

New Jersey Department of Education

Division of Early Childhood Education Services

Office of Kindergarten to Third Grade Education

New Jersey

# Kindergarten Implementation Guidelines

## Acknowledgment

New Jersey’s *Kindergarten Implementation Guidelines* were developed as an essential tool in building continuity from preschool age programs to grade three. The guidelines provide school districts knowledge and resources to implement developmentally appropriate kindergarten practices as part of a high-quality kindergarten program. The *Kindergarten Implementation Guidelines* are intended to maximize the impact of universal preschool by advancing a comprehensive and seamless educational continuum from preschool through grade three (P – 3) in New Jersey’s school districts.

The *Kindergarten Implementation Guidelines* reflect the collaborative efforts of the New Jersey Department of Education (NJDOE) and early childhood professionals across the state bringing current research and best practices together in one usable document for school administrators, teachers, instructional coaches, and families to meet the needs of all learners.

The NJDOE would like to express sincere gratitude and appreciation to the kindergarten practitioners and external reviewers from the field as well as the various offices within the NJDOE that contributed to New Jersey *Kindergarten Implementation Guidelines*.

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## Table of Contents

[Kindergarten Implementation Guidelines 1](#_Toc153885312)

[Acknowledgment 2](#_Toc153885313)

[New Jersey State Board of Education 3](#_Toc153885314)

[Table of Contents 4](#_Toc153885315)

[Introduction 6](#_Toc153885316)

[Sections in the Guidelines 6](#_Toc153885317)

[Parent and Family Engagement in Student Learning and Development 8](#_Toc153885318)

[Section One Guiding High-Quality Practice in Kindergarten 9](#_Toc153885319)

[Overview 9](#_Toc153885320)

[Understanding Young Learners in Kindergarten and Developmental Domains 10](#_Toc153885321)

[Equity for All Students 17](#_Toc153885322)

[Building Culturally Responsive Classrooms 20](#_Toc153885323)

[Diverse Learners in Kindergarten 22](#_Toc153885324)

[Assessing Student Learning Within the Kindergarten Classroom 34](#_Toc153885325)

[Section Two School Structures Supporting High-Quality Kindergarten Programs 38](#_Toc153885326)

[Overview 38](#_Toc153885327)

[Preschool–Grade 3 Continuum 39](#_Toc153885328)

[Transitions to Kindergarten 40](#_Toc153885329)

[Kindergarten Curricula 45](#_Toc153885330)

[Professional Learning for Kindergarten Educators 45](#_Toc153885331)

[Arranging the Kindergarten Classroom 49](#_Toc153885332)

[Managing the Kindergarten Classroom 51](#_Toc153885333)

[Scheduling the Kindergarten Day 57](#_Toc153885334)

[Section Three High-Quality Kindergarten Classrooms in Action 69](#_Toc153885335)

[Overview 69](#_Toc153885336)

[New Jersey Student Learning Standards (NJSLS) 69](#_Toc153885337)

[English Language Arts (ELA) for Kindergarten Students 70](#_Toc153885338)

[Writing Instruction for Kindergarten Students 79](#_Toc153885339)

[Modeled Writing and Mini-Lessons 81](#_Toc153885340)

[Mathematics Instruction for Kindergarten Students 84](#_Toc153885341)

[Science and Engineering Instruction for Kindergarten Students 101](#_Toc153885342)

[Social Studies Instruction for Kindergarten Students 104](#_Toc153885343)

[Developmentally Appropriate Kindergarten Learning Centers 107](#_Toc153885344)

[Next steps for the Kindergarten Implementation Guidelines 114](#_Toc153885345)

[References 116](#_Toc153885346)

[Appendix: Notes for Working with Families 132](#_Toc153885347)

[Overview 132](#_Toc153885348)

## Introduction

The*Kindergarten Implementation Guidelines* document provides administrators, teachers, instructional coaches, and other educators guidance and resources to effectively implement the components of a high-quality developmentally appropriate kindergarten program. Based on research, best practices in the field and informed by position statements such as those authored by the National Association for the Education of Young Children (NAEYC), the *Kindergarten Implementation Guidelines* document details developmentally appropriate kindergarten practices, school structures, and classroom environments that ensure equity for all students.

### Sections in the Guidelines

The kindergarten year is critical in laying a strong foundation for the future of every child. The most effective classrooms are facilitated by a teacher who has been presented with many opportunities to engage in professional development about a variety of innovative pedagogical methods. This emphasizes the importance of academic rigor coupled with developmentally appropriate play-based learning delivered by a highly-qualified teacher as a critical component of high-quality kindergarten programs.

The *Kindergarten Implementation Guidelines* document is divided into three sections.

1. Guiding High-Quality Practice in Kindergarten
2. School Structures that Support High-Quality Kindergarten Programs
3. High-Quality Kindergarten in Classrooms in Action

***Section One, Guiding High-Quality Developmentally Appropriate Practice in Kindergarten,*** lays the foundation for how to establish and maintain a high-quality kindergarten program. This section provides the background of developmentally appropriate practices for five- and six-year-old children.

This section includes:

* physical, cognitive, social-emotional, language, and self-regulation development overview;
* developmentally appropriate practices that provide for engaging and supportive educational and equitable learning opportunities and experiences;
* guidance on meeting the needs of diverse learners;
* integration of building culturally responsive relationships in the classroom.
* *Universal Design for Learning* Framework; and
* insight into the various types of assessments used in kindergarten and how they can be used as data points to inform instruction.

***Section Two, School Structures that Support High-Quality Kindergarten Programs,*** describes a comprehensive framework for structures that need to be in place for optimal program delivery within a school and kindergarten classroom including arranging and managing the kindergarten classroom.

This section includes:

* planning developmentally appropriate daily schedules;
* integrating intentional play in meeting the New Jersey Student Learning Standards (NJSLS);
* the continuity from preschool to kindergarten and from kindergarten to first grade and the significance of seamless transitions; and
* best practices and ideas for professional development for transition teams, teachers and other stakeholders.

***Section Three, High-Quality Kindergarten Classrooms in Action,*** details what a high-quality kindergarten classroom includes grounded in standards-based teaching and learning including whole group, small group, and individual instructional experiences.

This section includes:

* recommendations regarding daily happenings in the kindergarten environment;
* ways to teach content areas through whole group, small group, and individualized instruction;
* practical suggestions for instructional strategies; and
* a guide to designing and effectively utilizing choice centers in the kindergarten classroom.

### Parent and Family Engagement in Student Learning and Development

The NJDOE promotes the importance of engaging parents, families, and communities in student learning and development. Meaningful learning partnerships between home/ school/ community are especially crucial in the early learning years when young children acquire foundational competencies such as language, literacy, essential basic mathematical skills, science, social studies, and social-emotional skills that strongly affect their capacity for lifelong learning and success.

Guidance on parent, family, and community engagement can be found in the *Appendix* of this document. Guiding principles are outlined in the *Appendix* that include parent and family engagement as a systemic component of a kindergarten program. The information is based on both decades of research and the newest promising practices that can impact kindergarten students’ learning and development.

## Section One Guiding High-Quality Practice in Kindergarten

### Overview

***Section One, Guiding High-Quality Practice in Kindergarten,*** focuses on the necessary structures and supports to be able to implement a high-quality kindergarten program. The kindergarten year is embedded within a continuum of seamless programming that:

* emphasizes developmentally appropriate best practices to ensure success for all students which includes understanding the aspects of child development;
* incorporates NJSLS and the four types of assessments that should take place within the kindergarten classroom to help educators effectively plan and evaluate classroom instruction and learning based on the individual needs of all learners;
* produces a positive impact that full-day kindergarten can have on young learners and supports both the academic as well as the social-emotional well-being of students
* allows for a culturally responsive kindergarten classroom environment and equitable opportunities through the classroom set-up, teacher and student daily interactions, classroom instruction, student responses, and classroom materials and resources;
* meets all domains to help foster children’s development and how self-regulation is a foundational component of well-being that is necessary to grow in the physical, social-emotional, cognitive, and language domains; and
* addresses the needs of all learners by ensuring all children have access to developmentally appropriate curriculum and ways for school districts to self-evaluate their current kindergarten program.

### Understanding Young Learners in Kindergarten and Developmental Domains

Kindergarten children enter school with varying background experiences. Some children enter kindergarten having experiences in a preschool or childcare environment. For others, the kindergarten school environment is their first experience away from family. A positive school environment is crucial to ensuring success for all learners by supporting their growth across the developmental pathways, physical, cognitive, social-emotional, and language, while at the same time, reducing stress and anxiety that create barriers to learning.

#### Developmentally Appropriate Practice

Developmentally appropriate practice (DAP) is defined as a framework of practices designed to promote young children’s optimal development and learning through a strength-based, play-based approach to joyful, engaged learning (NAEYC, 2020). High-quality kindergarten classrooms need to be developmentally appropriate to support all learners in the classroom. Academic language and content are critical in the kindergarten classroom (Riley-Ayers & Figueras-Daniel, 2018) and can be integrated through intentional play and DAP.

The “whole child” approach to education seeks to address the individuals’ strengths, needs, and interests as they engage in learning. A positive school environment is at the core of a successful educational experience for the young learner. By creating secure relationships and support for development, student engagement and learning can occur (Darling-Hammond et al., 2018). By devoting part of the school day to play and play-based learning, as well as project-based learning, students can develop their physical, cognitive, social-emotional, creative, and language competencies.

DAP should be at the heart of the teacher’s work in designing and implementing a classroom environment and program that meets the needs of all children. Teachers are empowered to make intentional decisions that reflect best practices and incorporate DAP. In NAEYC’s (2020) DAP position statement, the basis of DAP is in the teacher’s intentionality in using three core elements of the framework:

1. Child development and learning that applies to five and six-year-old children, including the understanding that all development and learning occur within specific social, cultural, linguistic, and historical contexts;
2. Each child is an individual and member of a family, which allows teachers to refine decisions about how to teach and care for each child. By continually observing children’s play and interaction with the physical environment and others, teachers learn about each child’s interests, abilities, and developmental progress; and
3. Each child’s social and cultural context is discernable by learning about the child’s family and the values, expectations, and factors that shape their lives at home and in their communities. Learning about children’s backgrounds allows teachers to provide meaningful, relevant, and respectful learning experiences for each child.

High-quality kindergarten programming hinges on fostering children’s development and learning in all domains. To achieve this positive school environment, teachers, as well as all school staff, should be aware of children’s development in the following domains.

#### Physical Development

Physical activity can take place at any time and occur in one or several brief periods during the school day. It includes integrating physical activity into academic instruction as well as providing breaks from instruction specifically designed for physical activity. Classroom physical activity can be offered in addition to physical education and recess. Students need opportunities and encouragement to participate in physical activities that are appropriate for their age, that are enjoyable, and that offer variety.

Classroom physical activity can benefit students by:

* improving concentration and the ability to stay on-task in the classroom;
* reducing disruptive behavior, such as fidgeting in the classroom;
* encouraging motivation and engagement in the learning process; and
* helping to improve academic performance.

A child’s physical development determines the control of their body and movements, including muscle development and coordination including both fine and gross motor movements. Fine motor skills refer to the use of the small muscles found in individual body parts, especially those in the hands and feet. Children use their fine motor skills to grasp, hold, and manipulate small objects; and use tools including pencils, crayons, scissors, and paint brushes. Gross motorskills refer to moving the whole body and using larger muscles, such as those in the arms and legs including walking, kicking, stretching, skipping, hopping, and running. Kindergarten students become increasingly more competent in fine and gross motor skills throughout the school year when provided with daily opportunities either inside or outside the classroom to use their large and small muscles through play and intentional play-based activities. Typical developing kindergarteners will be able to stand on one foot for 10 seconds or longer, hop, do a somersault, swing, climb, use a fork and spoon, and use the toilet on their own (Centers for Disease Control and Prevention [CDC], 2023).

#### Cognitive Development

A child’s cognitive development determines how they think, explore, and figure out things. It refers to concepts such as memory, the ability to learn new information, and the development of knowledge, skills, problem-solving, and dispositions that allow children to think about and understand the world around them. Cognitive skills develop as children learn to think more complexly, make decisions, and solve problems. As young children explore, ask questions, and create, they improve their thinking skills. Reflecting on and using information enables children to understand the world around them.

Children grow and develop at different rates as a result of interaction between maturation and experience. A high-quality kindergarten classroom will foster cognitive development for all children through DAP and differentiated learning. Some examples of a typical kindergartner’s cognitive skills are counting 10 or more things, drawing a person with at least 6 body parts, copying simple shapes, printing some letters and numbers, and knowing about everyday objects, like money and food (CDC, 2023).

#### Language and Literacy Development

Language development refers to children’s emerging abilities to understand and use language. Language skills are both receptive (i.e., the ability to listen to and understand language); and expressive (i.e., the ability to use language to communicate ideas, thoughts, and feelings). Children's language ability affects learning and development in all areas, especially emerging literacy. Language and literacy skills can develop in any language, and for the most part, they develop first in the child's home language. Supporting development of the home language helps prepare young children for learning English.

Typically, a kindergartner can speak in clear sentences, understand tense, and tell a simple story. A classroom rich in spoken language and literacy will naturally improve a child’s language development (CDC, 2023). There is a fundamental and reciprocal relationship between oral language (listening and speaking), written language, and reading. Initially, reading and writing are dependent on oral language skills as young children use oral language skills to learn how to read and write. A developmentally appropriate kindergarten offers children a variety of opportunities to interact with books, printed words, writing/ drawing and oral language.

#### Social and Emotional Learning and Development

Social and Emotional Learning (SEL) is an integral part of education and human development. It is the developmental process through which all individuals acquire and apply the knowledge, skills, and attitudes to develop their identity, manage emotions, show empathy for others, establish and maintain supportive relationships, and make responsible and caring decisions. High-quality kindergarten programs take a systemic approach that emphasizes the importance of establishing equitable learning environments and coordinating practices across key settings to enhance all students’ social, emotional, and academic learning (Collaborative for Academic, Social, and Emotional Learning [CASEL], n.d.). It is most beneficial to integrate SEL throughout the school’s academic curricula and culture, across the broader contexts of schoolwide practices and policies, and through ongoing collaboration with families and community organizations.

Effectively integrating SEL schoolwide involves ongoing planning, implementation, evaluation, and continuous improvement by all members of the school community. SEL efforts both contribute to and depend upon a school climate where all students and adults feel respected, supported, and engaged. The school setting includes many contexts (e.g., classrooms, hallways, cafeteria, playground, bus) fostering a healthy school climate and culture that requires active engagement from all adults and students. Strong school culture is rooted in students’ sense of belonging and evidence suggests that it plays a crucial role in students’ learning engagement (CASEL, n.d.). Before building SEL into curricula, weaving it into daily experiences, or designing support strategies for home/ school partnerships, teachers must view it as an all-encompassing extension of teaching and learning beyond the classroom.

Students, families, schools, and communities are all part of broader systems that shape learning, development, and experiences. Inequities based on race, ethnicity, class, language, gender identity, sexual orientation, and other factors are deeply ingrained in many of these systems and impact young people and adults’ social, emotional, and academic learning. While SEL alone will not solve long-standing and deep-seated inequities in the education system, it can create the conditions needed for individuals and schools to examine and interrupt inequitable policies and practices, create more inclusive learning environments, and reveal and nurture the interests and assets of all individuals.

Quality implementation of well-designed, evidence-based, classroom programs and practices are a foundational element of an effective kindergarten SEL program (CASEL, n.d.). SEL instruction is carried out most effectively in nurturing, safe environments characterized by positive, caring relationships among students and teachers. To facilitate age-appropriate and culturally responsive instruction, teachers must understand and appreciate the unique strengths and needs of each student.

Social and emotional competence can be enhanced using a variety of classroom-based approaches such as:

* explicit instruction through which social and emotional skills and attitudes are taught and practiced in developmentally, contextually, and culturally responsive ways;
* teaching practices such as cooperative learning and project-based learning; and
* integration of SEL and academic curriculum.

Educators should decide how best to prioritize, teach, and assess the growth and development of individual children in their kindergarten classrooms and schools. CASEL (n.d.) lists five categories below that are interrelated areas of social and emotional development skills and competencies:

1. self-awareness
2. self-management
3. social awareness
4. relationship skills
5. responsible decision-making

##### Self-Awareness

Self-awareness is the ability to understand one’s own emotions, thoughts, and values and how they influence behavior across contexts. This includes capacities to recognize one’s strengths and limitations with a well-grounded sense of confidence and purpose such as:

* integrating personal and social identities;
* identifying personal, cultural, and linguistic assets;
* identifying one’s emotions;
* demonstrating honesty and integrity;
* linking feelings, values, and thoughts;
* examining prejudices and biases;
* experiencing self-efficacy;
* having a growth mindset; and
* developing interests and a sense of purpose.

##### Self-Management

Self-management is the ability to manage one’s emotions, thoughts, and behaviors effectively in different situations and to achieve goals and aspirations. This includes the capacities to delay gratification, manage stress, and feel motivation and agency to accomplish personal/collective goals such as:

* managing one’s emotions;
* identifying and using stress-management strategies;
* exhibiting self-discipline and self-motivation;
* setting personal and collective goals;
* using planning and organizational skills;
* showing the courage to take initiative; and
* demonstrating personal and collective agency.

##### Social Awareness

Social awareness is the ability to understand the perspectives of and empathize with others, including those from diverse backgrounds, cultures, and contexts. This includes the capacity to feel compassion for others, understand broader historical and social norms for behavior in different settings, and recognize family, school, and community resources and supports such as:

* taking others’ perspectives;
* recognizing strengths in others;
* demonstrating empathy and compassion;
* showing concern for the feelings of others;
* understanding and expressing gratitude;
* identifying diverse social norms, including unjust ones;
* recognizing situational demands and opportunities; and
* understanding the influences of organizations/systems on behavior.

##### Relationship Skills

Relationship skills support the ability to establish and maintain healthy relationships and to effectively navigate settings with diverse individuals and groups. This includes the capacities to communicate clearly, listen actively, cooperate, work collaboratively to problem solve and negotiate conflict constructively, navigate settings with differing social and cultural demands and opportunities, provide leadership, and seek or offer help when needed such as:

* communicating effectively;
* developing positive relationships;
* demonstrating cultural competency;
* practicing teamwork and collaborative problem-solving;
* resolving conflicts constructively;
* resisting negative social pressure;
* showing leadership in groups;
* seeking or offering support when needed; and
* standing up for the rights of others.

##### Responsible Decision-Making

Responsible decision-making is the ability to make caring and constructive choices about personal behavior and social interactions across diverse situations. This includes the capacity to consider ethical standards and safety concerns and to evaluate the benefits and consequences of various actions for personal, social, and collective well-being such as:

* demonstrating curiosity and open-mindedness;
* identifying solutions for personal and social problems;
* learning to make a reasoned judgment after analyzing information, data, and facts;
* anticipating and evaluating the consequences of one’s actions;
* recognizing how critical thinking skills are useful both inside and outside of school;
* reflecting on one’s role to promote personal, family, and community well-being; and
* evaluating personal, interpersonal, community, and institutional impacts.

### Equity for All Students

Early childhood educators can advance equity within their school districts. Districts should “provide high-quality early learning programs that build on each child’s unique set of individual and family strengths, cultural background, language(s), abilities, and experiences. Educators can eliminate differences in educational outcomes as a result of who children are, where they live, and what resources their families have. All children deserve the opportunity to reach their full potential” (NAEYC, 2019, April, p.16).

Research shows that attending a high-quality full-day kindergarten program can begin to close the opportunity gap (Kay & Pennucci, 2014). Full-day kindergarten allows educators and students more time to spend on topics and skills. In addition to cognitive and academic gains, children in full-day programs tend to exhibit more independent learning, classroom involvement, and productivity in working with peers. These are all qualities that students need to meet the NJSLS. Research also shows that students participating in full-day kindergarten programs show larger achievement gains in reading and mathematics compared to those students attending half-day classes (National Education Association,2015).

#### Equitable Learning Opportunities

It is critical for school districts to offer opportunities for every student to learn, engage, and grow. A district curriculum and approach should value and reflect the diverse backgrounds of the children and families in the community. “With the support of the early education system as a whole, they [schools] can create early learning environments that equitably distribute learning opportunities by helping all children experience responsive interactions that nurture their full range of social, emotional, cognitive, physical, and linguistic abilities; that reflect and model fundamental principles of fairness and justice; and that help them accomplish the goals of anti-bias education” (NAEYC, 2019, April, p.5).

#### District-Wide Equity

Ensuring district-wide equity is a crucial part of developing a high-quality kindergarten program. It is important for school districts to make every effort to ensure that their staff is prepared and a part of a professional learning community that focuses on advancing equity in each school environment. In creating this community, it is important to regularly audit procedures and policies with an equity lens. This will ensure that educators are working to even the playing field for all students. Families and community members should be included in this conversation to ensure that everyone has a voice.

Starck et al., (2020, p. 17) found that research “challenge[s] the notion that teachers might be uniquely equipped to instill positive racial attitudes in children or bring about racial justice, instead indicating that teachers need just as much support in contending with their biases as the population at large”. It is significant that teachers receive resources and professional development on cultural proficiency and have frequent dialogue internally and externally around equity.

##### Educational Equity in the Kindergarten Classroom

Educational equity in the classroom ensures all students can actively engage in learning. Ensuring equity begins with a school culture that embraces inclusivity and seeks to provide all learners with the resources they need to be successful. The chart below provides questions for consideration and examples of how equity should be seen through experiences in the kindergarten classroom.

Examples of Educational Equity in the Kindergarten Classroom

| Questions for Teachers | Classroom and School-Based Examples |
| --- | --- |
| Which students actively participate, how often, when, and with what means/materials/ resources? | Students self-select art materials to make a representation of their home and family. They choose to paint a picture, to build with clay, etc. They can orally describe or write (using invented or approximated spelling or pictures) information about what they presented. |
| What opportunities do students have to successfully contribute to their own learning experiences? | During a literacy lesson, students may have a variety of responses to “What will it look like?” or “What will happen when the wolf tries to blow down the third pig’s brick house?” Students can use words aloud or write, draw, paint, or build to respond and contribute. |
| What teacher actions and behaviors encourage students' access, and willingness, to participate? | Students use gestural, nonverbal signals, or written signals to answer a posed question. |
| How do the lesson tasks and classroom resources enable or limit participation for individuals or groups of students? | Teachers take into consideration the needs of all learners and provide a variety of materials to support children of all developmental levels. This includes multiple selections from the classroom book selection to the variety of writing tools available. This should be considered throughout the day from independent work to center time. |
| What are the language demands of a lesson or study (e.g., domain-specific vocabulary, etc.)? | Graphic organizers may help with idea generation and organization. Example: “Match the words and pictures about trash and how it can hurt animals.” Teachers may use alternate word choices to represent the varied languages used by children who speak them alongside the English word/term. |
| How can we support and encourage the growth of students' academic language? | During small group/team time students whose language is not primarily English can dialogue with other students using different words or phrases to describe things happening in a story. Teachers can pre-teach vocabulary. |
| How can we support the students about whom we are the most concerned? | Consider parent and family involvement and engagement opportunities. Build a home/ school learning partnership. Communicate observations and value parents’ observations outside of school. Jointly create small challenges and support/enrich short and long-term student outcomes. Make all decisions regarding screening or additional support with parents as equal partners. |

(Adapted from Jonas et al., 2019)

### Building Culturally Responsive Classrooms

“Culturally responsive instruction is a pedagogy that empowers students intellectually, socially, emotionally, and politically by using cultural references to impart knowledge, skills, and attitudes” (Ladson-Billings, 1994, as cited in Goldston, 2017, para. 2). A culturally responsive classroom is an environment enabling all students to succeed and embraces students’ diverse backgrounds and individuality.

The table below outlines some ways teachers can exhibit awareness, demonstrate respect, model appropriate behaviors, integrate diversity, create multi-linguistic opportunities, and build culturally responsive relationships in the classroom. In many cases, student responsiveness may be reflective of teachers’ acknowledgment and actions.

Building Culturally Responsive Relationships in the Classroom

| Responsive School/ Classroom Action | How Equity is Actualized |
| --- | --- |
| Active, consistent usage of “identity markers” such as student names. | Actively engage the student to model the pronunciation of their name and the teacher can then say it back. |
| Teach mutual respect and companionship throughout the day. | Model reciprocal responses and respectful, appropriate dialogue for centers, cafeteria, playground/recess, etc. |
| Classroom helpers are powerful for building language, respect, and acknowledgment. | Students can show one another how to do things and use native languages to represent various actions or activities (how to properly wash hands, build a car with blocks, etc.). |
| Learn some words in the students’ home/native language. Try to use the words actively when engaging with not only the student but with the whole class so that there is a collaborative comfort in multi-language use. | Label and actively use names for different materials, places, and objects throughout the classroom and school so that all students can see, hear, and use a variety of different languages. This activates diversification of learning as well as respectful communication, and celebration. Use various language versions of common greetings (hello, good morning, goodbye) or phrases (please and thank you). |
| Illuminate and showcase the authentic culture of students. The classroom culture is a representation of many diverse cultures. | Decorate the classroom; students share artifacts; use song and dance; celebrate with regional cuisine and cooking; family involvement and engagement both are crucial. |

(Adapted from Nemeth, 2016)

### Diverse Learners in Kindergarten

The range of abilities and behaviors of young children is broad and should be accepted and accommodated in every kindergarten classroom. Students’ gender identities, racial identities, styles of learning, and prior academic and social-emotional learning experiences should be considered when planning for instruction. Students’ prior or lack of prior educational experiences may shed light on specific strengths or needs. These needs may have been identified before entering kindergarten, or they may be identified once children have entered the kindergarten classroom. Teachers systematically assess and document any potential learning, behavioral, or physical challenges demonstrated by a child and be proactive in addressing these issues. Before teachers are directed to assess students for learning, social-emotional, and/or behavioral needs, training can be provided to support teachers in recognizing and mitigating their own biases (United States Department of Education, n.d.). Any process that relies on individual judgements is vulnerable to being impacted by an individual’s beliefs and personal experiences.

The district’s intervention team, counselors, and social workers can help the teacher make adaptations to the classroom environment and activities that meet the child’s distinct learning or behavioral needs. Collaboration with the child’s family, those who know the child best, is essential to identifying potential causes for issues and developing effective plans for resolution.

#### Supporting All Students

Some students will enter kindergarten with identified disabilities while others may have undiagnosed needs or needs not meeting the thresholds for qualifying as a disability. Students with identified disabilities will have an Individualized Education Program (IEP) in place which articulates academic goals, services to be provided, and classroom placement. High-quality kindergarten classrooms are for all students. Five- and six-year-old children with disabilities benefit from the same high-quality programs and resources as their peers. The kindergarten classroom will provide appropriate modeling of social, behavioral, and academic skills as well as providing opportunities for socialization, friendships, and an overall sense of belonging to a community.

Differentiated instruction benefits all students and is considered a universal support used to modify the delivery of core or Tier 1 instruction. Teachers can differentiate in four different categories: content, process, learning environment, and product. Listed below are a few examples of strategies to differentiate instruction for your students such as:

* adjust assignments by giving fewer questions;
* provide sentence starters both orally and in writing;
* create personalized schedules using words and graphics;
* utilize preferential seating;
* pre-teach some skills, including content-specific vocabulary;
* break assignments/lessons down into smaller chunks;
* offer different ways for a student to demonstrate their understanding of a topic or concept;
* provide small group instruction; and
* give opportunities for students’ choice of learning experiences.

Even when providing students with high-quality differentiated instruction to accommodate unique needs, at times students may require more intensive academic, behavioral, or social and emotional support. These supports are provided to individual or small groups of students and are designed to address specific skills or content needs uncovered through a systematic data collection and analysis process. Examples of more intensive support provided to small student groups may include:

* increasing adult supervision;
* creating opportunities for positive reinforcement for specific desired behaviors;
* specific instruction and practice in self-management;
* pre-teaching and reviewing skills prior to a classroom lesson;
* increased opportunities to provide immediate feedback to address student misconceptions; and
* offering additional opportunities for students to practice skills.

At times students may require more intensive support than can be offered in a small group or one-on-one setting. The sample interventions described below are designed to be delivered to individual students who have not sufficiently responded to interventions provided at the classroom or small group levels. When determining the types of interventions to provide a student, teachers should consider various data available to them indicating the students’ needs, whether significant time was allowed for the interventions to demonstrate desired effect and should be certain that prior interventions were implemented with fidelity.

Some examples of individualized interventions include:

* providing frequent opportunities for one-on-one instruction to reinforce daily lessons;
* extending instructional sessions for individual students to have more opportunities to practice specific skills;
* providing breaks before beginning an instructional activity that a student does not prefer; and
* administering a functional behavioral assessment to explore the functions of behavior.

#### Multilingual Learners (MLs)

In New Jersey (NJ), students who have a home language other than English and are identified through Chapter 15, Bilingual Education (N.J.A.C. 6A:15), as needing language services to gain English Language proficiency are identified as multilingual learners (MLs).

According to data derived from NJ schools, the number of MLs students has grown by 20% during the past five years. Spanish is the primary language spoken by MLs throughout New Jersey followed by Arabic, Portuguese, Chinese, and Gujarati. Having students proficient in multiple languages is critical for participating and competing in our current global, political, social, and economic climate.

Additionally, the study of foreign languages in elementary schools should be encouraged as it contributes to a student’s cognitive development and creates a pathway for all students to earn the state Seal of Biliteracy recognition in twelfth grade.

To identify a student’s language, a standardized Home Language Survey (HLS) is administered for all N.J. students (ages 3 to 21) upon enrollment in a school district. The HLS is Step 1 of the state’s multi-step identification process to determine if a student may need language services. The HLS provides valuable information about the languages spoken in the student’s home.

Under Title VI of the Civil Rights Act of 1964 (Title VI) and the Equal Educational Opportunities Act of 1974 (EEOA), public schools must ensure that MLs can participate meaningfully and equally in educational programsand communicate information to parents whose first language is not English in a language they can understand. Subsequently*,* in 2015, the Every Student Succeeds Act (ESSA) was signed into law, reauthorizing the Elementary and Secondary Education Act (ESEA). ESSA includes provisions to ensure MLs students are provided equitable educational opportunities to succeed. This is achieved by providing high-quality Language Instruction Educational Programs (LIEP) that enable MLs to meet both state academic standards and develop English language proficiency. The LIEPs are intended to supplement the New Jersey State requirements which mandate the implementation of Bilingual and English as a Second Language (ESL) programs for grades K–12.

A district’s LIEP design will determine how ESL services are provided for MLs (e.g., push-in, pull-out, co-teaching). Regardless of how services are provided, districts should require all educators to include content and language objectives in lesson plans. Content objectives must be based on the NJSLS, and language objectives must be based on WIDA’s English Language Development (ELD) standards.

Thus, high-quality kindergarten programs include policies and practices that value and enable non-English speaking parents’ input in program development and implementation, measures of success, and decision-making, such as classroom materials, curricular supports, and effective activities that directly support their child’s learning and development.

Classroom support for children’s language occurs best in the context of natural interactions and environments. Families play a key role in their children’s language development. The family unit possesses a wealth of knowledge about their children’s communication and language use in home and community environments. Therefore, home/ school partnerships are ideal for MLs to support content learning and interactions in both the child’s primary language and English.

According to federal regulationsand state requirements, educators must have the skills and/or resources to adapt instruction and address each student’s diverse learning strengths. All teachers shall “ensure that appropriate instructional adaptationsare designed and delivered for [MLs],” including MLs who are dually identified as special education and/or gifted and talented (N.J.A.C. 6A:8).

Some examples of instructional practices that enhance an ML’s opportunity to demonstrate what they can do include:

* scaffolding and differentiating of content according to an ML’s English language proficiency (ELP) level;
* classroom objects and materials (e.g., books, puppets, dolls, animals, artwork);
* encouraging oral language expression in their primary language and English;
* teaching vocabulary that includes cognates and transition words; and
* using authentic literacy materials from each child’s culture and/or background.

Also, learning centers can include food menus, magazines, empty food containers, and toy packages written in the child’s home language. Environmental print, from labels to newspapers and child-constructed stories that present home language in everyday, informal contexts can also be included. Fiction, information books, poetry collections, and other print materials, audio, and visual materials in multiple languages that include representations from the students’ cultures should be made available in the classroom.

All teaching should be anchored in meaningful language experiences. Language and literacy skills need to be taught within the context of the curriculum and connected to experiential learning, avoiding rote learning and isolated drills. Other strategies that increase an ML’s access to the content include:

* functional print and materials in classrooms that are labeled in the students’ home languages and English;
* simple and/ or chunked directions;
* diverse pictures with English words and translations into other languages;
* visuals posted at eye level, and repetitive text (e.g., chants, rhymes, poems in home language and English);
* large print words with pictures;
* materials and teaching practices with a global perspective even if all children in the class speak English;
* supplemental classroom resources, and
* a school library of additional resources, activities, and materials that teachers can borrow for their classes based on the languages spoken in their classrooms.

The following practices can improve learning outcomes for MLs by educators:

* designing instruction to build on learners’ prior knowledge and experiences, including language and cultural assets;
* recognizing parents as experts and partners in their children’s language learning and development regardless of the parent’s native language; and
* seeking professional learning that includes awareness of family dynamics, knowledge of second language acquisition, and teaching-centered practice that includes cultural competency and social justice.

#### Gifted and Talented Learners

New Jersey’s gifted and talented students are those who possess or demonstrate a high level of ability in one or more content areas when compared to their chronological peers in the school district and who require modifications to their educational program if they are to achieve in accordance with their capabilities. Gifted and talented students are in kindergarten through twelfth grade. They are urban, suburban, and rural from every part of the state. They include each major racial and ethnic group, students from low-income families, students with disabilities, English learners, migrant students, students experiencing homelessness, and children and youth in foster care, despite under-representation in most of these subgroups. According to ESSA (2015), these students possess high achievement capability in areas such as intellectual, creative, artistic, or leadership capacity, or in specific academic fields, and who need services or activities not ordinarily provided by the school to fully develop those capabilities.

The NJDOE requires that each school district provide services to meet the needs of students who have been identified as gifted and talented. Each school district must establish a process to identify students as gifted and talented using multiple measures. These students require modification to their educational program if they are to achieve in accordance with their capabilities. This mandate was further codified into the Strengthening Gifted and Talented Education Act (SGTEA) in January 2020.

The Act specifically cites school district responsibilities in educating gifted and talented students. Districts must:

* create and maintain websites on which they share their gifted and talented policies and procedures;
* maintain data on the number of students receiving gifted and talented services in each grade level kindergarten through grade 12 disaggregated by race, gender, special education designation, and English language learner designation;
* collect data on the number of district staff employed to identify and provide services to gifted and talented students; and
* provide professional development opportunities for teachers, educational services staff, and school leaders about gifted and talented students, their needs, and educational development.

The NJDOE has not adopted programming standards for gifted and talented programs. However, there are programming standards that have been developed by the National Association for Gifted Children (NAGC) for preschool to grade 12. The program standards detail a framework that focuses on student outcomes. Districts may use the standards both as indicators for improving programs and services and as rubrics for evaluation. The standards provide best practices in identifying and supporting diverse learners in gifted services. These recommendations align with the SGTEA and include educators:

* identifying gifted students early using multiple identification procedures to improve the likelihood that gifts will be developed into talents;
* adapting, modifying, or replacing the core or standard curriculum to meet the interest, strengths, and needs of students with gifts and talents and those with special needs such as twice-exceptional, highly gifted, and MLs;
* considering accommodations and/or assistive technologies to provide equal access to learning opportunities for twice-exceptional learners (students with IEPs or 504 plans) and other students with developmental differences;
* providing parents/guardians with information in their native language regarding diverse behaviors and characteristics that are associated with giftedness and with information that explains the nature and purpose of gifted programming options; and
* participating in professional learning focused on curriculum and pedagogy that are responsive to diversity for individuals with gifts and talents.

Meeting the needs of all students must be a priority for teachers. Students come to kindergarten with a vast range of skills and experiences. Early identification is crucial so that the student’s unique needs and talents are acknowledged and nurtured right from the start. The NAGC recognizes the challenges inherent in identifying and teaching our gifted and talented learners in the early grades. The association recommends surveying parents to understand the student’s strengths and interests. Pull-in or push-out enrichment is not the best practice for kindergarten-age children. Most identified five- and six-year-old children are accommodated best through curricular and instructional modifications that include project-based learning and differentiated instruction in their regular classrooms.

NAEYC (2020) recommends best practices that not only address the challenges of our youngest gifted students but meets the learning needs of all students by:

* providing activities that are student-driven and student-centered and allow choice and flexibility when engaging in these activities. Students who are interested in a particular topic can be given the opportunity to spend more time exploring that subject;
* relying on families (i.e., ask parents to complete an interest survey to get to know more about the students and their interests);
* collaborating with other teachers, including special education and gifted and talented teachers, to provide the best instruction for your students;
* attending in-service training to strengthen teacher practice, including developing creative learning environments and problem-solving activities, and organizing a student observation system; and
* staying current on DAP for kindergarten and using that information to inform individual instruction of students.

#### New Jersey Tiered Systems of Support (NJTSS)

NJTSS is a framework of academic and behavioral supports and interventions to improve student achievement, based on the core components of multi-tiered systems of supports (MTSS) and the three-tier prevention logic of Response to Intervention (RTI). NJTSS builds upon existing intervention and referral services to organize the delivery of school’s interventions or supports to address academic and behavioral needs identified through a thorough assessment process.

Based on successful models of RTI and MTSS from across the country, NJTSS gives schools and districts a systematic way to address learner variability and engage all students in learning the NJSLS. NJTSS maximizes the efficient use of resources to improve support for all classroom teachers and targets interventions to students based on their needs. Through regular monitoring of student progress, along with data-based decision making by problem-solving teams and providing a continuum of supports and interventions based on student performance, NJTSS offers a variety of evidence-based practices designed to improve achievement and promote positive student outcomes. The tiered system involves the systematic development of nine essential components in schools for the effective implementation of the framework with fidelity and sustainability. Those components include:

* effective district and school leadership;
* family and community engagement;
* positive school culture and climate;
* high-quality learning environments;
* curricula and instructional practices;
* universal screening;
* data-based decision making;
* collaborative problem-solving teams;
* progress monitoring; and
* staff professional development.

As a multi-tiered approach, NJTSS promotes the practice of providing high-quality instruction and interventions matched to student need, monitoring progress frequently to make decisions about changes in instruction or goals and applying child response data to important educational decisions (Batsche et al., 2005).

NJTSS aligns resources, from within the schools, across school districts and within communities and counties, to provide the right interventions to the right students at the right times. The idea behind a multi-tiered approach is that the majority of students will respond to schoolwide strategies (known as Tier 1 supports) but that these strategies may not be sufficient for all students. Some students require more personalized support (Tier 2) and an even smaller number may need more intensive measures (Tier 3) (Chang & Leong, 2020). The three-tiered model is described below.

##### Tier 1: Universal Screening, High-Quality Classroom Instruction, and Group Interventions

Tier 1 instruction is instruction and curriculum provided to all students with the goal of achieving mastery of grade-level standards. Tier 1 instruction will include differentiation provided by a classroom teacher to support learners in accessing grade-level content. However, some students may have difficulty with grasping grade-level concepts or content despite the delivery of high-quality Tier 1 instruction.

Tier 1 activities include the systematic collection of data through universal screening measures and formative assessments which educators use to determine key concepts and skills that are contributing to a student’s struggles. Starting with student data to inform instructional content and practice, educators have the information to modify instruction to meet each child’s needs or implement supplemental strategies to support learning.

Once struggling learners are identified as “at risk”, they receive additional Tier 1 supports during the school day in the classroom, which are often provided by the classroom educator. Typically, these supports last for two to six weeks, although the length can vary. Children who demonstrate significant progress at the end of this period are released from supports while those who do not show adequate progress begin receiving Tier 2 supports in addition to Tier 1.

##### Tier 2: Targeted Interventions

Children who do not make adequate progress after receiving quality Tier 1 classroom supports receive increasingly intensive instruction to meet their needs in Tier 2. The intensity, frequency, and duration of this targeted instruction is based on their needs, performance, and progress. Tier 2 interventions and services are often provided in small-group settings.

Tier 2 interventions may be implemented longer than Tier 1 interventions but should not exceed one marking period. In accordance with the processes included in the NJTSS framework, students who demonstrate too little progress are considered for more intensive Tier 3 interventions.

##### Tier 3: Intensive Interventions and Comprehensive Evaluation

Tier 3 interventions are individualized, intensive, and frequently monitored to assess effectiveness of the intervention. Children who do not demonstrate a significant level of progress in response to Tier 3 interventions are referred for a comprehensive evaluation. Depending on the results of the evaluation, the child may be considered eligible for special education services under IDEA 2004. Evidence collected by teachers and the Intervention & Referral Services (I&RS) team describing a student’s progression from Tiers 1, 2, and 3 are included in the eligibility decision.

#### Intervention & Referral Services (I&RS)

I&RS provides a framework to allocate resources to help improve student outcomes. While the functions outlined in *N.J.A.C.* 6A: 16-8.2 must be included in a school’s I&RS process, I&RS may vary from one school to another. If implemented with fidelity, the NJTSS framework can fulfill the I&RS requirements. The strategies implemented by I&RS may include variations in problem-solving, functional assessment, standard protocol, or hybrid approaches. Per the Individuals with Disabilities Education Act (IDEA) 2004, at any point during the I&RS process, parents may request a formal evaluation for their child to determine eligibility for special education services. It should be noted that no NJTSS/RTI/I&RS process can be used to deny or delay a parent’s request for a formal evaluation.

#### Universal Design for Learning (UDL)

UDL is a framework for proactively and equitably addressing the needs of diverse and exceptional learners by ensuring that all children have access to the curriculum. It includes the use of multiple means of engagement, multiple means of representation, and multiple means of expression. UDL is designed to prepare children to become expert learners by ensuring that the curriculum and materials are easily accessible to all students. The UDL framework includes strategies in three different learning networks:

The UDL Framework

| UDL Principle | Network Description |
| --- | --- |
| Multiple means of engagement | Identify multiple ways to motivate and engage students with the activity. |
| Multiple means of representation | Provide opportunities for students to learn information in more than one format. |
| Multiple means of expression | Provide opportunities for students to interact with materials and demonstrate what they have learned in varied ways. |

These strategies can be implemented in the kindergarten classroom by providing students with choice in the assignment format (e.g., center choice); using self-monitoring and self-evaluation for students to track learning (e.g., share time); teaching and practicing classroom routines with students; using problem-based learning projects and explorations; including materials that reflect both student cultures and student interests; and taking the time to build relationships with each student in the classroom. In addition, by dedicating time to increasing student motivation for learning and class participation, learning for all students will be greatly enhanced (Lohmann et al., 2018).

UDL in early education settings is designed so all children are viewed as equal and valued members of their classroom community. The Center for Applied Special Technology [CAST] (2018) suggests UDL shifts old assumptions about teaching and learning in four fundamental ways.

1. Children with disabilities fall along a continuum of learner differences rather than constituting a separate category.
2. Teachers adjust learner differences for all children, not just those with disabilities.
3. Curriculum materials should be varied and diverse, including digital and online resources, not merely a single resource.
4. Teachers allow for flexibility to accommodate learner differences, rather than following a set curriculum.

A universal design approach for learning follows principles of good practice in early education by:

* recognizing that a one-size-fits-all approach to education is ineffective;
* understanding the need to design curricula and assessments to meet the needs of diverse classroom populations; and
* declaring that all children who attend early education programs will be successful in their development and learning.

### Assessing Student Learning Within the Kindergarten Classroom

Intentional teachers gather data that are needed to guide instruction, ensuring that all children grow and learn at the appropriate pace. Kindergarten teachers use assessments to find students’ strengths and to figure out which areas are needed to target for early intervention. Teachers use “assessment tools in ways that are ethically grounded and developmentally, culturally, ability, and linguistically appropriate to document developmental progress and promote positive outcomes for each child” (National Association for the Education of Young Children, 2020, p. 19). These assessments should connect to the NJSLS to ensure the students leaving kindergarten are equipped with the skills and knowledge they need to be successful in the rest of their educational journey.

The tools used for assessment in kindergarten programs should be:

* reliable and valid;
* age- and program-appropriate;
* aligned to the NJSLS;
* designed to provide answers to relevant questions;
* utilized to inform ongoing classroom instruction;
* used to analyze data to determine professional development for all staff, as well as inform program improvements; and
* interpreted with caution and used as only one source of information within multiple measures.

#### Screening Assessments

A developmental assessment tool may be administered upon entry to kindergarten. This type of tool identifies children with special characteristics and determines if further assessment is needed. Interventions should never result from a brief screening or one-time assessment.

The kindergarten team alongside other stakeholders in the grade level (e.g., instructional coach, language specialist, reading specialist) can set aside time at the beginning of the school year to analyze the data and create a watchlist of students who did not perform well. Conversations will be around the domain(s) in which the child’s performance identifies areas of strength and/or areas of growth along with possible reasons. For example, if the child could not recognize all the letters and sounds in the alphabet, one possible reason may be the child did not attend preschool. The team would advise the teacher to provide extra support during the day to help the child master letters and letter sounds. The team would next touch base with the teacher to check if ongoing progress is taking place with the child. If no progress is being documented, then further intervention may be necessary.

The data collected from the developmental screening tool is used for at least one of the following purposes:

* inform classroom instruction and curriculum planning;
* identify students in need of specialized support or interventions;
* advise staff of professional development needs; and/or
* provide a snapshot of what children know when they enter kindergarten.

#### Diagnostic Assessments

Diagnostic Assessments happen at the beginning of a unit, lesson, quarter, or period. Teachers can use diagnostic assessments as a pre-assessment to plan the unit by looking for students' knowledge and skills prior to instruction. Teachers use the information to plan how much time and what type of instruction is needed for students to master the concepts being taught. Diagnostic assessments are also very informative when planning differentiated lessons to meet students’ various performance levels and academic backgrounds.

Diagnostic assessments benefit both the instructor and the students by:

* enabling teachers to plan meaningful and efficient instruction;
* providing information for individualized instruction; and
* creating a baseline for assessing future learning.

#### Formative Assessments

Formative assessments engage teachers and students in a process of gathering and interpreting data about how students are learning to adjust the learning in a short period of time. It is used to check students' understanding so that the teaching can be adjusted, and students can be given immediate feedback. Formative assessment is the catalyst for providing feedback. Formative assessments can take many forms. This includes observations of students in centers and students' interactions with each other. While observing children, anecdotal notes, or brief notes of observations, are easy ways to collect formative assessment information teachers can use to reflect about what the children are learning (Bates et al., 2019). Anecdotal notes and reflection drive instructional planning, helping teachers to think more deeply about children’s growth and learning by generating questions and conjectures that fuel additional observations and anecdotal records (Bates et al., 2019).

There are several informal ways to take and manage anecdotal note-taking such as the use of data binders or note catchers. Taking notes using “clear language, abbreviations, and evidence provide concrete documentation of children’s emerging behaviors, knowledge, and skills, and they also ground your ongoing reflective practices’ (Bates et al., 2019, para.20). This type of intentional and authentic formative assessment contributes to children’s learning and development. Additionally, formative assessment measures can be used to provide students with support, feedback, and instruction aligned to the NJSLS performance expectations.

#### Summative Assessments

Summative assessments are used to evaluate students' learning to determine if a student has mastered a skill following classroom instruction. It also measures student learning or concept retention. It is used to inform and modify real-time instruction to improve student outcomes. It is given at the end of a period of instruction such as an end-of-the-unit assessment (NAEYC, 2020).

All these types of assessments play an important role in a kindergarten classroom. Assessments help teachers plan, adjust, and evaluate student learning. When planning an assessment, it is important to consider the DAP that are provided in section one of this document. Teachers must consider how these assessments will be given and consider the nature of a kindergarten student’s development. The assessment may be one-to-one, small group, orally, or written.

## Section Two School Structures Supporting High-Quality Kindergarten Programs

### Overview

***Section Two, School Structures that Support High-Quality Kindergarten Programs,*** focuses on the structures and supports needed in the school and classroom to support high-quality kindergarten programs established by Preschool to Grade 3 (P–3) administrators, leadership, and kindergarten teachers to attain academic success.

Key structures that needed to be in place within the kindergarten classroom, as well as in the school building include:

* having a P–3 continuum helps foster a seamless alignment and educational experience between P–3;
* establishing a P–3 transition team and deciding the roles and responsibilities using a sample checklist;
* designing curricula that support and align with the NJSLS;
* creating meaningful experiences, choice time centers, and multiple types of play;
* establishing high-quality professional development opportunities for Professional Learning Communities, Classroom Learning Walks, and the Coaching Model;
* organizing the classroom and scheduling a full kindergarten day including a comfortable learning environment and daily transitions; and
* opportunities for sharing and celebrating student work to showcase and highlight the successes, experiences, and growth that take place in a high-quality kindergarten classroom.

### Preschool–Grade 3 Continuum

To ensure the success of every student and close the achievement gap, it is imperative that all children have access to high-quality, aligned programs from P–3. Effective instruction, instructional consistency and meaningful learning opportunities grounded in developmentally appropriate practices are central to a P–3 approach. A framework for this P–3 approach consists of eight major categories of effort that can be implemented to ensure quality learning experiences for young children.

There are eight categories, within the Framework for Planning, Implementing, and Evaluating P–3 Approaches (Kauerz & Coffman, 2019).

1. Cross-Sector Work: Establish and support collaborative (cross-organizational and cross-sector) boards or committees that formalize decision-making roles and responsibilities among partners and prioritize P–3 efforts.
2. Administrator Effectiveness: Administrators demonstrate that P–3 is a priority to both internal and external stakeholders.
3. Teacher Effectiveness: Teachers’ professional learning is focused on effectively supporting children’s language, reading, math, social, and emotional development, and on providing instruction for all young learners that is culturally relevant and differentiated.
4. Instructional Tools: Meaningful, rigorous, and aligned standards are used to articulate what children are expected to know and be able to do.
5. Learning Environment: Learning environments are welcoming and reflect the community of children and their families, home communities, cultures, and languages.
6. Data-Driven Improvement: Data from student assessments are used to identify achievement gaps and to drive instructional improvement.
7. Engaged Families: Teachers, administrators, and all staff in schools and programs understand the importance of family engagement and employ strategies for engaging families.
8. Continuity and Pathways: Children’s access to high-quality learning opportunities is expanded and extended across age/grade levels, especially for children who have been historically marginalized.

Additional research shows that each grade level should incorporate all elements of high-quality education, as well as promote children’s development and support higher-order thinking skills in literacy and mathematics while growing their social-emotional skills (Ewen & Herzfeldt-Kamprath, 2016). A successful P–3 approach ensures that children have consistent, coherent, high-quality learning opportunities provided to them. This high-quality learning frames the context, supports, and incentives to support consistency across early learning programs, schools, families, and teachers (Schilder, 2019).

Having a kindergarten program that focuses on developmentally appropriate differentiated instruction is key to maintaining their learning trajectory throughout kindergarten and beyond (Drummond et al., 2016).

### Transitions to Kindergarten

The transition to kindergarten is one of the most critical moments in a child’s life as they enter the formalized K–12 education system. This experience is the sturdy bridge linking their early childhood experiences with their future academic endeavors. Successful transitions to kindergarten can result in reduced stress and improved social-emotional well-being at the onset of kindergarten, improved academic growth, and increased family engagement throughout the course of the school year. To facilitate a successful transition from preschool, childcare, or home to kindergarten, a school may establish a transition team that can implement various strategies and activities to involve the family and child in the school setting.

As preschool age children move into kindergarten classrooms, children will continue to learn by experiencing the world around them. It is important to think about the transition into kindergarten as a partnership between children, early child teachers and providers, kindergarten teachers, and families. As young children prepare to transition to kindergarten, it is essential for teachers and administrators to provide support for both children and families to ensure smooth transitions from one classroom setting to the next.

School districts can work towards creating a high-quality kindergarten program by establishing a P–3 transition team composed of families, community agencies and leaders, and preschool and elementary personnel. The team can establish goals to ensure seamless support for all children, preschool through grade three, and create transition activities based on those goals. These members may include teachers, the Child Study Team (CST), the Preschool Intervention and Referral Specialist (PIRS), language specialists, curriculum coordinators, administrators, school counselors, and nurses. In addition, it is critical to include any preschool provider program located in the community. School administrators can identify a transition facilitator who could set regularly scheduled meetings to re-evaluate district-wide transition activities and events throughout the school year.

These activities may include but are not limited to the following (Adapted from National Center on Early Childhood Development, Teaching, and Learning [NCECDTL], 2019).

* Provide families with information on registration guidelines, options in the community, and information on the school, as well as health requirements and nutrition information.
* Encourage families to visit future kindergarten classrooms and meet with kindergarten teachers.
* Share reading lists, materials, and activities for families to use throughout the summer months to support their child’s learning at home.
* Hold kindergarten information sessions where families can ask questions and gain a better understanding of the kindergarten day.
* Offer meetings with the appropriate staff members (e.g., school nurse, guidance counselor, child study team, language specialist, teacher) focusing on specific child needs and family expectations in kindergarten to better prepare children and their families for the year ahead.
* Provide an opportunity for children to take a kindergarten screening and/or a Home Language Survey (with translators available, when needed) to determine a child’s individual strengths, connect with parents, and guide differentiated learning.
* Allow opportunities for kindergarten teachers to visit preschool classrooms (within or outside the district) to bolster the P–3 Continuum and to get to know future kindergarten students by reading, playing, and engaging in activities with them.
* Provide professional development opportunities that combine both preschool and kindergarten teachers to ensure continuity from one setting to another.
* Provide common planning time for preschool and kindergarten teachers as well as with administration to ensure alignment from one year to the next.
* Engage children in small group activities to discuss the similarities and differences between preschool and kindergarten.
* Schedule field trips for children (from both within and outside the district) to spend time in kindergarten classrooms and the cafeteria as well as engage in joint activities with the kindergarten students.
* Create a kindergarten transition team composed of both kindergarten and preschool teachers to facilitate the activities.

A possible checklist for creating a P–3 transition team has been provided below. These strategies are suggestions to help ensure smooth transitions and success for all.

A Sample Preschool through Third Grade Transition Team Checklist

School District Administrator

| **Strategy** | **✓** |
| --- | --- |
| Create a transition team composed of families, community agency leaders, and preschool and elementary personnel (e.g., teachers, child study team, the Preschool Intervention and Referral Specialist (PIRS) members, Early Childhood Advisory Council members, language specialists, curriculum coordinators, and administrators). |  |
| Identify a transition team facilitator who will set and conduct regularly scheduled meetings. Provide time for school personnel to attend the meetings. |  |
| Identify children at risk for learning with a valid screening tool and provide support targeted to the children’s individual learning needs. |  |
| Plan systems for data collection, analysis, and accountability to provide information about student progress, program quality, and teacher effectiveness from preschool through third grade. |  |
| Create common planning time for teachers within and across grade levels and with specialists to ensure developmentally appropriate curriculum and assessments that are aligned horizontally and vertically. |  |

Transition Team

| **Strategy** | **✓** |
| --- | --- |
| Survey families and the community to identify educational and social service needs. |  |
| Include a process for collaborating with families, early learning providers, and local public and private agencies to learn more about students and their families prior to school entry. |  |
| Establish goals to ensure seamless support for all children as they move through each year, including summer, from preschool through third grade. The focus will be on addressing the development of the whole child. |  |
| Provide information to families on the transition to and from each grade level from preschool through third grade, including registration guidelines, placement options, learning and development expectations, and health and nutrition information. |  |
| Create transition activities based on the goals created to ensure seamless support for children and families (e.g. support families with strategies for entrance/exit procedures). |  |
| Generate a timeline for implementing the transition plan. |  |
| Revisit and update the transition plan annually. |  |

Teachers

| **Strategy** | **✓** |
| --- | --- |
| Participate on the transition team and/or provide suggestions for activities. |  |
| Meet with other teachers and specialists within and across grades to discuss and implement NJSLS as well as developmentally appropriate curriculum and assessments that are aligned horizontally and vertically. |  |
| Meet with teachers within and across grade levels to discuss transition activities and readiness goals for children and families throughout the year. |  |
| Prepare and disseminate developmentally appropriate home learning activities during the school year and the summer months. |  |
| Get to know each child and family. Contact families prior to the start of school and communicate with them on a regular basis throughout the year. |  |
| Welcome new children and their families. Let families know how they can be involved in their child’s school and classroom. |  |

(Adapted from Kauerz & Schaper, 2021)

### Kindergarten Curricula

When designing curricula for the kindergarten classroom, there are several factors for school districts to consider ensuring effective and impactful learning experiences for young children. It is important that the curricula are aligned to the NJSLS, clear, developmentally appropriate, built on intentional goals, engaging to young learners, and include critical concepts for students to learn. In addition, curricula should be play-based and support students in working towards established learning objectives. A curriculum review team consisting of teachers, instructional coaches, and administrators will review and evaluate each content area curriculum. Each member of a curriculum review team can be given the opportunity to provide feedback after the development to review and refine the curriculum that best meets the needs of the learners in the district.

Once curricula are approved at the district level, school districts create a professional development plan for teachers to learn how to implement each new curriculum in their classrooms. Teachers use each curriculum to plan and guide their instruction as well as consider student interests. “They pay attention to what children are interested in, what they already know, and what they might be ready to learn next” (NAEYC, n.d.-b, “Planning Experiences within the Curriculum” section).

### Professional Learning for Kindergarten Educators

Professional learning is most meaningful when it is intensive, ongoing, and connected to practice. *The NAEYC Professional Standards and Competencies for Early Childhood Educators*, (2019, November) state that educators should “engage in continuous, collaborative learning to inform practice” (p.10). In addition, NAEYC recommends that teaching staff “develop and sustain the habit of reflective and intentional practice in their daily work with young children and as members of the early childhood profession” (p.10).

Building time into the weekly school schedule for available job-embedded coaching and professional learning communities (PLCs), enables professionals to grow and learn from one another and investigate research-based practices. In addition, district-wide professional development opportunities that provide ongoing support for implementing new content and pedagogy in a continuous cycle of improvement should be available. As professionals, educators grow their capacity to reflect on practice, revise instructional plans, and implement change. The cyclical and reflective nature of this process ensures that educators are continually evolving, adapting, and improving their teaching methods. A personalized approach to professional development allows for individual growth and improvement over time, contributing to improved teaching practices, and ultimately, improved student outcomes.

Professional development for educators is another school structure essential to ensure high-quality programs. Professional learning for kindergarten staff:

* includes research on child development and learning, transitions, motivation and engagement, DAP, learning through play, social and emotional learning, pedagogy, content curriculum areas, assessments, classroom materials and resources, technology, and parent and family engagement;
* is relevant to teaching all students (general education, special education, dual language learners, and multilingual students);
* incorporates all educational staff connected with the kindergarten program (i.e., inclusive of all classroom teachers of general education and special education, teachers of special area subjects, classroom teacher assistants, instructional coaches, counselors, social workers, and administrators);
* involves differentiation based on the needs of kindergarten staff including topics for presentations as well as the various methods of delivery (e.g., school-wide, grade band, professional learning communities, and/or classroom coaching);
* continuously supports instructional coaches and administrators; and
* consists of a follow-up component to enhance learning and understanding of the training.

Three critical guiding questions to consider when planning professional development:

1. How do students in kindergarten learn?
2. What are DAP for students in kindergarten?
3. How can scaffolding be used to guide student learning?

Based on the results of structured and unstructured classroom observations, professional development specific to kindergarten might include:

* equitable learning opportunities and culturally responsive practices;
* social-emotional learning;
* relationship building;
* incorporating learning centers and intentional play into the classroom environment;
* creating developmentally appropriate class schedules;
* integrating curriculum across content areas;
* facilitating long term projects;
* implementing play-based activities within content areas;
* guiding children’s cognitive development during choice time; and/or
* effectively engaging families in supporting children’s learning and social-emotional development.

#### Professional Learning Communities

Professional Learning Communities (PLCs) are groups of educators that meet to identify and focus on improving teaching practices and the impact on student learning and development. It has been found that PLCs can build teaching efficacy and improve students' achievement (Voelkel & Chrispeels, 2017; Turner et al., 2017). PLCs can vary in terms of teacher configuration. The key aspect of a PLC is that it provides a structured and collaborative framework for educators to work together to improve teaching practices and enhance student learning outcomes (e.g., same grade, same content area, same school, different schools within a district, interdisciplinary or other groupings. The effectiveness of a PLC often depends on the clarity of goals, the commitment of participants, and the presence of a supportive organizational culture. The configuration of a PLC should align with the specific needs and objectives of the educators involved and the context in which they work.

Typically, the same team of teachers meets regularly with one member of the team acting as the facilitator. The job of the facilitator is to communicate with the team members about the topic of the session, how members need to prepare, and the protocols that will be used. To build capacity, all teachers can take the facilitator’s role at one time or another.

During PLC meetings, a clear goal tied to instructional practices and student achievement is set. PLC time can be used for educators to analyze the implementation of the NJSLS in a particular content area curriculum, student work, and other problems of practice that are directly tied to student achievement. PLCs can also develop protocols for each meeting to ensure members stay on task and work to accomplish their goals.

#### Classroom Coaching

Kraft, Blazar, & Hogan (2018) conducted a meta-analysis of sixty studies about the efficacy of coaching. In their meta-analysis, they found that coaching had a more positive effect than traditional forms of professional development. Coaches with expertise in early childhood education can provide teachers with the opportunity to reinforce research-proven methods of pedagogy. Instructional coaches are invaluable resources for classroom teachers that support instructional goals and provide feedback that directly improves teaching practices.

When working with teachers, coaches can provide non-evaluative support through planning, modeling instruction, and reflection with the teacher. Teachers and coaches can work together to plan for instruction and classroom management in various settings. Collaboratively, coaches and teachers can critically analyze student data from assessment tools, co-create and conduct lessons, and/or research best practices.

Instructional coaches can support teachers in improving instruction through classroom visits, modeling through demonstration lessons and/or by collaboratively co-teaching. During the classroom visits, the coach can provide “on-the-spot” feedback. In this instance, the coach provides the teacher with tips to improve instruction to meet the goals during instruction. The *Reflective Cycle* is one method that can be used for instructional coaching. In the *Reflective Cycle*, the coach engages in peer observations by holding a pre-conference to determine areas of focus for coaching based on the kindergarten curricula and/or research-based best practices. After the visit, a post-conference is planned between the teacher and coach to reflect together on the teaching and learning that occurred. The post-conference ends with the next steps established for teaching and learning practice in the classroom and a time established for the coach’s next classroom visit.

An additional method of coaching that can occur during the teaching portion of the cycle would be the coach explicitly modeling strategies and/or lessons. Not only can a coach provide feedback and model, but the coach can also serve as a catalyst for reflection. The coach and teacher can have continual conversations about strategies, assessments, and developmentally appropriate best practices.

##### Classroom Learning Walks

Classroom learning walks can support change and growth within individual classrooms and entire school buildings. They provide a chance for teachers and administrators to discuss and reflect on the environment and instruction, then develop a plan for improvement. Fisher & Frey (2014) state “learning walks have been transformative in the schools and districts we work with, especially in moving from professional development to professional practice” (p.58). Through learning walks, teachers have a chance to develop a deeper understanding of how other teachers are implementing best practices to guide students toward meeting the NJSLS.

Prior to a learning walk, a purpose or focal point for the walk is determined by the administrators or teachers. An observation tool is developed for the classroom walk. This tool can be created by teachers, coaches, or administrators. During the learning walk, teachers spend no more than fifteen minutes in each classroom they visit to observe only the targeted focus of the walk. Following the walk, the teachers reflect and develop a plan of action to improve practice in their own classroom and in the school. These learning walks can also help administrators make professional development decisions specific to the kindergarten portion of the district’s overall plan.

### Arranging the Kindergarten Classroom

Classroom arrangement and organization impact children’s experiences in the kindergarten learning environment. Classrooms should be welcoming, neat, and organized so students feel comfortable. A predictable schedule gives students in kindergarten the structure they need to navigate independently through the school day. Each kindergarten school day should include blocks of time that engage children individually, in whole group and in small group settings with a balance of child-initiated choice time play and adult-guided learning experiences. Children’s evolving interests and skills guide the choice of the materials and learning activities offered during group times and in classroom learning centers.

The set-up of a kindergarten classroom is a crucial element to support the flow of daily activities. A kindergarten classroom should be culturally responsive, open, and child friendly without any obstacles that block the view of the children. The ideal kindergarten classroom is an inviting space that facilitates playful learning and students' movement. Teachers set up the classroom, offer materials, and plan interactions that support children's learning and interests. Freschi (2023) suggests:

* clear pathways for children to travel with clearly defined areas;
* muted colors (non-stimulating) throughout the classroom and minimal distractions, such as artwork hanging from the ceiling;
* indications that children’s work is valued and respected, such as orderly display of their work throughout the classroom;
* ample child-sized furniture available;
* variety of spaces, including soft and hard surfaces, for children to engage in a variety of learning opportunities, including collaborative play and independent learning;
* clearly defined learning centers;
* space for each child to store personal belongings and materials;
* quiet spaces within the classroom for individual children to have time away from large groups;
* materials and toys that authentically reflect the diversity of the student population;
* children and families represented in photos and activities throughout the classroom;
* accessible child-sized bathrooms within the kindergarten classroom; and
* a flexible yet predictable schedule each day.

### Managing the Kindergarten Classroom

Classroom management is an essential step toward building positive relationships with students as well as creating a predictable structure and an efficiently running classroom. Teachers who have established strong management techniques while keeping the child’s social-emotional well-being in mind are more effective. “In classrooms where teachers used a series of techniques centered around establishing, maintaining, and restoring relationships, academic engagement increased by thirty-three percent and disruptive behavior decreased by seventy-five percent-making the time students spent in the classroom more worthwhile and productive” (Terada, 2019, para. 2).

A well-run kindergarten classroom functions as a community. Predictable routines and schedules, rules developed by the teacher and students and applied equitably, and shared classroom responsibilities are all qualities of an environment responsive to young diverse learners. Guidelines for acceptable behavior should be expressed in simple language accompanied by a clear rationale. Work and play settings should be planned so that children can navigate through daily activities with as much independence as possible. When children understand that they are able and expected to regulate many of their activities independently, they can develop self-control and self-direction. These attributes, complemented by the presence of consistently warm and caring adults who nurture academic success and successful relationships between and among the diverse classroom community members, contribute to feelings of well-being and security that instill confidence in everyone in the community. A low student-teacher ratio can help a teacher reach all the learners in their classroom. Small class sizes can help teachers reach all learners in the classroom more frequently, allowing for more one-on-one time with individual students.

It is important to maintain positive teacher-child interactions; positivity gives students a sense of safety and comfort. Students who feel a part of the classroom community are more likely to stay focused on learning. A great way to promote positive teacher-child interactions is to praise the student on something they are doing correctly first and then discuss why a behavior is undesirable and how he or she can change the behavior in the future. Effective classroom management starts with relationship building. When students feel a greater sense of belonging, they are more likely to be academically engaged and demonstrate positive behavior (Terada, 2019). It is also important to remain fair and unbiased when managing student behavior. The students in the classroom may come from a variety of different cultures and beliefs, which should be reflected in the classroom and approaches to learning.

Classroom management can be handled in a variety of ways. Management techniques can be done whole class, in groups, or individually. These techniques can be goal-based. The frequency for individual management may differ from the whole class to meet the needs of the child. Classroom management works best when a teacher is committed to a technique that has proven to be effective and equitable. Educators are encouraged to have a repertoire of techniques to understand what works best for the classroom from year to year.

#### Supporting Self-Regulation

Another crucial component of a young learner is the ability to self-regulate their behaviors. Self-regulation is a foundational component of well-being that is necessary to grow in the physical, social, emotional, cognitive, and language domains. According to the Duke Center for Child and Family Policy (2017) self-regulation is defined as “the act of managing thoughts and feelings to enable goal-directed actions” (para. 2). For example, self-regulation means finding ways to cope with strong feelings so they do not become overwhelming by learning to focus and shift attention, working towards a goal, and successfully controlling behaviors to get along with others.

Attaining self-regulation in early childhood leads to better performance in school, better relationships with others and fewer behavioral difficulties. “While biology sets the stage for self-regulation readiness, caregiver support and environmental context contribute to its development through the period from birth to young adulthood” (Duke Center for Child and Family Policy, 2017, para. 4). It is the intentional work by adults to promote self-regulation capacity in the early lives of children that can help them develop critical skills such as attentional control, problem-solving, and coping strategies.

Within the kindergarten classroom, self-regulation can be developed through a supportive process of “co-regulation” between adults and children. According to the Duke Center for Child and Family Policy (2017), this supportive process consists of three intersecting components:

1. Provide a warm, responsive relationship so that children will feel respected as individuals, comforted, supported in times of stress, and confident that they are cared for no matter what. This support will allow children to feel secure enough to practice new skills and learn from their mistakes.
2. Structure the environment to make self-regulation manageable by providing a buffer against environmental stressors. The classroom and school must be physically and emotionally safe for children to explore and learn at their developmental level. Consistent, predictable routines and expectations promote that sense of security for children.
3. Teach and coach self-regulation skills through modeling, instruction, opportunities for practice, prompts for skill enactment, and reinforcement of successive approximations.

Parrish(2018) suggests the following ways that teachers can set up a classroom environment that are conducive to teaching self-regulation:

* create a positive environment where strengths are emphasized, and challenging behavior is observed to determine its reason and then addressed once the child has calmed down;
* set clear expectations with schedules, procedures, and routines;
* instruct study skills such as organizing materials, managing time, and staying on task;
* scaffold instruction based on a child’s instructional starting point;
* discuss and reflect on objective, nonjudgmental feedback to improve behavior; and
* model and practice appropriate behaviors.

##### Positive Behavioral Interventions and Supports (PBIS)

Positive Behavioral Interventions and Supports (PBIS) is a multi-tiered system approach to planning and implementing interventions with a focus on behavior, conduct, and social and emotional wellness. In a multi-tiered system approach, like PBIS, interventions are organized along a continuum into three intervention delivery tiers: universal prevention (Tier 1), secondary targeted or selective interventions (Tier 2), and intensive tertiary interventions (Tier 3). Each intervention tier has a specific focus and set of practices that guide intervention design and delivery. A multi-tiered intervention system, such as PBIS, is designed using processes and practices that are culturally and contextually responsive to the strengths, needs, and priorities of the school and community (Center on PBIS, 2023).

##### Universal Prevention (Tier 1)

At the universal tier, teachers and staff use core prevention practices to create a positive and proactive school culture and climate. A school’s culture of prevention is grounded in school-wide expectations that guide how everyone conducts themselves and treats one another. An important feature of operationally defining effective expectations is that they are framed positively using action-oriented language. “Walk at all times”, “ask before taking”, and “use an inside voice” are examples of positively framed expectations that guide the student toward pro-social behavior. Engaging students and parents are necessary to ensure that the selection of expectations, the defining of their meaning, and the articulation of examples is done through the cultural lens of the school community.

To help students achieve the behavioral expectations of the school and primary classroom, teachers and staff routinely teach, review, and reinforce the expectations through a variety of planned and incidental opportunities occurring throughout the school year. Instead of teaching students the expectations just once at the beginning of the school year, teachers supplement this initial instruction by embedding opportunities for students to learn about the expectations in context such as by linking to content area curriculum and planned routines. For example, during a morning routine, the teacher can reinforce learning by reviewing expectations, leading a discussion about the expectations, modeling the expected behaviors, and having students practice or role play expectations. To support in-context learning, teachers use an array of evidence-based practices including positive greetings at the door, pre-correction, opportunities to respond, active supervision, behavior specific praise, and teachable moments throughout the school day. By embedding learning scaffolds throughout the school day, students develop the habits and skills needed to experience success across a range of settings and situations.

Employing proactive evidence-based strategies in daily routines maximizes instructional time and creates the foundation for young students to succeed in academic and social situations. Even with proactive strategies in place, situations will occur that require the teacher to respond to unwanted student behavior. When responding to unwanted behavior, teachers can use prevention practice principles to respond in ways that re-engage the student back to routine. Providing consistent class-wide reminders of the expectation and praising students accordingly. Praise can be an indirect reminder that provides the student with an opportunity to self-correct. If more redirection is needed, a teachable moment approach provides behavior-specific feedback and offers the student concrete next steps. When warranted, planned logical consequences are used to help the student understand the implications of their actions.

About 80-90% of students will have their needs met when universal tier strategies are consistently implemented. A small percentage of students, up to 20%, may need additional targeted or intensive interventions to support behavior, conduct, and social and emotional needs (Sugai & Horner, 2002). Implementing a consistent universal screening system using multiple sources of data and specific operationalized criteria ensures that students receive needed interventions quickly and specific to their needs. The goal of screening is to identify students in need of intervention early so that they do not struggle while waiting for interventions to occur. School-wide universal screening systems are implemented on a routine schedule, using quantifiable measures, and defined decision rules. As a result of screening identification, students receive interventions at the secondary (Tier 2) or tertiary (Tier 3) level of delivery.

##### Secondary Targeted and Selective Interventions (Tier 2)

Evidenced-based secondary systems are designed to deliver interventions that meet the needs of approximately 15% of students (Sugai & Horner, 2002). Like academics, behavior, social, and emotional wellness represent an array of different types of needs that require different types of intervention approaches. Thus, the best outcomes are achieved when interventions are matched to the specific type of behavioral, social, and emotional needs identified through the screening process. Once selected, evidenced-based interventions are implemented using a standard protocol that results in equitable delivery of interventions across students.

The most common evidenced-based secondary tier interventions include check-in systems, social skills groups, cognitive-behavior-therapy groups, mentoring, and function-driven interventions. Although these interventions tend to occur outside of the classroom, through coordinated efforts, primary teachers can support intervention delivery by using practices such as pre-correction, behavior specific praise, and teachable moments. Additionally, educators may implement class-based strategies that include antecedent adjustments (e.g., breaks, offering choices, differentiated assignments), check-ins at pivotal points in routines, appropriately individualized incentives, behavior contracts, and teaching replacement skills. Working with a small-group, teachers can use various strategies, including modeling, role playing, and collaborative problem solving to reinforce positive behaviors and expectations. Student progress is monitored bi-weekly using data rules applied to graphed summaries of student data. When the data suggest that a student is not making expected progress, intervention adjustments, additional strategies, or complementary interventions are layered-in to increase the intensity of intervention delivery and the combination of intervention strategies until the right balance is achieved.

##### Tertiary Tier Interventions (Tier 3)

Tertiary tier planning is the most intensive approach to intervention delivery. To design the intervention plan at the tertiary tier, a student specific team is assembled that includes a facilitator, the student’s parents, teaching personnel, and when appropriate, the student. Depending on the availability of current and relevant data, planning may require the collection of additional information or data to understand what interventions are specifically needed. Function-driven assessments that reveal the nuances of a behavior pattern provide important insights to select specific strategies and replacement skills. Targeted screening and assessment tools (e.g., anxiety or depression assessments) can provide more direct guidance about shaping therapeutic interventions.

Tertiary interventions are designed specific to an individual student’s needs and may include intensifying existing interventions or adding a new intervention. Through a facilitated problem-solving process that uses the assessment data to drive decisions, the team designs an intervention plan to support the student’s behavioral, social, or emotional wellness needs. Intervention plans may include intervention delivery outside of the classroom (e.g., individualized or group counseling) and interventions delivered in the classroom (e.g., a behavior plan designed by an appropriately trained professional, etc.). If needed, additional interventions may be delivered by community providers either at school or at a community location.

Student progress is monitored weekly using behavioral data in consultation with an appropriately trained professional. When the data suggest that a student is not making expected progress, the team should consider intervention adjustments, additional strategies, or complementary interventions to increase the intensity of intervention delivery and the combination of behavioral strategies until the right balance is achieved.

### Scheduling the Kindergarten Day

Establishing routines in the kindergarten classroom is an important step toward academic achievement. Students need a strong structure to make their academic day successful. “These routines, which create and maintain classroom order and save valuable instructional time, are of central concern for all educators. Teachers must be able to competently organize classrooms and manage student behaviors to achieve desired learning outcomes” (Lester et al., 2017, p. 398).

Classroom routines can occur at various points during a school day. Some routines may include unpacking/packing up materials, classroom material clean-up, specific subject area routines, and arrival/dismissal routines. Establishing routines within these areas not only helps the students become more organized, but routines will also help the classroom teacher to stay on schedule. Successful classroom routines, when established early in the school year, will become an anticipated part of the student’s day. As the year progresses, these routines will become easier and may even be completed without a second thought.

One way to help students maintain routine and structure is to display a daily schedule with pictures and words at the children’s eye level in the classroom. Visual schedules are a great way to make the day predictable along with preparing students for the task at hand. Visual schedules may also be individualized to meet the needs of specific students. These visual schedules can help to alleviate the stress of the unknown for some students, while also preparing them for what is to come next.

Charts and other displays can be used to introduce new words and encourage informal conversations with students. A print-rich environment will help all learners in the classroom. Labeling objects and areas of the classroom using pictures and words in English and in the home language of MLs can help with this. The labels can also help adults use the child’s home language when referring to the items and areas during routines and play.

Kindergarten students need a predictable, consistent daily routine that balances active/less active periods and balances teacher-guided time with child-initiated play inside/outside the classroom. Recognizing that children in kindergarten are active learners who learn through play is key in establishing a schedule. Free play supports integrated learning in all domains, allowing more individualized scaffolding as staff intentionally interact by following children’s choices, interests, and leads.

Transitions take place throughout the kindergarten day. Transitions can be taught as routines with a clear set of rules. When transitioning for different activities or clean-up, it is important to be clear about transitions for the many different types of learners in the classroom to help all students learn to self-regulate. Some ideas for transition are “Stand up if you’re wearing a blue shirt;” and “Stand up if your name begins with the letter M.” Teachers may also ask students to tiptoe during a transition or move like an animal to help guide the transition. In addition to verbal cues, non-verbal support should also be included. This may include turning on and off the lights, clapping hands in a repetitive fashion, or ringing a bell.

The sample schedule, shown below, for full day kindergarten program has a predictable flow and structure of a school day. A full day program allows children to fully engage in planned activities without interruptions for extended periods of time. The sample schedule includes time for content area-specific experiences but anticipate that English Language Arts, Mathematics, Science, and Social Studies experiences will be integrated across segments of the day. It is based on the premise that children spend most of their time in activities that are not sedentary and can learn through movement and play. Rather, experiential and hands-on experiences dominate a day that asks each child to explore, apply, and expand on concepts and ideas from each content area through investigations and projects. Keep in mind that specific schedules may vary based on the school, district, and individual classroom needs.

Quieter and more active times are balanced throughout the day. The earlier portion of the day is scheduled with activities that demand the most focus. Specials intentionally occur in the latter part of the day if possible. The sample schedule is intended to be used flexibly, with timing determined as much as possible by children’s needs and interests during their activities and investigations. If children are highly engaged in an activity, extending it for a while is a reasonable decision (Early Childhood Learning and Knowledge Center, 2022).

#### Arrival Time

Each portion of the kindergarten day, from arrival to dismissal, serves a purpose in building the foundation for long-term school success. Kindergartners make meaning from content when the context draws on their experience. They develop a strong sense of purpose when teachers skillfully plan and integrate content areas throughout the entire school day. Arrival is a welcoming time that should transition children to the school day. Students feel welcome when teachers convey a sense of warmth when greeting them one-on-one to start the day. Teachers can give the students options for their greetings to give students a sense of security. When greeting students, teachers can say each child’s name. It is important to learn the correct pronunciation of each child’s name.

Teachers are encouraged to create and maintain predictable arrival routines that students can manage independently (e.g., hang up backpacks /coats, hand wash, turn in student work, and sign-in procedures). Some students may need extra support during this time which will allow them to manage the start of their day with confidence. If arrival routines appear to be too cumbersome, it may be necessary to simplify arrival routines so that the morning routine time can begin promptly to ensure a smooth start to the school day.

During this time, teachers may want to regularly observe students to see if they can independently manage their belongings, sign in, greet classmates and teachers, perform other routines such as returning library books and completing class jobs, and transition to morning routine time through a brief activity. These brief activities may include listening to music in the meeting area, conversing with friends on the meeting area rug, looking at books available from a basket in the meeting area, or drawing/writing in journals.

#### Morning Routine Time

A morning meeting provides a framework for the school day by building community and giving children the information, they need to anticipate what will happen during the day. The teacher may create a visual schedule showcasing the day’s sequence of events and activities. It is important to plan each part of the meeting to emphasize an active exchange of ideas and information through conversation between the teacher and children. The teacher integrates content area skills and concepts through various activities aligned with NJSLS performance expectations (e.g., morning messages, data collection, graphing data, number talks, and a preview of the day’s events). It is essential to emphasize a participatory atmosphere by including music, movement, and interactive topics in various content areas emphasizing collaborative social skills to build classroom community.

At the beginning of the school year, it is important to give students additional time to complete tasks, with special consideration given to the attention span of children in kindergarten. This is also when it is important to invest time in building a classroom community where children can practice social skills that will help to foster an environment that values collaboration in a group setting. These social skills may include interacting verbally with peers and teachers, practicing and applying content area skills, participating in music and movement activities, rehearsing, and developing skills in a group setting.

#### Whole Group and Small Group Learning Activities

The activities that take place during the kindergarten day may be completed in whole group and small group settings. It is important to establish rules for both settings that students will follow while completing them. Whole group activities can take place in a variety of spaces (e.g., on the carpet, at tables, using flexible seating arrangements, etc.). Participation in whole group activities may include the use of visual cues such as hand raising, hands-on head, thumbs up/down, etc. Small group activities may also use these cues. However, the instruction in a small group may differ by being in the form of a conversation, allowing for free talking without the need for hand-raising. Instruction in whole group and small group learning activities should be differentiated based upon student needs.

#### Learning Through Play: Choice Time Centers

Play is a learning approach. Children can learn though an active process when they engage in meaningful, socially interactive, iterative, and joyful play. They become agents of their learning. Children develop deep, transferable understanding through inquiry, practice, application, discussion, questioning, exploring, elaboration, and reflection. Learning is enhanced when children find learning meaningful and connect to their prior knowledge and cultural experiences. Children further their learning when opportunities to engage in collaboration with peers and teachers are available to them. Children need to engage in new topics more than once so they can construct the meaning of what they are learning through ongoing inquiry and experimentation (Nesbitt et al., 2023).

“Playful learning describes a learning context in which children learn content while playing freely (free play or self-directed play), with teacher guidance (guided play), or in a structured game” (Zosh et al., 2022, What is playful learning? section). Play is necessarily important for problem solving, collaboration, and creativity. Resnick (2017) has described four guiding principles to support creative learning in children: projects, passion, peers, and play. Play should be fun, but it is also an opportunity for young children to take risks, experiment, and test boundaries. Children need to be allowed to have unstructured time to play. Educators are encouraged to recognize playful learning as an important component to improve learning. Research shows that learning thrives when children are given some control of their own actions to play a role in their own learning (Hirsh-Pasek et al., 2015). “Early learning and play are social activities that aid in the development of language, thought, and social–emotional skills” (Pellis et al., 2010, Nature of Learning and Play section).

Choice time is a dedicated part of the day when children can engage in play-based learning through centers. Children can freely choose an available center of their choice based on the teacher’s center-management system. Movement from one center to another will be based upon student interest, engagement, and availability of space in the desired location. During choice time the teacher is engaged in intentional teaching: “when observing children decide how to extend their learning both in the moment and by planning new play environments. They must figure out how to quietly intervene to help children connect contexts to everyday concepts and academic content, leading to further cognitive, social, and emotional development. By strategically expanding play and asking questions that challenge children’s thinking, teachers create meaningful learning opportunities to help children draw an understanding between their observations, ideas, and judgments” (McDonald, 2018, The Teacher’s Role section).

It is during the choice time that teachers have an excellent opportunity to introduce new, content-specific vocabulary through intentional teaching. Teachers can build on what students already know to teach new words through prompting and natural conversations. Teaching vocabulary through read aloud activities prior to introducing new center materials will help students begin to internalize the new language of the center (Colker, 2014).

Play provides children the opportunity to practice what they have learned, build, negotiate relationships, communicate, listen, and develop ideas. Learning occurs best when children are mentally active, engaged, socially interactive, and building meaningful connections to their lives, all components found during play (Hassinger-Das et al., 2017). Play is also intrinsically motivating for children. It fulfills their natural desire to understand the world. Through this intrinsic need to play with peers, children develop self-regulation (Nell & Drew, 2018). Infusing play into the kindergarten curriculum and daily structure will allow children to experience learning in a joyful way while developing socially, emotionally, and academically.

Play allows children to develop flexibility, creativity, negotiation, and collaboration. It gives children the time and opportunity to immerse themselves in language. Elements of play and joy can be infused into the entire kindergarten day so that learning is engaging, fun, and effective. Play should be immersed in all curricular areas. When teachers create specific opportunities for children to engage in authentic and joyful play, it can indeed help students meet academic standards while also promoting holistic development. Play-based learning is a method of instruction that incorporates play into the learning process. This method recognizes that children learn best when they are engaged in activities that are enjoyable, interesting, and meaningful to them. The idea is to create an environment where learning is not a chore but a natural, enjoyable part of the experience. Choice time is a crucial part of incorporating play into each child’s day and allows children to learn and express their creativity while demonstrating their problem-solving thinking (Mraz et al., 2016).

Within the kindergarten day, teachers should provide time for balanced play. The benefits of play are strengthened when all kinds of play are offered daily. Different kinds of play give children the opportunities to develop their social, emotional, and cognitive development. A key component of implementing balanced play is the ability to provide choice during parts of the day such as choice time and recess. By enabling children to choose their play activities, teachers are allowing students to tap into their own strengths which gives them access to learning at higher levels. This is true differentiation at work (Mraz et al., 2016).

Choice Time Centers allow students to express themselves through play. Play is a critical part of the kindergarten day. When setting up the Choice Time Centers, the teacher should supply each area with ample materials for multiple students to play with during the entire time. The teacher has introduced and continually reviews the names of the materials and demonstrates how to use them. The teacher moves around the room interacting with children in their play, making sure to take time to join in their play, commenting on their actions, and asking appropriate questions. This time can be used for observational purposes to see how the students play and interact with their peers.

One type of play is known as fantasy/imaginative play. In this type of play, children choose an imaginary scenario in which they take on roles and act them out and then determine a set of rules to go along with the roles. Self-regulation increases as children develop and adhere to a set of rules that define the roles. Fantasy play also involves substituting one object for another, such as a block for a phone, which begins to prompt abstract thinking—an essential tool for higher-level thinking. Language and mathematics are inherently strengthened during fantasy play. Children can also use fantasy play to find ways to feel powerful and strong in a safe environment (Mraz et al., 2016).

Constructive play is another type of play. It is an organized form of play that can be goal and product oriented. In this type of play, children use materials, such as blocks, playdough, art, and recycled materials to construct something, an activity that increases in complexity as they mature. Constructive play lends itself to problem-solving, connecting, deepening understanding and replicating learning with open-ended materials, a clear link to science, mathematics, and engineering. In addition, constructive play can consist of storytelling and dramatic retellings of stories, thereby strengthening literacy learning (Mraz et al., 2016).

Play involving games with an external set of rules helps children develop a different set of skills and strategies than in fantasy play. In this form of play, children must follow the rules. This allows children to develop important social skills such as cooperation, negotiation, and healthy competition. Learning what it means to win and how it feels to lose develops empathy. Games can also help children build resilience when they experience setbacks since playing with peers is generally a safe environment (Mraz et al., 2016).

#### Learning Centers (content specific)

High-quality learning centers are designed to offer students a variety of learning alternatives as a follow-up to whole-class and small group instruction discussions. Learning centers are typically used after the modeling of important materials or concepts and are designed to provide students with opportunities to enrich and enhance their appreciation and understanding of the topics through individual experiences in the center. Learning centers are filled with manipulatives, art materials, books, and other instructional tools. Students visit the learning centers to complete an assignment or learn through different activities. In well-designed learning centers, students participate in activities that help them see curriculum in hands-on ways. Working both independently and in small groups, students are provided with time and space to complete a project or learn about a subject in a more in-depth fashion (NAEYC, n.d.-a).

Differing from choice centers, learning centers in the kindergarten classroom are used to help further class instruction. There are many different types of learning centers. Learning centers occur during English Language Arts, Mathematics, and/or Science/Social Studies. It is important to plan learning centers intentionally, making sure the materials in the center are necessary for the task at hand. Learning centers are differentiated to meet the needs of all learners in the classroom. Prior to students entering the learning center, the teacher reviews the materials and activities in each center with the class, so students understand the directions and their roles within each learning center.

#### Snack

A nutritious midday snack and the opportunity to socialize with classmates should be part of each child’s kindergarten day. During snack time, teachers can inspire nutritious food choices and plan an informal atmosphere that encourages social conversation. Having a snack during any kindergarten program gives the teacher and children an opportunity to participate in a daily routine that includes the important elements of manners, conversation, and cultures. Teachers /paraprofessionals can rotate to engage in conversation with small groups at their tables and ensure proper sanitation with any food handling and distribution (i.e., hand washing and table cleaning).

#### Recess Period

Recess is a regularly scheduled period in the school day for physical activity and play that is monitored by trained staff. During recess, students are encouraged to be physically active and engaged with their peers in activities of their choice. Recess is a crucial part of the kindergarten day. Brez and Sheetz (2017) found “that recess is an important factor in children’s performance in school and should be considered an important part of the school day. Recess helps to take the stress off the day by giving students a much-needed break between academics” (p. 2).

NJDOE (*N.J.S.A. 18A:35-4.31*) states that “public school districts shall provide a daily recess period of at least 20 minutes for students in grades kindergarten through five. The recess period shall be held outdoors, if feasible. A student shall not be denied recess for any reason, except as a consequence of a violation of the district’s code of student conduct. If a student is denied recess, the student shall be provided restorative justice activities during the recess period. A student may not be denied recess more than twice per week”.

Murray & Ramstetter (2017) suggest that “recess ought to be safe and well-supervised, yet teachers do not have to direct student activity. The frequency and duration of breaks should allow time for children to mentally decompress, and schools should allow students to experience recess periods daily” (p.18). Although free choice is an important part of recess, there should still be a teacher-led structure to provide safety and accountability.

It is essential that children be given multiple opportunities to move throughout the day, as these experiences allow them to express their feelings, manipulate objects, and learn about their world. Outdoor exercise and classroom brain breaks are critical for young children. These skills contribute to their development and may increase children’s academic and behavioral success over time. Movement activities may include throwing, catching, kicking, skipping, and balancing. Within the classroom, brain breaks that encourage physical movement should be used when children need a break.

The outdoor environment should include materials for making choices, socializing, and collaborating in addition to using large muscles in gross motor play. These materials may include balls, jump ropes, hula hoops, climbing equipment, etc. Indoor gross motor activities should be substituted for the outdoor time during severe weather conditions.

Outdoor play provides the opportunity to improve sensory integration skills **(**Yogman et al., 2018). These activities involve the child as an active participant and address motor, cognitive, social, and linguistic domains. School recess becomes an essential part of a child’s day. Supporting and implementing recess is fundamentally important for physical health but likely brings together children from diverse backgrounds to develop friendships as they learn and grow (Murray & Ramstetter, 2013).

#### Special Area Subjects or Specials

Special area subjects or specials refer to those courses aligned to the NJSLS-Visual and Performing Arts (VPA), NJSLA-World Languages (WL), NJSLS-Computer Science and Design Thinking (CS&DT) and NJSLS-Comprehensive Health and Physical Education (CHPE). Special area teachers may have their own classroom space or may push into the classroom setting. Specials may include physical education, art, music, library, world language and/ or technology. It is suggested that special area teachers be familiar with teaching practices best suited to kindergarten-age children, have training in the kindergarten curricula, and meet regularly with classroom teachers to discuss and coordinate programming.

#### Sharing and Closing

Sharing and celebrating student work can be accomplished through whole group, center-based, small group, or partnered formats depending on the purpose or time available in the school day. Students should feel proud about their accomplishments completed during center time and can talk about it to their class.

Sharing can be done by having a student or students participate in communicating and/or exchanging information about a topic, focus, idea, or question/prompt. Providing time for students to share and celebrate their learning experiences or work product after choice time with their peers is crucial for validating their place as a member of a community of learners. The sharing of ideas can also act as a springboard for new learning as children see other possibilities through the eyes of other students. Sharing time is also a way to meet the NJSLS-ELA in the domains of Speaking and Listening, and Language.

Sample of a Possible Full Day Kindergarten Schedule\*

| ***Program Component*** | ***Description*** | ***Minutes(estimates)*** |
| --- | --- | --- |
| **Arrival** | Greeting and unpacking | 5 – 10 minutes |
| **Morning Routines** | Morning routines and activities | 15 minutes |
| **Reading** | 10 – 15 min: Mini Lesson  15 – 30 min: Literacy centers and small group instruction | 45 minutes |
| **Phonological Awareness** | 5 – 10 min: Mini-Lesson  15 – 20 min: Practice | 30 minutes |
| **Writing** | 5 – 10 min: Mini-Lesson/ modeling  20 min: Independent writing and small group instruction  (Independent writing will gradually increase to 20 minutes as students build stamina; handwriting embedded) | 30 minutes |
| **Mathematics** | 10 – 5 min: Mini-Lesson/ mathematics routines  50 – 60 min: Mathematics centers and small group instruction/ debrief | 60 – 75 minutes |
| **Recess** | Indoor/Outdoor Recess | 20 minutes |
| **Lunch** | Lunch time | 20 minutes |
| **Read Aloud** | Interdisciplinary Read Aloud (informational or literary text) | 10 minutes |
| **Choice Time** | 40 min:Free Choice/Learning centers  5 min: Clean-up Time | 40 – 45 minutes |
| **Specials** | Special Area Subjects (Such as art, music, physical education, library, technology, and/or world language) | 40 minutes |
| **Science/Social Studies** | Science/Social Studies instruction and learning centers (Alternating days of the week) | 40 minutes |
| **Sharing and Closing** | End-of-Day Reflection and pack up | 5 minutes |
| **Total** | (District Considerations: Snack time, breakfast in the classroom) | **360 – 370 minutes** (estimate) |

(\*Sample is based upon the research cited in this document.)

## Section Three High-Quality Kindergarten Classrooms in Action

### Overview

***Section Three, High-Quality Kindergarten Classrooms in Action,*** will explain developmentally appropriate practices and instruction that happens in a high-quality kindergarten classroom.

Classroom instruction and lessons should align with the NJSLS and should include:

* the most current, research-based best practices coupled with a fine balance of play and choice time;
* a center-based classroom environment that supports hands-on activities in various content areas including types of play, opportunities for choice allowing for experience with investigations, exploration, discovery through learning, and guiding questions for teachers to help make learning centers meaningful and engaging;
* how content areas are taught within a kindergarten day; and
* types of learning and choice centers including materials and guiding questions to help guide center activities.

### New Jersey Student Learning Standards (NJSLS)

The NJSLS are reviewed and revised every five years. The standards clearly demonstrate what students are expected to learn at specific grade levels and bands, so that every parent and educator can understand and support student learning. New Jersey's academic standards have laid the foundation for local district curricula that are used by teachers in their daily lesson plans.

The standards provide local school districts with clear and specific benchmarks for student achievement in nine content areas. The standards were developed and reviewed by panels of teachers, administrators, parents, students, representatives from higher education, professional organizations, and the community. The standards are influenced by national standards, research-based practices, and student needs. Currently, the standards are designed to prepare our students for college and careers by emphasizing high-level skills needed for tomorrow's world. The NJSLS includePreschool Teaching and Learning Standards, as well as standards across nine distinct content areas for grades K – 12. The teaching of these content areas with kindergarten students will be discussed further below.

### English Language Arts (ELA) for Kindergarten Students

Kindergarten teachers can utilize many different instructional literacy practices to meet the NJSLS-ELA. Best practices in literacy for young learners place emphasis on learning to decode, text comprehension, and expanding foundational writing skills. As kindergartners develop from pre-readers and pre-writers to early emergent readers and writers, opportunities must be provided to build reading comprehension. Students should engage in intentional oral language activities, have conversations about the meaning of words, tell and retell stories, listen to books read aloud, and participate in early writing activities which can positively impact students’ development as readers and writers.

#### Reading

Foorman et al., (2019) state in The Institute of Education Sciences’ [IES] practice guide that to achieve reading success, students need instruction in two key areas: reading foundational skills and reading comprehension skills. Foundational skills have been found to support reading for understanding in kindergarten through third grade. Reading foundational skills include print knowledge, phonological awareness, phonics and word recognition, vocabulary and oral language (Kosanovich et al., 2020; Foorman et al., 2019). Utilizing both informational and literary text supports the alignment to the NJSLS-ELA.

##### Print Concept

Print concept is the knowledge of the names and sounds of the letters of the alphabet and the knowledge of concepts about print. This can include letter names, the ability to recognize and say the names of letters, letter sounds, and knowing the sound a letter represents. Print knowledge is a precursor to skilled reading.

Research shows print knowledge is linked to later achievement in decoding, spelling, and reading comprehension (Kosanovich et al., 2020). Lessons should include teaching all 26 letter names and sounds. Frequent exposure is important. Teachers start with high-frequency letters (e.g., letters in their names, common signs), focus on a few new letters per week, and spiral back to previously taught letters regularly to build letter knowledge. Teaching concepts of print are essential foundational skills for kindergarten students (i.e., parts of a book, reading left to right, different print symbols, and the words, not solely pictures, convey meaning of written words). During read alouds, print features can be used to focus children’s attention on print by explicitly commenting on, asking questions about, pointing to, and tracking text that is being read aloud.

##### Phonological Awareness

Phonological awareness is a broad skill that includes identifying and manipulating units of oral language parts such as words, syllables, onsets, and rhymes. Phonemicawareness refers to the specific ability to focus on and manipulate individual sounds (phonemes) in spoken words. Focusing phonemic awareness instruction on blending, segmenting, and manipulating phonemes has been shown to produce greater improvements in reading achievement than time spent on only rhyming and alliteration (e.g., songs, nursery rhymes) (Reutzel, 2015). Reutzel’s research explains that phonemic awareness instruction focused on phoneme-level activities explicitly taught have more sustained outcomes for students. An example demonstrating phonemic awareness may be to ask students to correctly enunciate the familiar first phoneme sound in a student’s name and compare it to other similar beginning phonemes in various words. Phonological activities may be done without print or text as they are focused on sounds, but phonics activities are done with print as they involve letters.

##### Phonics and Word Recognition

Phonics instruction teaches children the relationships between letters of written language and the individual sounds of spoken language. It teaches how to use these relationships to read and write words. As Blevins explains in the International Literacy Association’s *Literacy Leadership Brief* (2019), phonics instruction is helpful for all students, harmful for none, and crucial for some. The brief cites research confirming that explicit and systematic phonics instruction is the most effective instructional practice for all students when it directly teaches skills, follows a continuum of skill complexity, and includes a review and repetition cycle that leads to eventual skill mastery as well as focuses on blending sounds, sound and word dictation, word awareness, and teaching of high-frequency words. Duke et al., (2021) supports developing foundational word reading skills (phonological awareness, print awareness, phonics and word recognition instruction) as critical to developing reading comprehension which is the goal for readers.

##### Fluency

Fluency is the ability to read orally at a natural pace and with expression, including appropriate pauses at the end of sentences according to The Institute of Educational Sciences’ [IES] practice guide (Foorman et al., 2019). Additionally, the IES suggests teachers need to ensure that students read connected text (i.e., multiple related sentences) every day to support reading accuracy, fluency, and comprehension. Students need to practice reading connected text while they are learning the alphabetic principle and decoding.

Ensuring every child has the necessary skills they need to read is an essential component of literacy education. Teaching children to read is a complex process. It encompasses a range of skills, such as word decoding, comprehension, and fluency. Research has shown that both decoding (the ability to translate written words into the spoken the sounds of spoken language) and comprehension (the ability to understand the meaning of the language being read) skills are both equally necessary for confident and competent reading, but neither is enough on its own.

A fluent reader can decode words accurately and automatically. Fluent readers also read the words in texts with expression and phrasing that reflects and amplifies the meaning of the text. For the reader to use appropriate expression and phrasing, they must understand what they are reading (Young et al., 2020).

Students need to be engaged in activities on a regular basis in their classrooms that support fluency. This can occur through: (Shanahan et al., 2010)

* Read alouds
* Shared reading
* Choral or echo reading
* Repeated readings

##### Vocabulary Acquisition

Kindergarten students should encounter new vocabulary words in several different contexts throughout the day (e.g., conversations, read alouds, shared reading, etc.). It is important for educators to also introduce new, content-specific vocabulary, as well as literary vocabulary through intentional teaching. Increasing a child’s vocabulary has a positive effect on their reading skills and school success in general. This is especially important for children from lower-economic families, students with disabilities, and dual language learners (Colker, 2014).

Activities that support a deeper understanding of vocabulary words are: make connections between a new vocabulary word and other known words across academic areas; relate the word to their own experiences; differentiate between correct and incorrect uses of the word; and generate and answer questions that include the word in conversations, narrative stories and read alouds (Foorman et al., 2019). Determining a word’s literal meaning from a source is as important as the ability to gain an interpretative meaning from figurative and/ or connotative word meaning.

Academic vocabulary consists of the critical words students need to understand the concepts taught in school. It includes words that are used in formal writing and language in academic content areas. “By guiding students to develop their academic language skills, teachers can mitigate some of the challenges that students encounter when learning to comprehend text” (Foorman et al., 2019, p. 6). According to Van Oers and Duijkers (2013), the role of the teacher in supporting vocabulary development during play-based learning activities enhances children’s learning and vocabulary acquisition.

##### Building Reading Comprehension

In the IES practice guide, *Improving Reading Comprehension Kindergarten through Third Grade* (Shanahan et al., 2010), the panel of authors selected a definition of reading comprehension that emphasizes both what the author has written and the reader’s ability to use their background knowledge and thinking ability to make sense of what they read. The panel defined reading comprehension as “the process of simultaneously extracting and constructing meaning through interaction and involvement with written language” (p. 5). Extracting meaning is to understand what an author has stated, explicitly or implicitly. Constructing meaning is to interpret what an author has said by bringing one’s “capacities, abilities, knowledge, and experiences” (p. 5) to bear on what that person is reading.

The IES guide, *Improving Reading Comprehension in Kindergarten through Third Grade* (Shanahan et al., 2010), elaborates on five recommendations to support reading comprehension to be implemented in coordination with one another. The guide, developed by a panel of experts, presents a set of evidence-based practices that teachers and other educators can use to successfully teach reading comprehension to young readers. Below are the five recommendations for educators:

1. Teach students a variety of strategies that will help them understand and retain what they read and thus become independent, resourceful readers.
2. Teach young readers to recognize how a text is organized, or “structured.” Authors structure texts in a variety of ways to get their point across. Recognizing text structure can build students’ understanding of what they are reading and improve their ability to recall it.
3. Discuss the text with students to improve their reading comprehension. This approach will allow young readers to more deeply explore the ideas in the text they are reading. In guiding the discussion, teachers should model ways to think about the text that can help students when they are reading independently.
4. Emphasizes the importance of choosing texts that specifically support the goals of teaching and improving reading comprehension.
5. Motivate students to improve their efforts to comprehend text. Constructing meaning while reading can be demanding intellectual work, and teachers who hold their students’ interest may be more effective in helping them to develop effective reading comprehension skills.

###### Read Alouds

One of the strategies to model reading comprehension strategies, think alouds, and reading fluency for kindergarten age children, is conducting read alouds. These are lessons enabling young readers to engage in thinking, questioning and discussion while the teacher is reading a text aloud to the class or a small group (Shanahan et al., 2010). Text intentionally chosen by teachers can be either informational or literary with connection to content topics. A combination of both informational and literary texts is used to enrich students' learning experiences. This enables students to develop a range of skills, including critical thinking, analysis, and comprehension, while also fostering an appreciation for different genres and styles of writing. The choice of texts often depends on the educational goals, and the specific content areas being covered in the curriculum.

Read alouds for students should be modeled by the teacher because it models fluent reading for students. By listening to a read aloud (seeing how the teacher emphasizes different words, pauses at commas and periods, and pronounces difficult words), rereading, and one-on-one feedback, the National Reading Panel (Shanahan, 2005) identified these instructional practices to be essential for the success of fluency teaching. During part of this time, teachers read aloud to students and model reading strategies that characterize proficient reading. Students receive instruction to help them think deeper and talk about books. Furthermore, read aloud experiences can anchor new vocabulary acquisition: “While we need vocabulary to comprehend what we read, vocabulary can also be built as readers are exposed to challenging new words in text” (Wright, 2018, p. 6). By intentionally exposing students to new and challenging words, they may be more likely to recognize and/ or connect the new vocabulary understanding which is crucial for deepening both comprehension and syntheses (Wright, 2018).

In addition, the use of repeated read alouds (reading aloud the same book from start to finish three to five times), along with the explanation of vocabulary words, leads to significant gains in vocabulary and ensures that multilingual students acquire vocabulary and comprehension skills. “We can’t wait for children to decode fluently in order to build their knowledge of the world” (Wright, 2018, p. 5). The experiences through read alouds and interactive read alouds create a plethora of opportunities for children to both reflect and generate new understandings.

When children listen to text read alouds for enjoyment, they are motivated to participate and want to know more. This is an opportunity for educators to help strengthen students’ understanding of new words, ideas, and stories. Asking questions about the characters/ topic and talking about the best parts of a book allows students to think about the story/ content and make connections to their own lives.

###### Interactive Read Aloud

An interactive read aloud is a more intentional form of reading instruction than a typical read aloud. Using this instructional strategy, a teacher reads a text to the whole group, occasionally and selectively pausing for conversation and active discussion (Wright, 2018). Students think about, talk, and respond to the text in groups or in pairs through a turn and talk format. Both the reader and listeners actively process the language, ideas, and meaning of the text (Myers & Ankrum, 2018). The importance of this time is critical for the literacy development of students, “book reading routines within early childhood settings, as well as those of the later grades, often serve instructional purposes" (Dynia & Justice, 2015, p. 237). Utilizing this instructional strategy with kindergarten students including focused, high-quality discussions to help students develop a deeper understanding of what was read, will support students’ overall reading comprehension skills. “Such discussions among students or between the students and the teacher go beyond simply asking and answering surface-level questions to a more thoughtful exploration of the text” (Shanahan et al., 2010, p.23). Teachers can create discussions consisting of higher-order questions that prompt students to think more deeply about the text and articulate key aspects of the story.

###### Shared Reading

Shared reading is when the teacher and students read aloud from an enlarged version of an engaging text that may be beyond most students’ ability to read independently. Multiple re-readings of the text guide students from initially enjoying the text to exploring all aspects of the reading process together. This process also provides opportunities to engage students in expressive, meaningful, and fluent reading. The shared reading instructional method can engage and refine the collaborative element of a literacy-rich classroom. Based upon research by Dynia & Justice (2015), the importance of increasing shared book reading experiences and exposing children to a variety of books needs to be stressed to educators. “Teachers’ use of books addressing a range of instructional foci may help teachers to naturally embed different learning objectives into shared book reading interactions in the classrooms” (p. 238). During shared reading teachers pull together many components of the reading process. Shared reading can focus on print work, fluency, high-frequency words, and comprehension, and is found to have effects on students’ language development and comprehension (United States Department of Education, 2015).

###### Independent Reading

Independent reading is an instructional practice that allows students time to read with access to a wide variety of motivating and interesting books. Student choice of text is essential because it motivates and engages a wide variety of readers. The goal of independent reading is to build positive reading habits (National Council of Teachers of English, 2019). Kindergarten children would benefit from engaging in quiet time each day to interact with books. During independent reading time, students may read by themselves in a developmentally appropriate manner (e.g., re-reading books, retelling stories, finding known letters and/or words in texts, and/or responding through writing or drawing thoughts about text).

#### Small Groups for Reading

In small group lessons there are opportunities for students to participate in strategy or skill lessons, and students may work together regardless of their reading levels based on the need for a common strategy or skill. Children may utilize texts to practice a new strategy or skill while the teacher provides support through instruction and feedback. Some small group instruction may be based upon specific skills that utilize manipulatives or other materials. Specific skills that students require more practice are exercised within a one-on-one reading conference as needed (Serravallo, 2018). The teacher models or explicitly teaches a reading strategy that will support students in learning the skill and then coaches students to practice within their independent books. When children are learning to read in small groups, it is important for teachers to provide students with decodable text as needed. “Decodable text is a text that is written so children can read it using the letter sounds and high-frequency sight words they have learned” (Foorman et al., 2019, p. 37).

Classroom Libraries

Classroom libraries play an important role in providing students access to books and promoting literacy (National Council of Teachers of English, 2017). Classroom libraries can be arranged for students to self-select texts of their choice to promote engagement. In addition, libraries can provide an array of diverse literature and informational text written by diverse authors in order to provide students with text from their cultures and other cultures. Friedman (2019) suggests one way to develop an empathic classroom is to ensure the books include characters/ topics that reflect the many different identities and cultures of children in the classroom because it is critical for all children, particularly those of color, to see themselves in stories. Expanding library collections to represent students’ home languages can help to build school and community connections and promote culturally responsive teaching (Curtin & Reynolds, 2022). Connecting students with texts reflecting the various languages spoken by students can support them positively as lifelong readers.

Libraries can be organized in many ways, however it is suggested that the classroom library is organized and inviting, so that students can easily access books. The books can be placed in bins for kindergarten. These bins can represent bands of complexity. Books can also be categorized by theme, author, series, etc. Nonfiction and fiction texts are all parts of classroom libraries. Coppens (2018) suggests that it is just as important to speak to students about why they are shopping and choosing books as discussing the importance of what they are reading. Through the perspective of books as “mirrors and windows”, primary educators can build a diverse classroom library in which children may see themselves. “Literature transforms human experience and reflects it back to us, and in that reflection, we can see our own lives and experiences as part of the larger human experience. Reading, then, becomes a means of self-affirmation, and readers often seek their mirrors in books” (Bishop, 1990, p. 11).

### Writing Instruction for Kindergarten Students

Writing time can be a consistent time set aside each day throughout the school year for actual writing output and for sharing out work efforts as well as woven into other content areas throughout the day. Writing time gives students in kindergarten an opportunity to express themselves as storytellers, authors, and illustrators. It also provides a time to apply emergent understandings about letter sounds, letter formation, words, and sentences in functional print contexts. This helps students feel most comfortable and acclimated to the routine, and in turn, may promote student writing output (Cahill & Gregory, 2016).

Children are encouraged to write as much as possible throughout the school day, including center and free choice times, in addition to a specific time for teacher-led writing instruction and student-led writing reciprocity occurs daily. Using consistent writing time procedures will support young writers (i.e., printing their name and date, illustrating, material routines). It is also important to model and teach students how to give feedback to their peers and begin building writer resilience (Cahill and Gregory, 2016). “Most kindergartners are comfortable drawing pictures, so the first step is just encouraging them to draw. Inviting them to tell the story related to their picture validates the idea that a picture has meaning and can tell a story” (Cahill & Gregory, 2016, p. 66). Subsequently, drawings help to build meaning which will later transition to stories/ content with text.

Teachers can ensure that writing time does not become only a handwriting exercise and connects students’ foundational writing skills in meaningful opportunities. Kindergarten children can practice letter formation and encoding conventions in naturally occurring contexts throughout a school day. Below are some suggestions to encourage positive writing routines for students.

Writers can:

* develop an awareness that everyone writes for a variety of purposes;
* have daily exposure to literacy skills that enable emergent writing;
* participate in daily routines that includes independent writing time;
* feel confident in their emerging abilities as storytellers, illustrators, and authors;
* engage in regular opportunities to revisit their work and to conference with the teacher; and
* partake in regular opportunities to give and receive feedback while sharing their work with classmates.

#### Print Conventions

Print conventions include the understanding of the organization and basic features of print as well as recognizing, naming, and writing all the uppercase and lowercase letters of the alphabet. Concepts of print are effectively taught to early readers by immersing them in shared reading and writing experiences using pointing, circling, framing, counting, highlighting, verbal punctuation, and matching. These learning experiences will eventually lead kindergartners to use fingerpoint reading in their own written text as they develop increasing control of the visual system (Reutzel, 2015). Reutzel states that “complete and total mastery of all alphabet letters is a universal prerequisite in order for students to make progress in reading and writing” (p.16). Research has shown that learning the letters of the alphabet requires knowledge of their shape, reinforced by the specific actions it takes to write letters. It is therefore important that some direct instruction of handwriting take place in kindergarten in conjunction with the teaching of alphabet recognition (Reed, 2019).

##### Handwriting

Handwriting instruction is an essential skill to teach both formally and embedded in the kindergarten classroom throughout the day (Graham et al., 2018). Handwriting development is a multifaceted process that involves various skills, and printing is considered a developmentally appropriate skill for certain stages of a child's learning. However, it's important to note that before introducing printing, there are foundational skills that children typically need to develop. These foundational skills serve as prerequisites for successful handwriting instruction.

Children express interest in writing at a very early age. As toddlers, children begin to develop the earliest skills that lead to emergent writing, including holding a writing tool in a palmar grasp and making repetitive cupped lines, curved “scribbles'', and moving from left to right and top to bottom. As they become developmentally ready for kindergarten, teachers play a pivotal role in a child’s shift to meaningful writing using multiple strategies such as practicing their pencil grasp with a dynamic tripod grip coloring outside/inside the lines, tracing letters and numbers, and understanding that letters represent sounds/words (Sheedy et al., 2021).

In kindergarten, children’s technical writing skills become more automatic, and they begin to concentrate on the ideas about which they write. Kindergarten students spend much of their time strengthening their fine motor skills during play and practice in the classroom. “Fine motor skills can be acquired through play that involves the direct manipulation of objects with the fingers and hands, providing opportunity for the development of joint stability, muscle physiology, visual-perception, and tactile-perception” (Sheedy et al., 2021, p.656). Handwriting time may be completed in conjunction with most instruction including phonics, mathematics, art, and/or center time activities.

### Modeled Writing and Mini-Lessons

Teachers model for kindergarten students what good writing looks like as well as the process involved in composing text. One way to do this is through mini-lessons. During a writing mini-lesson, students gather together for a short period of time for direct and explicit instruction. Rosenshine (2012) found that “the more effective teachers do not overwhelm their students by presenting too much new material at once. It is recommended to only present small amounts of new material at any time, and then assist the students as they practice this material” (p.12). This is the purpose of the mini-lesson. During a mini-lesson, the objective would include one strategy that will support students working towards proficiency in performance expectations in the NJSLS-ELA, domain of Writing. The lesson can be chunked together by types of writing to address narrative, informative/explanatory, and opinion writing for various audiences.

During a lesson, the teacher models the act of writing for the students as well as thinking aloud throughout the process. The teacher verbalizes the thought process to the students, allowing them to understand why and how they are completing the writing activity. This is the most passive form of writing practice for the students. The teacher actively models, while the students observe the practice. Modeling is a key practice done in the classroom to enhance student learning. The gradual release model of instruction can be used within a writing mini-lesson. First, a strategy should be explicitly modeled and demonstrated, then students need time to practice the strategy with a partner, and finally, students independently work and apply the strategy to their own writing (Williams, 2018).

#### Interactive Writing

Interactive writing is a teaching technique in which the teacher and the students collaborate to compose and write texts. It can be used for whole groups, small groups, and individualized instruction. The teacher and students “share/ pass the pen” to compose a writing piece. Dry erase boards can be used in whole class format for interactive and monitoring purposes. This largely focuses on how students work with the writing process from oral rehearsal (i.e., writing aloud) to the encoding/ spelling process. Teachers should limit their own time for actual writing and focus more on coaching the students when each student participates(Williams, 2018).

Interactive writing can be used to demonstrate concepts about print, develop strategies, and learn how words work. It provides children with opportunities to hear sounds in words and connect those sounds with corresponding letters. Interactive writing is a unique opportunity to help children see the relationship between reading and writing. During the interactive writing process, students and the teacher talk together about what they are going to write. The teacher serves as the facilitator of the discussion by guiding, modeling, adding, summarizing, confirming, combining, and synthesizing the children’s ideas.

#### Shared Writing

Shared writing enables teachers to make the writing process concrete and visible to students. This writing process has the least amount of teacher involvement as the students compose the piece together while the teacher transcribes the writing. The teacher acts as a guide throughout while students work on refining and building skills (Williams, 2018).

Young or inexperienced writers need to both observe knowledgeable writers at work and participate in writing events in authentic and well-supported ways. Shared writing allows teachers to both model and actively engage students in the writing process that they most need to improve their writing. Students learn the forms and functions of writing as they observe and participate in writing events that are directed by knowledgeable writers, particularly when these events are followed by opportunities for exploration during independent writing. Clear and targeted modeling of the ways in which writers work is presented by teachers and co-constructed with students during a collaborative, rich discussion, so learners develop an understanding of the purpose, intrinsic motivation, and techniques of writing.

#### Guided Writing

Guided writing typically takes place after whole group instruction in which students are pulled into flexible, small groups based on readiness and needs. The teacher scaffolds support in order to compose a writing piece and the students may assist (Williams, 2018). Active modeling is also a large part of this writing process. Young writers need to experience sustained and successful writing. Guided writing lessons are temporary, small-group lessons teaching those strategies that a group of students need to practice with immediate guidance from a teacher. Students need this expert guidance in a small-group context, particularly as they attempt to bridge the gap between the teacher's modeling and their own independent writing.

During guided writing instruction students are provided with opportunities to experience successful and independent writing within the context of strong teacher support by:

* engaging students in a brief, shared experience;
* teaching one or two specific strategies for writing;
* providing students with time (5–10 minutes) to write at the small-group table individually and as independently as possible; and
* including a brief sharing activity in which each writer's immediate work is shared with an audience and feedback is shared with the writer.

#### Writing Conferences

A writing conference is an instructional conversation that allows teachers to provide specific goal directed feedback. The conversation is between the teacher and the student to work to improve their writing. The teacher will listen to the student’s ideas about their writing and analyze the student’s writing. After listening to the student, a teaching point is chosen to help the student grow as a writer. The teaching point is related to the skill acquisition necessary for the students to reach or exceed the performance expectation as outlined in the NJSLS-ELA. Once modeling or explaining the teaching point to the student is complete, the teacher will then spend a few minutes coaching the student as they apply the strategy. While students are working independently or with partners on their writing, teachers can meet with individual students to confer about their writing and provide specific feedback to support students’ achievement (Hattie & Clark, 2019).

##### Possible Writing Conference Teaching Points

* Planning: Explain what the story will be about, sketch pictures, and then write the words.
* Adding: Add to the pictures and then use the pictures to help add more words to the writing.
* Text Structure: Write and include a beginning, middle, and end.
* Spelling: Emphasize sound-letter basics; develop encoding and spelling skills.
* Elements of grammar: Syntax and punctuation in sentence composition.

### Mathematics Instruction for Kindergarten Students

Kindergarteners are naturally interested in learning mathematics and are capable of substantial mathematical learning when given opportunities to do so. Children’s early knowledge of mathematics strongly predicts their later success in mathematics (Clements & Sarama, 2013). In addition, early mathematics knowledge not only predicts later success in mathematics but also predicts later reading achievement (Duncan et al., 2007).

All students are capable of learning mathematics through rich, engaging tasks where they can model, describe, analyze, justify their thinking, and critique the reasoning of others. To provide support for students to develop an identity as being capable of making sense of mathematics, learners are taught at their instructional level in their zone of proximal development (Vygotsky, 1978). Using small flexible mathematics groups and leveled mathematics centers teachers can meet students where they are along a mathematical developmental progression and take them where they need to go. There has been a shift away from a previous methodology of presenting a whole group lesson based on a single procedural strategy followed by assigned independent practice with little to no discourse, problem-solving, or cooperative learning. Research has shown the need for these instructional shifts in early learning mathematics classrooms for many years. Through this instructional shift, students are able to make sense of mathematics at a pace and instructional level that is appropriate for them allowing all students to reach their next learning target.

Teachers can maximize children’s mathematical learning by committing time to high-quality instruction, emphasizing foundational mathematical content, and employing instructional techniques that can be used to teach them (Frye et al., 2013).

#### Developmental Progressions in Mathematics

In learning and development, children follow natural developmental progressions (Clements & Sarama, 2023; Frye et al., 2013). A developmental progression is an order in which skills and concepts build on one another as children develop knowledge (Frye et al., 2013). It can also be thought of as a typical path that children follow in developing understanding and skills about that mathematical topic. In the way that children typically learn to crawl before they learn to walk, children similarly learn mathematical ideas and skills along a progression (Clements & Sarama, 2023). In the *What Works Clearinghouse Practice Guide Teaching Math to Young Children* (2013), teaching mathematics along a developmental progression is recommended as a strategy to support children’s learning of numbers and operations, geometry, measurement, and other mathematical domains. Research shows that when teachers understand how children develop mathematical understanding using developmental progressions, they are more effective in questioning, assessing, and providing scaffolded, developmentally appropriate activities that further children’s development compared to teachers who are unaware of the development process (Clements & Sarama, 2023).

The National Governors Association Center for Best Practices found that high-quality early mathematics instruction follows an intentional sequence of developing mathematical skills in which children master one skill, and then another that builds on the preceding skill (Szekely, 2014). Because effective teaching must be proximal to the learner’s current state of understanding, it depends on understanding what skills and knowledge children already possess and requires addressing students’ learning needs using a developmental progression that can provide a typical path for learning which leads to achieving a mathematical goal (Frye et al., 2013; Confrey et al., 2019).

Intentional teaching using developmental progressions is grounded in both research and the wisdom of expert practice in education. The idea of learning trajectories includes such development progressions but also explicitly connects mathematical goals and teaching. That is, learning trajectories are descriptions of the paths of children’s thinking and learning in a specific mathematical domain, and a related, conjectured route through a set of instructional tasks. They have three interrelated components:

* 1. a goal;
  2. a developmental progression of levels of thinking; and
  3. instructional activities and teaching strategies correlated to each level.

To attain a certain mathematical competence in a given topic or domain (the goal), students learn each successive level (the developmental progression), aided by teaching activities designed to build the mental actions-on-objects that enable thinking at each higher level. This progression promotes an asset-based approach that builds on children's natural ways of thinking.

Basing instruction on learning trajectories, teachers help children learn at an appropriate and deep level, fostering a much richer and more successful mathematics experience in the early and primary grades (Clements & Sarama, 2023).

Developmental Progression for Number Knowledge

| Level | Description | Example |
| --- | --- | --- |
| Subitizing (small-number recognition) | Subitizing refers to a child’s ability to immediately recognize the total number of items in a collection (without counting) and label it with an appropriate number word. When children are presented with many different examples of quantity (e.g., two eyes, two hands, two socks, two shoes, two cars) labeled with the same number word, as well as non-examples labeled with other number words (e.g., three cars), children construct precise concepts of one, two and three. | A child is ready for the next step when, for example, he or she can see one, two, or three dots on a card or pretzels on a plate and immediately—without counting—state the correct number of stickers. |
| Meaningful object counting | Meaningful object counting is counting in a one-to-one fashion and recognizing that the last word used while counting is the same as the total (this is called the cardinality principle). | A child is ready for the next step when, for example, if given five blocks and asked, “How many?” he or she counts by pointing and assigning one number to each block: “One, two, three, four, five,” and recognizes that the total is “five.” |
| Counting-based comparison of collections larger than three | Once children can use small-number recognition (i.e., subitizing) to compare small collections, they can use meaningful object counting to compare and determine the larger of two collections (e.g., “seven” items are more than “six” items because you have to count further) | A child is ready for the next step when he or she is shown two different collections (e.g., nine bears and six bears) and can count to determine which is the larger one (e.g., “nine” bears is more). |
| Number-after knowledge | Familiarity with the counting sequence enables a child to have number-after knowledge (i.e., to enter the sequence at any point and specify the next number instead of always counting from one). | A child is ready for the next step when he or she can answer questions such as, “What comes after five?” by stating “five, six” or simply “six” instead of, say, counting “one, two, … six.” |
| Mental comparisons of close or neighboring numbers | Once children recognize that counting can be used to compare collections and have after-number knowledge, they can efficiently and mentally determine the larger of two adjacent or close numbers (e.g., the “nine” is larger than “eight”). | A child has this knowledge when he or she can answer questions such as, “Which is more, seven or eight?” and can make comparisons of other close numbers. |
| Number-after equals one more | Once children can mentally compare numbers and see that “two” is one more than “one” and that “three” is one more than “two”, they can conclude that any number in the counting sequence is exactly one more than the previous number. | A child is ready for the next step when he or she recognizes, for example, that “eight” is one more than “seven”. |

(Adapted from Frye et al., 2013)

Such developmental progressions listed are the foundation for learning trajectories (Clements and Sarama, 2023). The learning goal, the learning activities, and the thinking and learning in which students might engage make up a hypothetical learning trajectory (Baroody et al., 2022; Simon, 1995). “Learning trajectories point the way toward mathematical learning that is more effective and efficient, but also creative and enjoyable, through culturally relevant and developmentally appropriate curricula and assessments” (Clements & Sarama, 2016, p. 91). There has been significant research on learning trajectories that identify learners’ thinking along a gradual path to targeted big ideas (Baroody et al., 2022; Confrey et al., 2019; Simon, 1995). Teaching prerequisite levels of thinking using learning trajectories is more efficacious than the often-recommended approach of directly teaching to the target level (Baroody et al., 2021).

Learning trajectories should not be thought of as a strict stage theory that requires children to master one level before proceeding to the next. Instead, Confrey et al., (2019) found that the levels are not rigidly sequenced, allowing students to advance and fall back, making steady progress when viewed over time. Unlike a ladder, where students climb a rung at a time, there is more flexibility, similar to climbing a wall where there are several hand and foot holds and multiple routes that can be taken to get to the top (Confrey et. al., 2019).

Below are examples of a learning trajectory (Clements, & Sarama, 2023). This is only a portion of the length measurement trajectory. There are more levels as the trajectories reflect birth through grade 3.

##### Example Learning Trajectory: Length Measurement

Direct Comparison of Length

| Developmental Progressions' Levels of Thinking | Instructional Activities and Teaching Strategies |
| --- | --- |
| Physically aligns two objects to determine which is longer or if they are the same length. | Ask children to cut a ribbon to match the length of their arms and find things in the classroom that are the same length as these ribbon lengths. |
| Stands two sticks up next to each other on a table and says, “This one is bigger.” | Compare and order five children by height. |
| May use a ruler (as a stick rather than a measuring tool) and directly compare it and another object. Uses terms: long, longer, longest. | Compare sets of objects to find the longest or shortest items. |

End-to-End Length Measurement

| Developmental Progressions' Levels of Thinking | Instructional Activities and Teaching Strategies |
| --- | --- |
| Lays units end-to-end to create whole-unit measures for comparison. | Provide more than enough unit pieces than needed to span the length of an object. Ask children to predict how many units would be needed to span the object. Have them check. |
| When asked, “How many green strips long is the pink paper strip?” the child accurately measures. | Give length clues: “You use me to write with, and I am 7 cubes long. What am I?” “Find something in this room that is 6 cubes long.” |

Length Unit Relater and Repeater

| Developmental Progressions' Levels of Thinking | Instructional Activities and Teaching Strategies |
| --- | --- |
| Iterates a single whole unit to measure. | Ask children to measure objects using several copies of a unit but fewer than the length of the object. Repeat with new objects and only one unit. |
| Relates size and number of units, at least qualitatively. | Children measure using different units and discuss how many of each unit will fill a linear space. |
| Uses rulers with minimal guidance, measuring a length accurately with a ruler if alignment to the zero point is accessible.  “If you measure with cm, not inches, you’ll need more because each one is smaller.” | Children may be able to draw a line to a given length before they measure objects accurately. Use activities in which children draw a line of a given length to emphasize how you start at the 0 (zero point). |

The New Jersey Student Learning Standards for Mathematics (NJSLS-M) identifies several clusters of concepts and skills for kindergarteners. Each cluster or big idea has a developmental progression, or the order in which skills and concepts build on one another as children develop knowledge. In mathematics education, these are commonly labeled developmental progressions, or levels of thinking, knowledge, and skill that students are likely to go through as they learn mathematics (Daro et al., 2011). Connecting the big ideas (goals), the developmental progressions, and instructional activities and teaching strategies creates a complete learning trajectory. The Consortium for Policy Research in Education (CPRE) recommends that mathematics educators should recognize research on learning trajectories in mathematics as a respected and important field of work (Daro et al, 2011). CPRE also recommends that available learning trajectories should be shared broadly within the mathematics education communities and available learning trajectories should be usable tools for teachers. Clements and Sarama’s, (2023), *Learning and Teaching with Learning Trajectories* ([LT]2) is an example of one of these tools. [LT]2 describes the goals of learning, the thinking and learning processes of children at various levels, and the learning activities in which they might engage. Learning trajectories are a promising tool for improving teaching in the area of early mathematics and can facilitate developmentally appropriate teaching and learning for young children (Clements & Sarama, 2016).

#### Problem-Solving

In kindergarten, children develop meanings for addition and subtraction as they experience basic problem situations for numbers within ten and will represent word problems and solutions in several concrete, representational, or abstract ways. Students may act out adding and subtracting situations by representing quantities in the situation with objects, their fingers, sounds, mathematical drawings or mental images. In addition, kindergarteners come to school with varied strengths, interests, experiences, and needs and are at different levels of mathematical understanding. It is important to focus attention on teaching in small groups to address different problem-solving situations at students’ varied developmental levels.

In grades K–3, problem-solving situations have a hierarchy from easier to more difficult and should be taught using learning trajectories that embody this hierarchy. Teaching problem solving along this developmental progression is essential (Carpenter et al., 2015; Newton, 2019). As children develop through these levels, they advance in several ways. They learn more sophisticated problem-solving strategies. They learn to operate on larger numbers. Finally, they also learn to solve more difficult problem types. These types are based on the mathematical structure of the problem. First, what is the action? Are we joining sets, separating them, or comparing them? Second, which number is the “unknown”? The tables below identify all addition and subtraction types for kindergarten through second grade.

Add To

| Result Unknown | Change Unknown | Start Unknown |
| --- | --- | --- |
| **Kindergarten subtype**  Two bunnies sat on the grass. Three more bunnies hopped there. How many bunnies are on the grass now?  2 + 3 =? | Two bunnies were sitting on the grass. Some more bunnies hopped there. Then there were five bunnies. How many bunnies hopped over to the first two?  2 +? = 5 | **Difficult subtype**  Some bunnies were sitting on the grass. Three more bunnies hopped there. Then there were five bunnies. How many bunnies were on the grass before?  ? + 3 =5 |

Take From

| Result Unknown | Change Unknown | Start Unknown |
| --- | --- | --- |
| **Kindergarten subtype**  Five apples were on the table. I ate two apples. How many apples are on the table now?  5 − 2 =? | Five apples were on the table. I ate some apples. Then there were three apples. How many apples did I eat?  5 −? = 3 | **Difficult subtype**  Some apples were on the table. I ate two apples. Then there were three apples. How many apples were on the table before?  ? − 2 = 3 |

Put Together / Take Apart

| Total Unknown | Addend Unknown | Both Addends Unnown2 |
| --- | --- | --- |
| **Kindergarten subtype**  Three red apples and two green apples are on the table. How many apples are on the table?  3 + 2 =? | **Kindergarten subtype**  Five apples are on the table. Three are red and the rest are green. How many apples are green?  3 +? = 5  5 − 3 =? | Grandma has five flowers. How many can she put in the red vase and how many in her blue vase?  5 = 0 + 5  5 = 5 + 0  5 = 1 +4  5 = 4 + 1  5 = 2 + 3  5 = 3 + 2 |

Compare

| Version | Difference Unknown | Bigger Unknown | Smaller Unknown |
| --- | --- | --- | --- |
| **More** | Lucy has two apples. Julie has five apples. How many more apples does Julie have than Lucy? | Julie has three more apples than Lucy. Lucy has two apples. How many apples does Julie have? | Julie has three more apples than Lucy. Julie has five apples. How many apples does Lucy have? |
| **Fewer** | Lucy has two apples. Julie has five apples. How many fewer apples does Lucy have than Julie?  2 +? = 5  5 − 2 =? | **Difficult subtype**:  Lucy has 3 fewer apples than Julie. Lucy has two apples. How many apples does Julie have?  2 + 3 =?  3 + 2 =? | **Difficult subtype**:  Lucy has 3 fewer apples than Julie. Julie has five apples. How many apples does Lucy have?  5 − 3 =?  ? + 3 = 5 |

The four kindergarten problem subtypes are indicated in the tables above. Grade 1 and 2 students work with all subtypes and variants. The four difficult subtypes or variants students may work with in Grade 1 but need not master until Grade 2 (National Research Council [NRC], 2009).

Typically, in kindergarten, this progression of addition and subtraction situations begins with simple part-part-whole and joins and separates problems with an unknown result. Children then progress to more difficult problems, such as putting together or taking apart the total unknown or both addends unknown (Pfannenstiel et. al., 2015). When creating problem-solving experiences for kindergarteners, teachers must choose problems purposefully. Problem types must be considered, to accommodate varying levels of thinking along the learning trajectory (e.g., see the “Adding / Subtracting” learning trajectory in [LT]2). There are expectations for kindergarten arithmetical problem solving, but teachers need to provide access to all problem types, as most children can learn to solve most of them meaningfully.

When kindergarteners solve problems, they are engaged in sense-making and quantitative reasoning with and about numbers. When solving problems, students need to make sense of problems by explaining and discussing how they are representing the problem through modeling. Unlike a strategy, which is what numbers and operations students will use, a model is how students can show their thinking to solve the problem. Students can model their thinking either concretely (e.g., with cubes, counting bears, or acting it out using any real objects such as toys or dolls), pictorially (e.g., sketches), or abstractly (e.g., number lines or number grids) (Newton, 2018).

When kindergarteners regularly engage in problem-solving experiences, they are more likely to build perseverance. Children make sense of problems and persevere in solving them, by thinking about a variety of ways to solve the problem such as counting on their fingers, using manipulatives, using drawings, asking friends to help, or measuring. Children can model problem situations using a myriad of engaging concrete materials such as play-doh, puppets, stickers, and toys. Children then try out solution strategies and if the first solution doesn’t work, they persevere and try another. Teachers can encourage and support this behavior through prompts and questions (Newton, 2018).

Lessons that engage kindergarteners in problem-solving activities support mathematical practices such as modeling with mathematics, making sense of problems, perseverance, and reasoning quantitatively. In addition, children are expected to communicate their thoughts and justify their ideas and strategies. When teachers engage children in problem-solving activities daily, they are establishing expectations that encourage risk-taking, reasoning, productive struggle, and mathematical discourse.

#### Mathematical Discourse

Discourse, defined broadly, is the mathematical communication that occurs in the classroom. One of the most important things that happen in kindergarten mathematics is a discourse where children are active participants in discussions and engaged listeners (Newton, 2022). The value of student talk throughout mathematical activities cannot be overemphasized. Designing experiences for kindergarteners to have rich discourse and engage in authentic conversation with peers is an important part of creating a student-centered learning environment. In fact, the Standards for Mathematical Practice indicate that students should construct viable arguments, critique the reasoning of others, attend to precision while communicating, and reason quantitatively while solving and discussing mathematical tasks. To promote and support these mathematical practices, teachers can provide a platform for students to share their ideas, explain their logic, and assess the problem-solving strategies used by their peers (Stiles, 2016). To support the development of rich student mathematical discourse in the classroom, students need help learning and using academic language structures, practicing communication and critique, and building an understanding of academic vocabulary through use in context.

##### Questioning

It is important that teachers ask good questions that go beyond reporting answers. Questions that prompt rich mathematical discourse have more than one answer or solution strategy to engage all children. In kindergarten, children are expected to solve addition and subtraction word problems within 10 and to decompose numbers less than or equal to 10 into pairs in more than one way. To support this learning, posing open-ended questions such as, “The answer is 10 giraffes, what is the question?”, allows for more than one correct answer. Questions such as this can encourage students to take risks, model their thinking, explain themselves, and analyze and critique the reasoning of others (Newton, 2022). When responding to the solutions children share, teachers can use those solutions to question other children determining if they think it is correct and asking them to justify why. Simply confirming correct or incorrect solutions is a lost opportunity to engage children in meaningful discussions about mathematics (Van de Walle et al., 2018). Planning questions that pique curiosity and prompt students to engage in respectful mathematical discourse essential elements in kindergarten mathematics activities.

##### Model and Promote Expected Behaviors

To create a classroom culture that promotes and supports effective mathematical discussions, kindergarten teachers must model and support the expected behaviors and create classroom norms regarding discourse. Using think alouds, teachers model purposeful mathematical discourse that develops conceptual understanding. It reveals a teacher’s thinking and presents students with a model for how to think aloud through a problem and effectively communicate mathematical thinking. The student's role in productive mathematical discourse includes listening and responding to the teacher and to one another, using tools to reason, modeling explanations, making connections, problem solving, and making convincing arguments (National Council of Teachers of Mathematics [NCTM], 2014). To foster a clear understanding of both student and teacher roles for discourse in the classroom, it is important that teachers model these behaviors and create these classroom norms.

##### Strengthen Mathematical Vocabulary

Along with questioning and modeling expected behaviors to support productive mathematical discourse, it is also important for kindergarten teachers to clearly communicate and use precise mathematical vocabulary. Young learners are performing at varying levels in both written and oral language skills, therefore, for students to understand a mathematical situation, communicate their mathematical thinking and analyze the thinking of their peers, they must have a firm understanding of the questions being asked as well as the mathematical vocabulary and language of mathematics, including reasoning and justification. Carpenter et al., (2015) found that children’s ability to solve word problems depends to a great degree on their ability to understand, discuss, and model the action or situation in the problem. This research found that variations in the wording of problems and in the situations can make a problem more-or-less difficult to understand, discuss, and solve. For example, instead of asking the “Compare Difference Unknown” word problem (i.e., “There are 5 children and 3 toy cars, how many more children are there than toys?”); the teacher should ask (i.e., “There are 5 children and 3 toy cars. We want each child to receive one toy car. How many children will not receive a toy car to play with?”). Without decreasing the rigor of the task, re-wording mathematical situations so students can understand the problem, enables them to find solution pathways and explain their understandings conceptually (Newton, 2018). Also, re-wording situations to relate to children’s experiences can help children to see how mathematics is related to their home and community life allowing them more opportunities for sharing and discussions. In addition to clear communication, teachers can develop a classroom vocabulary chart or word wall using student created pictures and realia which can give students the opportunity to make meaning of mathematical vocabulary through pictures, words, and oral communication (Pace & Oritz, 2015). Developing a shared understanding of mathematical terms can empower young learners to effectively communicate their mathematical strategies and solutions.

##### Select Rich Mathematical Tasks

Another way to support productive mathematical discourse in the kindergarten classroom is through the use of rich and engaging visual and hands-on mathematical tasks. Opportunities to work on meaningful tasks can promote mathematical learning (Huber & Lenhof, 2006). Traditional mathematics lessons where teachers only present a process or procedure followed by student practice do not foster meaningful mathematical discourse. Rich, real world mathematical tasks ask students to apply their mathematical understandings in new contexts, supporting their confidence and willingness to devise and share solutions to problems that they have not previously been shown how to solve. Children learn best when they are interested, engaged, and involved with hands-on experiences and teachers choose tasks and/or questions that engage and challenge all students’ thinking. Effective discourse happens when students articulate their own ideas and seriously consider their peers’ mathematical perspectives as a way to construct mathematical understandings. Encouraging and empowering young learners to construct their own mathematical understanding through discourse and accessible tasks is an effective way to teach mathematics.

#### Flexible Small Group Instruction in Mathematics

Usually, when teachers present mathematical concepts to the whole group, some students already know the material and other students are not ready for the material; therefore, it is not sufficient for teachers to teach to the middle and hope that the instruction reaches all students (Taylor-Cox, 2013). A brief whole class mini-lesson followed by flexible small group instruction and explicit leveled student learning centers has proven to be effective (Tal, 2018; Benders & Craft, 2016; Pellegrini et al., 2021). Research has shown that grouping children according to the common needs of the group may result in gains in students' mathematics achievement (Tieso, 2004).

##### Grouping

Creating flexible small groups in kindergarten mathematics is a data-driven instructional practice that matches a student’s readiness level for learning mathematics concepts with appropriate instructional strategies, delivering the right content at a pace that is appropriate for each student (Newton, 2021). Small groups with two to four children at one time can have enormous benefits (Taylor, 2020). During flexible small group instruction, kindergarteners engage in standards-based, rigorous learning opportunities where the teacher focuses on a particular concept, strategy, or skill. Teachers facilitate this through hands-on learning, scaffolded conversations, and intensive questioning. Optimally, teachers meet with every child in their class multiple times a week in a small group. These small groups allow students the opportunity to talk with each other and ‘do the math’. Students get to use various materials to explore concepts. They may be playing games, acting things out, using objects, using drawings, using tools, or using diagrams. Students are always engaged in hands-on, minds-on activities (Newton, 2021).

##### Leveraging Data

Determining how to place children in groups is an important decision. Using formative assessment data, teachers group students by targeted areas of need and work at their instructional level in their zone of proximal development. Unlike traditional ability groups, flexible mathematics groups are purposeful and fluid and change over time based on the specific needs of the students (Taylor-Cox, 2013). In flexible mathematics groups students are assessed frequently for growth and reassigned to different groups based on their level of thinking and other specific individual needs. This flexible grouping provides students an opportunity to learn at their level and proceed to higher levels of achievement (Benders & Craft, 2016). Tomlinson (2000) found that flexible grouping is a non-negotiable aspect of effective differentiation because students are multidimensional learners who need varied group structures.

##### Benefits of Small Group Instruction

There are many benefits to small group instruction (Taylor, 2020):

* differentiated learning;
* open-ended conversations; and
* student-centered learning experiences.

Small group instruction enables educators to tailor teaching to the unique strengths, interests, experiences and needs of every child offering just in time activities and instruction to meet their individual needs (Taylor, 2020). In small group learning, kindergarteners have more opportunities to engage in mathematical discourse. Children can verbalize things they notice and wonder as well as ask their teacher and peers many different questions. Mathematical discussions are much easier to foster in small groups. The teacher is able to focus on questioning and instruction based on individual children’s understandings and needs (Taylor, 2020; Newton, 2022). The teacher can guide students as they do the math, all the while facilitating conversations that build understanding (Newton, 2022). Some children enjoy practicing mathematics, however other children are more motivated when mathematics is connected to students’ interests. In small group settings, teachers can customize learning and follow the children’s interests to engage children in positive, personalized, and meaningful experiences with mathematics.

#### Differentiated Mathematics Centers

Taylor (2020) reports that although many teachers see the benefits of small group learning, it can initially be confusing to implement. Teachers may worry about what the rest of the class will do while leading a small group. One successful approach can be to meet with each small group while the other children in the classroom are participating in mathematics centers. Traditional centers, such as a table with a variety of manipulatives or building blocks promote incidental learning at best and rarely build one mathematical idea on the next. Intentional activities focused on specific mathematics concepts and developmental progressions appear to make notable contributions to children’s learning (Taylor, 2020).

Mathematics centers are where students engage in continuous, purposeful, standards-based, differentiated practice, sometimes individually but usually in pairs or groups. In differentiated mathematics centers, students collaborate and learn about mathematics and practice mathematical skills through invigorating and stimulating projects, games, and activities. Centers focus on clearly defined learning goals, contain materials promoting individualized student growth, address a wide range of readiness levels, and have clear directions. Mathematics centers contain differentiated activities designed for kindergarteners to learn, practice, or extend their knowledge, understanding, and content skills in their zone of proximal development. Differentiated centers allow students to work towards or beyond the grade-level standard with scaffolded help. For example, in kindergarten students may be working on different counting skills. Some students may be working on counting objects within 5, whereas other students may be working on counting objects within 10. Students could be working on the same type of activity, but with different numbers.

Successful centers require that teachers continuously assess students to plan and implement appropriate, engaging, thought-provoking, tiered center activities. Using assessments that inform instruction, such as observations, anecdotal notes, checklists, questioning, interviews, tasks, and students' self-assessment and reflection, children are continuously evaluated so that center activities can be targeted to gaps and student learning is improved over time (Hattie, 2015).

##### Concrete-Representational-Abstract Instructional Sequence (CRA)

The goal of mathematics centers is to encourage students to make sense of mathematics by engaging in sustained concept and skill building over time that allows them to build conceptual understanding, procedural fluency, and problem-solving skills. In mathematics centers, the concrete- representational-abstract (CRA) instructional sequence can be used. This learning process has been found to be exceedingly effective when teaching mathematical concepts (Akinoso, 2015). Using the CRA sequence, students improved their performance across multiple mathematical concepts taught, and their conceptual understanding of numbers and operations improved (Hinton & Flores, 2019). Findings show that the CRA instructional strategy was more effective at improving students’ achievement in mathematics than conventional procedural strategies (Akinoso, 2015). The CRA instructional sequence of instruction provides a way for teachers to help students gain meaning from numbers and the mathematical concepts those numbers represent.

###### Concrete Stage

The first step is called the concrete stage. During this stage, students use concrete objects to model problems. It is also known as the “doing” stage and involves manipulating objects physically to solve mathematics problems. Students can use beads, counters, playdoh balls, rekenreks, base ten blocks, toys, and a myriad of other real-world objects or mathematical tools.

###### Representational

The next stage is the representational, or pictorial stage. It is also known as the “seeing” stage and involves using visual representations of concrete objects which may involve drawing pictures or symbols to model problems.

###### Abstract

The final stage in this approach is called the abstract stage or the “symbolic” stage, where children use abstract symbols to model problems. After students have demonstrated a solid understanding of the concrete and pictorial stages of a concept, they progress to the abstract stage. At this stage, teachers introduce concepts at a symbolic level, using only numbers, notation, and mathematical symbols (for example, +, −).

Below is an activity that can be used across various counting centers. There is an activity for students working at either the concrete level, representational level, or abstract level of understanding. The numbers change but the activity stays the same.

Concrete Representational Abstract Center Activity

| **Concrete Activity** | **Representational/Pictorial Activity** | **Abstract Activity** |
| --- | --- | --- |
| Show different ways to make the number shown on the number bracelet. | Use the number bracelet to show many ways to make the number shown. Draw it. | Use the number bracelet. Find many ways to make the number 5. Record the number sentence. |

The CRA instructional sequence is a systematic approach where each stage builds upon the previous stage and must be taught in a sequence. Students work at their level of understanding and should not be rushed through these levels. Through a variety of experiences that utilize concrete, representational, and abstract models, mathematics centers give students an opportunity to feel, to see, and do mathematics.

### Science and Engineering Instruction for Kindergarten Students

Building a solid foundation in science and engineering in kindergarten sets the stage for later success both by sustaining and enhancing children’s natural enthusiasm for learning about the world around them, and by establishing the knowledge and skills they need to approach more challenging science and engineering topics introduced in later grades (National Academies of Sciences, Engineering and Medicine [NAESM], 2021).

Students in kindergarten develop an understanding of the three science domains: physical sciences; life sciences; Earth and space sciences. The NJSLS-Science (NJSLS-S) support three-dimensional science instruction across these domains with the expectation that students will engage in learning experiences that enable them to investigate phenomena, design solutions to problems, make sense of evidence to construct arguments, and critique and discuss those arguments. In kindergarten, students begin by recognizing patterns and formulating answers to questions about the world around them. The science standards in kindergarten develop ideas and skills that will allow students to explain more complex phenomena in the three domains as they progress to middle school and high school.

The science and engineering curriculum should help students formulate answers to questions such as:

* What happens if you push or pull an object harder?
* Where do animals live and why do they live there?
* What is the weather like today and how is it different from yesterday?

Throughout kindergarten, students develop an understanding of patterns and variations in local weather and the purpose of weather forecasting to prepare for, and respond to, severe weather. Students are able to apply an understanding of the effects of different strengths or different directions of pushes and pulls on the motion of an object to analyze a design solution. Students also develop an understanding of what plants and animals (including humans) need to survive and the relationship between their needs and where they live. The crosscutting concepts of patterns; cause and effect; systems and system models; interdependence of science, engineering, and technology; and influence of engineering, technology, and science on society and the natural world are called out as organizing concepts for these disciplinary core ideas. In the kindergarten performance expectations, students are expected to demonstrate grade-appropriate proficiency in asking questions, developing and using models, planning and carrying out investigations, analyzing and interpreting data, designing solutions, engaging in argument from evidence, and obtaining, evaluating, and communicating information. Students are expected to use these practices to demonstrate an understanding of the core ideas.

#### Understanding Kindergarten Performance Expectations and Science and Engineering Practices

The Performance Expectations in the NJSLS-S define what all students need to understand and be able to do by the end of the grade. Each performance expectation represents the integration of three “dimensions” of science and engineering (i.e., Science and Engineering Practices, Disciplinary Core Ideas, and Crosscutting Concepts).

##### Science and Engineering Practices

The science and engineering practices **(**SEPs) reflect the major practices that scientists and engineers use to investigate the world and design and build systems. They are both a set of skills and a set of knowledge to be internalized. The SEPs are also what students need to know and do in order to make sense of phenomena or to design a solution to a purposeful problem.

The disciplinary core ideas are the most important ideas in the physical sciences; life sciences; Earth and space sciences; and Engineering, Technology and Applications of Science. These ideas represent the content that students need to be able to construct evidence-based arguments.

Crosscutting concepts are a way of linking the different domains of science. The concepts provide an organizational schema for interrelating knowledge from various science fields into a coherent and scientifically based view of the world. These can be thought of as the duct tape of science education.

##### STEM Learning Experiences in Kindergarten

The contemporary vision for science and engineering education calls for all children to be afforded opportunities to engage in meaningful, interesting, and compelling science and engineering learning experiences that engage them in describing and explaining phenomenon and solving problems as scientists and engineers do (NAESM, 2021; National Science Teaching Association [NSTA], n.d.)

The NJSLS-S include science and engineering practices as well as Engineering Design (ETS1) and Links Among Engineering, Technology, Science, and Society (ETS2). This means that a well-designed STEM project can promote proficiency in science, but it can also promote proficiency in NJSLS-CS&DT, NJSLS-M, and Career Readiness, Life Literacies & Key Skills (NJSLS-CLKS).

###### Meaningful Design Problems

A good design problem builds upon everyday or family experiences: who students are, what they do, where they came from. It is important that it is compelling to students from non-dominant communities (e.g., multilingual learners, students from cultural groups underrepresented in STEM, etc.). A good anchor will require students to develop understanding of and apply multiple performance expectations while also engaging in related acts of mathematics, reading, writing, and communication (Penuel & Bell, 2016).

###### Interdisciplinary Connections

STEM education should provide logical and authentic connections between and across the STEM disciplines, advancing the learning in each individual STEM discipline. This principle allows for the integrity of learning individual disciplinary concepts independent of integration and organic relationships. The richness of the content from each discipline is delivered without changing the basic structure or purpose and emphasizing the rigor appropriate to the grade level as defined by high-quality standards (i.e., NJSLS-S, NJSLS-M, NJSLS-CS&DT, and Next Generation Science Standards [NGSS]) and supported by professional organizations (i.e. Association of State Supervisors of Mathematics [ASSM], National Council of Teachers of Mathematics [NCTM], Council of State Science Supervisors [CSSS], Council of Chief State School Officers [CCSSO], and the International Technology and Engineering Educators Association [ITEEA]).

The academic disciplines of science, computer science and design thinking, and mathematics contain natural, coherent connections for students at all ages. CLKS serve as a means for highlighting these coherent connections and engaging with the creative thinking and problem solving required by authentic, real-world scenarios.

### Social Studies Instruction for Kindergarten Students

Social studies provide teachers with a platform to design activities that cultivate and extend “young children’s diverse skills and abilities to form and voice opinions, identify and solve problems, negotiate roles, perceive diversity and inequality, and recognize the consequences of their decisions and behaviors on others” (National Council for the Social Studies, 2019, para. 1).

The social studies curriculum may be experienced through a learning center format, project-based learning, guided experiences, and interdisciplinary inquiry driven units. The research strongly supports the integration of ELA and social studies. Utilizing high-quality social studies text in ELA can increase literacy as well as engagement (Tyner & Kabourek, 2021).

The NJSLS-SS aligned curriculum can be presented through activities building upon collaboration and partnership, as well as, independent discovery via centers. The kindergarten social studies curriculum should center around building an understanding of self and community. The classroom design, including centers, should reflect a welcoming classroom environment that recognizes and honors students’ individuality and value their contributions to the classroom community (Bauml, 2016).

Social studies include specific practices or skills such as:

* developing questions and planning inquiry (asking appropriate questions);
* gathering and evaluating sources (understanding documents, visuals, songs, etc.);
* seeking diverse perspectives (appreciating one’s self and others’ differences);
* developing claims and using evidence (drawing conclusions based on evidence);
* presenting arguments and explanations (articulating ideas and opinions);
* engaging in civil discourse (listening and understanding others’ opinions); and
* taking informed action (positively contributing to one’s family and community).

Social studies assist in the social-emotional development of students. Inquiry driven, project-based learning enables students to pursue their curiosities and construct knowledge through observation, investigation, and discovery. This facilitates students’ social-emotional development by providing students opportunities to collaborate, discuss, build consensus, and explore their role and responsibilities as members of the classroom community. This leads to greater self-awareness, self-management, social awareness, dialogue and perspective-taking, responsible decision-making, and civic action.

These skills are developed through the implementation of four social studies disciplinary concepts:

#### 1. Civics

Kindergarten civics involves preparing children to become responsible, active citizens with rights and responsibilities. Students participate and cooperate in classroom activities and take personal responsibility to follow directions and rules. This is the basis for understanding government and decisions made for the common good. Children are taught the concept of authority figures in the home, school, and community (e.g., parent/guardian, principal, teacher, police officer, religious leader) as well as the value of communal decision-making that allows everyone’s voice to be heard.

#### 2. History and Culture

History and culture for kindergarteners starts with understanding cultures and values. Children can recognize symbols of the United States including the national flag and the Pledge of Allegiance. In school, children will learn poems and sing songs that represent the country’s history as well as celebrate holidays from other cultures represented in the classroom. Respecting and understanding the views of others helps one learn about various perspectives, thoughts, and cultures as well as develop empathy. Students should be encouraged to share their histories and cultures to widen the class’s understanding of the world and human experiences. Students should also begin to explore historical timelines by putting events in chronological order and understanding the concepts of past, present, and future. Students should explore their own families and communities to see how they have changed over time through the accounts of others’ individual stories.

#### 3. Geography

Kindergarten students also learn about geography in understanding how environmental characteristics influence how and where people live. Students should begin working with maps and be able to find locations. Kindergarten children should be able to make models and maps that represent real places such as their classroom, their school, or the buildings and houses on their street. Children should also begin to understand the impact people have on the environment.

#### 4. Economics

Economics plays an essential role in enabling students to understand wants and needs, goods and services, and effective decision-making. Utilizing real-world examples that students can relate to their personal experiences is inherently important in students conceptualizing economics in their lives. Encourage students to observe their families’ daily economic decision-making processes as they go food shopping, eat out at restaurants, go to the bank, etc.

### Developmentally Appropriate Kindergarten Learning Centers

The NJDOE has adopted NJSLS for all content based academic instruction. Many of these standards can also be incorporated into intentional play-based learning opportunities for our youngest learners. Educators who design curricula and teach kindergarten are encouraged to use play in addition to teacher-led instruction to incorporate the NJSLS to meet the needs of all learners in their classroom. Recommended below are centers that can provide additional learning support for all subject areas of learning. Sample guiding questions are also provided for teachers to use as they facilitate learning during center time.

A learning center is typically a designated area within the classroom that provides students with exciting and interesting experiences to practice, enrich, reteach, and enhance their learning. Students can work in small groups, with a partner, or independently. Prior to working in learning centers, students should be taught class rules and expectations when working in centers. Teachers model materials, activities, and problem-solving techniques with the entire class. Part of intentional teaching is using open-ended, guiding questions meant to support and extend student learning experiences, academic interaction, and critical thinking.

The idea of balancing student-led independence and teacher-led direction in learning centers reflects a pedagogical approach that recognizes the importance of both autonomy and guidance in the learning process. Research in education has emphasized the value of finding a balance between these two instructional modes, “negotiate a balance between academic learning (e.g., literacy skills) and the use of developmentally appropriate practices (e.g., play-based learning)” (Danniels & Pyle, 2018, p. 4).

Successful centers require that teachers continuously assess students to plan and implement appropriate, engaging, thought-provoking, tiered center activities. Using assessments that inform instruction, such as observations, anecdotal notes, checklists, questioning, interviews, tasks, and students' self-assessments and reflections, children are continuously evaluated so that center activities can be targeted to gaps and student learning is improved over time (Hattie, 2015).

Teachers should differentiate activities within centers to meet the needs of all students in the classroom. Listed below are various types of centers that may be found within a kindergarten classroom accompanied by sample guiding questions to help facilitate conversations between students and teachers, as well as, with students and their peers. The guiding questions below can be helpful as a recap/reflection for discussion amongst teachers and students, and the responses used as part of formative assessments. The sample questions are not inclusive of all possible guiding questions for center discussions.

#### Block Center

Playing in the block center provides students with opportunities to problem solve, imagine, create, and build their social-emotional competencies as they work with others and persevere in a task. In addition, playing with blocks meets many of the NJSLS-M as they explore mathematics topics such as shapes, spatial relationships and numeracy and science indicators in creating and testing hypotheses and building scientific reasoning (Koralek, 2015).

Further, improving and redesigning block structures are valuable steps in the engineering design process, a key component of STEM. Block play offers the opportunity to build, knock down, and rebuild, which are critical for both learning and social-emotional development (Lindeman & Anderson, 2015).

##### Guiding Questions for Block Center

* Can you tell me about your structure?
* How did you decide to put those blocks together?
* What made you choose those blocks?
* Do you think your building is strong? Why or why not?
* What did you do to make your tower so tall without falling?
* How do you know which tower is taller? Shorter?
* How do you think you could make that (taller, wider, longer)?

#### Literacy Center

A literacy center is an area(s) within the classroom where students use a variety of differentiated materials to explore and expand their knowledge in reading and writing. They may work alone or interact with their peers. Allowing students to work collaboratively and independently on the skills previously taught will help students practice skills (Foorman et al., 2019).

In literacy centers, children will have the opportunity to strengthen their skills in many of the NJSLS-ELA such as developing foundational reading skills, reading books of different genres, writing for real purposes, and building speaking, listening, and language skills. The depth of learning that can occur in literacy centers is immense and will include various materials that can be used in a structured and intentional way by children which the teacher has planned. A library stocked with books of different genres and rich with diversity will serve the interests of all children. Varied writing materials, including different types of writing instruments and paper, will accommodate a wide range of developmental levels. A variety of literacy related games and materials, such as magnet letters, alphabet games, retelling props, and storyboards, can encourage play and social interactions while teaching important skills.

##### Guiding Questions for Literacy Center

* Can you tell me about the book you are reading?
* Can you predict what will happen next? What clues helped you make that prediction?
* Did you make a good prediction? Why or why not?
* Can you tell me about this picture?
* Where is the setting in this story?
* Can you tell me about the characters?
* Can you retell the story to me?
* Was this a good ending to the story? Why or why not? How would you change the ending?
* Can you sound out/stretch the sounds of this word?
* What are you writing about? Can you read it to me?
* Can you use everything you know about letters and sounds to write that word?

#### Mathematics Center

The goal of mathematics centers in kindergarten is for students to build mathematical proficiency through purposeful practice in playful, standards-based, hands-on, academically challenging ways that help students gain confidence in mathematics (Newton, 2022). Centers focus on clearly defined learning goals, contain materials promoting individualized student growth, address a wide range of readiness levels, and have clear directions. Mathematics centers contain differentiated activities designed for students to learn, practice, or extend their knowledge, understanding, and content skills. Differentiated centers allow students to work towards or beyond the grade level standard with scaffolded help.

Successful mathematics centers require that teachers continuously assess students to plan and implement appropriate, engaging, thought-provoking, and tiered center activities (Newton, 2022). Mathematics centers provide opportunities for students to practice, understand, and apply the mathematics they are learning through engaging, purposeful play. Well-planned, intentional, engaging play should not be underestimated. Such play, if mathematized, contributes to mathematics learning and helps students to become competent, flexible, and confident kindergarten mathematicians (Burchinal et al., 2022).

##### Guiding Questions for Mathematics Center

* How did you solve this problem?
* What strategy did you use to solve this problem?
* What tools could you use to...?
* Is your answer reasonable? How do you know?
* How would you describe what you are trying to find?
* What do you notice about...? What do you wonder about...?
* How else could you organize...represent...show...?
* What do the numbers used in the problem represent?
* How can you be sure of that...? How could you prove that...? Will it still work if...?
* What is the same and what is different about...?
* What are some ways to show (visually represent) …?
* What patterns do you notice...?
* How would you prove that...?
* What would happen if...?
* Is there a mathematical rule for...?

#### Dramatic Play Center

In the dramatic play center, children can act out real world situations and play the role of different characters with their peers. Arreguin-Anderson et al., (2018) note that pretend play is an integral part of a child’s social, emotional, and cognitive development. This type of play also helps children develop their self-regulation skills as children adhere to sets of rules that define pretend roles. Since this kind of play often requires the substitution of one object for another (e.g., block for a phone), it develops abstract thinking that allows children to conceptualize that a single object can have multiple meanings. Culturally relevant dramatic play centers allow all children to draw from their own experiences to enhance their play and feel valued as members of the classroom community. This authentic dramatic play leads to meaningful learning, especially in language and vocabulary, which are crucial components of the NJSLS-ELA.

##### Guiding Questions for Dramatic Play Center

* How will you rehearse/practice to prepare?
* What are your plans for…?
* Tell me about your character...?
* What made you choose these props?
* What happened when…?
* How can you show...by acting out…?
* What can we create using these…?
* Can you tell me about what you created, organized, set-up…?

#### Science/Discovery Center

The science/discovery center promotes learning and development in different ways than direct instruction and media. Through exploration, learners construct knowledge about the world (Gallo-Fox & Stegeman, 2018). Students participating in this center can utilize skills such as observing, communicating, predicting, and measuring using a variety of interesting materials that should be rotated throughout the school year. The science/discovery center promotes collaborative learning where students work together to follow the steps of the scientific method (i.e., observe, ask a question, hypothesize, predict, test, and communicate their findings). By intentionally planning the materials in the center and prompting the students with guiding questions, teachers can meet the NJSLS-S. The NJSLS-ELA can also be met by placing appropriate non-fiction texts and writing materials within this center.

##### Guiding Questions for the Science/Discovery Center

* How can you make that object move? How can you make it move faster? Slower?
* What do you notice? What do you wonder?
* Do you observe any patterns?
* What tools or materials can you use to observe, solve, design?
* How did that change or how can that change?
* What do you think will happen (if or when)? What is your prediction?
* How are \_\_\_ and \_\_\_ alike? How are they different?
* What do you suppose would happen if…?

#### Art and/ or Makerspace Center

Art and/ or makerspace centers are a space in the classroom that allows children to create, tinker, invent, explore, and construct their ideas with materials and tools that promote process-focused art and innovation. The process of tinkering and creating encourages children to take risks, problem solve and think critically. The value of this center is that it is focused on the experience and exploration of techniques, tools, and materials in an open-ended process. There is no right or wrong way to explore and create thereby boosting each child’s social-emotional well-being. Numerous materials and supplies should be provided for children to use in this space, such as easels and paints, a variety of crayons, markers, pencils, assorted types of paper, non-toxic clay/dough, various collage materials, and any other materials that might spark imagination in children (Bongiorno, 2014). Through this center students can meet student performance expectations in the NJSLS-VPA as well as other interdisciplinary NJSLS opportunities.

##### Guiding Questions for the Art and Makerspace Center

* Can you tell me about your creation/invention?
* What are some ways you could fill up this paper?
* How did you get this color?
* What did you do with these materials?
* What shapes do you see in this painting?
* How do you think you could stick these together?
* What tools are you using today?
* Who else might use these tools?
* What else might you use this tool for?
* How does your work make you feel?

#### Sensory Exploration Sand and Water Center

The sand and water center provides children with the opportunity to develop higher-level learning through sensory exploration. This hands-on center allows children to learn by using sensory input and can have a calming effect on some children. Play in this center promotes social skills such as taking turns, working together, and sharing. Concepts set forth in the NJSLS-M and NJSLS-S such as volume, weight, measurement, water flow, and motion can be explored through effective teacher prompting during play (Vanover, 2018).

##### Guiding Questions for the Sensory Exploration Sand and Water Center

* How did the water sound when you poured it?
* Do the pitchers hold the same amount of water?
* What did you find out when you put the ... in the water?
* Which container holds more sand? Water?
* Will that sink or float? What is your prediction? Why do you think that?
* Can you tell me about what you made using the sand/water?
* Did the sand molds hold their shape? Why or why not?

#### Technology Integration in Centers

Access to technology provides equitable and expanded access to high-quality, standard-based computer science and technological design education as set forth in the NJSLS-CS&DT. To accomplish this, teachers plan lessons intentionally, and teachers are informed about the types of technology tools and interactive media that are developmentally appropriate for students. Educators are encouraged to use their professional judgment when evaluating and incorporating technology and media into the learning environment. This involves considering the educational value, appropriateness, and impact on student engagement and safety. Technology and media are viewed as learning tools, similar to other resources used in education. This perspective emphasizes integration of technology should align with pedagogical goals and enhance the learning experiences (NAEYC & Fred Rodgers Center for Early Learning and Children’s Media, 2012).

### Next steps for the Kindergarten Implementation Guidelines

The Division of Early Childhood Services (DECS) believes that high-quality early education can improve outcomes, narrow achievement gaps, and convey long-term benefits for children in school and life. The division’s mission is committed to enhancing the social-emotional, physical, and cognitive development of New Jersey's children from birth through third grade by supporting the implementation of comprehensive services that address the needs of the whole child. The DECS aims to provide school districts with useful information that will enhance knowledge about early learning programs and initiatives at the NJDOE to benefit all young learners in NJ.

The Division’s vision is to provide all young children with equitable, research-based opportunities for learning and a developmentally appropriate education. These guidelines are intended to advance a comprehensive and seamless P–3 educational continuum in New Jersey’s school districts. School districts are encouraged to use these guidelines as a springboard for discussion, action planning, and ensuring that kindergarten is a developmentally appropriate place for teaching and learning in New Jersey’s preschool through grade twelve education system.

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**Note**: The Department does not guarantee that external resources conform to Level AA of the Web Content Accessibility Guidelines (WCAG 2.1.).

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## Appendix: Notes for Working with Families

### Overview

*The Kindergarten Implementation Guidelines* support the understanding that for learning to occur, every child deserves a supportive adult or group of adults to ensure their health, safety, education, and general welfare. The NJDOE recognizes and honors a variety of individuals who nurture New Jersey’s young children. Sometimes that person is the child’s parent and other times it may be someone who serves in a legal or parenting role. Throughout this Appendix, the department uses the terms “parents” and “families” individually or together to indicate the adults who serve in a parenting role.

The *Kindergarten Implementation Guidelines* use four descriptors of effective home/ school relationships that impact student learning and development:

1. “Parent Involvement” means attendance at scheduled school activities requiring an active or passive role in a variety of events and is usually measured in attendance numbers;
2. “Parent Engagement” means a two-way home/ school learning partnership that has an instructional support component for parents to support in- class teaching and learning and extend student learning and development outside of the classroom. Building parents’ capacity to engage is included in this category;
3. “Parent Compliance” means actions are based on the school’s accountability requirements and mandatory responsibilities such as those in ESEA and state funding and;
4. “Two-Generation Support” means needs-based access to a network of services and supports that increase family well-being by simultaneously working with children and the adults in their lives.

The *Kindergarten Implementation Guidelines* highlight teaching practices that build home/ school/ community partnerships intended to extend standards-based learning and development beyond the classroom. Engaging families in student learning, bonds parents and educators as partners with a clear focus on learning and development.

Educators can help parents/ families use the student learning standards, performance indicators, and child development to help their child build and reinforce new knowledge and skills. By partnering with parents and helping them build the capacity to extend their child’s learning beyond school, families can also play a meaningful rolethat supports teachers’ instruction and student learning in the classroom. To be effective, all home/ school learning partnership strategies described in this Appendix are articulated as equitable, sensitive to linguistic and cultural diversity, easily applicable outside the classroom, and part of a balanced learning partnership between home and school.

#### Social and Emotional Learning (SEL)

Children learn and develop best when the significant adults in their lives work together to encourage and support them. This is especially true when considering social and emotional learning and development. When schools and families form authentic, 2-way learning partnerships, they can build strong connections that reinforce students’ social and emotional development.

The guidelines are focused on the kindergarten year, but the concepts of a child’s social and emotional learning and development are to be understood as a wraparound concept of before, during, and after the kindergarten experience. The partnership between educators and families is a critical part of a high-quality kindergarten program and a child’s success in the early elementary grades. Families who understand SEL and how it impacts their child’s learning and development can help provide consistent support in school and beyond. Families help teachers learn about children and their family’s norms, values, linguistics, and cultural representations. Schools need inclusive decision-making processes that ensure that parents/ families particularly those from historically marginalized groups are part of planning, implementing, and continuously improving SEL. Trusting and respectful relationships with parents encourage all families to engage in the SEL efforts at school and enrich a child’s opportunities to grow, develop and strengthen their SEL capacity.

To foster increased capacity, increased academic achievement, and improved student behavior, educators can provide parents with insight about how a child’s social and emotional capacity enhances the student’s ability to integrate skills, attitudes, and behaviors to deal effectively with daily tasks and challenges both inside and outside of school (Collaborative for Academic, Social, and Emotional Learning [CASEL], n.d.).

#### Multilingual Learners (MLs)

There are many clear regulations regarding language instruction for MLs and immigrant students. Families have many legal rights and play a large role in the English language programs and services children receive in schools. MLs should have access to rigorous standards-based learning while simultaneously partnering with families to integrate language, communication, and content objectives in support of their child.

Educators should recognize families are the experts in their children’s language development, cultural norms of how they use language, values of interaction within society, and perceptions of cognitive development regardless of the parent’s native language. Educators should have skills and/or resources to engage with families to learn from them about their children’s language use, development, and progress. High-quality kindergarten programs should include policies and practices that value and enable non-English speaking parents’ influence in program development, implementation, measures of success, and decision-making, such as classroom materials, curricular supports, and effective activities that directly support their child’s learning and development.

#### Gifted and Talented Learners

Every child is unique and comes to kindergarten with diverse skills, knowledge, experiences, and social and emotional development. Children enter kindergarten with a variety of previous experiences that may include several years of care and progressively structured learning starting at home, out-of-home care, or preschool. Children with age-appropriate stimulation, resources, high-quality preschool, and other opportunities, overwhelmingly start school at higher achievement levels than children with fewer advantages. Other children who experience their first structured learning at the start of kindergarten may have screening results that reflect skills still undeveloped due to an opportunity gap. Those factors, and others, have a critical influence on the initial assessment of gifted tendencies at kindergarten entry.

Teachers need to authentically and transparently communicate with parents to share information about student learning standards, kindergarten screenings, assessments, student learning expectations, developmental milestones, and critical social and emotional competencies. Families can communicate vital knowledge about their child regarding home/ school observations and their child’s learning and development at school.

Families are more likely to support learning and maintain creative instructional support strategies when they understand the research-based outcomes. Teachers can share insight about learning through play by explaining how activities are based on learning standards and child development. Play and hands-on learning activities can help develop social and emotional maturity, academic competency, critical thinking skills, resiliency, and more.

The following are suggestions to share with families who can help their gifted child reach their potential.

* Scaffolding helps a child rise to the next level. Based on the child’s capacity, identify something a very young child can do independently, such as a wooden puzzle. Placing a child in front of a multi-piece puzzle may be too overwhelming. However, with support and guidance a parent may talk their child through the process with a puzzle slightly more difficult than what they can do alone, which enables a child to build skill and confidence.
* Use developmentally appropriate activities and skills. It is not recommended to push children into academic skills through rote drills and practice. While they may have the ability to perform such tasks, it is important to remember their chronological age and developmentally appropriate practices.
* Pretend play encourages creativity and interaction with materials and other individuals. Children learn by acting out and simulating real-world experiences. Children should be provided materials they are interested in to create stories and experiences.
* Nurture a wide variety of creative expressions. Children can be talented at a variety of levels in many different domains such as art, music, or dance for example.
* Provide many different and equitable options to help parents build their own capacity to foster their child’s learning through positive interactive experiences. Children should not be continually sent to work alone. Relationship-building and interaction with adults is common with children, however, relationships with peers are critical.
* Build partnerships with families to help children (and their families) select books that inspire extending learning beyond the classroom.

#### English Language Arts (ELA)

Standards-based foundational ELA skills can be the basis to build an effective home/ school learning partnership that engages parents in their child’s skill development. Developmentally appropriate activities, games, and project-based assignments expand student learning beyond the classroom and can be a powerful way to engage family support to impact comprehension, phonological awareness, phonics, word recognition, vocabulary, and fluency.

Standards-based reading activities can be shared with students’ parents and families to encourage expansion and reinforcement of early reading skills. Reading materials can be shared with families and can be accompanied by developmentally appropriate strategies. Sharing guiding questions that promote critical thinking and creativity. Read aloud strategies are very effective ways families may engage and support their child’s learning. These strategies can be encouraged in the child’s home language and balanced with new vocabulary words.

Teachers can provide families with guiding questions for support at home and also invite them to communicate their observations about their child’s interest in reading and any challenges they may experience. This helps parents become more aware of their child’s strengths and areas of growth. Teachers can use the feedback in combination with their own assessments to get a broader picture of their student’s progress. Teachers can be prepared if parents ask for recommendations on reading materials or additional strategies to expand their child’s love of reading.

To spark a love of reading in students at an early age and encourage parents to take an active role in their child’s education, teachers are encouraged to create a complimentary section of the classroom library known as a “lending library.” Lending libraries serve as a place for parents/ families to borrow books to read at home with their child. Another strategy is to send several books home at the beginning of the week and exchange the books weekly. Schools can also dedicate grade-level sections of the school’s library so that parents/ families can check out materials and return them in their child’s backpack or when they pick up their child at school. These strategies allow parents and teachers to identify developmentally appropriate books at a variety of levels and offer literature in a variety of languages as appropriate.

#### Mathematics

When partnering with families, teachers can support mathematical learning outside of school by sharing resources and guiding questions to prompt critical thinking and expansion of mathematical concepts and ideas. They can benefit from examples of practical applications and specific strategies related to current classroom instruction furthering their own interest and capacity to build mathematical thinking into their child’s everyday life and daily routines

It is important for teachers to help parents understand that mathematics is a representative concept within a young child’s discernment and realization to guide parents through the child’s developmental milestones and explanation of core mathematical thinking skills. Parents and families may make learning mathematics fun at home by choosing activities and manipulatives that include and promote:

* analyzing
* arrange
* compare
* estimate
* finding measurable outcomes
* connecting to the child’s world

#### Science

With a teacher’s explanations, guidance, and support, all families can create science-friendly homes and build parent’s capacity to support and expand learning in science. Activities can include sharing definitions of science in daily life; provide step-by-step explanations of science strategies to support instruction; create broad-based examples and modeling to build skills; give guiding questions for parents to help children think critically and expand their perspective; send home project-based interactive homework that includes an explanation of the “what, why, and how” children are learning science; develop lending laboratories with resources for home use; and other supports for families to try at home. Parents and families may help children learn science through activities that include:

* making observations
* asking questions
* thinking critically
* experimenting
* explaining reasoning
* researching
* using technology
* reading and writing

#### Social Studies

For young children, the family, school, neighborhood, and community offer first-hand experiences that introduce children to the foundation and impact of learning social studies. Social studies activities can correlate with activities at home where parents help their children contribute to their family and community, celebrate culture, and practice family traditions. Parents and families can play a key role in supporting the social studies standards that teach students about how people live, work, get along with others, solve problems, and are impacted by the world around them. Families may participate in the following ways:

##### Civics

* Discuss rules, appropriate behavior in a variety of settings, and explain that rules provide order, security and safety in the home, school and community.
* Highlight activities that children can participate in that promote being good citizens, following rules at home and in the community, recycling, and helping others.

##### History and Culture

* Celebrate and explain state and federal holidays.
* Visit museums, art galleries, musical performances, historical sites and cultural centers.
* Share stories, songs, recipes, and folktales that represent family culture and history.
* Examine family pictures and discuss events that took place in the past, highlighting the order of events in relation to the child’s life.

##### Geography

* Take frequent neighborhood walks and point out landmarks, street names, and surroundings, and have your child memorize their home address.
* Use geographical concepts by talking about location, direction and distance (e.g., up/down, over/under, here/there, front/back, behind/in front of).

##### Economics

* Explain daily economic activities that your child may observe you do, such as purchasing goods and services, paying bills and saving money towards a goal.
* Discuss needs and wants in relation to decision-making and provide children opportunities to role-play various jobs such as playing school, store or doctor.