, or compose original stories	**K 0.6.3.3** Use a combination of drawing, dictatin , and writing to narrate a single event or several loosely linked events, tell about the events in the order in which they occurred, and provide a reaction to what happened

Early Childhood Indicators of Progress: Minnesota's Early Learning Standards

Introduction to Mathematics - Cognitive Domain

"We do math all day long in my PreK classroom at Lakeview Elementary School. As we arrive, we move a photo of ourselves from the Home column to the At School column. Then, at circle time, we count how many children are in each row. I like to count! Both at circle time and investigation stations, we sing counting songs and read counting books. One time, I counted all the connecting cubes it took to go from one end of the table to the other. My teacher, Kevin, helped me when I got to nineteen. I couldn't remember what came next. It's fun to build things with the different shapes in the block area. I tried to build a rainbow with only the rounded ones but they kept falling down. I figured out that I needed to stack some rectangles on the bottom to make it stand. At the manipulatives table, we have baskets to sort different things into and pattern cards to help us create colorful, geometric patterns. I like when we have measuring cups and pitchers at the water and sand table. Kevin gives me a challenge: How many little cups of water will fill the pitcher? He writes it down on a clipboard so we won't forget!"

Children's development of mathemati al understanding begins in the very first months of life and continues to grow and expand as they interact with others and with the world around them. Babies begin to see pa erns in the world in familiar caregiving routines and a end to objects and sounds relati e to themselves. Toddlers begin to understand the words "one" and "more" and maneuver through their world with growing spatial understanding. Preschoolers begin to make sense of numbers as they play with counting. Their math understanding is directly related to their playful explorations of blocks, water, sand, puzzles, and games.

The expectations that are set out in the Minnesota Early Indicators of Child Progress (ECIPs) recognize that young children are developing the foundational knowledge and skills that will lead to more rigorous academic study in the Mathematics domain in the elementary school years. The alignment of the ECIPs with the Minnesota Academic Standards for Kindergarten is included and, as the kindergarten standards are revised, this alignment will be updated.

The Mathematics domain includes five components:

- Component M1-6 Number Knowledge
- Component M7 Measurement
- Component M8 Pa erns
- Component M9-11 Geometry and Spatial Thinking
- Component M12-13 Data Analysis

The subcomponents and indicators identified or the ages of birth through kindergarten entry address the specific expectations across the developmental spectrum.

- For infants, indicators focus on the children's beginning understanding of pa erns and predictability as they anticip te familiar routines, spatial awareness as they respond to objects and sounds relati e to themselves, and recognition of similarities and differences among people and objects.
- Toddlers are growing in their mobility and independence in exploring the environment. Therefore, the indicators focus on the imitation of counting and early understanding of one-to-one correspondence, awareness of full and empty, following simple pa erns, beginning awareness of shape and place in space, and matching and sorting.
- The growing language capabilities of preschoolers include their use of an ever-increasing vocabulary of mathemati al terms to describe and make sense of their world. They recite numbers and count objects with one-to-one correspondence to higher quantities. Preschoolers identi y geometric shapes and use the comparati e language of measurement. Developing sorting strategies that grow in complexity and duplicating and creating pa erns using various rules are skills best developed within the context of preschooler's play

While the terminology and concepts in the domain of mathematics are unique and explicit, they are interrelated with children's development in other domains as well. Mathematics is highly correlated with the domain of Language, Literacy, and Communications

> …research suggests there are rich connections between early literacy and early numeracy skill development that may help us think more broadly about children's early academic learning. Ultimately, we can use this information to create rich environments that support both early literacy and numeracy skill development." (Hojnoski 2014)

As children investi ate mathemati al concepts in hands-on experiences, they grow in their approaches to learning. They solve problems, think creati ely, and apply concepts. Their social-emotional skills are enhanced as they develop greater confidence as learners and work collaborati ely with others. Mathematics and science are linked easily in a rich, engaging early childhood environment where children experiment with water, sand, construction materials, and living things.

The indicators in the ECIPs are designed to work toward mathematics knowledge and skills; these goals are met most successfully as teachers and providers interact with children throughout each and every day. Children's interest and understanding of mathematics is best supported by showing the importance of mathematics in daily life.

Resource:
Hojnoski, Robin. August 11, 2014. What do the connections between early literacy and numeracy mean in preschool?
http://www.schoolreadinessblog.com/author/robin_hojnoski/

Domain: Mathematics - Cognitive

Components M1-6: Number Knowledge

Subcomponent	0-1 years	1-2 years	2-3 years	3-4 years	4-5, K-Readiness	K Alignment
M1 **Rote counting:** The child a ends to sequences and use of number words, with or without items, sets, or numerals and without recognizing the link to quantit	**M1.1** Releases one item to reach for another **M1.2** Uses body language to indicate a desire for more	**M1.3** Imitates use of at least one number word **M1.4** Imitates countin	**M1.5** Recites number words but not necessarily in the correct order **M1.6** Recites number words correctly, up to 3 **M1.7** Names familiar numerals	**M1.8** Shows interest in counting or number oriented play, and notices numbers in the environment during free play **M1.9** Orders a few objects by size with assistance **M1.10** Recites number words in the correct sequence up to 10 **M1.11** Recognizes when others make errors in the number word sequence **M1.12** Points to objects while reciting number word sequence **M1.13** Begins to write number-like forms	**M1.14** Recites number word aloud, forward, up to at least 29 (allow for some mistakes), without objects **M1.15** Recites number words aloud, backward, down from at least 10 without objects **M1.16** Is able to name the next number word for numbers up to 9 **M1.17** Reads and writes numerals from 0 to 10, with some reversals possible	**K.1.1.3** Count, with and without objects, forward and backward to at least 20 **K.1.1.2** Read, write, and represent whole numbers from 0 to at least 31

Subcomponent	0-1 years	1-2 years	2-3 years	3-4 years	4-5, K-Readiness	K Alignment
M2 Meaningful Counting: The child uses counting to identi y how many items are in a set, using one to one correspondence; uses number words to identi y "how many"			**M2.1** Imitates one to one correspondence	**M2.2** Correctly uses 1:1 correspondence up to 4 items	**M2.3** Demonstrates and uses 1:1 correspondence with sets larger than four	
M3 Cardinality: The child associates each of one or more number words to a unique and exact quantit , and knows that the final number word used when counting out an item set represents the exact number of items in the set		**M3.1** Responds to request to give a small quantity items (one, two)	**M3.2** Gives 1 item correctly, upon request **M3.3** Gives 2 items or more upon request for 2, inconsistently	**M3.4** Gives exactly 4 consistently when asked	**M3.5** Gives 5 or more items correctly and consistently when asked	**K.1.2.1** Use objects and draw pictures to find the sums and di erences of numbers between 0 and 10. **K.1.2.2** Compose and decompose numbers up to 10 with objects and pictures

Subcomponent	0-1 years	1-2 years	2-3 years	3-4 years	4-5, K-Readiness	K Alignment
M4 **Ordinality:** The child matches symbols (digits or numerals) to a position in a sequence			**M4.1** Identifies first or second item in a sequence, upon request	**M4.2** Uses terms like fi st; most; last; before, to refer to ordinal position	**M4.3** Recognizes that a number can be used to represent a position in a sequence	**K1.1.1** Recognize that a number can be used to represent how many objects are in a set or to represent the position of an object in a sequence
M5 **Comparing numbers and quantities:** The child uses organizing strategies to know how many objects they have	**M5.1** Grasps one object and reaches for another	**M5.2** Demonstrates understanding of some descripti e words, such as responding to question **M5.3** Separates a few items into groups using own method such as color, size, etc. **M5.4** Nests smaller objects inside larger objects	**M5.5** Compares two sets of up to 4 objects accurately using terms like more/ less; a little/a lot	**M5.6** Uses terms like more/less; bigger/ smaller; a little bit/a lot; to refer to approximate quantiti	**M5.7** Verbally estim tes quantities without countin , although inconsistently and allowing for mistakes	

Subcomponent	0-1 years	1-2 years	2-3 years	3-4 years	4-5, K-Readiness	K Alignment
M6 **Relation and operations:** The child can create a set or subset based on a rule, can combine or separate sets, and recognize the amount of items in a set does not change when the set arrangement changes				**M6.1** Notices when the quantity of a set of up to 4 objects has increased or decreased	**M6.2** States the number that comes next or before up to 5 **M6.3** Understands that a quantity changes (increases or decreases) when a set of objects is added to/ subtracted from (respecti ely)	**M6.4** States the number that comes next or before up to 10 **M6.5** Understands that the quantity of a set of (more than 4) objects has been changed **M6.6** Without recountin , can add one more to a set, even when the set isn't visible a er countin **M6.7** Demonstrates ability to combine and separate items within a small set without changing the total number in the set (up to 5) **M6.8** Uses simple physical strategies to combine or separate sets

Components M1-6: Number Knowledge

Subcomponent	0-1 years	1-2 years	2-3 years	3-4 years	4-5, K-Readiness	K Alignment
M7 **Measurement:** Child recognizes and makes comparisons of measurable attribu es (length, height, width, area, volume, physical distance, time duration.		**M7.1** Experiments with "full" and "empty" **M7.2** Orders a few objects by size with assistance	**M7.3** Brings objects closer together to compare them **M7.4** Imitates using an object to measure another object **M7.5** Identifies which of two small sets (less than 4) is more upon request **M7.6** Uses language to describe "full" and "empty"	**M7.7** Shows understanding of measurement terms (longer/ shorter, taller/ shorter, fullest, farthest, closest) **M7.8** Uses terms like more/less; a little bit; a lot; to refer to continuous properties like water, sand, height	**M7.9** Compares and orders more than two items in some way **M7.10** Uses comparison vocabulary (longer/ shorter, taller/ shorter, farthest/ closest)	**K.3.2.1** Use words to compare objects according to length, size, weight and position. **K.3.2.2** Order 2 or 3 objects using measurable attribu es, such as length and weight.

Component M8: Patterns

Subcomponent	0-1 years	1-2 years	2-3 years	3-4 years	4-5, K-Readiness	K Alignment
M8 **Repeating patterns:** The child can identi y create and describe sequences in objects, colors or numbers with sequences that increase, decrease or grow in complexity	**M8.1** Anticip tes familiar routine	**M8.2** Carries out familiar routine **M8.3** Follows a familiar simple pa ern (sound, body movement sequence like Patty Cake)	**M8.4** Follows an unfamiliar simple pa ern (sound, body, color, size, movement)	**M8.5** Recognizes repeating pa erns **M8.6** Copies existing pa ern with same materials **M8.7** Extends a simple pa ern with the same materials	**M8.8** Uses words or pictures to describe a simple pa ern **M8.9** Applies a simple pa ern rule to di erent materials or mode (sound, body, color, size, movement) **M8.10** Copies complex pa erns with same materials **M8.11** Applies a complex pa ern rule using di erent materials or mode (sound, body, color, size, movement)	**K.2.1.1** Identi y, create, complete, and extend simple pa erns using shape, color, size, growing or shrinking such as ABB, ABB, ABB or number, sounds and movements

Components M9-11: Geometry and Spatial Thinking

Subcomponent	0-1 years	1-2 years	2-3 years	3-4 years	4-5, K-Readiness	K Alignment
M9 **Knowledge and visualization of shapes:** The child recognizes shapes, can describe 2 dimensional (2D) and 3 dimensional (3D) shapes and manipulate shapes with purpose.		**M9.1** Shows interest in shapes	**M9.2** Begins to recognize 2 dimensional (2D) and 3 dimensional (3D) shapes such as circles, spheres, squares, and cubes, such as by sorting or puzzle pieces	**M9.3** Points to familiar 2D and 3D shapes (circle, spheres, squares, cubes, triangles) when asked, thereby showing recognition of shape names **M9.4** Recognizes geometric shapes in the environment	**M9.5** Begins to describe the features (attribu es) that define 2D and #D shapes, including sides and corners **M9.6** Puts together (composes) and takes apart (decomposes) shapes **M9.7** Composes and decomposes shapes/ constructions with increasing complexity	**K.3.1.1** Recognize basic two- and spheres. and three-dimensional shapes such as squares, circles, triangles, rectangles, trapezoids, hexagons, cubes, cones, cylinders and sphere

Subcomponent	0-1 years	1-2 years	2-3 years	3-4 years	4-5, K-Readiness	K Alignment
M10 Transformations and symmetry: The child can locate and manipulate shapes in space	**M10.1** A ends and responds to moving objects and sounds, relati e to themselves	**M10.2** Develops increasing ability to change positions and move body from place to place **M10.3** Demonstrates awareness of relationship between over and under, up and down, in and out	**M10.4** Adjusts position and movement of own body relati e to objects **M10.5** Explores how objects fit together in space **M10.6** Rotates objects to fit through holes	**M10.7** Rotates, flips, or turns an object to fit once they realize object doesn't fit a defined space	**M10.8** Puts together (composes) and takes apart (decomposes) shapes to create new shapes **M10.9** Recognizes and creates shapes that have symmetry **M10.10** Shows awareness that an object needs to be rotated, flipped, or turned before trying to fit the object into a hole or puzzle	**K.3.1.3** Use basic shapes and spatial reasoning to model objects in the real world

Subcomponent	0-1 years	1-2 years	2-3 years	3-4 years	4-5, K-Readiness	K Alignment
M11 Location, spatial relationshi s and landmark use: The child recognizes where a person or object is in relation to other people of objects	**M11.1** **Shows preference for familiar toys**	**M11.2** Recognizes familiar objects from di erent vantage points	**M11.3** With verbal cues, uses simple maps to relate to real-world	**M11.4** Uses terms like near/far; under; below; front; middle; end **M11.5** Uses a simple map of a visible area to locate placement	**M11.6** Recognizes and describes position of objects in space with greater accuracy **M11.7** Draws a simple map **M11.8** Matches 2 dimensional (2D) map with surrounding 3 dimensional (3D) layout Include this: (involves transformation scale, dimension, and orientation distance)	**K.3.1.3** Use basic shapes and spatial reasoning to model objects in the real-world

Component M12: Data Analysis

Subcomponent	0-1 years	1-2 years	2-3 years	3-4 years	4-5, K-Readiness	K Alignment
M12 **Sorting:** The child recognizes that objects can be sorted by attribu es	**M12.1** Recognizes di erences among people and among di erent objects	**M12.2** Matches items based on attribu es meaningful to the child	**M12.3** Explores sorting **M12.4** Imitates sorting	**M12.5** Sorts objects based on an observable attribu e **12.6** Demonstrates understanding that attribu es are measurable	**M12.7** Describes the attribu e used for sorting or comparing **M12.8** While sorting, can make a shift to change the attribu e being used to sort and describe the new sorting attribu e	**K.3.1.2** Sort objects using characteristics such as shape, size, color and thickness

Components M13-14: Data Analysis

Subcomponent	0-1 years	1-2 years	2-3 years	3-4 year	4-5, K-Readiness	K Alignment
M13 Collects, classifies, and organizes information The child collects, classifies and organizes data based on distinguishing characteristics				**M13.1** Particip tes in simple data collection discussed by an adult or other child **M13.2** Collects information by one or more attribu e	**M13.3** Particip tes as group member in the collection of data that is put on a chart or graph **M13.4** Sorts information by one or more attribu e **M13.5** Independently collects data to put on a chart or graph	
M14 Describes data: The child can describe data by using data sets to solve problems or asking questions				**M14.1** Identifies pa erns, di erences, or similarities of information collected **M14.2** Uses language to describe those pa erns, di erences or similarities of data	**M14.3** Uses language to compare data **M14.4** Uses data to answer questions and solve problems **M14.5** Discusses, compares and makes sense of collected data	

Early Childhood Indicators of Progress: Minnesota's Early Learning Standards

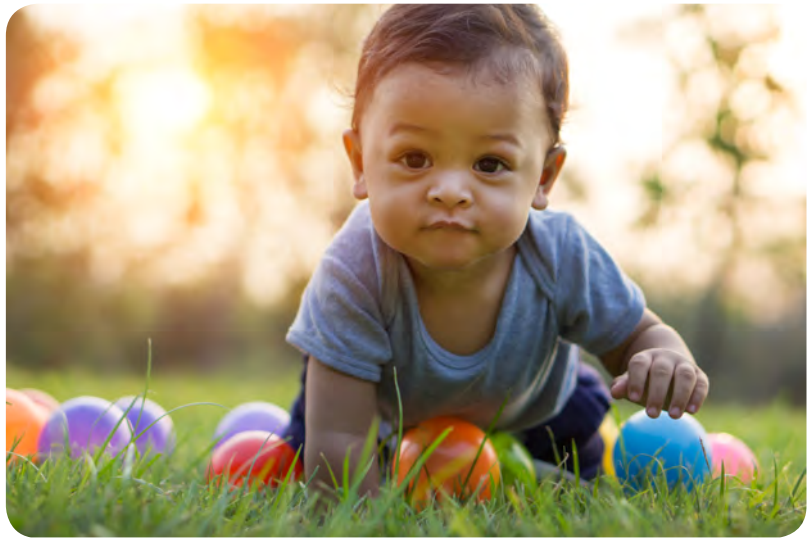
Introduction to Physical and Movement Development Domain

"I'm eight-months-old and I'm pushing myself up on my hands and knees and rocking myself back and forth. My care provider, Ellen, knows that I need many opportunities for tummy time in a space that is safe and inviting so that I can feel motivated to propel myself forward until I am crawling. She stays nearby encouraging me as I figure out how to use my body to move. I'm excited and happy as she claps and smiles and enthusiastically urges me on. She's been letting me hold items while she changes my diaper and dresses and undresses me, too. I like grasping the fresh diaper or holding on to a sock that I know I'll be wearing shortly. I can pick up some of my own food off of my tray if I concentrate on using my thumb and fingers together. When I get the food to my mouth, I clap my hands together just like Ellen does. When she holds me in her lap to read a book, she lets me turn the pages and point to my favorite pictures. When I squirm to get down, she helps me to stand for a minute or two with her hands in mine. I can feel the strength growing in my legs as I support myself. I'm learning to do so many things with my body!"

Early childhood is a time for incredible changes in children's physical development. In gross motor development, infants begin as non-mobile beings, and in a ma er of months, most creep, crawl, stand, and walk. Toddlers develop balance and coordination as they run and jump and climb. Preschoolers refine their movements and learn to use their large muscles to move with purpose and intent, to catch and throw, and to coordinate as they climb and gallop. Children's use of the muscles of their hands and fingers (fine motor development) continues to develop as they learn to feed and dress themselves and using drawing, writing, and other tools.

With widespread concerns about obesity among children and more sedentary lifestyles in general, there is agreement that rigorous physical development is essential for children's overall health. Researchers are finding direct links between how active babies are and how their brain development is a ected.

> "In infancy, you can see the relationship between a baby's motor development and the resultant learning. As a baby moves from a lying to a sitting to a creeping and finally to a standing position, his perspecti e changes, as do his perceptions of the world and its possibilities. The more mobile he becomes, the more he increases his knowledge about himself and the people and things around him, acquiring information through his tactile (touch), kinesthetic (muscular), propriocepti e (body awareness), and vestibular (motion awareness) senses. With each new experience, new neural connections are made." (Pica 2010, 48)



The expectations that are set out in the Physical and Movement Development Domain of the Early Childhood Indicators of Child Progress (ECIPs) show the ways that children demonstrate physical capabilities at different ages. The indicators in this domain are written in such a way that teachers and providers can know appropriate expectations for young learners and understand how best to support children in their development related to physical development. There is no alignment with the indicators in this domain with the Minnesota Academic Standards for Kindergarten because there is no similar domain in K-12 Standards.

The Physical and Movement Development Domain includes two components:

- Component P1-4 Gross Motor
- Component P5-6 Fine Motor

The subcomponents and indicators identified or the ages of birth through kindergarten entry address the specific expectations across the developmental spectrum.

- For infants, indicators focus on the ways that children that young infants move both involuntarily and with purpose, how they begin to move through space, and how they reach and grasp and use their hands and fingers.
- The indicators for toddlers include how they are beginning to walk, climb, run, and jump, to roll, push, and throw balls, to use their hands and fin ers to manipulate books, crayons, blocks, and other items, and to participate in dressing and personal hygiene.
- The indicators for preschoolers focus on how children show their increasing coordination and balance as they walk, run, climb, hop, jump, and gallop, kick, throw, catch, and bounce balls, and use their hands and fingers to manipulate puzzle pieces, to draw and write, and to put on articles of clothing.

The skills and concepts in the Physical and Movement Development Domain are interrelated with children's development in other domains. There are direct consequences to brain development for infants and ongoing connections to active movement and general health for all children. The physical health of a child is an important component for the optimal development of the whole child and impacts learning, social and emotional well-being, and realization of the child's full potential

Working closely with children and their families to advocate for an active, healthy lifestyle leads to supports for the development of children's gross and fine motor skills in programs and at home.

> "By showing children the natural connections between all areas of learning and development and the activities they do at school and at home, [early educators can help] young children see themselves as learners and movers. This requires mutual cooperation and support among teachers, families, and children. After all, it takes a whole village to raise a healthy child." (Schilling and McOmber 2006, 2)

Resources:

Pica, Rae. 2010. "Babies on the Move." Young Children. 65, no. 4: 48-50.
Schilling, Tammy and Kelly Anne McOmber. 2006. Beyond the Journal: Young Children on the Web. May. Washington, D.C.: NAEYC.

Domain: Physical and Movement Development

Components P1-4: Gross Motor

Subcomponent	0-1 year	1-2 years	2-3 years	3-4 years	4-5 years, K Readiness
P1 **Early infancy - reflexive movements:** Child moves involuntarily: not purposefully initiating movement	**P1.1** Laying on back, kicks legs and waves arms **P1.2** Laying on tummy, holds head up				
P2 **Early infancy movement In and out of position:** Child moves voluntarily and purposefully	**P2.1** Rolls over: tummy to back/back to tummy **P2.2** Moves into/out of sitti				

Subcomponent	0-1 year	1-2 years	2-3 years	3-4 years	4-5 years, K Readiness
P3 **Locomotion:** Childs moves their body through space from one place to another	**P3.1** Crawls by one of these methods: • On tummy using arms/legs (tummy/ commando) • Two straight arms and one bent leg (3-point), • Scoots instead of crawls: from a seated position by pushing forward with legs (bend & straighten)/arm assist **P3.2** Pulls to *stand* up against furniture **P3.3** Cruises along surfaces (e.g., low tables, chairs, shelves **P3.4** Walks with assistance	**P3.5** Crawls up a few stairs with adult observing **P3.6** Walks independently **P3.7** Runs freely	**P3.8** Crawls up 3 to 5 stairs **P3.9** Walks on some di erent surfaces **P3.10** Walks up and down a few stairs with adult support or holding handrail (step up on stair, then brings next foot *to* same stair) **P3.11** Runs in games and freely **P3.12** Climbs onto/off furniture **P3.13** Jumps with two feet *over* a line	**P3.14** Crawls under and around 3 or more objects in an obstacle course **P3.15** Walks along a wide (12" >) slightly raised straight pathway with assistance **P3.16** Walks up and down a few stairs with adult support or holding handrail using alternating feet (step up on stair one foot, then use other foot to go to the next stair) **P3.17** Climbs on play equipment **P3.18** Hops on one foot a few times **P3.19** Jumps *off* slightly elevated height with two feet **P3.20** Jumps with two feet *over* and *out of* spaces or objects on floor ("river" w rope or tape markers/ hula hoops)	**P3.21** Walks on a wide (12>) slightly raised pathway **P3.22** Walks up and down stairs holding handrail **P3.23** Jumps off variable heights using a one-foot lead or with two feet **P3.24** Gallops freely or in a game (one foot and a step-hop, other foot and a step- hop) **P3.25** Moves many times through an obstacle course: over, under and around

Subcomponent	0-1 year	1-2 years	2-3 years	3-4 years	4-5 years, K Readiness
P4 **Object control:** Child can manipulate objects to propel or receive		**P4.1** Pushes and pulls toys while walking **P4.2** Throws small balls	**P4.3** Pushes medium size ball forward with foot **P4.4** Rolls a small ball to close target **P4.5** Throws a small ball close to target **P4.6** Pushes with legs while sitting on a scooter or balance bike	**P4.7** Kicks a medium-sized ball **P4.8** Throws a large playground ball using two hands **P4.9** Catches a large or medium ball by cradling in arms toward body **P4.10** Peddles a tricycle or riding toys	**P4.11** Kicks playground ball or small soccer ball to a close wide target **P4.12** Throws a small ball with some accuracy to a target or person **P4.13** Catches a large or medium-sized ball using two hands **P4.14** Bounces and catches a playground ball a few times using two hands **P4.15** A empts to pump legs to swing on swing

Components P5-6: Fine Motor

Subcomponent	0-1 year	1-2 years	2-3 years	3-4 years	4-5 years, K Readiness
P5 **Dexterity:** Child can coordinate and control movement of hands and fingers to grasp and manipulate objects	**P5.1** Reaches for toy, grasps it and releases **P5.2** Grasps small food objects using finger and thumb **P5.3** Transfers object from one hand to other hand	**P5.4** Grasps toys, objects to release into container **P5.5** Dumps out toys and objects from a container **P5.6** Turns pages of a board book **P5.7** Begins to grasp crayon to scribble **P5.8** Stacks a few blocks	**P5.9** Turns pages of a book **P5.10** Grasps a crayon to scribble **P5.11** Stacks 4 blocks	**P5.12** Grasps a simple puzzle piece and can place a few pieces in the puzzle **P5.13** Draws freely on paper **P5.14** Strings large beads	**P5.15** Grasps puzzle piece and can place 5-7 pieces in the puzzle **P5.16** Draws le ers and/ or part of name with some reversals **P5.17** Draws stick people and some objects
P6 **Self Care:** Child participates in daily care routines for feeding, dressing and personal hygiene	**P6.1** Assists with dressing by lifting leg, arm, etc. **P6.2** Feeds self with hands **P6.3** Begins to drink from a cup	**P6.4** When being dressed or undressed, assists with some clothes **P6.5** Feeds self with hands and begins to use a child-size spoon **P6.6** Drinks from a cup **P6.7** Helps put away *a few* toys	**P6.8** A empts to dress self for indoors with support (help with bu ons and zippers) **P6.9** Helps put away toys **P6.10** May use the bathroom with assistance	**P6.11** Assists with putting shoes on and taking them off **P6.12** Assists with putting boots on and taking o **P6.13** Puts on coat and takes coat off with assistance	**P6.14** Dresses with near independence **P6.15** Puts shoes on the correct feet. May need help with ties and fasteners **P6.16** Puts boots on correct feet and takes boots o . May need help with ties and fasteners **P6.17** Puts coat on and takes off **P6.18** Uses the bathroom independently

Early Childhood Indicators of Progress: Minnesota's Early Learning Standards

Introduction to Scientific Thinking - Cognitive Domain

"I am eleven months old and I am a scientist and an investigator. I use my senses to explore the world around me. Today, I want to get to those interesting and inviting toys on the shelf across the carpet so I crawl as fast as I can while my caregiver, Ernestine, sits nearby. I pull a basket from the bottom shelf and several different-sized balls and beanbags fall onto the floor. I sit and try to pick up the balls but every time I reach out for them, they roll away from me. I laugh and smile and bat at them, clapping as they roll even further away. Ernestine rolls them back towards me. I watch the motion of the colored plastic as it moves across the rug and try to predict where the ball will roll but I'm not always right. Then, I pick up a beanbag. The corduroy fabric is soft in my hand and I feel the bumpy texture of the beans inside. I shake the bag and hear the sound of the beans. Ernestine shakes a bag too, then, pulls down a drum from another shelf and shows me how to pound on it to make a sound. I pound on the drum with the beanbag still in my hand, alternating between pounding and shaking, and squeal with delight at the sounds I make."

From birth, children are scienti ts. They are driven by their innate curiosity. Babies use their senses to take in information about their world, whether it's the smell of their mother's skin, the pitch of their father's voice, the feel of a soft blanket, or the taste of breast milk. Children's development of scientific thinking and inquiry begins in the very first months of life and continues to grow and expand as they interact with others and with the world around them. The world of mobile infants and toddlers expands so that they can crawl and walk across fresh, green grass or splash in a puddle. They explore the properties of objects and materials as they manipulate toys to make sounds or put things together. Preschoolers take their investi ations further. They notice differences and similarities in both the natural and physical world. They try to figure out how something works. And they begin to make predictions and give explanations

The indicators in the Scientific Thinking domain that are set out in the Minnesota Early Indicators of Child Progress (ECIPs) reflect the new thinking in the science education field: that for young learners, scientific inquiry is more beneficial than occasional and unconnected science activities. Therefore, the focus for this domain is on scientific processes more than specific science content with the idea that this approach will lay the foundation for developing ways of thinking that support more rigorous academic study in the Scientific Thinking domain in the elementary school years. The ECIPs provide guidance so that teachers and providers can know appropriate expectations for young learners and understand how best to support children so that they have the necessary foundation for later learning.

The Scientific Thinking and Inquiry domain includes three components:

- Component STPS 1-2: Discover
- Component STPS 3-4: Act
- Component STPS 5-6: Integrate

The sub-components and indicators identified or the ages of birth through kindergarten entry address the specific expectations across the developmental spectrum.

- For infants, indicators focus on how children observe and respond to external stimuli, show interest in exploring, and begin to recognize familiar items, people, and situations
- For toddlers, the indicators reflect that they seek out items of interest, begin to use objects as tools, use simple strategies to carry out ideas, and build on past experiences.
- For preschoolers, the indicators show the ways they seek to gain knowledge and formulate questions, making plans and predictions, and verbally expressing their ideas and thoughts.

This broad view of the Scientific Thinking domain allows for ease of integration with other domains in the ECIPs. As children follow their curiosity in exploration, they build on their approaches to learning. As they discover new things, they are delighted and motivated to continue trying new things and learning more. Using the language of scientific inquiry, children's vocabulary is expanded. And, mathemati al understanding of measurement and representation of quantity is often a part of scientific investi ations

Many in education are linking science and technology in what are called "STEM" initiati es. STEM stands for science, technology, engineering, and mathematics. Some researchers and public and private leaders relate the very future of our country to STEM:

> "The nation s capacity to innovate and thrive in the modern workforce depends on foundation of math and science learning. . . . A sustained, vibrant democracy is dependent upon this foundation in STEM." (Sneiderman 2013, 1)

In early childhood education, STEM is a way to integrate other domains with scientific thinking. Teachers and providers can tap into the natural curiosity of young explorers so that science experiences are filled with learning opportunities that integrate skills from multiple domains.

Resource:
Sneiderman, Joshua M. 2013. "Engaging Children in STEM Education Early!" Natural Start Alliance, December. North American Association for Environmental Education. http://naturalstart.org/feature-stories/engaging-children-stem-education-early

Domain: Scientific Thinking - Cognitive

Components ST1-2: Discover

Subcomponent	0-1 year	1-2 years	2-3 years	3-4 years	4-5 years, K Readiness	K Alignment
ST1 **Observe and question:** Child demonstrates awareness and engagement with phenomena, materials, and environment	**ST1.1** Observes and responds to external stimul **ST1.2** Indicates surprise, curiosity, or hesitancy when presented with unfamiliar items, people, situation	**ST1.3** Indicates interest by looking, pointing or verbalizing	**ST1.4** Asks questions readily	**ST1.5** Notices differences or similarities among materials, objects and phenomena **ST1.6** Uses experiences to stimul te question	**ST1.7** Verbally identifie obvious differences and similarities **ST1.8** Expresses curiosity and/or formulates questions of complex concepts	**K1.1.2.1** Use observation to develop an accurate description of natural phenomena and compare one's observational and descripti e with those of others **K2.1.1.1** Sort objects in terms of color, size, shape and texture and communicate reasoning for the sorting system

Subcomponent	0-1 year	1-2 years	2-3 years	3-4 years	4-5 years, K Readiness	K Alignment
ST2 I**nvestigate:** Child actively shows wonder by demonstrating curiosity of self, others and surroundings	**ST2.1** Explores people and objects using senses	**ST2.2** Seeks out and explores objects and items with apparent interest **ST2.3** Begins using objects as tools	**ST2.4** Engages with objects of interest – whether familiar or new- for extended periods of time **ST2.5** Explores properties of objects/ materials to gain understanding **ST2.6** Identifies and uses some tools for their intended purpose	**ST2.7** Seeks to gain additional knowledge in areas of interests **ST2.8** Explores with the intention of finding out something specifi **ST2.9** Uses many tools as designed	**ST2.10** Starts with a useful, general approach to investi ation even if details may be lacking **ST2.11** Uses discernment to inform exploration **ST2.12** Uses tools in new and novel ways	**K1.1.2.1** Use observation to develop an accurate description of natural phenomena and compare one's observational and descripti e with those of others **K4.1.1.1** Observed compare plants and animal

Components ST3-4: Act

Subcomponent	0-1 year	1-2 years	2-3 years	3-4 years	4-5 years, K Readiness	K Alignment
ST3 **Experiment:** Child develops and completes a process based on a question, interest or anticip ted outcome, adjusting as needed.	**ST3.1** Demonstrates recognition of familiar items, people, and situation **ST3.2** Persists in looking for missing object(s)	**ST3.3** Demonstrates willingness to try new things **ST3.4** Uses simple strategies to carry out ideas **ST3.5** Demonstrates ability to focus on one element of a situatio **ST3.6** Persists in actions or a empts to a ect environment or objects	**ST3.7** Approaches situations with intent to achieve a simple outcome **ST3.8** Uses a variety of strategies to carry out ideas **ST3.9** Demonstrates ability to focus on multiple elements of a situatio **ST3.10** Demonstrates resilience in trial and error process	**ST3.11** Makes a simple plan in advance to see what will happen **ST3.12** Uses a greater variety of strategies to carry out ideas **ST3.13** A empts to make a prediction of an expected outcome	**ST3.14** Makes a plan in advance with an intended outcome **ST3.15** Demonstrates awareness that different circumstances, materials and variables impact strategies and outcomes **ST3.16** Makes a prediction when prompted **ST3.17** Changes a plan or refines actions when outcome is not as expected	**K4.2.1.1** Observe a natural system or its model and identi y living and nonliving components of the system

Subcomponent	0-1 year	1-2 years	2-3 years	3-4 years	4-5 years, K Readiness	K Alignment
ST4 **Evaluate:** Child analyzes, examines, critiques, and synthesizes outcomes in order to draw conclusions	**ST4.1** Shows a preference for certain materials, people or situation **ST4.2** Indicates surprise when outcome is not as expected	**ST4.3** Associates objects that belong together **ST4.4** Asks “what happened?” or “where did it go?” as a result of an experiment	**ST4.5** Recognizes obvious di erences among like objects **ST4.6** Makes guesses at possible explanations or conclusions	**ST4.7** Describes all parts of an outcome by comparing, sorting, classifying and/or organizing **ST4.8** Open to more than one solution or answer to a problem **ST4.9** Begins to rely on or expect evidence, things seen or experienced directly, as reasons for results obtained	**ST4.10** O ers critique of an experience based on examination of outcomes **ST4.11** Sees outcomes as the result of one’s behavior or actions **ST4.12** Reflects upon evidence and draws reasonable conclusions using data gathered	**K1.1.2.1** Use observations to develop accurate descriptions of a natural phenomena and compare one’s observations and descriptions with others **K3.2.2.2** Identi y the sun as a source of heat and light **K3.2.2.1** Monitor daily and seasonal changes in weather and summarize changes

Understanding Components ST5-6: Integrate

Subcomponent	0-1 year	1-2 years	2-3 years	3-4 years	4-5 years, K Readiness	K Alignment
ST5 **Communicate:** Child e ecti ely verbalizes thinking and share thoughts, ideas, conclusions with self and others	**ST5.1** Vocalizes in response to stimuli or individual needs **ST5.2** Seeks out/initiates interactions from others in service of own needs	**ST5.3** Uses gestures, body language or a few words to express emotions related to an activit , person or experience **ST5.4** Invites others to observe actions and results	**ST5.5** Describes details associated with an experience such as materials, possible causes and e ects **ST5.6** Listens to others ideas and points of view **ST5.7** Shares stories and related experiences with others unprompted **ST5.8** Scribbles or draws to show and/or share ideas	**ST5.9** Verbally expresses ideas/thought process **ST5.10** Seeks input from others regarding an experience **ST5.11** Verbalizes possible explanations for an outcome **ST5.12** Uses drawing, writin , models, or other creati e expressions to present ideas	**ST5.13** Retells/describes own actions in process of experimentin **ST5.14** Talks with others about questions, actions, ideas, observations or results **ST5.15** Articul tes and shares aloud explanations based on reasoning and evidence **ST5.16** Uses more detailed drawing, writing, models, or creati e expressions to present ideas	**K1.1.2.1** Use observations to develop accurate descriptions of a natural phenomena and compare one's observations and descriptions with others **K2.1.1.1** Sort objects in terms of color, size, shape and texture and communicate reasoning for the sorting system

Subcomponent	0-1 year	1-2 years	2-3 years	3-4 years	4-5 years, K Readiness	K Alignment
ST6 **Apply:** Child leverages and uses knowledge unprompted or in a new situation	**ST6.1** Finds comfort in familiar people and objects	**ST6.2** Revisits and builds on past experiences	**ST6.3** Generalizes knowledge gained from one situation to another **ST6.4** Recognizes relevant attribu es to inform the development of a rule	**ST6.5** Recalls and uses information in new/ different experiences **ST6.6** Generates new and more complex question **ST6.7** Uses prior experience to identi y details that may be relevant	**ST6.8** Compares findings to predictions or expected results **ST6.9** Identi y what to look for, measure, or test to answer question **ST6.10** Develops and applies rules **ST6.11** Determines approach to situation, problem or challenge based on previous experience	**K1.2.1.1** Sort objects into two groups: those that are found in nature and those that are human made **K2.1.1.1** Sort objects in terms of color, size, shape and texture and communicate reasoning for the sorting system

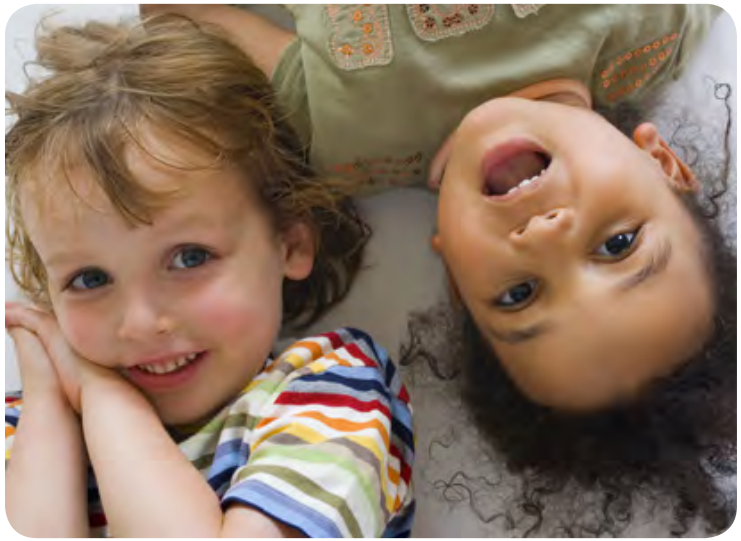
Early Childhood Indicators of Progress: Minnesota's Early Learning Standards

Introduction to Social and Emotional Domain

"I am two-and-one-quarter years old and I have strong feelings. Sometimes, I feel so overwhelmed with frustration that I throw things and strike out at others. Sometimes, I am frightened to try something new and want to hide in my mother's or caregiver's arms. Sometimes, I scream with delight and excitement. Sometimes, I don't want any help from anyone else. I want to do it myself. I'm so lucky that my teacher at my child care center is a calm influence and an understanding guide so I can get through some difficult moments. She talks quietly and kindly to me and describes what I'm feeling. She makes suggestions and helps me in just the right ways so I can be independent, express my emotions more appropriately, and learn to settle myself down. I like my friends and want to play with them."

The developmentally appropriate expectations of children described in the Social and Emotional domain are firmly based on a foundation of trust and a achment and are essential to a good experience in school and throughout life. As infants establish strong relationshi s with their primary caregivers, their skills grow and expand to include others in the world around them. When the care and routines of babies are consistent and predictable, they begin to express their needs and wants and learn to comfort themselves. Toddlers are ready to move away from caregivers and explore their world but also check in with caring adults to ensure that they have their support. As verbal skills develop, toddlers express needs, wants, and emotions. Preschoolers show greater independence, self-awareness, and interest in the feelings of others. They are learning ways to engage successfully and positively with their friends.

The expectations that are set out in the Minnesota Early Indicators of Child Progress (ECIPs) recognize that in the early years, children are developing social and emotional skills that will guide their behavior, a ect their overall mental health, and impact their ability to succeed academically as they move on to later schooling. The indicators in this domain are not aligned with the Minnesota Academic Standards for Kindergarten. Instead, early childhood professionals can turn to other resources for kindergarten expectations. The ECIPs provide guidance so that teachers and providers can know appropriate expectations for young learners and understand how best to support children in social and emotional development.



The Social and Emotional Development Domain includes three components:

- Component SE 1-3: Self and Emotional Awareness
- Component SE 4-5: Self-Management
- Component SE 6-8: Social Understanding and Relationshi s

The sub-components and indicators identified or the ages of birth through kindergarten entry address the specific expectations across the developmental spectrum.

- For infants, indicators focus on the ways that children indicate their needs to their caregivers, respond to stimuli, learn to self-comfort, a end to the emotions of others and copy their actions, and show likes and dislikes.
- The indicators for toddlers include how they are beginning to a empt new challenges, use words to express needs and emotions, to follow simple routines, and to engage in parallel play with other children.
- The indicators for preschoolers focus on how children show confidence and self-direction, identi y gender and self as part of a family, community, and culture, ability to make choices, verbal expression of needs and emotions, responses to changing behavioral expectations, and beginning to manage conflicts in social interactions

Social and emotional skills are highly interrelated with children's development in other domains. In fact, all learning is based on the foundation of children's healthy social and emotional development. Perhaps one of the most important subcomponents in the early years is that of Self-Management, the regulation of both thoughts and feelings. Such management includes the ability to postpone acting on one's first impulse, which might be anger or aggression or not following the teacher's directions. For children to become successful learners in a classroom, they must begin to self-regulate.

> "Children who cannot e ecti ely regulate anxiety or discouragement tend to move away from, rather than engage in, challenging learning activities. Conversely, when children regulate uncomfortable emotions, they can relax and focus on learning cogniti e skills. Similarly, children experience be er emotional regulation when they replace thoughts like "I'm not good at this" with thoughts like "This is difficult, but I can do it if I keep trying." Regulating anxiety and thinking helps children persist in challenging activities, which increases their opportunities to practice the skills required for an activity." (Florez 2011, 47)

The indicators in the ECIPs help teachers and providers, along with children's family members, understand the expectations that are appropriate for the youngest learners. Since social and emotional development is so influe tial in a child's development in all areas, adults play an important role in shaping a child's future when they support the development of skills in this domain.

> "When teachers deliberately teach self-regulation [and other social and emotional skills] as part of everyday experiences, they help children become actively engaged learners, laying the foundation for years of future success in school and life." (Florez 2011, 51)

Resource:
Florez, Ida Rose. 2011. "Developing Young Children's Self-Regulation through Everyday Experiences." Young Children: 66 (4). 47-51.

Domain: Social and Emotional Development

Components S1-3: Self and Emotional Awareness

Subcomponent	0-1 year	1-2 years	2-3 years	3-4 years	4-5 years, K Readiness
S1 **Confidence:** Child demonstrates confidence "I am capable, I can experiment, I can make mistakes, and I can move on"	**S1.1** Independently prompts caregiver to meet basic needs **S1.2** Uses voice or body to show likes and dislikes	**S1.3** Independently a empts new challenges or activities that may or may not be successful **S1.4** Checks with and accepts support from adult or caregiver when necessary	**S1.5** Demonstrates or describes personal skills, likes, or dislikes **S1.6** Seeks help from adult to meet needs or solve problems **S1.7** Seeks out available social-emotional resources such as adults, peers or things for support	**S1.8** Demonstrates confidence in a range of abilities and expresses pride in accomplishments **S1.9** Consistently and e ecti ely uses social/ emotional resources such as adults, peers or things for support	**S1.10** Demonstrates increasing confidence and inclination to express opinions and ideas **S1.11** Engages in increasingly independent and self-directed activities **S1.12** Tolerates constructi e criticism and manages setbacks, seeking adult support when needed
S2 **Self Awareness:** Child demonstrates understanding and appreciation of uniqueness in own family, community, culture, and the world	**S2.1** Explores the world and environment around self and how things work	**S2.2** Demonstrates awareness of self as separate from others	**S2.3** Identifies self as part of the family, culture, community, or group **S2.4** Describes or labels self as a boy or girl	**S2.5** Demonstrates knowledge of family celebrations, traditions, and expectation	**S2.6** Shows increasingly accurate understanding of own strengths, preferences, limitations, and personal qualities

Subcomponent	0-1 year	1-2 years	2-3 years	3-4 years	4-5 years, K Readiness
S3 **Emotions:** Child demonstrates understanding of own emotions, others' emotions, and awareness of emotions becoming reactions and behaviors	**S3.1** Expresses emotions through facial expressions, sounds, and gestures **S3.2** Notices and responds to emotions displayed by others	**S3.3** Expresses feelings, needs, and wants with nonverbal communication, vocalizations, and a few words **S3.4** Associates emotions with words and expressions	**S3.5** Recognizes and describes own emotion **S3.6** Shows some understanding of others' emotional expressions	**S3.7** Uses words to express emotion **S3.8** Recognizes and responds to others' emotional expression	**S3.9** Demonstrates or describes increasing understanding of cause and e ect around own emotional reaction **S3.10** Exhibits growing ability to understand and anticip te others' emotional reactions to situations or behaviors

Components S4-5: Self-Management

Subcomponent	0-1 year	1-2 years	2-3 years	3-4 years	4-5 years, K Readiness
S4 **Managing thinking:** Child manages a ention and thoughts	**S4.1** Briefly pays a ention to environmental stimul **S4.2** Indicates a choice with physical or vocal response	**S4.3** Focuses a ention on preferred items and experiences **S4.4** Expresses thoughts by responding to simple choices and limits verbally or nonverbally **S4.5** Anticip tes and follows simple routine	**S4.6** Frequently pays a ention to both familiar and new objects and experiences **S4.7** Chooses from a variety of options within the environment **S4.8** Responds to soothing or redirection when playing or learning does not go as expected	**S4.9** A ends for longer periods and persists through a broad range of adult-directed and child-initiated activiti **S4.10** Makes self-directed choices from a greater variety of option **S4.11** Increasing ability to remember and follow simple two-step direction	**S4.12** Sustains a ention and persistence with a task of interest for at least 5 minutes **S4.13** Talks through simple tasks and conflicts, seeking adult support as needed

Subcomponent	0-1 year	1-2 years	2-3 years	3-4 years	4-5 years, K Readiness
S5 **Managing emotions and behaviors:** Child manages emotions, impulses, and behaviors with assistance from others and independently	**S5.1** Uses simple behaviors, objects, or movements to comfort and calm self with caregiver assistance **S5.2** Communicates needs or wants to adults using simple gestures, sign language, or sounds **S5.3** Uses sounds, sign language, or gestures to gain adult help to alleviate discomfort or distress **S5.4** Responds to adult e orts to calm or soothe **S5.5** Uses behaviors, objects, or movements to comfort self	**S5.6** Expands use of sign language, gestures, and a few words or phrases to communicate needs, wants, preferences, and discomforts to adults **S5.7** Acti ely seeks adult help using sounds, gestures, or some words when feeling strong emotions, either positive or negati e **S5.8** Anticip tes and acti ely avoids or ignores situations that cause discomfort **S5.9** Follows simple routines, expectations, and boundaries to help manage own emotions and behavior **S5.10** Tolerates brief delays in getting needs met	**S5.11** Uses a wide variety of self-comforting behaviors **S5.12** Communicates specific needs, wants, and discomfort to adults **S5.13** Anticip tes the need for comfort and tries to prepare self for changes in routine **S5.14** Follows simple expectations to manage emotions and behaviors, but may require reminders or assistance, particularly during more intense feelings or circumstances **S5.15** Waits briefly to obtain something desired	**S5.16** Consistently calms self when feeling strong emotions or discomfort with only occasional adult guidance and assistance **S5.17** Independently expresses feelings, needs, opinions, and desires in appropriate ways **S5.18** Follows expectations established to manage feelings and behaviors with necessary reminders or assistance **S5.19** Demonstrates the ability to delay grati ation for longer periods of time **S5.20** Demonstrates understanding of rules, roles, jobs, and relationshi s in families and the community	**5.21** Increasingly expresses feelings, needs, opinions and desires verbally **5.22** Shows increasing understanding of changing expectations for behavior and emotional expression in different setting (e.g., home, school, grocery store) **5.23** Shows increasing ability to manage challenging feelings and behaviors, with necessary reminders or assistance **5.24** Shows increasing ability to stop and think before acting

Components S6-8: Social Understanding and Relationships

Subcomponent	0-1 year	1-2 years	2-3 years	3-4 years	4-5 years, K Readiness
S6 **Social responsiveness:** Child notices and responds to others and their emotions	**S6.1** Shows interest or reacts to others' emotion **S6.2** Responds to others' emotional tone and action	**S6.3** Imitates others' emotions and expressions **S6.4** Shows some individual response to others' emotional tone	**S6.5** Identifies others' basic emotional cues **S6.6** Shows concern for others through e orts to help or comfort	**S6.7** Shows understanding, empathy, and compassion for others through words or gestures **S6.8** Labels others' emotion	**S6.9** Appropriately labels increasingly complex emotions in others (e.g., pride, embarrassment, jealousy) **S6.10** Responds appropriately to others' emotions **S6.11** Shows increasing understanding and appreciation of the perspecti es of peers
S7 **Building relationships:** Child establishes and sustains relationshi s with others	**S7.1** Shows a preference for a trusted adult **S7.2** Notices or responds to others	**S7.3** Shows preferences for one or more adults or children **S7.4** Shows some awareness or caution with unfamiliar adults **S7.5** Uses trusted adult(s) as a base from which to explore	**S7.6** Seeks out familiar adults and children for conversation and play **S7.7** Manages routine separations with decreasing amount of distress	**S7.8** Shares information and participates in activities with adults and peers	**S7.9** Builds friendships through play, learning activities and conversation with peers **S7.10** Uses trusted adults for support in diverse settings (e.g., classroom, outside) when in need of assistance

Subcomponent	0-1 year	1-2 years	2-3 years	3-4 years	4-5 years, K Readiness
S8 **Social skills:** Child responds to and interact with others in a meaningful way	**S8.1** Notices others and chooses similar materials or copies action	**S8.2** Play with others in a parallel manner **S8.3** Recognizes similarities and differences between self and others	**S8.4** Enters play groups using various strategies **S8.5** eeks a preferred playmate **S8.6** Shows flexibility in roles during play	**S8.7** Initi tes, joins, and sustains cooperati e play and conversations with others **S8.8** Shows concern, respect, care, and appreciation for others and the environment **S8.9** Acti ely helps solve problems with others **S8.10** Takes turns	**S8.11** Shows increasing ability to initiate and engage in positive interactions with peers and adults **S8.12** Solves problems with others most of the time, appropriately using support of adults and peers as needed

Early Childhood Indicators of Progress: Minnesota's Early Learning Standards

Introduction to Social Systems - Cognitive Domain

"I'm four years old and my friends and I love to play in the dramatic play area at our preschool program. This is where we try out various adult roles that we have observed people take on in our families, schools, and communities. We pretend to care for babies and raise children. We incorporate the cultural traditions and values of our own families as we pretend to interact with loved ones engaged in daily life. We also try out different jobs and careers in our pretend play. We may act as the cashier in the grocery store, the doctor or nurse in the hospital, the police officer or firefighter in the neighborhood or the server in the restaurant. This kind of play is lots of fun. And, as we play we're learning about our own identities, our families, our communities and our society. We're using different languages and ways of doing things that we see in our families' lives. We're learning more about economics and the environment and how people are similar and different. Sometimes, we take field trips and attend special events. Family members share information so we learn about different cultures and family experiences. We also work hard to learn to get along, solve problems, and celebrate our differences and commonalities. From all of these opportunities, we learn new vocabulary and form ideas about how we live and work together."

Children are surrounded and deeply influenced by the values of their family and first caregivers. From the very beginning of their lives, children are learning about themselves and how to relate to others. Their family members also live and work in a neighborhood, a broader community, and a national society. As children establish their identit , the choices they make and how they function in society are shaped. As they learn to share and take turns and care for each other and the environment, they particip te in the foundational concepts of a democratic society. The expectations that are set out in the Social Systems domain of the Minnesota Early Childhood Indicators of Progress (ECIPs) are the building blocks for creating future neighbors, volunteers, workers, taxpayers, voters, and responsible citizens.

The indicators in this domain are written so that teachers can know appropriate expectations for young learners in their development related to Social Systems. They are aligned with the Minnesota Academic Standards in Social Science for Kindergarten.

The Social Systems Domain includes five components:

- Components SS1-2: Community, People and Relationshi s
- Components SS3-4: Change over Time
- Components SS 5-6: Environment
- Components SS6-7: Economics
- Component SS8: Technology

The sub-components and indicators identified or the ages of birth through kindergarten entry address the specific expectations across the developmental spectrum.

- For infants, indicators focus on the ways that children make their needs and wants known, relate to others, begin to notice the sequence of routines, and recognize familiar people, toys, and objects.
- The indicators for toddlers include how they are beginning to notice similarities and differences in people and themselves, show understanding of expectations and routines, participate in self care, engage in pretend play, and help put away toys.
- The indicators for preschoolers focus on their developing understanding of their identity and of belonging in different groups, are learning to follow rules and routines, to show interest in family culture and participate in turn-taking and negoti tion

The skills and concepts in the Social Systems domain are interrelated with children's development in other domains and many overlap with those in social and emotional development. The understanding of past and future, of economic concepts, and of caring for the environment relate specifi ally to the cogniti e domains in the ECIPs.

While young children are not suited to memorizing historical facts and learning about the ins and outs of governmental agencies, there are important ways develop understanding of social systems. The ECIPs guide teachers and providers in supporting this important domain in ways that are just right for young children and just right for the greater society.

> "Social studies as content and process is a vibrant and vital part of early childhood curricula. Social studies at the center of early childhood curricula offers the hope that the focus of education will be on the development of e ecti e, effici t, ethical children who will approach their world nonsimplisti ally and thoughtfull . (Mindes 2005, 7)

Resource:
Mindes, Gayle. 2005. "Social Studies in Today's Early Childhood Curricula." Beyond the Journal. Young Children on the Web. Washington, D.C.: NAEYC. http://www.naeyc.org/files/yc/file/200509/MindesBTJ905.pdf

Domain: Social Systems: Cognitive

Components SS1-2: Community, People and Relationships

Subcomponent	0-1 year	1-2 years	2-3 years	3-4 years	4-5 years, K Readiness	K Alignment
SS1 **Self-identity in the community:** Understands the di erent ways people form their identit	**SS1.1** Shows a preference for familiar adults **SS1.2** Expresses feeling and emotions through gestures, facial expressions and sounds	**SS1.3** Demonstrates preference for favorite toys, clothing and activiti	**SS1.4** Begins to explore the physical characteristics that make an individual unique **SS1.5** Asks questions about similarities and differences in other people in the community	**SS1.6** Describes their role(s) within the family and familiar environment **SS1.7** Identifie similarities and di erences in people	**SS1.8** Identifies self as a part of the family, spiritual group, culture, community, and/ or other group to which the family belongs. **SS1.9** Demonstrates an understanding that families vary **SS1.10** Identifies some family traditions and customs	

Subcomponent	0-1 year	1-2 years	2-3 years	3-4 years	4-5 years, K Readiness	K Alignment
SS2 **Civics:** Child understands what it means to be a member of a community	**SS2.1** Makes wants and needs known SS2.2 Shows interest in stories and songs	**SS2.3** Develops an expectation and understanding of routines within a familiar environment **SS2.4** Shows interest in other children and objects	**SS2.5** Demonstrates an understanding of the expectations in a familiar environment	**SS2.6** Describes different roles of people in the community **SS2.7** With modeling and support, follows classroom rules and routine	**SS2.8** Practices the ways groups make choices and decisions with support **SS2.9** Demonstrates an understanding of rules and why they are important **SS2.10** Particip tes in a variety of roles in the early childhood environment **SS2.11** Demonstrates awareness of familiar jobs and what's needed to perform them	**K1.1.1** **Demon**strate civic skills in a classroom that reflect an understanding of civic values **K1.4.7.1** Identi y examples of rules in the school community and explain why they exist; describe incenti es for following rules and consequences for breaking rules

Components SS3-4: Change over Time

Subcomponent	0-1 year	1-2 years	2-3 years	3-4 years	4-5 years, K Readiness	K Alignment
SS3 **Personal history:** Child explores the concepts of past, present and future in relation to personally signifi ant events	**S3.1** Particip tes in physical care routine	**S3.2** Notices sequence of a daily routin	**S3.3** Begins to use language about tim **S3.4** Notices age and size differences between self and others **S3.5** Notices change in a daily routin	**S3.6** Uses language to recall events in time ("yesterday," "today", "tomorrow" "when I was a baby," "last time" **S3.7** Begins to see self placed in time between older and younger family members and friends **S3.8** Demonstrates an understanding of chronological order concepts in reference to a specific event **S3.9** Talks about recent family or friend events and their impact on self	**S3.10** Uses language to recall and anticip te events in time with increasing understanding and accuracy **S3.11** Compares self to older and younger family members and friends with specific examples **S3.12** Describes a chronological order in a series of familiar events **S3.13** Reflects on the impact of past, present and some future events on self and family	**K4.1.1.1** Use a variety of words to reference time in the past, present and the future; identi y beginning, middle and end of historical stories

Subcomponent	0-1 year	1-2 years	2-3 years	3-4 years	4-5 years, K Readiness	K Alignment
SS4 **Family narratives and traditions:** Child has an awareness and appreciation of family and cultural stories and tradition	**SS4.1** Recognizes familiar people and toys or objects			**SS4.2** Demonstrates curiosity about family and culture **SS4.3** Shares stories about family, culture and tradition	**SS4.4** Asks more questions about families and culture to build deeper understanding **SS4.5** Compares own cultural traditions with others to understand similarities and di erences	**K4.2.4.1** Compare and contrast traditions in a family with those of other families, including those from diverse backgrounds

Components SS5-6: Environment

Subcomponent	0-1 year	1-2 years	2-3 years	3-4 years	4-5 years, K Readiness	K Alignment
SS5 **Conservation:** Understands that some environmental resources are limited		**SS5.1** Helps to put away toys or throw out trash SS5.2 Particip tes in self-care routine	**SS5.3** With modeling and support begins to explore conservation concepts such as reducing, reusing, and recycling	**SS5.4** Begins to practice responsible consumption and conservation of natural and physical resources	**SS5.5** With support, particip tes in community conservation activitie (playground clean up, etc.)	**K1.1.1** Demonstrate civic skills in a classroom that reflect an understanding of civic values
SS6 **Physical characteristics of community:** Child can identi y important physical features in their environment		**SS6.1** Begins pretend play with blocks, dolls and other toys	**SS6.2** Explores physical environments where people live, work and play	**SS6.3** Identifies and describes signifi ant objects and places in familiar environments	**SS6.4** Begins to use geographical language to identi y features of familiar environments (hills, rivers, etc.) **SS6.5** Uses tools to represent immediate environment	**K3.1.1.1** Describe spatial information depicted in simple drawings and pictures

Components SS7: Economics

Subcomponent	0-1 year	1-2 years	2-3 years	3-4 years	4-5 years, K Readiness	K Alignment
SS7 Economic reasoning: Child begins to understand basic economic principles			**SS7.1** Particip tes in turn taking activities with support **SS7.2** Asks for needs to be met **SS7.3** Explores the exchange of goods	**SS7.4** Particip tes in turn taking with increasing independence **SS7.5** Describes basic needs for living things **SS7.6** Begins to understand the use of trade or money to obtain goods and services	**SS7.7** Negoti tes and shares with other children during play **SS7.8** Begins to label individual needs and wants with support **SS7.9** Identifies oods and services that could meet a specific need or want	**K1.1** Demonstrates civic skills in a classroom that reflect an understanding of civic values **K2.1.1.1** Distinguishes between individual needs (conditions necessary to survive) and individual wants (conditions necessary to be happy) **K2.1.1.2** Identi y goods or services that could sati fy a specific need or want

Components SS8: Technology

Subcomponent	0-1 year	1-2 years	2-3 years	3-4 years	4-5 years, K Readiness	K Alignment
SS8 **Digital citizenship:** The ability to choose and use some digital technology appropriately* *Follow all best practices and safety protocol for children using digital technology				**SS8.1** With support, explores all tools, including digital tools, to enhance learning	**SS8.2** Knows when, how and why to use a variety of tools to for learning, including digital technology **SS8.3** With support, engages in responsible use of all tools including digital technology	

Early Childhood Indicators of Progress References

Approaches to Learning

Baxter, A., & Switzky, H. N. (2008). Exploration and Curiosity. Encyclopedia of Infant and Early Childhood Development, MM Haith, JB Benson (eds.), 460-470.

Chak, A. (2007). Teachers'' and parents' conceptions of children's curiosity and exploration, International Journal of early Years Education, 15:2, 141-159, DOI: 10.1080/09669760701288690.

Chak, A. (2002). Understanding Children's Curiosity and Exploration through the Lenses of Lewin's Field Theory: On Developing an Appraisal Framework, Early Child Development and Care, 172:1, 77-87, DOI: 10.1080/03004430210874.

Edges, H. and Cullen, J. (2012). Particip tory Learning Theories: A Framework for early Childhood pedagogy. Early Child Development and Care. 182:7, 921-940.

Engel, S. (2011.) Children's Need to Know: Curiosity in Schools. Harvard Educational Review, Vol 81, No 4. Pp 625-645.

Kesner Baruch, Y., Spektor-Levy, O. and Mashal, N. (2016). Pre-Schoolers' verbal and behavioral responses as indicators of attitudes and scientific curiosity.

The Arts

Christensen, L. Kirkland, L. (2009-10). Early Childhood Visual Arts Curriculum: Freeing spaces to express developmental and cultural pale es of mind. Childhood Education. 87-91.

Cotes, E., and Coates, A., (2006). Young children talking and drawing. International Journal of Early Years Education. 14:3, 221-241.

Eckho , A., (2012). Conversational Pedagogy: exploring interactions between a teaching artist and young learners during visual arts experiences. Early Childhood Education Journal.41:365-372.

Finnerty, K. (2005). Celebrating the creativity of the young child. The journal of museum education. Vol. 30, No.1. Encouraging Creativity (Winter 2005) pp. 9-13.

Nutbrown, C., (2013). Conceptualising arts-based learning in the early years. Research papers in education. 28:2, 239-263.

Phillips, R., Gorton, R., Pinciotti, P., Sachdev, A. (2010). Promising findings on preschoolers' emergent literacy and school readiness in arts-integrated early childhood settings. arly Childhood Education Journal. 38:111-122.

Prentice, R. (2000). Creativity: a reaffir tion of its place in early childhood education. The Curriculum Journal. 11:2, 145-158.

Samuelsson, I., Carlsson, M., Olsson, B., Pramling, N., and Wallerstedt, C. (2009). The art of teaching children the arts: music dance, and poetry with children aged 2-8 years old. International Journal of Early Years Education. 17:2. 119-135.

Saracho, O. (2002). Young children's creativity and pretend play. Early Child Development and Care.172:5, 431-438.

Tarr, P. (2008). New visions: art for early childhood: a response to art: essential for early learning. Art Education.pp. 19-24.

Language, Literacy and Communications

Benner, B. R., Trout, A., Nordness, P.D., Nelson, J., Epstein, M. H., Knobel, M., & … Birdell, R., (2002). The e ects of the language learning program on the recepti e language skills of kindergarten children. Journal of Direct Instruction, 2 (2), 67-74.

Bennett, K.K., Weigel, D. J., & Martin, S.S. (2002). Children's acquisition of early literacy skills: Examining family contributions. Early Childhood Research Quarterly, 17 (3), 295-317.

Bus, A. G. & van Ijzendoorn, M. H. & Pellegrini, A. D. (1995). Joint book reading makes for success in learning to read: A meta-analysis of intergenerational transmission of literacy. Review of Educational Research, 65, 1-21.

Cain, K., & Oakhill, J. (2007). Children's comprehension problems in oral and written language. New York: Guilford.

Coe, G. & Shelby, D. (1998). Relati e e acy of parent and teacher involvement in a shared- reading intervention for pre-school children from low-income backgrounds: Practition s' perspecti e. Early Childhood Research Quarterly, 13 (2), 293-94.

Cole, K. N. & And, O. (1996). Preschool language facilitation methods and child characteristics. Journal of Early Intervention, 20 (2), 113-31.

Conboy, B. T. & Kuhl, P. K. (2011). Impact of second- language experience in infancy: Brain measures of first- and second- language speech perception. Developmental Science, 14, 242-248.

Connor, C., Morrison, F. J., & Slominski, L. (2006). Preschool instruction and children's emergent literacy growth. Journal of Educational Psychology, 98 (4), 665-689.

Dickinson, D. K., & Porche, M. V. (2011). Relation between language experiences in pre-school classrooms and children's kindergarten and fourth- grade language and reading abilities. Child Development, 82 (3), 870-886.

Dickinson, D. K., & Tabors, P. O. (2001). Beginning literacy with language: Young children's learning at home and school. Baltimore: Brookes Publishing.

Espinosa, L. M. (2013). Pre K-3: Challenging common myths about dual language learners: An update to the seminal 2008 report. Foundation for Child Development Policy Brief, 10. New York, NY.

Fernald, A., & Weisleder, A. (2011). Early language experience is vital to developing fluency in understanding. In S. B. Neuman & D. D. Dickinson (Eds.) Handbook of Early Literacy Research, Vol. 3 (3-19), New York, NY: Guilford Press.

Foorman, B. (2007). Primary prevention in classroom reading instruction. Teaching Exceptional Children, 39 (5), 24-31.

Goodson, B., Layzer, C., Simon, P., & Dwyer, C. (2009). Early Beginnings: Early Literacy Knowledge and Instruction. Washington, DC: National Institu e for Literacy.

Gutier ez, K. D., Zepeda, M., & Castro, D. C. (2010). Advancing early literacy learning for all children: Implications of the NELP report for dual-language learners. Educational Researcher, 39 (4), 334-339.

Harris, J., Golinko , R. M., & Hirsh-Pasek, K. (20110. Lessons from the crib for the classroom: How children really learn vocabulary. In S. B. Neuman & D. D. Dickinson (Eds.) Handbook of Early Literacy Research, Vol. 3, 49-65. New York, NY: Guilford Press.

Hart, B., & Risley, T. R. (1999). The social world of children learning to talk. Baltimore: Brookes.

Hart, B., & Risley, T. R. (1995). Meaningful differences in the everyday experiences of young American children. Baltimo e: Brookes.

International Reading Association & National Association for the Education of Young Children. (1998). Learning to read and write: Developmentally appropriate practice. Reading Teacher, 52, 193-216.

Karoly, L. A., Kilburn, M. R. & Cannon, J. S. (2005). Early childhood interventions: Proven results, future promise, Santa Monica, Calif.: RAND Corporation, MG-341-PNC, 2005. As of October 19, 2016: http:// ww.rand.org/pubs/monographs/MG341.html.

Kuhl, P. K.,Garcia-Sierra, A., Conboy, B., Percaccio, C., & Romo, H. D. (2010). Bilingual language development; Brain measures of phonetic learning, variation in language input, and language outcomes, Symposium presentation at the 2010 International Conference on Infant Studies, Baltimore, MD. March 10-14, 2010.

Kuhl, P. K. (2004). Early language acquisition; Cracking the speech code. Nature Reviews Neuroscience, 5 (11), 831-843.

Lesaux, N. K. (2010). Turning the Page: Refocusing Massachusetts for Reading Success: Boston, MA: Strategies for Children.

Lonigan, C. J., & Shanahan, T. (2010). Developing early literacy skills: Things we know and things we do not know. Educational Researcher, 39 (4), 340-346.

National Early Literacy Panel (2008). Developing Early Literacy: Report of the National Early Literacy Panel. Washington, DC: National Institu e for Literacy.

National Institu e of Child health and Human Development. (2000). Report of the National Reading panel. Teaching children to read: An evidence- based assessment of the scientific esearch literature on reading and its implications for reading instruction: Reports of the subgroups (NIH Publication No. 00-4754). Washington, DC: U.S. Government Printing Office.

Pan, B., Rowe, M., Singer, J., & Snow, C. (2005). Maternal correlates of growth in vocabulary production in low-income families. Child Development, 76, 763-782.

Scarborough, H. (2001). Connecting early language and literacy to later reading (dis)abilities: Evidence, theory, and practice. In S.B. Neuman & D.K. Dickinson (Eds.), Handbook of early literacy research (Vol 1), 97-110.

Schickedanz, J., & Collins, M. F. (2012). So much more than the ABCs: The early phases of reading and writing. New York, NY: NAEYC.

Senechal, M. (1997). The differential e ect of storybook reading on preschooler's expressive and recepti e vocabulary acquisition. Journal of Child Language, 24, 123-138.

Senechal, M., & LeFevre, J. (2002). Parental involvement in the development of children's reading skill: A 5 year longitudinal study. Child Development, 73, 445-460.

Storch, S. A., & Whitehurst, G. J. (2002). Oral language and code-related precursors of reading: Evidence from a longitudinal structural model. Developmental Psychology, 38, 934-945.

Weigel, D. J., Martin, S. S., & Bennett, K. K. (2005). Ecological influences of the home and child-care center on preschool-age literacy development. Reading Research Quarterly, Vol 40 (2), 204-233.

Mathematics - Cognitive

Asakawa, A. & Sugimura, S. (2014). Developmental trajectory in the relationship between calculation skill and finger dexterity: A longitudinal study. The Japanese Psychological Association 56, 189-200. doi: 10.1111/jpr.12041.

Barner, D. & Bachrach, A. (2010). Inference and exact numerical representation in early language development. Cogniti e Psychology, 60, 40-62. Doi: 10.1016/j.cogpsych.2009.06.002.

Baroody, A. J., Lai, M.-l., Li, X., & Baroody, A. E. (2009). Preschoolers' Understanding of Subtraction- elated Principles. Mathemati al Thinking and Learning, 11, 41-60. doi:10.1080/10986060802583956.

Bu erworth, B. (2005). The development of arithmeti al abilities. Journal of Child Psychology and Psychiatry, 46, 3-18. doi: 10.1111/j.1469-7610.2005.00374.x.

Clements, D. H., Sarama, J., & Germeroth, C. (2016). Learning executi e function and early mathematics: Directions of causal relations. Early Childhood Research Quarterly, 36, 79-90. doi:10.1016/j.ecresq.2015.12.009.

Clements, D. H. & Sarama, J. (2000). The earliest geometry. Teaching Children Mathematics, 7, 82-86.
Clements, D., H., Swaminathan, S., Hannibal, M. A. Z., & Sarama, J. (1999). Young children's concepts of shape. Journal for Research in Mathematics Education, 30, 192-212.

Clements, D., Wilson, D. C., & Sarama, J. (2004). Young children's composition of geometric figures: A learning trajectory. Mathemati al Thinking and Learning, 6, 163-184.

Collins, M. A., & Laski, E. V. (2015). Preschoolers' strategies for solving visual pa ern tasks. Early Childhood Research Quarterly, 32, 204-214. doi:10.1016/j.ecresq.2015.04.004.

Ellis, A. E. & Oakes, L. M. (2006). Infants flexibly use different dimensions to categorize objects. Developmental Psychology, 42, 1000-1011. doi:10.1037/0012-1649.42.6.1000.

Fisher, P. H., Dobbs-Oates, J., Doctoro , G. L., & Arnold, D. H. (2012). Early math interest and the development of math skills. Journal of Educational Psychology, 104(3), 673-681. doi:10.1037/a0027756.

Frick, A., Ferrara, K., & Newcombe, N. S. (2013). Using a touch screen paradigm to assess the development of mental rotation between 3(1/2) and 5(1/2) years of age. Cogn Process, 14(2), 117-127. doi:10.1007/s10339-012-0534-0.

Fuson, K. C. (1988). Children's counting and concepts of number. New York: Springer-Verlag.

Fyfe, E. R., McNeil, N. M., & Rittle-Johnson, B. (2015). Easy as ABCABC: Abstract Language Facilitates Performance on a Concrete Pa erning Task. Child Dev, 86(3), 927-935. doi:10.1111/cdev.12331.

Garon, N., Bryson, S. E., & Smith, I. M. (2008). Executi e function in preschoolers: a review using an integrati e framework. Psychol Bull, 134(1), 31-60. doi:10.1037/0033-2909.134.1.31.

Gopnik, A. & Meltzo , A. N. (1986). Words, plans, things, and locations: Interactions between semantic and cogniti e development in the one-word stage. In S. A. Kuczaj, II, and M. D. Barrett (Eds.) The Development of Word Meaning (pp. 199-223). Berlin, Germany: Springer-Verlag.

Gunderson, E. A., Spaepen, E., Gibson, D., Goldin-Meadow, S., & Levine, S. C. (2015). Gesture as a window onto children's number knowledge. Cognition, 144, 14-28. doi:10.1016/j.cognition.2015.07.008

Hongwanishkul, D., Happaney, K. R., Lee, W. S., & Zelazo, P. D. (2005). Assessment of hot and cool executi e function in young children: age-related changes and individual differences. Dev Neuropsychol, 28(2), 617-644. doi:10.1207/s15326942dn2802_.

Jirout, J. J., & Newcombe, N. S. (2014). Mazes and maps: Can young children find their way? Mind, Brain, and Education, 8, 89-96. doi: 10.1111/mbe.12048.

Knudsen, B., Fischer, M. H., Henning, A., & Aschersleben, G. (2015). The Development of Arabic Digit Knowledge in 4- to 7-Year-Old Children. Journal of Numerical Cognition, 1(1), 21-37. doi:10.5964/jnc.v1i1.4.

Kolkman, M. E., Kroesbergen, E. H., & Leseman, P. P. M. (2013). Early numerical development and the role of non-symbolic and symbolic skills. Learning and Instruction, 25, 95-103. doi:10.1016/j.learninstruc.2012.12.001.

Kotsopoulos, D., Makosz, S., & Zambrzycka, J. (2015). Number Knowledge and Young Children's Ability to Measure Length. Early Education and Development, 1-14. doi:10.1080/10409289.2015.1060801.

Le Corre, M. & Carey, S. (2007). One, two, three, four, nothing more: An investi ation of the conceptual sources of the verbal counting principles. Cognition, 105, 395-438.

Le Corre, M. (2014). Children acquire the later-greater principle a er the cardinal principle. Br J Dev Psychol, 32(2), 163-177. doi:10.1111/bjdp.12029.

Lee, J. & Md-Yunus, S. (2015). Investi ating children's abilities to count and make quanti ati e comparisons. Early Childhood Education Journal, 44, 255-262. doi: 10.1007/s10643-015-0707-4.

Levine, S. C., Jordan, N. C., & Huttenlocher, J. (1992). Development of calculation abilities in young children. Journal of Experimental Child Psychology, 53, 72-103.

MacDonald, A., & Lowrie, T. (2011). Developing measurement concepts within context: Children's representations of length. Mathematics Education Research Journal, 23(1), 27-42. doi:10.1007/s13394-011-0002-7.

Mazzocco, M. M. M., Hanich, L. B., & Noeder, M. M. (2012). Primary School Age Students' Spontaneous Comments about Math Reveal Emerging Dispositions Linked to Later Mathematics Achievement. Child Development Research, 2012, 1-12. doi:10.1155/2012/170310.

McDonough, A. & Sullivan, P. (2011). Learning to measure length in the first three years of school. Australasian Journal of Early Childhood, 36, 27-35.

Miller, M. R., Rittle-Johnson, B., Loehr, A. M., & Fyfe, E. R. (2015). The Influence of Relational Knowledge and Executi e Function on Preschoolers' Repeating Pa ern Knowledge. Journal of Cognition and Development, 150527104304009. doi:10.1080/15248372.2015.1023307.

Mix, K. S., Sandhofer, C. M., Moore, J. A., & Russell, C. (2012). Acquisition of the cardinal word principle: The role of input. Early Childhood Research Quarterly, 27(2), 274-283. doi:10.1016/j.ecresq.2011.10.003.

Muldoon, K. P., Lewis, C., & Francis, B. (2007). Using cardinality to compare quantities: the role of social-cogniti e conflict in early numeracy. Dev Sci, 10(5), 694-711. doi:10.1111/j.1467-7687.2007.00618.x.

Mulligan, J. & Mitchelmore, M. (2009). Awareness of pa ern and structure in early mathemati al development. Mathematics Education Research Journal, 21, 33-49.

Mussolin, C., Nys, J., Leybaert, J., & Content, A. (2015). How approximate and exact number skills are related to each other across development: A review. Developmental Review. doi:10.1016/j.dr.2014.11.001.

National Research Council (2009). Mathematics learning in early childhood: Paths toward excellence and equity. Washington, DC: The National Academies Press.

Ornkloo, H. & von Hofsten, C. (2007). Fitting objects into holes: On the development of spatial cognition skills. Developmental Psychology, 43, 404-416. doi: 10.1037/0012-1649.43.2.404.

Pange, J. (2003). Teaching probabilities and stati tics to preschool children. Information Technology in Childhood Education Annual, 163-172.

Papic, M., Mulligan, J., & Mitchelmore, M. (2011). Assessing the development of preschoolers' mathemati al pa erning. Journal for Research in Mathematics Education, 42, 237-269.

Pruden, S. M., Levine, S. C., & Huttenlocher, J. (2011). Children's spatial thinking: does talk about the spatial world ma er? Dev Sci, 14(6), 1417-1430. doi:10.1111/j.1467-7687.2011.01088.x.

Purpura, D. J., & Logan, J. A. (2015). The nonlinear relations of the approximate number system and mathemati al language to early mathematics development. Dev Psychol, 51(12), 1717-1724. doi:10.1037/dev0000055.

Purpura, D. J., & Lonigan, C. J. (2012). Informal Numeracy Skills: The Structure and Relations Among Numbering, Relations, and Arithmetic Operations in Preschool. American Educational Research Journal, 50(1), 178-209. doi:10.3102/0002831212465332.

Purpura, D. J., & Reid, E. E. (2016). Mathematics and language: Individual and group differences in mathemati al language skills in young children. Early Childhood Research Quarterly, 36, 259-268. doi:10.1016/j.ecresq.2015.12.020.

Ramani, G. B., Rowe, M. L., Eason, S. H., & Leech, K. A. (2015). Math talk during informal learning activities in Head Start families. Cognitive Development, 35, 15-33. doi:10.1016/j.cogdev.2014.11.002.

Ramscar, M., Dye, M., Popick, H. M., & O'Donnell-McCarthy, F. (2011). The enigma of number: Why children find the meanings of even small number words hard to learn and how we can help them do be er. PLoS ONE, 6, e22501. doi: 10.1371/journal.pone.0022501.

Rittle-Johnson, B., Fyfe, E., Loehr, A., & Miller, M. (2015). Beyond numeracy in preschool: Adding pa erns to the equation. Early Childhood Research Quarterly, 31, 101-112.

Sarama, J., Clements, D. H., Barrett, J., Van Dine, D., & McDonel, J. S. (2011). Evaluation of a learning trajectory for length in the early years. ZDM Mathematics Education, 43, 667-680. doi: 10.1007/s11858-011-0326-5.

Sarnecka, B. W. & Carey, S. (2008). How counting represents number: what children must learn and when they learn it. Cognition, 108(3), 662-674. doi:10.1016/j.cognition.2008.05.007

Sarnecka, B. W. & Gelman, S. A. (2004). Six does not just mean a lot: Preschoolers see number words as specific. Cognition, 92, 329-352. doi: 10.1016/j.cognition.2003.10.001

Sarnecka, B. W., Goldman, M. C., & Slusser, E. B. (2014). How counting leads to children's first representations of exact, large numbers. In R. Cohen Kadosh & A. Dowker (Eds.), Oxford Handbook of Numerical Cognition NY: Oxford University Press.

Sarnecka, B. W. & Lee, M. D. (2009). Levels of number knowledge during early childhood. Journal of Experimental Child Psychology, 103, 325-337. doi: 10.1016/jecp.2009.02.007.

Siegler, R. S., & Lortie-Forgues, H. (2014). An Integrati e Theory of Numerical Development. Child Development Perspecti es, 8(3), 144-150. doi:10.1111/cdep.12077.

Shusterman, A., Ah Lee, S., & Spelke, E. S. (2008). Young children's spontaneous use of geometry in maps. Dev Sci, 11(2), F1-7. doi:10.1111/j.1467-7687.2007.00670.x.

Starkey, P., Klein, A., & Wakeley, A. (2004). Enhancing young children's mathemati al knowledge through a pre-kindergarten mathematics intervention. Early Childhood Research Quarterly, 19, 99-120. doi: :10.1016/j.ecresq.2004.01.002.

Stea, D., Kerkman, D. D., Piñon, M. F., Middlebrook, N. N., & Rice, J. L. (2004). Preschoolers use maps to find a hidden object outdoors. Journal of Environmental Psychology, 24(3), 341-345. doi:10.1016/j.jenvp.2004.05.003.

Szilagyi, J., Clements, D., & Sarama, J. (2013). Young children's understanding of length measurement: Evaluating a learning trajectory. Journal for Research in Mathematics Education, 44, 581-620. doi: 10.5951/jresematheduc.44.3.0581.

Verdine, B. N., Golinko , R. M., Hirsh-Pasek, K., Newcombe, N. S., Filipowicz, A. T., & Chang, A. (2014). Deconstructing building blocks: preschoolers' spatial assembly performance relates to early mathemati al skills. Child Dev, 85(3), 1062-1076. doi:10.1111/cdev.12165.

Watson, J. & Kelly, B. (2002). Emerging concepts in chance and data. Australian Journal of Early Childhood, 27, 24-28.

Wu, Q., Lei, P., DiPerna, J. C., Morgan, P. L., & Reid, E. E. (2014). Identi ying differences in early mathemati al skills among children in Head Start. International Journal of Science and Mathematics Education, 13, 1403-1423. doi: 10.1007/s10763-014-9552-y.

Wynn, K. (1990). Children's understanding of counting. Cognition, 36, 155-193.

Physical Development

Acti e Start (2000). National Association for Sport and Physical Education, Reston VA.
Adolph, K. E. (1997). Learning in the development of infant locomotion. Monographs of the Society for Research in Child Development, 62 (3, Serial No. 251).

Appropriate Practices in Movement Programs for Young Children Ages 3-5 (2000). Nationa Association for Sport and Physical Education, Reston VA.

Bayley, N. (2006). Bayley scales of infant and toddler development (3rd ed : San Antonio, TX: Pearson.

Bricker, D. (2006). Assessment, evaluation, and programming system for infants and children (AEPS), 2nd Ed.,). Vol 2: AEPS, Test, birth to three years and three to six years. Baltimore MD: Brookes.

Burton A. W., & Miller D. E. (1998). Movement skill assessment. Champaign, IL: Human Kinetics

Campos, J. J., Anderson, D. I., Barbu-Roth, M. A., Hubbard, e. M., Hertenstein, M. J., & Witehrington, D. (2000). Travel broadens the mind. Infancy, 1, 149-219.

Dunn, J.M., & Leitschuh, C.A., (2013). Special physical education. 9th Ed., Dubuque: Kendall/Hunt.

Eliot, L. (1999). What's going on in there? How the brain develops in the first five years of life. New York: Bantam.

Gallahue, D. L., & Ozumn, J. C. (2005). Understanding motor development. New York City: McGraw-Hill.

National Research Council/Institu e of Medicine. (2000). From neurons to neighborhoods. Eds. Shonkoff & Phillips. Washington DC: National Academy Press.

National Research Council/Institu e of Medicine. (2000). From neurons to neighborhoods. Eds. Shonkoff & Phillips. Washington DC: National Academy Press.

Piaget, J. (1954). The construction of reality in the child. New York: Free Press.

Piek, J. P. (2006). Infant motor development. Champaign IL: Human Kinetics

Piper, M. C., & Darrah, J. (1994). Motor assessment of the developing infant. Philadelphia PA: WB Saunders.

Squires, J., Po er, L., & Bricker, D. (1999). Ages and stages questionnai e: A parent – completed, child – monitoring system, 2nd Ed.. Baltimore, MD: Brookes

Zigler, E.F., Singer, D.G., & Bishop-Josef, S. J. (Eds.) (2004). Children's play: the roots of reading. Washington DC: Zero to Three Press

Scientific Thinking - Cognitive

Esach, H. and Fried, M. (2005.) Should science be taught in early childhood? Journal of Science Education and Technology. Vol. 14. No. 3 pp.315-336.

French, L. (2004). Science as the center of a coherent, integrated early childhood curriculum. Early Childhood Research Quarterly.19:138-149.

Gelmanm R, and Brenneman, K. (2004.) Science learning pathways for young children. Early Childhood Research Quarterly. 19: 150-158.

Gerde, H., Schacther, R., and Wasik, B. (2013). Using the Scientific Method to Guide Learning: An Integrated Approach to Early Childhood Curriculum. Early Childhood Education Journal. 41: 315-323.

Howes, Elaine. (2008.) Educati e experiences and early childhood science education: a Deweyan perspecti e on learning to observe. Teaching and Teacher Education.24 536-549.

Martin, D.J., Jean-Sigur, R., Schmidt, E. (2005). Process-oriented inquiry-A constructivi t approach. Elementary Science Education Vol. 17, No. 13-26.

Peterson, S. and French,L. (2008.). Supporting young children's explanations through inquiry science in preschool. Early Childhood Research Quarterly. 23: 395-408.

Siry, Christina. (2014). Toward Multidimensional approaches to early childhood science education. Cultural Studies of Science Education. 9: 297-304.

Zeynep, H. and Inan, T. (2015.). 3Hs Education: Examining hands-on, heads-on, and hearts-on early childhood science education. International Journal of Science Education. 37:12, 1975-1991.

Social and Emotional Development

Berk, L. E. (2009). Emotional development. Child Development (9th ed., pp. 400-445). Upper Saddle River, NJ: Pearson Education, Inc.

Berk, L. E. (2009). Cognitive development: An information-p ocessing perspecti e. Child Development (9th ed., pp. 276-317). Upper Saddle River, NJ: Pearson Education, Inc.

Berk, L. E. (2009). Self and social understanding. Child Development (9th ed., pp. 446-483). Upper Saddle River, NJ: Pearson Education, Inc.

Bowlby, J. (1969). A achment, Vol. 1 of A achment and loss.

Bowlby, J. (1989). Secure and insecure a achment. NY: Basic Books.

Bronson, M. (2000). Self-regulation in early childhood: Nature and nurture. Guilford Press.

Brownell, C. A., & Brown, E. (1992). Peers and play in infants and toddlers. In Handbook of social development (pp. 183-200). Springer US.

Bullock, M., & Lütkenhaus, P. (1990). Who am I? Self-understanding in toddlers. Merrill-Palmer Quarterly (1982-), 217-238.

Buysse, V., Nabors, L., Skinner, D., & Keyes, L. (1997). Playmate preferences and perceptions of individual di erences among typically developing preschoolers. Early Child Development and Care, 131(1), 1-18.

Cameron, P. A., & Gallup, G. G. (1988). Shadow recognition in human infants. Infant Behavior and Development, 11, 465-471.

Campos, J. J., & Barrett, K. C. (1984). Toward a new understanding of emotions and their development. In C. E. Izard, J. Kagan, & R. B. Zajonc (Eds.). Emotions, cognition, and behavior (pp. 229-263). Cambridge, UK: Cambridge University Press.

Campos, J. J., & Stenberg, C. (1981). Perception, appraisal, and emotion: The onset of social referencing. Infant social cognition: Empirical and theoreti al considerations, 273, 314.

Carlson, S. M. (2005). Developmentally sensitive measures of executi e function in preschool children. Developmental neuropsychology, 28(2), 595-616.

Cillessen, A.H.N., & Bellmore, A.D. (2011). Social skills and social competence in interactions with peers. In P.K. Smith and C.H. Hart, (Eds.), Wiley-Blackwell handbook of childhood social development (2nd ed.). New York: Wiley.

Cole, M., & Cole, S. R. (2001). Social development in early childhood. The development of children (4th ed., pp. 373-419). New York, NY: Worth Publishers.

Cole, P. M., Armstrong, L. M., & Pemberton, C. K. (2010). The role of language in the development of emotion regulation. In S. D. Calkins & M. A. Bell (Eds.), Child development of the intersection of emotion and cognition (pp. 59-77). Washington, DC: American Psychological Association

Cole, P. M., Barrett, K. C., & Zahn-Waxler, C. (1992). Emotion displays in two-year-olds during mishaps. Child development, 314-324.

Cole, P. M., Dennis, T. A., Smith-Simon, K. E., & Cohen, L. H. (2009). Preschoolers' Emotion Regulation Strategy Understanding: Relations with Emotion Socialization and Child Self-regulation. Social Development, 18(2), 324-352.

Cooper, C. R. (1980). Development of collaborati e problem solving among preschool children. Developmental Psychology, 16(5), 433.

Cornew, L., Dobkins, K. R., Akshoomo , N., McCleery, J. P., & Carver, L. J. (2012). Atypical social referencing in infant siblings of children with autism spectrum disorders. Journal of autism and developmental disorders, 42(12), 2611-2621.

Denham, S., Bassett, H. H., Way, E., Mincic, M., Zinsser, K., & Graling, K. (2012). Preschoolers' emotion knowledge: Self-regulatory foundations and predictors of school success. Cognition and Emotion, 26, 66-679.

Denham, S., Warren, H., von Salisch, M., Benga, O., Chin, J. C., & Geangu, E. (2011). Emotions and social development in childhood. The Wiley-Blackwell Handbook of Childhood Social Development, Second Edition, 413-433.

Dunn, J., Brown, J. R., & Maguire, M. (1995). The development of children's moral sensibility: Individual di erences and emotion understanding. Developmental psychology, 31, 649-659.

Easterbrooks, M. A., Bartlett, J. D., Beeghly, M., & Thompson, R. A. (2013). Social and Emotional Development in Infancy. In I.B. Weiner (Ed.). Handbook of Psychology. New York: Wiley.

Eisenberg, N. (2000). Emotion, regulation, and moral development. Annual review of psychology, 51(1), 665-697.

Eisenberg, N., Spinrad, T. L., & Eggum, N. D. (2010). Emotion-related self-regulation and its relation to children's maladjustment. Annual review of clinical psychology, 6, 495.

Ensor, R., Spencer, D., & Hughes, C. (2011). 'You Feel Sad?' Emotion understanding mediates e ects of verbal ability and mother–child mutuality on prosocial behaviors: findings from 2 years to 4 years. Social Development, 20(1), 93-110.

Farroni, T., Massaccesi, S., Pividori, D., & Johnson, M. H. (2004). Gaze following in newborns. Infancy, 5(1), 39-60.

Farroni, T., Menon, E., Rigato, S., & Johnson, M. H. (2007). The perception of facial expressions in newborns. European Journal of Developmental Psychology, 4(1), 2-13.

Fasig, L. G. (2000). Toddlers' Understanding of Ownership: Implications for Self-Concept Development. Social Development, 9(3), 370-382.

Fernald, A. (1992). Human maternal vocalizations to infants as biologically relevant signals: An evolutiona y perspecti e. In J. H. Barkow, L. Cosmides, & J. Tooby (Eds.), The adapted mind: Evolutiona y psychology and the generation of culture (pp. 391-428). New York: Oxford University Press.

Fox, N. A., & Calkins, S. D. (2003). The development of self-control of emotion: Intrinsic and extrinsic influences. Motivation and emotion, 27(1), 7-26.

Garner, P. W., & Estep, K. (2001). Emotional competence, emotion socialization, and young children's peer-related social competence. Early Education and Development, 12, 29-48.

Gee, C. L., & Heyman, G. D. (2007). Children's Evaluation of Other People's Self-Descriptions. Social Development, 16(4), 800-818.

Gilliom, M., Shaw, D. S., Beck, J. E., Schonberg, M. A., & Lukon, J. L. (2002). Anger regulation in disadvantaged preschool boys: Strategies, antecedents and the development of self-control. Developmental Psychology, 38, 222-235.

Goodvin, R., Winer, A. C., & Thompson, R. A. (2014). The individual child: Temperament, emotion, self, and personality. In M. Bornstein & M. E. Lamb (Eds.), Developmental Science (7th ed.). New York: Psychology Press.

Grossman, T., Obrerecker, R., Koch, S. P., & Friederici, A. D. (2010). The developmental origins of voice processing in the human brain. Neuron, 65, 852-858.

Halim, M. L., & Ruble, D. N. (2010). Gender identity and stereotyping in early and middle childhood. In J. Chrisler & D. McCreary (Eds.). Handbook of gender research in psychology (pp. 495-525). New York: Springer.

Harrison, L. J., & Murray, E. (2015). Stress, Coping and Wellbeing in Kindergarten: Children's Perspecti es on Personal, Interpersonal and Institutional Challenges of School. International Journal of Early Childhood, 47(1), 79-103.

Hart, D., & Karmel, M. P. (1996). Self-awareness and self-knowledge in humans, great apes, and monkeys. In A. Russon, K. Bard, & S. Parker (Eds.), Reaching into thought. New York: Cambridge University Press.

Harter, S. (1998). The development of self-representations. In W. Damon (Ed.), Handbook of child psychology (5th ed., Vol 3). New York: Wiley.

Heimann, M., Strid, K., Smith, L., Tjus, T., Erik Ulvund, S., & Meltzo , A. N. (2006). Exploring the relation between memory, gestural communication, and the emergence of language in infancy: A longitudinal study. Infant and Child Development, 15(3), 233-249.

Hoehl, S., & Striano, T. (2010). Discrete emotions in infancy: Perception without production? Emotion Review, 2, 132-133.

Hughes, C., & Ensor, R. (2010). Do early social cognition and executi e function predict individual differences in preschoolers' prosocial and antisocial behavior? In B. W. Sokol, U. Muller, J. I. M. Carpendale, A. R. Young, & G. Iarocci (Eds.), Social interaction and the development of social understanding and executi e functions (pp. 418-441). New York: Oxford University Press.

Izard, C. E. (2007). Basic emotions, natural kinds, emotion schemas, and a new paradigm. Perspecti es on Psychological Science, 2, 260-268.

Kagan, J., Kearsley, R. B., & Zelazo P.R. (1978). Infancy: Its place in human development. Cambridge, MA: Harvard University Press.

Keil, F. (2014). Knowing ourselves, knowing others. Developmental psychology: The growth of mind and behavior (1st ed., pp. 467-502). New York, NY: W. W. Norton & Company, Inc.

Keil, F. (2014). The growth of cogniti e skills. Developmental psychology: The growth of mind and behavior (1st ed., pp. 343-384). New York, NY: W. W. Norton & Company, Inc.

Keil, F. (2014). The origins of emotion, temperament, and personality. Developmental psychology: The growth of mind and behavior (1st ed., pp. 227-259). New York, NY: W. W. Norton & Company, Inc.

Kochanska, G., Murray, K. T., Jacques, T. Y., Koenig, A. L., & Vandegeest, K. A. (1996). Inhibitory control in young children and its role in emerging internalization. Child Development, 67, 490–507.

Kopp, C. B. (2008). Self-regulatory processes. Encyclopedia of infant and early childhood development, 3, 102-117.

Ladd, G. W., Herald, S. L., & Kochel, K. P. (2006). School readiness: Are there social prerequisites?. Early Education and Development, 17(1), 115-150.

Lagattu a, K. H., & Thompson, R. A. (2007). The development of self-conscious emotions: Cognitive processes and social influences. In R. W. Robins & J. Tracy (Eds.), Self-conscious emotions (2nd. ed). New York: Guilford Press.

Leppanen, J. M., & Nelson, C. A. (2006). The development and neural bases of facial emotion recognition. In R. Kail (Ed.), Advances in child development and behavior (pp. 207-246). London: Elsevier.

Lewis, M. (2008). The emergence of human emotion. In M. Lewis, J. M. Haviland-Jones, & L. F. Barrett (Eds.), Handbook of emotions (3rd ed., p. 304-31). New York: Guilford Press.

Lewis, M., & Ramsay, D. (2004). Development of self-recognition, personal pronoun use, and pretend play during the 2nd year. Child Development, 75, 1821-1831.

Lewis, M., Alessandri, S. M., & Sullivan, M. W. (1992). Differences in shame and pride as a function of children's gender and task difficulty. Child Development, 63, 630-638.

Lewis, M., Sullivan, M. W., Sanger, C., & Weiss, M. (1989). Self-development and self-conscious emotions. Child Development, 60, 146-156.

Massey, S. L. (2004). Teacher–child conversation in the preschool classroom. Early Childhood Education Journal, 31(4), 227-231.

Meltzo , A. N. (1988). Infant imitation a er a 1-week delay: long-term memory for novel acts and multiple stimuli. Developmental Psychology, 24(4), 470.

Meltzo , A. N., & Moore, M. K. (1977). Imitation of facial and manual gestures by human neonates. Science, 198(4312), 75-78.

Mueller, E., & Vandell, D. (1979). Infant-infant interaction. Handbook of infant development, 591-622.

Nelson, J. A., O'Brien, M., Calkins, S. D., Leerkes, E. M., Marcovitch, S., & Blankson, A. N. (2012). Maternal expressive style and children's emotional development. Infant and child development, 21(3), 267-286.

Pears, K. C., Bruce, J., Fisher, P. A., & Kim, H. K. (2009). Indiscriminate friendliness in maltreated foster children. Child Maltreatment.

Pianta, R. C. (1994). Pa erns of relationshi s between children and kindergarten teachers. Journal of school psychology, 32(1), 15-31.

Poulin-Dubois, D., Serbin, L. A., Eichstedt, J. A., Sen, M. G., & Beissel, C. F. (2002). Men don't put on make-up: Toddlers' knowledge of the gender stereotyping of household activities. Social Development, 11, 166-181.

Richards, J. E. (2011). Infant a ention, arousal, and the brain. In L. Oakes & others (Eds.), Infant perception and cognition. New York: Oxford University Press.

Rubin, K., Fein, G., & Vandenberg, B. (1983). Play. In E. M. Hetherington (Ed.), P. H. Mussen (Series Ed.), Handbook of child psychology. Vol. 4: Socialization, personality, and social development (pp. 693-774). New York: Wiley.

Ru , H. A., & Capozzoli, M. C. (2003). Development of a ention and distractibility in the first 4 years of life. Developmental Psychology, 39, 877-890.

Santrock, J. W. (2011). Emotional development. Child Development (14th ed., pp. 280-312). New York, NY: McGraw-Hill Education

Santrock, J. W. (2011). Information processing. Child Development (14th ed., pp. 193-227). New York, NY: McGraw-Hill Education

Santrock, J. W. (2011). The self and identit . Child Development (14th ed., pp. 313-335). New York, NY: McGraw-Hill Education

Scha er, H. R. (1996). Social development. Blackwell Publishing.

Selman, R. L. (1971). Taking another's perspecti e: Role-taking development in early childhood. Child Development, 42(6), 1721-1734.

Serbin, L. A., Poulin-Dubois, D., Colbourne, K. A., Sen, M. G., & Eichstedt, J. A. (2001). Gender stereotyping in infancy: Visual preferences for and knowledge of gender-stereotyped toys in the second year. International Journal of Behavioral Development, 25, 7-15.

Sha er, D. R. (1999). Cognitive development: Information-p ocessing perspecti es. Developmental Psychology (5th ed., pp. 270-312). Pacific Grove, CA: Brooks/Cole Publishing Company.

Sha er, D. R. (1999). Development of the self and social cognition. Developmental Psychology (5th ed., pp. 433-471). Pacific Grove, CA: Brooks/Cole Publishing Company.

Sha er, D. R. (1999). Emotional development and the establishment of intim te relationshi s. Developmental Psychology (5th ed., pp. 391-432). Pacific Grove, CA: Brooks/Cole Publishing Company.

Shure, M. B., & Spivack, G. (1981). Interpersonal problem solving as a mediator of behavioral adjustment in preschool and kindergarten children. Journal of Applied Developmental Psychology, 1(1), 29-44.

Siegler, R., DeLoache, J., Eisenberg, N., & Saff an, J. (2014). A achment to others and development of self. How children develop (4th ed., pp. 425-466). New York, NY: Worth Publishers.

Siegler, R., DeLoache, J., Eisenberg, N., & Saff an, J. (2014). Emotional development. How children develop (4th ed., pp. 383-424). New York, NY: Worth Publishers.

Sti er, C. A., & Braungart, J. M. (1995). The regulation of negati e reactivity in infancy: Function and development. Developmental Psychology, 31(3), 448.

Suddendorf, T., Simcock, G., & Nielsen, M. (2007). Visual self-recognition in mirrors and live videos: Evidence for a developmental asynchrony. Cognitive Development, 22, 185-196.

Thompson, C., & Bales, S. (1991). "Michael doesn't like my dinosaurs": Conversations in a preschool art class. Studies in Art Education, 33(1), 43-55.

Thompson, R.A. (2015). Relationshi s, regulation, and development. In R.M. Lerner (Ed.), Handbook of Child Psychology (7th ed.). New York: Wiley.

Trentacosta, C. J., & Fine, S. E. (2009). Emotion knowledge, social competence, and behavior problems in childhood and adolescence: A meta-analytic review. Social Development, 19(1), 1-29.

Walker-Andrews, A. S. (2008). Intermodal emotional processes in infancy. In M. Lewis, J. M. Haviland-Jones, & L. Feldman-Barrett (Eds.), Handbook of emotions (3rd ed., pp. 364-375). New York: Guilford Press.

Watson, M. W., & Fischer, K. W. (1980). Development of social roles in elicited and spontaneous behavior during the preschool years. Developmental Psychology, 16(5), 483.

Witherington, D. C., Campos, J. J., Harriger, J. A., Bryan, C., & Margett, T. E. (2010). Emotion and its development in infancy. Wiley-Blackwell Handbook of Infant Development, The, Volume 1, Second Edition, 568-591.

Social Systems - Cognitive

Benson J., Sabbagh, M., Zelazo, S., & Philip, D. Individual Differences in Executi e Functioning Predict Preschoolers' Improvement From Theory-of-Mind Training. Developmental Psychology. Vol 49 (9) Sept 2013. 1615-1627.

Bernier, A., Beauchamp, M., Carlson, S., & Lalonde, G. A Secure Base From Which To Regulate: A achment Security in Toddlerhood as a Predictor of Executi e Functioning at School Entry. Developmental Psychology. 2015. Vol. 51, 2015, Vol. 51, No. 9, 1177–1189 0012-1649/15/$12.00 http://dx.doi.o g/10.1037/dev0000032.

Bernier,A., Carlson, M., Desche^nes, M., and Ma e-Gagne, C. (2012). Social factors in the development of early executi e functioning: a closer look at the caregiving environment. Developmental Science 15:1 (2012), pp 12–24 DOI: 10.1111/j.1467-7687.2011.01093 .x.

Brillante, Pamela. (2015). A Sense of Place: Human Geography in the Early Childhood Classroom YC young children Volume 70, Issue 3.

Carlson S., Koenig, M., & Harms M. (2013). Theory of Mind. WIREs Cognitive Science, 4:391–402. doi: 10.1002 /wcs. 1232

Carlson , S.,. Claxton, L. & Moses, L. (2015). The Relation Between Executi e Function and Theory of Mind is More Than Skin Deep, Journal of Cognition and Development, 16:1, 186-197, DOI: 10.1080/15248372.2013.824883.

Center on the Developing Child at Harvard University (2011). Building the Brain's "Air.

Traffic Control" System: How Early Experiences Shape the Development of Executi e Function: Working Paper No. 11. http://d velopingchild.harvard.edu/.

Gartrell, D.,(2012). Democratic Life Skill 1: Guiding Children to Find a Place. YC Young Children Volume 67 Issue 4 pp. 78-80.

Gartrell D., (2013). Democratic Life Skill 2: Guiding Children to Express Strong Emotions in Nonhurting Ways. YC Young Children. Volume 68 Issue 1.

Gartrell D., (2013) Democratic Life Skill 3: Solving Problems Creati ely-Independently and in Cooperation With Others YC Young Children. Volume 68 Issue 3.

Gartrell D., (2013). Democratic Life Skill 4: Accepting Unique Human Qualities in Others. YC Young Children. Volume 68 Issue 5.

Gartrell D., (2014). Democratic Life Skill 5: Thinking Intelligently and Ethically YC Young Children. Volume 69 Issue 1.

Garrison, T. (2006). Social Studies in Today's Early Childhood Curricula. Childhood Education, 83(1),58.Retrieved from http:/ go.galegroup.com/ps/i.do?p=EAIM&sw=w&u=clic_hamline&v=2.1&it=r&id=GALE%7CA153706414&sid=summon&asid=58f6dc7b0689dfae6e4d2c3935e294b4.

Lee, W., and Carlson, S. (2015). Knowing When to Be "Rational": Flexible Economic Decision Making and Executi e Function in Preschool Children University of Minnesota Child Development, September/October 2015, Volume 86, Number 5, Pages.

MINNESOTA

education.state.mn.us **health.state.mn.us** **minnesota.gov/dhs**

This product is made possible using federal funding,
CFDA 84.412A – Federal Race to the Top Early Learning Challenge Grant.