# Ready for Kindergarten: Early Learning Assessment Development Report

# 1 Overview

## 1.1 Race to the Top—Early Learning Challenge Grants

On December 16, 2011, Maryland and Ohio were each awarded Race to the Top Early Learning Challenge (RTT-ELC) Grants for four years. Along with other projects, these funds supported an innovative partnership between Maryland and Ohio to develop the Ready for Kindergarten Early Childhood Comprehensive Assessment System, which consists of the Kindergarten Readiness Assessment (KRA) and the (formative) Early Learning Assessment. Several partners have played a vital role in executing the states' shared vision for improving kindergarten readiness and early childhood assessments. These partners include the Johns Hopkins University Center for Technology in Education (JHU CTE); WestEd (the Standards, Assessment, and Accountability Services [SAAS] program and the Center for Child & Family Studies [CCFS]); state advisory councils; and a national technical advisory committee (TAC), facilitated by the Council of Chief State School Officers (CCSSO). A list of project members from each organization is provided in Appendix A.

## 1.2 Purpose of the Early Learning Assessment

The Early Learning Assessment is designed to support a formative assessment process through which early childhood teachers collect and analyze information from multiple sources (e.g., children's work, teachers' observations, interviews with families and other educators) to tailor instruction to the individual needs of each child.

The Early Learning Assessment is designed to be used throughout the school year, allowing teachers to track children's growth, individualize learning opportunities, plan for intervention, and engage in real-time instructional planning to support all children on the path to kindergarten readiness.

The Early Learning Assessment can also provide supplemental information to determine if a child with an Individualized Education Program (IEP) or Individualized Family Service Plan (IFSP) demonstrates improved social-emotional skills, acquisition of knowledge and skills, and use of appropriate adaptive behaviors to meet his or her needs.

## 1.3 Purpose of This Report

The purpose of this report is to describe the efforts and processes that contributed to the design and development of the Early Learning Assessment.

## 2  Early Learning Assessment Design

### 2.1  Overview

The Early Learning Assessment is based on research-supported learning progressions aligned to early learning standards and seven domains of school readiness: Social Foundations,[1] Language and Literacy, Mathematics, Physical Well-Being and Motor Development, Science, Social Studies, and Fine Arts.

### 2.2  Common Language Standards

To identify the content standards for the Ready for Kindergarten Assessment System, an alignment study of Maryland's and Ohio's early childhood standards was conducted in August 2012. This study informed the drafting of the Common Language Standards, which include the domains, strands, standards, and essential skills and knowledge that form the basis of the Ready for Kindergarten Assessment System. The Common Language Standards identify the link between the KRA and the Early Learning Assessment—a one-to-one relationship between the standards and the learning progressions.

Upon multiple reviews and revisions by WestEd, the Maryland State Department of Education, the Ohio Department of Education, and the TAC, the Common Language Standards were finalized during summer 2013. The Common Language Standards can be found in Appendix B.

### 2.3  Learning Progressions

The learning progressions define the pathways of skills, knowledge, and behaviors that children develop between the ages of 36 and 72 months, including the pathways of children who may be at earlier developmental levels than their typically developing peers. As illustrated in the Common Language Standards, each of the 32 learning progressions aligns to a standard.

Each learning progression consists of an operational definition and skills, knowledge, or behaviors (SKB). Each SKB is shown as a row within the learning progression and includes up to nine level descriptors (i.e., Levels A, B, C, D, 1, 2, 3, 4, 5) that represent the typical milestones of a child's development. Levels 1–5 describe a continuum of the typical skills and behaviors that children develop between 36 and 72 months of age. Levels A–D represent developmental stages that precede Levels 1–5, which allow teachers to assess children who may be at earlier stages of development, including children with disabilities and children who are English and dual language learners.

The 32 learning progressions are provided in Appendix C. Appendix D lists the references that were used to develop each learning progression.

### 2.4  Observational Rubrics

There is an aligned observational rubric for each SKB within a learning progression. Each observational rubric includes an operational definition of the SKB, directions for observing the SKB, and examples of observable behaviors associated with each level descriptor within the SKB.

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[1]Social Foundations comprises social and emotional development and approaches to learning.

## 2.5 Early Learning Assessment Framework

The Early Learning Assessment framework provides a visual summary of the structure of the Early Learning Assessment. Based on the Common Language Standards, the Early Learning Assessment framework outlines the learning progressions, the associated SKBs, and the level descriptors. Shaded cells within the framework indicate levels for which there is no descriptor. The Early Learning Assessment framework is provided in Appendix E.

# 3 Early Learning Assessment Development

The development of the Early Learning Assessment began in fall 2012 and concluded in spring 2016. Development was an iterative process that involved teacher interviews, formal pilot studies, and several content reviews conducted by the state departments, early childhood development experts, and the TAC.

## 3.1 Teacher Interviews

### 3.1.1 Purpose

Teacher interviews were conducted within each school that participated in the KRA cognitive interviews in January 2013. Two WestEd researchers, working with two staff members from JHU CTE, interviewed teachers to solicit feedback regarding the structure of a sample set of learning progressions. The purpose of the initial focus groups was to determine whether the design of the sample learning progressions would be appropriate for formative use in the classroom.

### 3.1.2 Design

Four sample learning progressions were developed in fall 2012 for use during the teacher interviews. Each sample learning progression consisted of an operational definition, seven developmental levels, and examples of knowledge or behaviors that illustrate the description of each level. The interviews were conducted in two phases (an introduction and a think-aloud session) and lasted 20 to 30 minutes.

During the introduction, the interviewers provided an orientation to the formative assessment. The interviewers explained that the formative learning progressions were designed to allow teachers to assess and document children's developmental progress in various domains by assessing them on various learning progressions. The interviewers further explained that each learning progression represented a developmental continuum so that the individual range of each child's development could be observed and recorded. Teachers would base their ratings on their knowledge of each child, gathered through observation and documentation of behaviors in the preschool or kindergarten setting. To complete the introduction, the interviewers walked each teacher through the details of the first sample learning progression to familiarize the teacher with its structure.

During the think-aloud session, the interviewers asked each teacher to describe three to five children from her class, including a younger child, an older child, an English or dual language learner, and a child with disabilities or special needs, and to place each child on the learning progression. The interviewers also asked each teacher to describe how she made her decision.

### 3.1.3 Sample

The teacher interviews were held at the elementary school sites that participated in the KRA cognitive interviews and additional preschool sites in Maryland and Ohio. School sites were selected from rural and urban areas in each state. Interviews were conducted with 20 teachers across both states.

### 3.1.4 Findings

Most teachers (16 out of 20) felt that the learning progressions were very easy to use and that the patterns described were consistent with what they saw in their classrooms. Only four of the 20 respondents felt the progressions were hard to use.

A few teachers suggested that the examples provided within the progressions did not relate back to the operational definitions. Some felt that it would be difficult to assess all their children using the learning progressions due to large class sizes or not knowing the children well enough (e.g., assessing early in the school year). A few teachers were not accustomed to observing children younger than kindergarten, and felt it was difficult to comment on all levels of the progressions. There were mixed opinions on the number of levels (seven) included in the learning progressions—some teachers felt the skills in the levels were too close together, while others liked the idea of a broad spectrum because it encompassed the diversity of children's abilities at those ages.

### 3.1.5 Outcome

These findings allowed the development teams and the state departments to review and revise the proposed list of learning progressions, in conjunction with the KRA Blueprint and KRA item prototypes. Thirty-two common standards were identified by the state departments, and these common standards formed the foundation of the KRA Blueprint and the Early Learning Assessment.[2] These foundational elements were drafted and provided to the TAC for formal review.

## 3.2 Initial Technical Advisory Committee Review

### 3.2.1 Overview

In March 2013, the TAC members were provided with the revised KRA Blueprint, the list of aligned learning progressions, and an initial set of 10 learning progressions for formal review. The 10 progressions included descriptors to reflect each level of the progression and corresponding examples. The TAC members were asked to review per their respective area(s) of expertise the learning progressions, specifically the level descriptors and corresponding examples, and to respond to two guiding questions:

- For each learning progression, do the descriptors accurately reflect the developmental sequence?
- Do the examples adequately represent the descriptors?

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[2]The KRA Blueprint does not include the Fine Arts domain.

### 3.2.2 Findings

Eleven of the 12 TAC members provided written feedback. Their responses and feedback provided the developers and state departments with detailed recommendations for revisions to the learning progressions.

In general, the TAC members' feedback encouraged specificity of language within the level descriptors of the learning progressions. Their feedback also suggested that the development of distinct skills and behaviors within each learning progression could advance at different rates; therefore, they suggested that separate rows of skills and behaviors be created within each learning progression.

Table 3.2.2.A summarizes the key elements of the TAC members' responses to the guiding questions.

**Table 3.2.2.A—Summary of TAC Members' Feedback on Initial Learning Progressions**

| Accuracy of Level Descriptors | <ul><li>Separate definitions and descriptors that involve multiple skills.</li><li>Increase specificity of descriptors: more explicit, refined descriptions are needed across all levels to ensure that items capture the skills and knowledge intended.</li><li>Include clear and precise descriptors that allow adequate judgment of child's response.</li><li>Avoid repetition of skills across the progression levels: levels repeat skills without reflecting higher level of difficulty or complexity.</li><li>Consider cultural differences and special populations, and allow for accommodations.</li></ul> |
|---|---|
| Adequacy of Examples | <ul><li>As the descriptors are refined and adjusted, examples should be modified to reflect the changes.</li><li>Examples should be written with sufficient specificity to be unique to a specific level, yet general enough to encompass a variety of situations and contingencies.</li></ul> |

### 3.2.3 Outcome

The TAC members' feedback was used to revise the list of learning progressions and to improve the initial set of learning progressions. Two significant changes were made to the construction of learning progressions in response to the TAC feedback. Level descriptors were separated into one or more rows to distinguish multiple, discrete skills or behaviors within a learning progression, and the number of level descriptors in each learning progression was reduced from seven to five to alleviate repetition of skills or behaviors. Both sets of changes improved clarity and precision.

Further, the development teams proposed that each level represent an approximate age span between 36 and 72 months. Target age ranges in each progression would include preschool entry (approximately 36 months), entry into kindergarten (approximately 63 months), and the end of kindergarten (approximately 72 months). Each level incorporated age ranges just before and just after the target age to account for variability in development and consistency with research literature for each level. Table 3.2.3.A outlines the target ages and ranges for each level within the learning progressions.

**Table 3.2.3.A—Target Ages and Ranges for Level Descriptors**

| Level | Target (Range) |
|-------|---------------|
| 1 | 36 months (32–41) |
| 2 | 45 months (41–50) |
| 3 | 54 months (50–59) |
| 4 | 63 months (59–68) |
| 5 | 72 months (68–77) |

These revisions were made in late spring 2013 and were presented to and approved by the TAC members during a face-to-face meeting in July 2013. The development of the remaining learning progressions began after the TAC meeting in July 2013 and continued through the remainder of 2013. This phase of development also included the creation of performance-based and observational-based formative tasks aligned to each row of level descriptors within a learning progression.

## 3.3 Pilot Test

### 3.3.1 Purpose

The major goals of the pilot test were to explore children's ability to access the newly developed formative tasks and to evaluate the feasibility of administration for teachers. Qualitative data collected via teacher surveys and focus groups after the pilot would be used to inform the further development of all formative tasks and to improve the overall implementation and administration. The pilot test occurred in April and May 2014.

### 3.3.2 Design

A subset of the learning progressions and aligned tasks, specifically four domains and eight learning progressions (two per domain), were included in the pilot test. Because the purpose of the pilot was to investigate the feasibility of administration and the general accessibility of the developed tasks, it was not deemed necessary to include all learning progressions. The pilot test content is summarized in Table 3.2.2.A, including the number of tasks that aligned to each learning progression.

**Table 3.3.2.A—Pilot Test Content**

| Domain | Learning Progression | Number of Aligned Tasks |
|--------|---------------------|------------------------|
| Language and Literacy | Emergent Writing | 7 |
| | Phonics and Letter Recognition | 6 |
| Mathematics | Classification | 3 |
| | Number Sense | 8 |
| Social Foundations | Awareness and Expression of Emotion | 2 |
| | Conflict Resolution | 1 |
| Physical Well-Being and Motor Development | Coordination–Small Motor | 2 |
| | Safety and Injury Prevention | 3 |

### 3.3.2.1 Formative Tasks

Most of the learning progressions in the pilot test contained multiple rows of level descriptors, where each row represented a foundational skill or behavior within the learning progression. Each formative task in the pilot test aligned to a row of descriptors within a learning progression.

Some tasks required the child to perform directly (i.e., performance tasks), and the teacher determined the child's level based on the performance on the task. Other tasks were observational, and the teacher determined the child's level based on her observation of the child's behavior. The formative tasks were designed to be administered either individually, within a small group, or with an entire class. Each formative task contained specific directions that were formatted to guide the teacher through administration, providing children with the opportunity to demonstrate their knowledge, skill, or behavior on the associated row of each learning progression.

Throughout the pilot test, teachers used class record sheets aligned to each task to track children's progress within each learning progression. The teachers recorded each child's level of demonstrated competence for each task and supporting evidence of that level.

Teachers were not required to administer every task to every child. Rather, they were instructed, to the extent possible, to administer the formative tasks in the context of regular classroom activities. Because some tasks could have extended beyond a child's current abilities, it was unreasonable to assume that every teacher could administer all tasks to every child.

### 3.3.2.2 Teacher Training

Prior to the administration of the pilot test, every teacher participated in a webinar that reviewed the administration procedures, including an overview of the entire assessment system, an explanation of the purpose of the pilot, and a review of the pilot content and task types. Further, an electronic learning community (ELC) was available throughout the administration window to provide additional support to the teachers, if needed. The ELC was an online community, hosted by JHU CTE, that allowed participants to ask questions and communicate with the development teams.

### 3.3.3 Sample

A total of 63 teachers participated in the administration of the pilot test. Table 3.3.3.A summarizes the sample population of teachers across the two states, including the number of teachers for each type of classroom (preschool 3, preschool 4, kindergarten, or mixed).

**Table 3.3.3.A—Sample Population of Teachers for the Pilot Test**

|          | Preschool 3 | Preschool 4 | Kindergarten | Mixed | Total |
|----------|-------------|-------------|--------------|-------|-------|
| **Maryland** | 12 | 13 | 8 | 0 | 33 |
| **Ohio** | 6 | 0 | 7 | 17 | 30 |
| **Total** | 18 | 13 | 15 | 17 | 63 |

A total of 574 children (309 in Maryland and 265 in Ohio) were administered at least one formative task during the pilot test.

### 3.3.4 Findings

The data collected as part of the pilot test helped to inform improvements and modifications that were incorporated into the development and structure of the Early Learning Assessment. In general, teachers reported that the formative tasks were easy to use and easily understood by children, that the structure of the tasks and their relationship to the learning progressions were easily understood, and that the formative framework was very helpful. Teachers also generally reported that the information obtained by using the formative tasks and learning progressions could help instructional practice and provide useful information for supporting children's growth.

The main area of concern reported by the teachers was the logistics of administration, specifically the time and effort required to plan for and administer the tasks. This concern was somewhat expected by the developers, considering that the administration window was late in the year and contended with many end-of-year activities, and that the teachers were relatively unfamiliar with the assessment materials. Throughout the focus-group sessions and the comments sections of the surveys, teachers shared ideas for simplifying the assessment structure and making the administration more efficient.

Teachers also reported that it was difficult and time-consuming to gather certain materials that were required (e.g., various types of objects for a sorting task), and suggested that manipulatives be included with tasks that require specific types of objects.

The importance of ongoing professional development was also evident from the data and feedback collected during the pilot test, particularly since the logistics of administration were a primary concern. Teachers indicated that a thorough understanding of the learning progressions and tasks, including ways to integrate them into instruction, were important. They also suggested that future professional development opportunities should initially focus on establishing a thorough understanding of the learning progressions and how each task aligns. This would ensure a thorough understanding of the content, providing the ability to implement the assessment within the curriculum more easily.

Preschool teachers generally reported that they felt most comfortable with the Social Foundations domain, and kindergarten teachers indicated that they felt most comfortable with the Language and Literacy and Mathematics domains. This led the development teams to find ways to encourage teachers to understand the importance of every domain and feel comfortable assessing children using both task types across all domains.

The results of the pilot test were used exclusively for making improvements to the assessment framework and tasks. No results from the pilot were provided to districts, schools, or parents; and individual performance was not evaluated.

Table 3.3.4.A provides a summary of the results from the teacher survey after the pilot test.

**Table 3.3.4.A—Summary of Pilot Test Teacher Survey Results**

| | N | Strongly Agree | Agree | Disagree | Strongly Disagree |
|---|---|---|---|---|---|
| The tasks were easy to use. | 45 | 6.7% | 71.1% | 22.2% | 0.0% |
| The tasks were easy to use with children with disabilities. | 42 | 2.4% | 59.5% | 31.0% | 7.1% |
| The tasks were easy to use with children who were English language learners. | 41 | 2.4% | 82.9% | 14.6% | 0.0% |
| The tasks were easily embedded within classroom instruction. | 46 | 8.7% | 26.1% | 56.5% | 8.7% |
| The tasks were flexible. | 45 | 4.4% | 51.1% | 42.2% | 2.2% |
| Overall, the amount of time it took to plan to administer the tasks was reasonable. | 46 | 0.0% | 19.6% | 45.7% | 34.8% |
| Overall, the amount of time it took to administer tasks was reasonable. | 46 | 0.0% | 17.4% | 43.5% | 39.1% |
| The Task Administration Manual (TAM) provided clear instructions and was a helpful planning tool. | 45 | 4.4% | 62.2% | 33.3% | 0.0% |
| The TAM allowed for flexibility in administration. | 44 | 6.8% | 59.1% | 31.8% | 2.3% |
| The formative framework, which provided the overview of all the learning progressions and the tasks associated with each, was helpful. | 45 | 6.7% | 82.2% | 11.1% | 0.0% |
| The connection between a learning progression and the tasks was easily understood. | 45 | 4.4% | 80.0% | 15.6% | 0.0% |
| The rubrics and examples were clear and helpful for determining children's levels (when scoring a task). | 44 | 13.6% | 61.4% | 20.5% | 4.6% |
| Materials or manipulatives not provided were easy to find in the classroom. | 46 | 4.4% | 19.6% | 41.3% | 34.8% |
| The class record sheets were easy to use. | 46 | 6.5% | 67.4% | 23.9% | 2.2% |
| The class record sheets captured information that was helpful for planning instruction. | 43 | 9.3% | 65.1% | 23.3% | 2.3% |
| In general, most children understood the tasks. | 46 | 13.0% | 84.8% | 2.2% | 0.0% |
| The tasks were easily understood by children with disabilities. | 41 | 0.0% | 61.0% | 34.2% | 4.9% |
| The tasks were easily understood by children who were English language learners. | 39 | 2.6% | 87.2% | 10.3% | 0.0% |

### 3.3.5 Outcome

Because concern for the logistics of administration was so prevalent, the state departments and development teams decided to modify the structure of the framework and tasks. Adjustments were made to the overall framework to improve efficiency of administration, including a reduction in the number of tasks associated with each learning progression. Each task was modified to align to one row of descriptors within a learning progression, and the rows of descriptors were renamed as Skills, Knowledge, and Behaviors (SKBs). In other words, each SKB within a learning progression would have one aligned task, either observational or performance-based. This adjustment would allow teachers to better understand each task and its relationship to children's progress along the learning progression. This revised structure resulted in a total of 32 learning progressions and 72 tasks (37 observational and 35 performance-based), one for each SKB.

Some performance-based tasks were also amended to include manipulatives. Teachers were granted the flexibility to choose whether to use the provided manipulatives or to use materials from the classroom that also fit the task. This flexibility ensured that all children could access each task.

These revisions were made to all learning progressions and their aligned tasks throughout summer 2014.

## 3.4 Initial State Review

### 3.4.1 Overview

Final development of the formative tasks was completed in August 2014. Upon completion, state department staff and content experts from Maryland and Ohio reviewed the learning progressions and aligned tasks throughout fall 2014 (simultaneous to the first census administration of the KRA). During this phase of review, the learning progressions and aligned tasks became known formally as the Early Learning Assessment. Further, the learning progressions, aligned tasks, and implementation plan were presented to the TAC during a meeting in Maryland in November 2014. In conjunction with the review of the learning progressions and tasks, both states also revisited the purpose of the Early Learning Assessment and explored the use of the instrument to meet other state-level program objectives, such as supporting special education program reporting requirements.

#### 3.4.1.1 Ohio Field Test

In conjunction with its internal review, the Ohio Department of Education (ODE) implemented a field test with a subset of learning progressions and their aligned tasks within publicly funded preschool programs in fall 2014 (September–November). The purpose of field testing a small set of learning progressions and tasks was for ODE staff to gather information from educators on the feasibility of administration and usability of the learning progressions and tasks to support Ohio's Child Outcomes Summary process for preschool special education children. Approximately 3,200 teachers and 35,000 children from 930 schools participated in this field test.

ODE staff, in conjunction with WestEd and TAC members' recommendations, chose a subset of nine learning progressions for the field test, based on alignment to the Child Outcomes Summary process.[3] The learning progressions that were included in this field test are provided in Table 3.4.1.1.A.

**Table 3.4.1.1.A—Ohio Field Test Content**

| Domain | Learning Progression |
| --- | --- |
| Language and Literacy | Communication |
| | Emergent Writing |
| | Phonics and Letter Recognition |
| Mathematics | Classification |
| Social Foundations | Awareness and Expression of Emotion |
| | Cooperation with Peers |
| Physical Well-Being and Motor Development | Coordination–Small Motor |
| | Personal Care Tasks |
| | Safety and Injury Prevention |

### 3.4.2    Findings

The state teams concluded that the learning progressions were consistent and appropriate for preschool children. A few minor modifications to some level descriptors in five learning progressions were recommended.

As previously mentioned, the first level descriptor of each progression was intended to encompass skills and behaviors of children around 36 months of age. Because some preschool children may not have developed the skills or behaviors at the first level of the learning progressions (i.e., Level 1), the state teams wanted to create earlier levels to assess these children, in lieu of the "not yet evident" rating.

The state teams were also committed to reviewing the aligned tasks from the perspectives of early childhood educators. Therefore, in addition to the state teams' internal reviews, they also met with groups of educators from their respective states to gauge the utility of the aligned tasks. Simultaneous to the state teams' review of the learning progressions and aligned tasks, the first operational administration of the KRA concluded, providing additional feedback from the field. The state teams determined that the educators embraced the content of the Ready for Kindergarten system, but administrative requirements were of significant concern. Educators specifically suggested that the performance tasks in the Early Learning Assessment would be or were the most challenging to administer.

### 3.4.3    Outcome

State department leadership and the development teams met in Ohio in February 2015 to discuss the design of the Early Learning Assessment and to focus on the findings of the states' review of the learning

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[3]Detailed information about Ohio's Child Outcome Summary process can be found on its preschool special education website: http://education.ohio.gov/Topics/Special-Education/Preschool-Special-Education

progressions and formative tasks.[4] The findings, in conjunction with TAC feedback from the November 2014 meeting, initiated two key changes to the structure and planned use of the Early Learning Assessment to address the administration challenges that were summarized in Section 3.4.2.

The first key change was to convert the Early Learning Assessment to be entirely observation-based. In other words, the performance tasks aligned to the learning progressions would be converted to match the structure of the existing observational tasks. This change would result in 72 aligned observational rubrics, one for each SKB. The Early Learning Assessment framework was adjusted and finalized (see Appendix C) to account for this change. The conversion of performance-based tasks to observational rubrics took place throughout February and March 2015.

The decision to expand the learning progressions to include earlier level descriptors (i.e., Levels A–D) for children who are not performing yet at the earliest level of the preschool learning progressions (i.e., Level 1) was the second key change. The plan for piloting the expanded learning progressions and aligned observational rubrics was discussed during the leadership meeting in Ohio in February 2015.

## 3.5 Expanded Learning Progressions

### 3.5.1 Overview
The expanded learning progressions were developed to provide early childhood educators with the ability to support children between the chronological ages of 36 and 72 months who have not been able to demonstrate yet the typical developmental milestones at 36 months, and includes special consideration for children with disabilities. Some skills and knowledge within the previously developed progressions apply to preschool children only; therefore, expanded level descriptors were not developed for all SKBs in the preschool progressions. Expanded levels were developed only for SKBs in which there was a descriptor for Level 1.

The expanded learning progressions also included supporting materials and guidelines for adaptations for children with disabilities, which were developed in partnership with the Center for Excellence in Early Childhood Studies at the University of Florida.

Development of the expanded learning progressions began in December 2014. The TAC reviewed and provided feedback for the expanded learning progressions in March and April 2015. A formal pilot of a subset of the expanded learning progressions was also conducted in March and April 2015. The expanded learning progressions were completed for state review in May 2015.

### 3.5.2 Expanded Learning Progressions Pilot

#### 3.5.2.1 Purpose
The major goal of the pilot of the expanded learning progressions was to explore how well using earlier levels work for assessing children who may be at earlier developmental levels on some of the previously developed preschool learning progressions. Through teacher interviews, the pilot also evaluated how

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[4]The leadership meeting was conducted over two days and included agenda topics related to the KRA, since the first operational administration was completed in November 2014.

well teachers could administer the expanded progressions and rate children using the expanded levels and rubrics.

### 3.5.2.2 Design

The pilot study included a subset of the content of the Early Learning Assessment, specifically four domains and 12 learning progressions. Table 3.5.2.2.A shows the domains and learning progressions included in the pilot.

**Table 3.5.2.2.A—Expanded Learning Progressions Pilot Test Content**

| Domain | Learning Progression |
|---|---|
| Language and Literacy | Communication |
| | Phonological Awareness |
| | Vocabulary |
| Mathematics | Classification |
| | Number Sense |
| Social Foundations | Awareness and Expression of Emotion |
| | Cooperation with Peers |
| | Relationships with Adults |
| Physical Well-Being and Motor Development | Coordination–Large Motor |
| | Coordination–Small Motor |
| | Personal Care Tasks |
| | Safety and Injury Prevention |

Each teacher who participated in the pilot received an administration manual that outlined the pilot process. The administration manual included background information, instructions for administering the pilot, and supporting information about universal design and assessing children with disabilities.

Each learning progression was displayed across two facing pages within the administration manual, with the four expanded levels on the left side of the booklet and the five preschool levels on the right side of the booklet.[5] This layout ensured that teachers could view all nine levels continuously across the booklet.

The expanded learning progressions were developed following universal design so that, to the extent possible, children with disabilities were not precluded from demonstrating their knowledge and skills. A list of suggested adaptations was included, allowing for changes in the environment or differences in observed behavior so that children with disabilities could demonstrate their knowledge and skills. The adaptations were written to ensure that children with disabilities were assessed in ways that measure ability rather than disability while, at the same time, not changing the construct being assessed. Teachers were encouraged to use suggested adaptations, but were asked to not use prompting, modeling, or physical guidance to elicit a desired response from a child.

In addition, selected examples of the use of adaptations were included in the rubrics for the progressions; it was not possible to address every possible and appropriate adaptation for each child

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[5]The expanded levels in the pilot were labeled and ordered A, B, C, D for some progressions and D, C, B, A for others, and teachers were asked their preferred labeling structure after the pilot.

with the examples. The teachers were encouraged to use clinical judgment and knowledge of the child to identify appropriate adaptations, including regular adaptations made in their typical environments.

Each teacher assessed three children from her classroom and selected the developmental level that best represented each child's typical behaviors. Teachers also responded to questions about ease of rating, observability of behaviors, and use of adaptations listed on the rating record. After the pilot, each teacher participated in a telephone interview with the development team to provide feedback on using the expanded progressions.

### 3.5.2.3 Sample

The pilot of the expanded learning progressions was completed by 52 teachers (27 teachers in MD and 29 teachers in OH), and 152 children were assessed; 47 of the 52 teachers who submitted pilot data also participated in interviews after the pilot. Tables 3.5.2.3.A and 3.5.2.3.B summarize the sample of teachers and children, respectively, who participated in the expanded learning progressions pilot by state and classroom type.

**Table 3.5.2.3.A—Sample Population of Teachers for the Expanded Learning Progressions Pilot Test**

|  | Preschool 3 | Preschool 4 | Kindergarten | Mixed | Total |
|---|---|---|---|---|---|
| **Maryland** | 3 | 12 | 9 | 2 | 26 |
| **Ohio** | 1 | 0 | 3 | 22 | 26 |
| **Total** | 4 | 12 | 12 | 24 | 52 |

**Table 3.5.2.3.B—Sample Population of Children for the Expanded Learning Progressions Pilot Test**

|  | Preschool 3 | Preschool 4 | Kindergarten | Mixed | Total |
|---|---|---|---|---|---|
| **Maryland** | 6 | 33 | 29 | 6 | 74 |
| **Ohio** | 4 | 0 | 10 | 64 | 78 |
| **Total** | 10 | 33 | 39 | 70 | 152 |

Of the 152 children who were assessed, there were 25 English or dual language learners and 51 children with an IEP.

### 3.5.2.4 Findings

The expanded learning progressions were well received by the teachers who participated in the pilot. Teachers of younger children (i.e., preschool 3 and 4) found the expanded learning progressions more useful. Kindergarten teachers indicated that they would find the expanded levels more useful at the beginning of the school year. Most teachers (about 80%) reported that they would be able to use what they learned to inform classroom activities, individualize curriculum, form small groups, or report to parents.

There was not a strong preference for either labeling system (ABCD order or DCBA order) for the expanded progressions. About half the teachers indicated no preference, but those teachers who did

have a preference favored the ABCD order. Some teachers found the labels with letters and numbers confusing, and suggested a consistent labeling structure (i.e., using only letters or numbers).[6]

### 3.5.3 TAC Review of Expanded Learning Progressions

The TAC members were asked to review per their respective area(s) of expertise the expanded learning progressions, specifically the level descriptors and corresponding examples, and to respond to four guiding questions:

- Do the level descriptors within the progression reflect the order in which you expect most children to progress?
- Are there key aspects of development that are missing from the descriptors?
- Do the examples provide useful illustrations of the developmental progression?
- Are the language and terminology appropriate for the intended audience of preschool and kindergarten educators?

As exemplified by the guiding questions, the TAC members' feedback provided specific recommendations for revisions to the level descriptors. Like their previous feedback on the preschool progressions, as described in Section 3.2.2, the TAC members focused their comments and recommendations on the accuracy of the level descriptors and adequacy of the examples. Refinements to the expanded level descriptors were challenging because the expanded levels were supposed to represent developmental milestones prior to 36 months of age, but the progressions are based on preschool standards. Therefore, any revisions to the expanded level descriptors would require changes in the previously developed and approved descriptors for Levels 1–5.

### 3.5.4 Outcome

Feedback from the pilot teachers and TAC members informed final revisions made to the level descriptors in the expanded learning progressions and to the evidence and adaptations examples in the aligned observational rubrics. Most revisions were made to improve the specificity of the level descriptors and to clarify the evidence examples within the observational rubrics. The labeling structure was also finalized with the decision to use the ABCD order for the expanded learning progressions, where Level A would represent the earliest level.

The initial design and development of the expanded learning progressions did not include a descriptor for Level A in some progressions because a unique descriptor could not be developed for Level A in every progression. The absence of a descriptor for Level A, based on the assumption that it represents a baseline level, was a concern. To mitigate this concern, an additional design change was made to ensure that every expanded learning progression included a Level A descriptor. This change meant that, in some instances, the same general descriptor for Level A would be used within and across progressions.

Ongoing support and professional development was deemed critical for formative assessment to be effective; however, a well-developed instructional guide to support the Early Learning Assessment

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[6]Given that the Early Learning Assessment was developed for use with preschool students (36–72 months), labeling the levels with letters and numbers was intentional so that the expanded levels were distinct from the preschool levels (i.e., Levels 1–5).

would be an important first step. The expanded learning progressions pilot and TAC review provided several key ideas for the design and development of the Early Learning Assessment instructional guide.

All expanded learning progressions, including the aligned observational rubrics, were revised after the expanded learning progressions pilot and TAC review. Additionally, operational definitions for each SKB within each learning progression were developed. The final expanded progressions were submitted for state review in May 2015.

## 3.6    Final State Review

### 3.6.1    Overview
The final versions of the preschool and expanded learning progressions, observational rubrics, and instructional guide were provided to the state departments for final review and approval in June 2015. Each state conducted its review independently.

### 3.6.2    Outcomes
Throughout summer 2015, the development teams worked collaboratively with the state departments to make final adjustments and revisions. All revisions made during this phase were focused on the content and structure of the instructional guide and the clarity of the evidence examples within the observational rubrics. Further, the state departments were concerned about the readability of the assessment materials; they wanted to make sure that the language was simplified as much as possible without compromising the validity and reliability of the content. Several iterations of review were needed to address all content concerns. All materials were finalized in August 2015.

In addition to the finalization of the content of the Early Learning Assessment, the development and state teams worked on the final design of the print materials. Each state decided to take different approaches to the design of the print materials, keeping the content the same but diverging in color scheme and layout.

The final versions of the Early Learning Assessment were approved, distributed, and uploaded to Ready for Kindergarten Online in fall 2015.

## Appendices

**Appendix A: Project Members by Organization**

**Appendix B: Common Language Standards**

**Appendix C: Learning Progressions**

**Appendix D: Learning Progressions – References**

**Appendix E: Early Learning Assessment Framework**

# Appendix A: Project Members by Organization

**Maryland State Department of Education (MSDE)**

Rolf Grafwallner, Ph.D.      Assistant State Superintendent
Division of Early Childhood Development

Judy Walker      Early Learning Branch Chief
Division of Early Childhood Development

Candy Miller      Early Learning Program and Assessment Specialist
Division of Early Childhood Development

Robert Wagner      Early Learning Education Program Specialist
Division of Early Childhood Development

Marcella Franczkowski      Assistant State Superintendent
Division of Special Education and Early Intervention Services

Nancy Vorobey      Section Chief
Division of Special Education and Early Intervention Services

**Ohio Department of Education (ODE)**

Stephanie Siddens, Ph.D.      Senior Executive Director
Center for Curriculum & Assessment

Wendy Grove, Ph.D.      Director
Early Learning & School Readiness

Sophia Hubbell      Assistant Director
Preschool Special Education

Janene Kehl      Assistant Director
Early Learning & School Readiness

Lauren Monowar-Jones, Ph.D.      Assistant Director (Former)
Early Learning & School Readiness

**Johns Hopkins University Center for Technology in Education (JHU CTE)**

| | |
|---|---|
| Jacqueline Nunn, Ed.D. | Director |
| Christopher Sessums, Ph.D. | Director of Research and Evaluation (Former) |
| Dave Peloff | Senior Program Director of Technology |
| Linda Carling | Program Director of Online Learning |
| Kristen Thompson | Technology Program Coordinator |
| Tamara Swanson-Otto | Research Coordinator (Former) |
| Angela Vann | Implementation Specialist for Professional Development (Former) |

**WestEd**

| | |
|---|---|
| Andrew Latham, Ph.D. | Director<br>Standards, Assessment, and Accountability Services |
| Stanley Rabinowitz, Ph.D. | Director (Former)<br>Standards, Assessment, and Accountability Services |
| Joanne Jensen, Ph.D. | Director of Assessment Client Relations<br>Standards, Assessment, and Accountability Services |
| Matthew Brunetti | Project Manager<br>Standards, Assessment, and Accountability Services |
| Beverly Nedrow | Senior Content Specialist<br>Standards, Assessment, and Accountability Services |
| Amanda Otte | Content Specialist<br>Standards, Assessment, and Accountability Services |
| Peter Mangione, Ph.D. | Director<br>Center for Child & Family Studies |
| Kerry Kriener-Althen, Ph.D. | Evaluation Director<br>Center for Child & Family Studies |
| Julie Law, Ph.D. | Senior Research Associate<br>Center for Child & Family Studies |

**Technical Advisory Committee**
Facilitated by the Council of Chief State School Officers

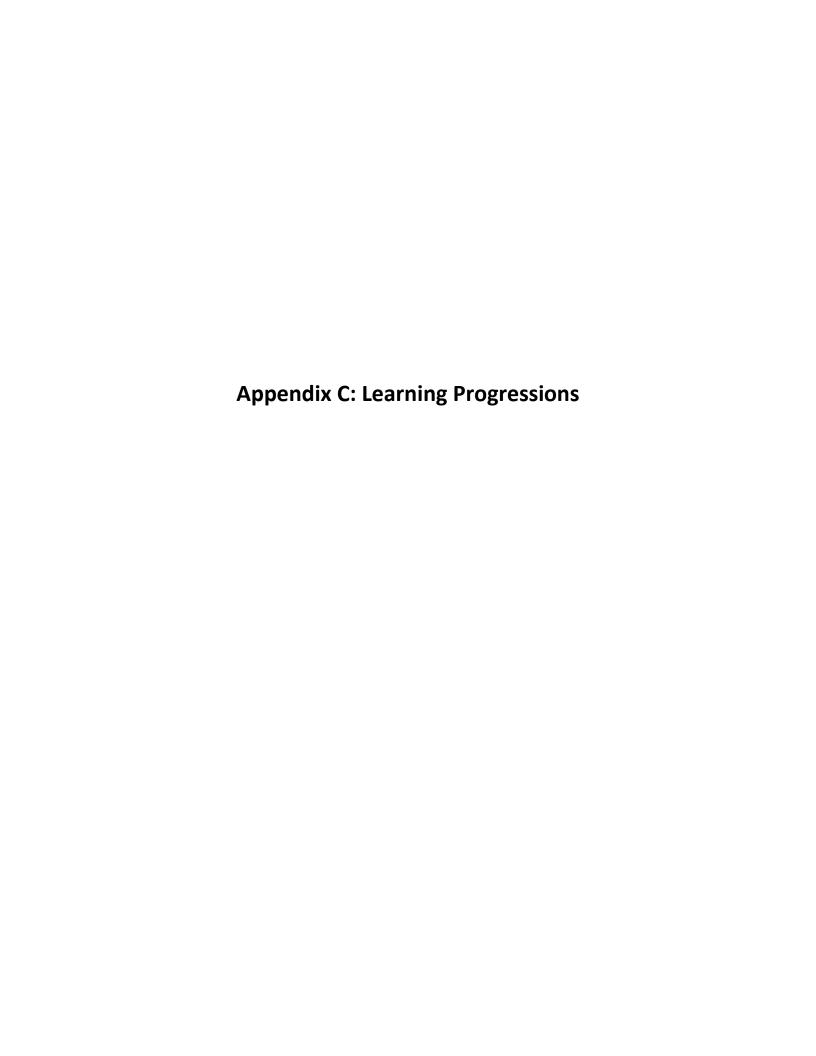| | |
|---|---|
| Jerry West, Ph.D. (Chair) | Senior Fellow, Mathematica Policy Research |
| Clancy Blair, Ph.D. | Professor of Applied Psychology, Steinhardt School of Culture Education and Human Development, New York University |
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| Daryl B. Greenfield, Ph.D. | Professor of Psychology & Pediatrics, Department of Psychology, University of Miami |
| Kathleen Hebbeler, Ph.D. | Program Manager, Community Services and Strategies, SRI International |
| Nancy Jordan, Ed.D. | Professor of Education, University of Delaware |
| Laura Justice, Ph.D. | Executive Director, The Schoenbaum Family Center, Ohio State University |
| Sharon Lynn Kagan, Ed.D. | Professor of Early Childhood and Family Policy, Co-Director of the National Center for Children and Families, Teachers College, Columbia University |
| Robert Lissitz, Ph.D. | Professor of Education, University of Maryland |
| Catherine Scott-Little, Ph.D. | Associate Professor, Human Development and Family Studies, School of Health and Human Sciences, The University of North Carolina at Greensboro |
| C. Cybele Raver, Ph.D. | Professor of Applied Psychology and Developmental Psychology, Steinhardt School of Culture Education and Human Development, New York University |
| Ross Thompson, Ph.D. | Distinguished Professor of Psychology, University of California, Davis |

# Appendix B: Common Language Standards

| Domain | Strand | Code | **Standard** (yellow)<br>**Essential Skill and Knowledge** | Learning Progression |
|---|---|---|---|---|
| **Social Foundations (SF)** | **Social Emotional (1)** | **SF.1.1** | **Recognize and identify emotions of self and others.** | **Awareness and Expression of Emotion** |
| | | SF.1.1.A | Recognize and identify own emotions and the emotions of others. | |
| | | SF.1.1.B | Express, understand, and respond to feelings (emotions) of self and others. | |
| | | SF.1.1.C | Express concern for the needs of others and people in distress. | |
| | | **SF.1.2** | **Look to adults for emotional support and guidance.** | **Relationships with Adults** |
| | | SF.1.2.A | Separate from familiar adults in a familiar setting with minimal distress. | |
| | | SF.1.2.B | Seek security and support from familiar adults in anticipation of challenging situations. | |
| | | SF.1.2.C | Request and accept guidance from familiar adults. | |
| | | **SF.1.3** | **Demonstrate ability to resolve conflicts with others.** | **Conflict Resolution** |
| | | SF.1.3.A | Seek adult help when solving interpersonal conflicts. | |
| | | SF.1.3.B | With modeling and support, negotiate to resolve social conflicts with peers. | |
| | **Approaches to Learning/ Executive Functioning (2)** | **SF.2.1** | **Manage the expression of feelings, thoughts, impulses, and behaviors.** | **Self Control** |
| | | SF.2.1.A | Refrain from demonstrating disruptive or defiant behaviors. | |
| | | SF.2.1.B | Demonstrate appropriate use of own materials or belongings and those of others. | |
| | | SF.2.1.C | Demonstrate the ability to delay gratification for short periods of time. | |
| | | **SF.2.2** | **Demonstrate the ability to persist with a task.** | **Persistence** |
| | | SF.2.2.A | Carry out tasks, activities, projects, or transitions, even when frustrated or challenged, with minimal distress. | |
| | | SF.2.2.B | Focus on an activity with deliberate concentration despite distractions and/or temptations. | |
| | | **SF.2.3** | **Demonstrate the ability to retain and apply information.** | **Working Memory** |
| | | SF.2.3.A | Follow routines and multi-step directions. | |
| | | SF.2.3.B | Remember and use information for a variety of purposes, with modeling and support. | |
| | | SF.2.3.C | Use prior knowledge and information to assess, inform, and plan for future actions and learning. | |
| | | **SF.2.4** | **Demonstrate the ability to solve problems.** | **Problem Solving** |
| | | SF.2.4.A | Solve everyday problems based upon past experience. | |
| | | SF.2.4.B | Solve problems by planning and carrying out a sequence of actions. | |
| | | SF.2.4.C | Seek more than one solution to a question, problem, or task. | |
| | | SF.2.4.D | Explain reasoning for the solution selected. | |
| | | **SF.2.5** | **Seek and gather new information to plan for projects and activities.** | **Initiative** |
| | | SF.2.5.A | Express a desire to learn by asking questions and seeking new information. | |
| | | SF.2.5.B | Demonstrate independence in learning by planning and initiating projects. | |
| | | SF.2.5.C | Seek new and varied experiences and challenges (take risks). | |
| | | SF.2.5.D | Demonstrate self-direction while participating in a range of activities and routines. | |
| | | **SF.2.6** | **Demonstrate cooperative behavior in interactions with others.** | **Cooperation with Peers** |
| | | SF.2.6.A | Play or work with others cooperatively. | |
| | | SF.2.6.B | Interact with peers in complex pretend play, including planning, coordination of roles, and cooperation. | |
| | | SF.2.6.C | Demonstrate socially competent behavior with peers. | |
| | | SF.2.6.D | Share materials and equipment with other children, with adult modeling and support. | |

*Appendix B: Common Language Standards*

| Domain | Strand | Code | Standard (yellow)<br>Essential Skill and Knowledge | Learning Progression |
|---|---|---|---|---|
| Language and Literacy (LL) | Reading (1) | **LL.1.1** | **Comprehend and respond to interactive read-alouds of literary and informational text.** | Story/Text Comprehension |
| | | LL.1.1.A | Before interactive read-alouds, make predictions and/or ask questions about the text by examining the title, cover, illustrations/photographs, graphic aids, and/or text. | |
| | | LL.1.1.B | During interactive read-alouds, listen and ask and answer questions as appropriate. | |
| | | LL.1.1.C | After interactive read-alouds, respond by retelling the text or part of the text in an appropriate sequence, using discussions, re-enactment, drawing, and/or writing as appropriate. | |
| | | LL.1.1.D | Identify the beginning, middle, and end of literary text. | |
| | | LL.1.1.E | Identify the main topic of informational text. | |
| | | **LL.1.2** | **Demonstrate understanding of spoken words and sounds (phonemes).** | Phonological Awareness |
| | | LL.1.2.A | Identify initial and final sounds in spoken words. | |
| | | LL.1.2.B | Identify, blend, and segment syllables in spoken words. | |
| | | LL.1.2.C | Blend and segment onsets and rimes of single-syllable spoken words. | |
| | | LL.1.2.D | Recognize rhyming words in spoken language. | |
| | | **LL.1.3** | **Know and apply letter-sound correspondence and letter recognition skills.** | Phonics and Letter Recognition |
| | | LL.1.3.A | Recognize that words are made up of letters and their sounds. | |
| | | LL.1.3.B | Demonstrate basic knowledge of one-to-one letter-sound correspondences by producing the most frequent sound for some consonants. | |
| | | LL.1.3.C | Recognize and name some upper- and lowercase letters. | |
| | Speaking and Listening (2) | **LL.2.1** | **Communicate effectively in a variety of situations with different audiences, purposes, and formats.** | Communication |
| | | LL.2.1.A | Speak or express thoughts, feelings, and ideas clearly enough to be understood in a variety of settings. | |
| | | LL.2.1.B | Participate in conversations with adults and peers, staying on topic through multiple exchanges and adding appropriate ideas to support or extend the conversation. | |
| | Writing (3) | **LL.3.1** | **Produce letter-like shapes, symbols, letters, and words to convey meaning.** | Emergent Writing |
| | | LL.3.1.A | With modeling and support, print letters of own name. | |
| | | LL.3.1.B | With modeling and support, print meaningful words with letters and letter approximations. | |
| | | LL.3.1.C | Use a combination of drawing, dictating and developmentally appropriate writing for a variety of purposes (e.g., tell a story, give an opinion, express ideas). | |
| | Language (4) | **LL.4.1** | **Demonstrate beginning understanding of the conventions of standard English grammar and usage when engaged in literacy activities.** | Grammar |
| | | LL.4.1.A | Use familiar nouns and verbs to describe persons, animals, places, events, actions, etc. | |
| | | LL.4.1.B | Develop understanding of singular and plural nouns (e.g. "dog" means one dog, "dogs" means more than one dog); form regular plural nouns orally by adding /s/ or /es/. | |
| | | LL.4.1.C | Understand and begin to use question words. | |
| | | LL.4.1.D | Use frequently occurring prepositions (e.g., "to," "from," "in," "out," "on," "off," "for," "of," "by," "with"). | |
| | | LL.4.1.E | Produce complete sentences in shared language activities. | |
| | | **LL.4.2** | **Use words acquired through conversations and shared reading experiences.** | Vocabulary |
| | | LL.4.2.A | Identify real-life connections between words and their uses (e.g., relate the word "helpful," used in a story, to own life by telling ways to be helpful). | |
| | | LL.4.2.B | Determine the meanings of unknown words/concepts using the context of conversations, pictures that accompany text, or concrete objects. | |

*Appendix B: Common Language Standards*

| Domain | Strand | Code | Standard (yellow)<br>Essential Skill and Knowledge | Learning Progression |
|---|---|---|---|---|
| Mathematics (MA) | Counting and Cardinality (1) | **MA.1.1** | **Know number name, count sequence, and relationships among number, numeral, and quantity.** | Number Sense |
| | | MA.1.1.A | Count the number sequence to 20. | |
| | | MA.1.1.B | Touch each concrete object as it is counted, pairing one number word with each object and saying each number word only once in consistent order. | |
| | | MA.1.1.C | Use number cards arranged in a line to count and then determine what number comes before or after a specific number. | |
| | | MA.1.1.D | Identify, without counting, small quantities of items (1–3) presented in an irregular or unfamiliar pattern (subitize). | |
| | | MA.1.1.E | Recognize that the count remains the same regardless of the order or arrangement of the objects. | |
| | | MA.1.1.F | Demonstrate understanding that the last number spoken tells the number of objects counted; respond correctly when asked "how many" after counting concrete objects. | |
| | | MA.1.1.G | Name written numerals and pair them with concrete objects. | |
| | Operations and Algebraic Thinking (2) | **MA.2.1** | **Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.** | Number Operations |
| | | MA.2.1.A | Solve simple addition and subtraction problems with totals less than 5, using concrete objects. | |
| | | MA.2.1.B | Use manipulatives to find the amount needed to complete the set. | |
| | | MA.2.1.C | Manipulate sets to decompose numbers (e.g., 1 and 4 objects equal 5 objects; 2 and 3 objects equal 5 objects). | |
| | Measurement and Data (3) | **MA.3.1** | **Sort, classify, and compare objects.** | Classification |
| | | MA.3.1.A | Using prior knowledge of grouping, sort objects by one attribute (e.g., "red or not red," "round or not round," or creating a set of "all red" or "all round" objects). | |
| | | MA.3.1.B | Sort multiple groups by one attribute (e.g., "all blue, all red, all yellow" or "all bears, all cats, all dogs"). | |
| | | MA.3.1.C | Identify the attribute by which objects are sorted. | |
| | | MA.3.1.D | Count to identify the number of objects in each set, and compare categories using comparison vocabulary (e.g., "greater"/"more than," "less than," "same"/"equal to"). | |
| | | **MA.3.2** | **Describe and compare measurable attributes.** | Measurement |
| | | MA.3.2.A | Directly compare and describe two objects with a measurable attribute (e.g., length, size, capacity and weight) in common, using words such as "longer"/"shorter," "heavier"/"lighter," or "taller"/"shorter." | |
| | | MA.3.2.B | Order objects by measurable attribute (e.g., biggest to smallest). | |
| | | MA.3.2.C | Measure length and volume (capacity) using non-standard measurement tools. | |
| | Geometry (4) | **MA.4.1** | **Describe two- and three-dimensional shapes.** | Shapes |
| | | MA.4.1.A | Match similar shapes when given a variety of two- and three-dimensional shapes. | |
| | | MA.4.1.B | Use names of two-dimensional shapes (e.g., square; triangle; circle) when identifying objects. | |
| | | MA.4.1.C | Distinguish examples and non-examples of various two- and three-dimensional shapes. | |
| | | MA.4.1.D | Use informal language to describe three-dimensional shapes (e.g., "box" for cube; "ball" for sphere; "can" for cylinder). | |

*Appendix B: Common Language Standards*

| Domain | Strand | Code | Standard (yellow)<br>Essential Skill and Knowledge | Learning Progression |
|---|---|---|---|---|
| Science (SC) | Skills and Processes/ Life Science (1) | SC.1.1 | **Construct knowledge of life science through questioning and observation.** | Inquiry and Observation |
| | | SC.1.1.A | Raise questions about the world around them and be willing to seek answers to some of them by making careful observations and trying things out. | |
| | | SC.1.1.B | Use evidence from investigations to describe observable properties of a variety of objects. | |
| Social Studies (SS) | Government (1) | SS.1.1 | **Demonstrate understanding of rules and responsible behavior.** | Responsible Behavior |
| | | SS.1.1.A | Identify rules used at home and at school. | |
| | | SS.1.1.B | Explain how rules promote order, safety, and fairness. | |
| | History (2) | SS.2.1 | **Demonstrate an understanding of past, present, and future in the context of daily experiences.** | Events in the Context of Time |
| | | SS.2.1.A | Describe the events of the day (things that have happened in the immediate past, that happen in the present, and that might happen in the future) using terms such as "morning"/"afternoon" and "night"/"day." | |
| | | SS.2.1.B | Communicate about past events and anticipate what comes next during familiar routines and experiences. | |
| Physical Well-Being and Motor Development (PD) | Physical Education (1) | PD.1.1 | **Demonstrate the ability to use large muscles to perform a variety of physical skills.** | Coordination–Large Motor |
| | | PD.1.1.A | Show fundamental movement by demonstrating spatial concepts in movement patterns. | |
| | | PD.1.1.B | Demonstrate locomotor skills with control, coordination, and balance during active play (e.g., running, hopping, jumping). | |
| | | PD.1.1.C | Demonstrate coordination in using objects during active play (e.g., throwing, catching, kicking balls, riding tricycle). | |
| | | PD.1.1.D | Use non-locomotor skills with control, balance, and coordination during active play (e.g., bending, stretching, and twisting). | |
| | | PD.1.2 | **Demonstrate the ability to use small muscles to perform fine motor skills in play and learning situations.** | Coordination–Small Motor |
| | | PD.1.2.A | Coordinate the use of hands, fingers, and wrists to manipulate objects and perform tasks requiring precise movements. | |
| | | PD.1.2.B | Use classroom and household tools independently with eye-hand coordination to carry out activities. | |
| | | PD.1.2.C | Use a three-finger grasp of dominant hand to hold a writing tool. | |
| | Health (2) | PD.2.1 | **Demonstrate the ability to apply prevention and intervention knowledge, skills, and processes to promote safe living, in the home, school, and community.** | Safety and Injury Prevention |
| | | PD.2.1.A | With modeling and support, identify and follow basic safety rules. | |
| | | PD.2.1.B | Identify ways adults help to keep us safe. | |
| | | PD.2.1.C | With modeling and support, identify the consequences of unsafe behavior. | |
| | | PD.2.1.D | With modeling and support, demonstrate ability to follow transportation and pedestrian safety rules. | |
| | | PD.2.2 | **Demonstrate personal health and hygiene practices.** | Personal Care Tasks |
| | | PD.2.2.A | Independently complete personal care tasks (e.g., washing hands before eating and after toileting). | |
| | | PD.2.2.B | Follow basic health practices (e.g., covering mouth/nose when coughing/sneezing). | |

*Appendix B: Common Language Standards*

| Domain | Strand | Code | **Standard** (yellow)<br>**Essential Skill and Knowledge** | Learning Progression |
|---|---|---|---|---|
| Fine Arts (FA) | Music (1) | **FA.1.1** | **Demonstrate awareness of and respond to the characteristics of musical sounds through voice, body movements, and classroom instruments.** | Music |
| | | FA.1.1.A | Listen and respond to repeated rhythmic patterns. | |
| | | FA.1.1.B | Respond to changes heard in music: fast/slow, loud/soft, long/short, high /low. | |
| | | FA.1.1.C | Sing songs that use the voice in a variety of ways. | |
| | | FA.1.1.D | Demonstrate steady beat through singing, moving the body, or playing classroom instruments. | |
| | | FA.1.1.E | Listen and respond to simple directions or verbal cues in singing games. | |
| | Visual Arts (2) | **FA.2.1** | **Identify, describe, experiment with, and create images and forms from observation, memory, imagination, and feelings.** | Visual Arts |
| | | FA.2.1.A | Identify colors, lines, and shapes found in the environment and in works of art. | |
| | | FA.2.1.B | Use colors, lines, and shapes to communicate ideas about the observed world. | |
| | | FA.2.1.C | Explore and discuss how colors, lines, and shapes are used in artworks. | |
| | | FA.2.1.D | Use colors, lines, and shapes to make artworks that express ideas and feelings. | |
| | Theater (3) | **FA.3.1** | **Use a variety of theatrical elements and conventions to demonstrate themes about life experiences, ideas, and feelings.** | Theater |
| | | FA.3.1.A | Listen to and retell or perform nursery rhymes, finger plays, popular children's books/stories, and other media. | |
| | | FA.3.1.B | Demonstrate themes and ideas about people and events through play. | |
| | | FA.3.1.C | Create accompaniment to stories using natural and human-made sounds. | |
| | Dance (4) | **FA.4.1** | **Demonstrate knowledge of how elements of dance are used to communicate meaning.** | Dance |
| | | FA.4.1.A | Demonstrate selected locomotor and non-locomotor movements that communicate ideas, thoughts, and feelings. | |
| | | FA.4.1.B | Combine selected characteristics of the elements of dance, such as body parts and positions, shapes, levels, energy, fast and slow, and use of sensory stimuli to create movement. | |
| | | FA.4.1.C | Reproduce movement demonstrated by the teacher. | |

*Appendix B: Common Language Standards*

**Appendix C: Learning Progressions**

## Language and Literacy: Communication

**Operational Definition:** Communicates with adults and peers for a variety of purposes in different situations

| | Level A | Level B | Level C | Level D | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
|---|---|---|---|---|---|---|---|---|---|
| **Purposes and Situations** | Engages with adults or signals needs through facial expressions, body movements, or vocalizations. | Uses speech-like strings of sounds, gestures, or facial expressions to communicate interests or needs. | Uses single words, word approximations, gestures, or simple signs to communicate interests or needs. | Uses two-word or three-word phrases or signs to communicate interests, needs, or feelings. | Uses gestures and language to express basic greetings, wants, needs, and feelings. | Uses language and gestures to express thoughts and ideas, and asks and responds to questions. | Initiates and participates in conversations for a variety of purposes (e.g., to inform, to persuade), usually expressing self clearly but rephrasing when misunderstood. | Initiates and participates in conversations for a variety of purposes, staying on topic through multiple exchanges and adjusting language according to the needs of the situation (e.g., one-on-one versus in a group) or the listener (e.g., adult versus peer). | Initiates and participates in detailed conversations for a variety of purposes, extending the conversation by requesting additional information and/or building on the ideas of others, and adjusting language according to the needs of the situation (e.g., in the classroom versus on the playground) or the listener (e.g., giving background information to an unfamiliar listener). |

## Language and Literacy: Emergent Writing

**Operational Definition:** Produces letter-like shapes, symbols, letters, and words to convey meaning

| | Level A | Level B | Level C | Level D | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
|---|---|---|---|---|---|---|---|---|---|
| **Name Recognition and Writing** | Attends to books. | | Attends to letters. | Demonstrates awareness of a few letters or symbols, or recognizes first letter of own name. | Identifies own written name. | Writes marks to represent own name. | Writes the first letter in own name. | Writes own name but may have some letter reversals or omissions. | Writes own name accurately. |
| **Writing to Convey Meaning** | Uses body to explore objects. | | Makes simple unstructured scribbles on a surface. | Makes different kinds of scribbles for pictures as compared to letters. | Produces scribble drawings (e.g., pictures that may include back-and-forth and/or circular marks) and dictates labels for them. | Produces controlled scribbles (e.g., horizontal jagged lines) and recognizable symbols (e.g., a circle with lines radiating from it for a sun) and dictates a description (e.g., a word or phrase). | Produces mock writing (includes strings of independent units and letter-like shapes) to tell a story. | Produces emergent writing (includes some actual letters that may be grouped together as if to form words) to tell a story or give an opinion. | Produces phonetic writing, using invented or conventional spelling, of one or more simple sentences to tell a story, give an opinion, or provide information about a topic. |

# Language and Literacy: Grammar

**Operational Definition:** Demonstrates a beginning understanding of the conventions of standard English grammar and usage

| | Level A | Level B | Level C | Level D | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
|---|---|---|---|---|---|---|---|---|---|
| **Sentences** | Responds to vocalizations, sounds, or gestures. | Vocalizes or uses gestures or facial expressions to initiate communication in meaningful ways. | Produces single words, word approximations, simple signs, or gestures to communicate in meaningful ways. | Produces simple phrases or sentences using two or more words or signs to communicate in meaningful ways. | Produces sentences that consist mostly of nouns and verbs (e.g., "Mommy go bye-bye."). | Produces sentences that consist of several parts of speech (e.g., "Her wants the big cookie."). | Produces sentences conjoined with "and" or "but" (e.g., "I have one and he has one."). | Produces sentences that contain one or more phrases (e.g., "I'm going to play soccer at the park."). | Produces sentences that contain two or more clauses (e.g., "I watched the baby after he woke up, so Mommy could make dinner."). |
| **Questions** | Responds to vocalizations, sounds, or gestures. | | | Uses a rising pitch/intonation, or uses gestures or signing, to form meaningful questions from simple phrases or sentences of two or more words. | Uses a rising pitch/intonation to ask questions (e.g., "See doggie?"; "What that?"). | Produces questions with auxiliary verbs at the beginning (e.g., "Is kitty hungry?"). | Produces questions with inverted verbs and subjects (e.g., "Do you see me?"). | Produces questions with when and how ("When can I go?"; "How do you do that?"). | Produces questions that have an embedded clause (e.g., "Do you know what animal this is?"). |
| **Prepositions** | Responds to vocalizations, sounds, or gestures. | | | Uses the preposition *in* or *on* with a single word, gesture, or sign. | Uses the prepositions "in" and "on" (e.g., "Baby in bed."). | | Uses frequently occurring prepositions (e.g., at, to, from, out, off, for, of, by, with). | | Uses a variety of prepositions (e.g., after, around, behind, in front of, above, below). |
| **Inflections** | Responds to vocalizations, sounds, or gestures. | | | Uses single words, gestures, or signs to refer to singular and plural nouns. | Adds /s/ or /es/ to singular nouns to form regular plurals. | Adds /ed/ to regular verbs to form the past tense. | | Adds /er/ and /est/ to adjectives to form comparison words. | |

*Appendix C: Learning Progressions*

## Language and Literacy: Phonics and Letter Recognition

**Operational Definition:** Demonstrates an understanding of letter recognition skills and letter-sound correspondence

|  | Level A | Level B | Level C | Level D | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
|---|---|---|---|---|---|---|---|---|---|
| **Uppercase Letters** | Attends to language or communication. |  | Matches spoken or signed words to images on printed page. | Recites or signs several letter names from previously heard songs or rhymes, often beginning with letters early in the alphabet. | Names and identifies a few uppercase letters, often beginning with the first letter in own name. | Names and identifies some (at least 5) uppercase letters. | Names and identifies many (at least 10) uppercase letters. | Names and identifies most (at least 20) uppercase letters. | Names and identifies all uppercase letters. |
| **Lowercase Letters** |  |  |  |  |  | Names and identifies a few lowercase letters. | Names and identifies some (at least 5) lowercase letters. | Names and identifies many (at least 10) lowercase letters. | Names and identifies all lowercase letters. |
| **Letters-Sounds** |  |  |  |  |  |  | Identifies and produces the sound for a few letters. | Identifies and produces the most frequent sound for some (at least 5) consonants. | Identifies and produces the most frequent sound for each consonant and the short and long sounds for the five major vowels. |

*Appendix C: Learning Progressions*

## Language and Literacy: Phonological Awareness

**Operational Definition:** Demonstrates an awareness of the sound structures of spoken language, including rhymes, syllables, and phonemes

| | Level A | Level B | Level C | Level D | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
|---|---|---|---|---|---|---|---|---|---|
| **Rhyming Words** | Attends to language or communication. | | Communicates one or two relevant words or does one or two relevant actions when attending to simple songs, nursery rhymes, or finger plays. | Follows along or repeats parts of nursery rhymes or simple songs when listening to them. | Identifies a pair of spoken rhyming words. | | Says a word that rhymes with a given word. | | Produces a pair of spoken rhyming words. |
| **Syllables/Onsets and Rimes/ Phonemes** | | | | | | Identifies syllables in spoken words and words within spoken compound words. | Orally blends and segments syllables in words and words within spoken compound words. | Orally blends and segments onsets (first consonant/s) and rimes (vowel and ending consonant/s) in spoken single-syllable words. | Orally blends individual sounds together to form a word, and segments spoken words into their individual sounds (phonemes). |
| **Initial/Final/ Medial Sounds** | | | | | | Identifies initial sounds in spoken words. | Identifies final sounds in spoken words. | Identifies whether a given sound for a given spoken word is at the beginning or the end of the word. | Identifies medial sounds in spoken CVC (consonant-vowel-consonant) words. |
| **Adding/Deleting/ Substituting Sounds** | | | | | | | | Orally adds, deletes, and substitutes the initial sound (phoneme) in single-syllable words to create new words. | Orally adds and substitutes individual initial, medial, or final sounds (phonemes) in single-syllable words to create new words. |

*Appendix C: Learning Progressions*

# Language and Literacy: Story/Text Comprehension

**Operational Definition:** Comprehends and responds to interactive read-alouds of texts before, during, and after the texts are read

| | | Level A | Level B | Level C | Level D | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Respond to Questions About a Text** | | Attends to adult voices or actions during reading episodes with adult. | Orients to picture book and adult storyteller during reading episodes with adult. | Responds to simple comments or questions about text with single words, word approximations, simple signs, gestures, or actions. | Responds to questions about characters, objects, or events in a story using simple descriptive phrases or sentences with two or more words or signs. | Responds to simple prediction questions, based on the title and cover, and to recall questions (who, what, where) about texts read aloud. | Responds to recall questions (why, how) about stated information in texts read aloud. | Responds to questions that require prediction, based on the title, cover, illustrations, and graphic aids, and questions that require some interpretation of texts read aloud. | Responds to questions about the main idea or topic of texts read aloud (e.g., "What is the story about?"), and asks questions to clarify confusing parts of the texts. | Responds to a variety of questions about texts, uses texts to find answers to questions as needed, and asks questions to clarify or gain information about the texts. |
| **Retell a Text** | | Attends to adult voices or actions during reading episodes with adult. | Orients to picture book and adult storyteller during reading episodes with adult. | Engages visually or tactilely with pages or parts of pages during reading episode with adult. | Communicates using words, signs, or simple phrases about people, objects, or events in text during reading episode. | Repeats words or phrases from texts or parts of texts heard. | Retells, acts out, or draws pictures about texts or parts of texts heard, but may leave out details or add details not in the original texts. | Retells, acts out, or draws pictures about texts or parts of texts heard, presenting major events in the sequence in which they occurred (beginning, middle, and end). | Retells, acts out, or draws pictures about texts or parts of texts heard, presenting major events in the sequence in which they occurred and adding some details about elements of the texts. | Retells, acts out, draws pictures, or writes about texts or parts of texts read or heard, providing detailed information about topics, characters, events, and/or settings. |

## Language and Literacy: Vocabulary

**Operational Definition:** Acquires word meanings and understands word relationships

| | Level A | Level B | Level C | Level D | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
|---|---|---|---|---|---|---|---|---|---|
| **Word Meanings** | Attends to language or communication of others. | Demonstrates understanding of a variety of single words, signs, or gestures that occur frequently during interactions with adults. | Demonstrates understanding of a large number of words and small number of simple frequently occurring phrases. | Communicates a wide variety of words, including simple two- and three-word phrases, and understands a large number of words. | Uses meaningful interactions with adults, concrete objects, and stories to learn the meaning of unknown words that are primarily objects and people (e.g., ball, spoon, woman) and actions (e.g., go, play). | Uses meaningful interactions with adults, concrete objects, and stories read aloud to learn the meaning of unknown words, including attributes (e.g., happy, dirty). | Uses meaningful conversations with adults, concrete objects, and textual and picture clues from stories read aloud to learn the meaning of unknown words, including basic category names and related terms (e.g., animals/dog, horse; clothes/pants, shirt). | Uses meaningful conversations with adults, concrete objects, and textual and picture clues from stories and informational texts read aloud to learn the meaning of unknown words, including basic concepts and related words (e.g., time/today, tomorrow; comparison/ greater than, less than). | Uses meaningful conversations with adults, concrete objects, and textual and picture clues from stories and informational texts to learn the meaning of unknown words, including specialized areas of interest (e.g., dinosaurs/Tyrannosaurus, Brontosaurus; community/city, state). |
| **Word Relationships** | | | | | | | Connects new words to familiar experiences in own life (e.g., relates the word "helpful" from a story to examples of helping or being helped in own life). | Distinguishes shades of meaning among verbs describing the same general action (e.g., walk, march, skip, run). | Identifies new meanings of familiar words (e.g., learning that the word "duck" refers to lowering the head, in addition to knowing that a duck is a bird). |

*Appendix C: Learning Progressions*

## Mathematics: Classification

**Operational Definition:** Sorts and classifies objects according to attributes, and compares groups using comparison vocabulary

| | Level A | Level B | Level C | Level D | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
|---|---|---|---|---|---|---|---|---|---|
| **Sorting and Classifying** | Attends to other people. | Interacts differently with familiar versus unfamiliar people or familiar versus unfamiliar objects. | | Demonstrates knowledge of common categories (e.g., animals vs. vehicles) through play. | Sorts and classifies objects into two groups by one attribute (e.g., color, shape, texture). | Sorts and classifies objects into more than two groups by one attribute, including measurable attributes (e.g., size, length, height). | Sorts and classifies objects by one attribute, and then further sorts each group by a second attribute. | Sorts and classifies objects by two attributes at one time (e.g., color and shape; type and size). | Sorts and classifies objects based on subtle attributes: purpose, use, or personal preference or experience (e.g., sorts toy animals by "ones I've seen" and "ones I've never seen"). |
| **Comparing and Describing** | | | | | | | | Compares the numbers of objects in groups using comparison vocabulary (e.g., greater than/more than/less than, equal to/same as). | Describes multiple similarities and differences of objects within and across groups. |

*Appendix C: Learning Progressions*

# Mathematics: Measurement

**Operational Definition:** Measures, compares, orders, and describes objects by a measurable attribute

| | Level A | Level B | Level C | Level D | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
|---|---|---|---|---|---|---|---|---|---|
| **Identifying/Comparing/Measuring** | Responds to communication with others. | | | Understands or uses simple words, signs, or gestures that describe measurable attributes (e.g., big, little, heavy, tall). | Identifies two objects that obviously differ from each other on a measurable attribute (e.g., length, size). | Compares two objects directly, indicating if they are the same or how they are different (e.g., bigger/smaller, taller/shorter) on a measurable attribute. | Compares measurable attributes of two objects by using a third object (e.g., measures the height of two tables with a piece of string) and indicates if they are the same or how they are different. | Compares three or more objects and orders them by size (from shortest to longest) or other measurable attributes, and describes the differences. | Measures objects, using nonstandard units, and relates number of units measured to attributes of objects (e.g., places three paper clips next to a pencil and says the pencil is three paper clips long). |

## Mathematics: Number Operations

**Operational Definition:** Uses objects to understand addition as putting together and adding to, and to understand subtraction as taking apart and taking from

| | Level A | Level B | Level C | Level D | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
|---|---|---|---|---|---|---|---|---|---|
| **Addition Problems** | | | | | | Adds one more to a small set of objects (totals up to 4) to make a set that is *more*. | Solves simple addition problems (totals up to 5) by joining two small sets of objects and counting the total. | Solves simple addition problems (totals up to 10) by joining two sets of like objects (e.g., apples and apples) or two sets of related objects (e.g., apples and oranges) and counting the total. | Solves simple addition problems (totals up to 10), using objects, fingers, or drawings, starting from a given number and counting on to find the sum. |
| **Subtraction Problems** | | | | | | Takes one away from a small set of objects (up to 5) to make a set that is *less*. | Solves simple subtraction problems by taking a given amount from a set of objects (up to 5) and counting the remaining objects. | Solves simple subtraction problems (totals up to 10) by matching objects from two sets of related objects (e.g., cups and saucers) and counting the objects that do not have a match. | Solves simple subtraction problems (totals up to 10), using objects, fingers, or drawings, and appropriate strategies (e.g., counting back). |
| **Decomposing Numbers** | | | | | | | | Decomposes numbers (up to 5) into two groups in more than one way, using objects or drawings, and records each with a drawing. | Decomposes numbers (up to 10) into two groups in more than one way, using objects or drawings, and records each with a drawing or equation (e.g., 5 = 2 + 3 and 5 = 4 + 1). |
| **Completing a Set** | | | | | | | | Finds and identifies the amount needed to complete a set (totals up to 5), using objects. | Finds and identifies the amount needed to complete a set (totals up to 10), using objects, fingers, or drawings. |

## Mathematics: Number Sense

**Operational Definition:** Demonstrates knowledge of number names, one-to-one correspondence, count sequence, and the relationships among written numerals, quantity, and cardinality

| | Level A | Level B | Level C | Level D | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
|---|---|---|---|---|---|---|---|---|---|
| **Number Words** | Responds to vocalizations, sounds, or gestures. | | Demonstrates understanding of gestures or words that indicate amounts of things. | Uses a few number words, although often not correctly. | Recites number words in sequence from 1 to 5. | Recites number words in sequence from 1 to 10. | Recites number words in sequence from 1 to 20. | Recites number words in sequence from 1 to 30. | Recites number words in sequence from 1 to 100. |
| **Object Counting** | Responds to vocalizations, sounds, or gestures. | | | Demonstrates understanding that "one" refers to a single object. | Counts two objects using one-to-one correspondence. | Counts five objects using one-to-one correspondence. | Counts 10 objects using one-to-one correspondence. | Counts 15 objects using one-to-one correspondence. | Counts 20 objects using one-to-one correspondence. |
| **Number Concepts** | | | | | | Identifies quantities of *one, two,* and *more*. | Identifies the last number counted as the *total number* of objects in a set. | Identifies the number *just before* or *just after* a given number in a counting sequence from 1 to 10. | Identifies the next number in the count sequence as *one greater* than a given number. |
| **Subitizing** | | | | | | | Subitizes (instantly recognizes and names the number of objects without having to count) 1 to 3 objects in familiar patterns (e.g., knows there are two apple slices without counting). | Subitizes 1 to 4 objects in familiar and unfamiliar patterns. | Subitizes 1 to 5 objects in familiar and unfamiliar patterns. |
| **Numeral Identification/ Writing** | | | | | | | Identifies at least one written numeral with personal significance (e.g., numeral for own age). | Identifies written numerals from 0 to 10. | Identifies and writes numerals from 0 to 20. |

*Appendix C: Learning Progressions*

## Mathematics: Shapes

**Operational Definition:** Matches, identifies, describes, and combines two- and three-dimensional shapes

| | Level A | Level B | Level C | Level D | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
|---|---|---|---|---|---|---|---|---|---|
| **Two-Dimensional Shapes\*** | Attends to objects. | Explores objects of different shapes. | Adapts behaviors with objects based on their shape (e.g., rolls a ball; stacks a few large blocks). | Matches simple shapes in play through trial-and-error. | Matches a few basic two-dimensional shapes (e.g., circle, square, triangle). | Matches and identifies a variety of two-dimensional shapes. | Identifies two-dimensional shapes in several different sizes and orientations. | Describes defining attributes of common two-dimensional shapes (e.g., triangles are closed and have three sides). | Compares defining attributes of common two-dimensional shapes (e.g., triangles have three sides but squares have four sides). |
| **Three-Dimensional Shapes** | | | | | | Identifies some common three-dimensional shapes using informal terms (e.g., "ball" for sphere, "box" for cube, "can" for cylinder). | Identifies two-dimensional shapes within three-dimensional shapes (e.g., identifies that the side of a box is a square). | Identifies shapes as two-dimensional ("flat") or three-dimensional ("solid"). | Identifies common three-dimensional shapes using mathematical terms (e.g., sphere, cube, cylinder) and describes their defining attributes (e.g., a cube has six square sides). |
| **Combining Shapes** | | | | | | | | Combines shapes to create pictures of common objects (e.g., house, school, bridge). | Combines two or more shapes into new shapes (e.g., two triangles to make a diamond). |

\*Children at levels A–D are exploring the concept of shape through objects and cannot yet distinguish between two- and three-dimensional shapes.

*Appendix C: Learning Progressions*

# Physical Well-Being and Motor Development: Coordination–Large Motor

**Operational Definition:** Becomes increasingly proficient in control, coordination, and balance of large muscles in locomotor and non-locomotor skills

| | Level A | Level B | Level C | Level D | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
|---|---|---|---|---|---|---|---|---|---|
| **Locomotor Skills** | Moves body or body parts with increasing control. | Moves body through space. | Moves through space in upright position with limited coordination and balance on even, flat surfaces. | Demonstrates ability to move in upright position across different flat surfaces or some sloped surfaces. | Demonstrates a variety of locomotor skills with limited control, coordination, and balance (e.g., jumps down from a step with both feet). | | Demonstrates a variety of locomotor skills with some control, coordination, and balance (e.g., hops on one foot a few times in a row). | Demonstrates a variety of locomotor skills with nearly complete control, coordination, and balance (e.g., hops on one foot several times, followed by several hops on other foot). | Demonstrates a variety of locomotor skills with complete control, coordination, and balance (e.g., hops sideways six steps; jumps and turns so that feet land in opposite direction from starting position). |
| **Non-Locomotor Skills** | Demonstrates increasing ability to control position of head. | Maintains seated position without support. | Demonstrates ability to be in upright position with limited balance (standing up). | Maintains balance while in stationary upright position (standing up) and demonstrates ability to bend down and reach for something from upright position although may still use support. | Demonstrates a variety of non-locomotor skills with limited control, coordination, and balance (e.g., imitates standing on one foot while watching adult demonstration). | | Demonstrates a variety of non-locomotor skills with some control, coordination, and balance (e.g., stands on tiptoes with hands overhead for a few seconds). | Demonstrates a variety of non-locomotor skills with nearly complete control, coordination, and balance (e.g., stands on one foot for several seconds). | Demonstrates a variety of non-locomotor skills with complete control, coordination, and balance (e.g., stands on each foot for several seconds with hands on hips). |
| **Spatial Awareness** | Demonstrates awareness of parts of body. | Adjusts body or body parts to reach or control objects. | Explores how body and objects fit in relation to one another (e.g., attempts to fit body through an opening in a tunnel, adjusts soft block to fit through tunnel). | Adjusts the position of body or objects to move or fit in relation to one another. | Demonstrates spatial awareness and limited coordination in using objects during active play (e.g., throws a ball underhand by moving arm down and back). | | Demonstrates spatial awareness and some coordination in using objects during active play (e.g., throws a ball overhand by moving arm up and back, using upper-trunk rotation and opposite arm-leg movement). | Demonstrates spatial awareness and nearly complete coordination in using objects during active play (e.g., throws a ball overhand to hit a close target by moving arm up and back, using upper-trunk rotation and opposite arm-leg movement). | Demonstrates spatial awareness and complete coordination in using objects during active play (e.g., throws a ball overhand to hit a distant target by moving arm up and back, using upper-trunk rotation and opposite arm-leg movement). |

*Appendix C: Learning Progressions*

# Physical Well-Being and Motor Development: Coordination–Small Motor

**Operational Definition:** Demonstrates the ability to use small muscles to perform fine motor skills in play and learning situations

| | Level A | Level B | Level C | Level D | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
|---|---|---|---|---|---|---|---|---|---|
| **Tool and Object Manipulation** | Uses body to explore objects. | Uses part of body to manipulate objects. | Uses an object in a goal-directed way. | Manipulates tools/objects with limited control and coordination of hands, fingers, and wrists to perform fine motor tasks. | Manipulates tools/objects with limited coordination of hands, fingers, and wrists, as well as eye-hand coordination, to perform fine motor tasks (e.g., "snips" the edges of a piece of paper with scissors, sometimes cutting the paper into 2 or more pieces). | | Manipulates tools/objects with some coordination of hands, fingers, and wrists, as well as eye-hand coordination, to perform fine motor tasks (e.g., cuts across the paper in a fairly straightforward direction by holding scissors with 1 hand and paper with the other). | Manipulates tools/objects with nearly precise coordination of hands, fingers, and wrists, as well as eye-hand coordination, to perform fine motor tasks (e.g., cuts out simple shapes by holding scissors and paper correctly). | Manipulates tools/objects with precise coordination of hands, fingers, and wrists, as well as eye-hand coordination, to perform fine motor tasks (e.g., cuts out complex shapes by holding scissors and paper correctly). |
| **Writing Tool Grasp** | Uses body to explore objects. | | Adjusts hand before grasping and using an object. | Holds writing and drawing tools using a fisted grasp to make scribbles with large vertical strokes. | Uses a whole-hand grasp, with the palm facing down, and shoulder/arm muscles to manipulate writing and drawing tools. | Uses a 4-finger grasp, with the fingers on the opposite side of the tool from the thumb, and arm/wrist muscles to manipulate writing and drawing tools. | | Uses an unsteady 3-finger grasp and finger/wrist muscles of the dominant hand to manipulate writing and drawing tools with some efficiency and speed. | Uses a stable 3-finger grasp and finger/wrist muscles of the dominant hand to manipulate and control writing and drawing tools with an efficient range of motion and speed. |

## Physical Well-Being and Motor Development: Personal Care Tasks

**Operational Definition:** Engages in personal care and basic health practices with increasing independence

| | Level A | Level B | Level C | Level D | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
|---|---|---|---|---|---|---|---|---|---|
| **Personal Care and Basic Health** | Responds to communication of others. | Attends to care routine or moves body in response to it. | | Cooperates with adult during personal care tasks and basic health routines. | Performs parts of some personal care tasks and basic health practices with adult modeling and assistance (e.g., removes own jacket but needs help with zipper; blows nose when a tissue is held to it). | Completes some personal care tasks and follows basic health practices with some adult assistance (e.g., removes and puts on own jacket but needs help with zipper; blows nose when given a tissue). | Completes some personal care tasks and follows basic health practices on own, but usually needs adult reminders (e.g., removes and puts on own jacket, unzipping and zipping it; gets own tissue when needing to blow nose). | Completes most personal care tasks and follows basic health practices on own, but needs occasional adult reminders. | Completes most personal care tasks and follows basic health practices independently. |

# Physical Well-Being and Motor Development: Safety and Injury Prevention

**Operational Definition:** Demonstrates the ability to apply basic safety rules and consequences of unsafe behavior at home, school, and community

| | Level A | Level B | Level C | Level D | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
|---|---|---|---|---|---|---|---|---|---|
| **Safe and Unsafe Behaviors** | Responds to communication of others. | Needs direct adult guidance to stay safe. | | Seeks information or assistance from adult in challenging or unsafe situations. | Identifies safe and unsafe behaviors in familiar situations. | | Identifies safe and unsafe behaviors in familiar situations, and describes the consequences of the unsafe behaviors. | | Identifies safe and unsafe behaviors in familiar and unfamiliar situations, and describes the consequences of the unsafe behaviors. |
| **Safety Rules** | Responds to communication of others. | Orients toward familiar adult in unsafe or unfamiliar situations. | | Follows specific adult requests about safety when provided adult guidance to follow through. | Identifies and follows a few basic safety rules, with adult modeling and guidance. | | Identifies and follows several basic safety rules, with adult support. | | Identifies and follows a variety of safety rules, with adult reminders. |
| **Ways Adults Help Keep Children Safe** | | | | | | Identifies ways that parents and teachers help keep children safe. | | Identifies ways that adults in the school and community other than parents and teachers (e.g., crossing guards, firefighters, police officers) help keep children safe. | |

## Science: Inquiry and Observation

**Operational Definition:** Learns about the natural world by observing, investigating, and communicating what is learned

| | Level A | Level B | Level C | Level D | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
|---|---|---|---|---|---|---|---|---|---|
| Explore, Examine, and Investigate | Explores objects and people. | Interacts differently with people versus inanimate objects. | Examines new or unfamiliar things before interacting with them or acting on them. | Repeats actions on objects or living things to gather information about them. | Exhibits interest in and curiosity about objects and living things by repeating the same actions in different situations to compare effects. | Asks "why" or "what" questions about objects, living things, and natural events, and seeks answers by examining and describing their attributes. | Asks a broad range of questions (e.g., "how," "what if . . .") about objects, living things, and natural events, and describes actions, details, and changes that are directly observable. | Asks specific questions about the relationship between two objects, living things, or natural events; carries out observations and simple investigations to answer the questions; and communicates findings (e.g., draws pictures, dictates explanations). | Generates predictions about two objects, living things, or natural events by applying past knowledge to current observations, planning and carrying out observations and investigations to gather information, and communicating findings in a variety of ways (e.g., keeps logs that include pictures, explanations, charts, and graphs). |

## Social Foundations: Awareness and Expression of Emotion

**Operational Definition:** Identifies and labels emotions of self and others and responds with empathy to others' expressions of emotion

| | Level A | Level B | Level C | Level D | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
|---|---|---|---|---|---|---|---|---|---|
| **Emotion Identification** | Attends to emotional expressions of others. | Changes responses in relation to emotional expressions of others. | Uses the emotional expressions of others as a guide for how to act in a situation. | Uses simple words or gestures to describe own and others' feelings (e.g., happy, sad). | Identifies emotions expressed by self and others (e.g., happiness, sadness, anger, fear). | Identifies common emotion-eliciting situations and the emotions elicited in each. | Identifies and explains the reasons behind and the consequences of the emotions expressed by self and others. | Identifies emotions expressed by others in a given situation, and compares them to own emotions in similar situations. | Identifies and explains own conflicting feelings in a specific situation (e.g., is excited for trip to the park but is sad that best friend can't come). |
| **Response to Distressed Peer** | Attends to emotional expressions of others. | Shows or communicates distress in response to another child's distress. | | Shows concern or empathy for a distressed peer but may not communicate feelings directly to peer. | Responds with concerned attention to a distressed peer, but needs adult guidance to provide direct assistance. | Responds to a distressed peer by imitating an adult's response in a similar situation or helping an adult who is responding. | Responds to a distressed peer by offering verbal and physical comfort and seeking adult assistance if needed. | Responds to a distressed peer by taking the peer's perspective to anticipate what is needed. | Responds to a distressed peer by adapting own behavior in order to provide the assistance needed. |

*Appendix C: Learning Progressions*

## Social Foundations: Conflict Resolution

**Operational Definition:** Demonstrates the ability to resolve social conflicts with peers

| | Level A | Level B | Level C | Level D | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
|---|---|---|---|---|---|---|---|---|---|
| **Conflict Resolution Strategies** | Shows awareness of other people. | Shows interest in peers and takes objects from them; requires redirection from adult. | | Child uses simple strategies to get own needs/wants met when interacting with peers, sometimes requiring adult guidance to resolve conflicts. | Uses a few strategies (e.g., trading, sharing) to resolve conflicts with peers, with adult modeling and guidance. | Uses additional strategies (e.g., asking for a timer to be set) to resolve conflicts with peers, with adult guidance. | Verbally identifies conflicting feelings or goals as a strategy to resolve conflicts with peers on own, but will seek adult guidance and support when it is apparent that the conflict has begun to escalate. | Talks about differences in opinion or perspective as the main strategy to resolve conflicts with peers, seeking adult support only if needed. | Uses a variety of strategies, including negotiation and compromise, to resolve conflicts with peers in order to come to agreements that are mutually satisfying, before or without seeking adult support. |

## Social Foundations: Cooperation with Peers

**Operational Definition:** Uses cooperative behavior in interactions with peers

| | Level A | Level B | Level C | Level D | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
|---|---|---|---|---|---|---|---|---|---|
| **Play/Work with Peers** | Attends to other people. | Shows interest in peers through actions such as looking, touching, and vocalizing. | Shows interest in peers by playing alongside of a peer or attempting to do the same thing as a peer. | Engages in simple shared activities with a peer. | Engages with peers in associative play and work that involves common materials and some interaction. | | Engages with peers in cooperative play and work that involves coordination of roles and a planned event or events. | | Engages with peers in complex cooperative play and work that involves negotiating roles, planning with a group, and organizing the setting or environment. |
| **Social Behaviors** | Attends to people and responds to their emotional expressions. | Shows interest in peers through actions such as looking, touching, and vocalizing. | Shows interest in peers by attempting to do the same thing that a peer is doing. | Imitates a peer's simple social behaviors while playing together. | Demonstrates social behaviors with peers (e.g., helping, sharing, taking turns), with adult modeling and support. | Demonstrates social behaviors with peers, with some adult reminders. | Demonstrates social behaviors with peers on own. | Recognizes peers' feelings, perspectives, preferences, and interests, but requires adult support to use this information to maintain positive social interactions. | Adapts own behavior to peers' preferences or interests in order to maintain positive social interactions. |

*Appendix C: Learning Progressions*

## Social Foundations: Initiative

**Operational Definition:** Seeks and gathers new information to plan for projects and activities

| | Level A | Level B | Level C | Level D | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
|---|---|---|---|---|---|---|---|---|---|
| **Interest** | Attends to people, objects, and events. | Explores features of objects. | Imitates an adult's action with a new object in order to produce the same effect. | Seeks assistance from an adult to use an object in goal-oriented way. | Shows interest in an object/activity by repeatedly returning to the object/activity. | Shows interest in an object/activity by bringing the object/activity of interest to the attention of adults and peers. | Shows interest in an object/activity by incorporating the object/activity into play with peers. | Shows interest in a particular topic by seeking information about the topic through questions and discussions with adults and peers. | Shows interest in a particular topic by gathering information from peers, adults, and other sources, such as books, videos, the Internet, and community resources. |
| **Planning** | | | | | | | Plans and initiates an activity around a topic of interest, with adult assistance. | Plans and initiates an activity or project around a topic of interest, with minimal adult assistance. | Independently plans and initiates a project around a topic of interest. |

*Appendix C: Learning Progressions*

## Social Foundations: Persistence

**Operational Definition:** Demonstrates the ability to persist with a task

| | Level A | Level B | Level C | Level D | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
|---|---|---|---|---|---|---|---|---|---|
| **Persisting with Tasks** | Attends briefly to new objects and people. | Explores objects in different ways, such as holding, turning, shaking them, often quickly shifting attention from one object to another. | Explores objects for several minutes on own or with adult support. | Engages in goal-oriented tasks or activities for brief periods of time, but requires adult assistance, especially when difficulties, distractions, or interruptions occur. | Engages in simple multi-step tasks or activities for brief periods of time, but requires adult assistance, especially when difficulties, distractions, or interruptions occur. | Engages in increasingly difficult or challenging tasks or activities for longer periods of time, but needs adult support when distractions or interruptions occur. | Engages in tasks or activities for extended periods of time, easily managing minor distractions or interruptions and requesting adult support for more significant challenges. | Engages in activities and projects, trying different strategies on own when difficulties, distractions, or interruptions occur, but may need some adult prompting in order to complete the activities or projects. | Engages in and completes activities and projects, independently making the necessary adjustments when difficulties, distractions, or interruptions occur. |

## Social Foundations: Problem Solving

**Operational Definition:** Shows increasing ability to use logic in solving problems

| | Level A | Level B | Level C | Level D | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
|---|---|---|---|---|---|---|---|---|---|
| **Using Logic** | Attends to objects, people, and things in immediate environment. | Makes simple adjustments to reach a goal. | Engages in trial-and-error to solve a simple problem. | Attends closely to how an adult solves a specific problem, and repeats adult's action(s) to solve the identical problem. | Approaches a problem by imitating how an adult solves similar problems. | Approaches a problem by coming up with and trying out potential solutions, one at a time. | Approaches a problem by avoiding potential solutions that clearly will not work and trying out those that seem possible. | Approaches a problem by planning a sequence of actions, explains the reasoning behind the plan, and tries out the plan. | Considers various approaches to a problem, explains the likely outcome of each approach, and determines the approach most likely to be a solution before trying it out. |

*Appendix C: Learning Progressions*

## Social Foundations: Relationships with Adults

**Operational Definition:** Seeks emotional support and guidance from familiar adults

| | Level A | Level B | Level C | Level D | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
|---|---|---|---|---|---|---|---|---|---|
| **Separation from Familiar Adults** | Shows recognition of familiar caregivers. | Shows distress when separated from primary caregivers and shows awareness of their absence. | Plays and explores environment by self and with other children, periodically checking with familiar caregiver from a distance, but seeks physical contact if distressed. | Initiates some interactions with unfamiliar adults (however, often is still wary of unfamiliar adults, and demonstrates preference for familiar adults). | Separates from familiar adults in familiar settings with minimal distress. | | | | Separates from familiar adults in familiar settings with no distress. |
| **Seeking Emotional Support** | Cries to signal needs and relies upon caregiver's assistance to settle down. | | Monitors caregiver's presence while exploring environment and seeks physical contact with caregiver or follows caregiver's guidance if distressed. | | Seeks emotional support, security, and guidance from familiar adults by staying in close physical proximity to them. | | Seeks emotional support, security, and guidance from familiar adults when encountering challenging situations. | | Seeks emotional support, security, and guidance from familiar adults after attempting to deal with challenging situations on own. |

*Appendix C: Learning Progressions*

# Social Foundations: Self Control

**Operational Definition:** Develops strategies to manage the expression of feelings and thoughts by regulating behavior

| | Level A | Level B | Level C | Level D | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
|---|---|---|---|---|---|---|---|---|---|
| **Self Control Strategies** | Soothes when comforted by adult. | Uses basic self-soothing behaviors (like thumb/hand sucking, hair twirling) at times, but mostly relies on familiar adult for comfort when distressed. | Seeks proximity to familiar, trusted adults when distressed and organizes behavior in ambiguous situations, based on the adults' emotional responses. | Relies on adult assistance, including redirection if needed, to express feelings and desires appropriately in stressful situations. | Usually requires immediate adult modeling and guidance to manage the expression of feelings and thoughts by regulating behavior (e.g., with adult guidance: refrains from hitting when angry; takes care of materials; waits for a turn) in socially appropriate ways. | Uses some simple strategies (e.g., leaves an emotionally arousing situation; waits for a turn) to manage the expression of feelings and thoughts by regulating behavior in socially appropriate ways on own, but requires immediate adult guidance to use more complex strategies (e.g., with adult guidance, sits on hands so as not to touch other children during story time). | Uses simple strategies on own to manage expression of feelings and thoughts by regulating behavior in socially appropriate ways, but requires some adult guidance to use more complex strategies (e.g., verbal reminders to self; compromise). | Uses a variety of simple and complex strategies (e.g., communicates feelings and desires; finds alternative activity while waiting) to manage expression of feelings and thoughts by regulating behavior in socially appropriate ways with minimal adult guidance, but often needs adult reminders. | Uses a variety of simple and complex strategies to manage the expression of feelings and thoughts by regulating behavior in socially appropriate ways, rarely needing adult reminders. |

## Social Foundations: Working Memory

**Operational Definition:** Demonstrates the ability to use prior knowledge to inform current actions and plan for future experiences

| | Level A | Level B | Level C | Level D | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
|---|---|---|---|---|---|---|---|---|---|
| **Following Directions** | Responds to communication of others. | Mimics simple actions or sounds during interactions. | Mimics actions or sounds in different situations at a later time. | Imitates a simple novel action to accomplish a goal or follows familiar one-step directions. | Follows two-step directions that are given sequentially and in context. | | Follows three-step directions that are given sequentially and in context. | | Follows four-step directions that are given sequentially and in context. |
| **Information Recall and Connection** | Repeats simple actions that produce specific outcomes. | Searches for objects immediately after they are hidden and retrieves them. | Locates and retrieves objects after a brief delay. | Carries out some steps of a familiar routine or activity. | Recalls the sequences of familiar daily routines and demonstrates how to do them in correct order (e.g., hand-washing routine). | Recalls and relates the sequence of events in a recent past experience, but shifts attention to a favorite detail at some point (e.g., stops telling about the morning's events and begins singing a song that was sung). | Recalls and uses the sequence of events in a past experience to solve a present problem (e.g., remembers an adult using a sweater to carry a collection of leaves back to the classroom, so decides to use a blanket to carry several trucks to the sandbox). | Spontaneously connects a past event to a present event to contribute to a class discussion (e.g., remembers and tells about a trip to the circus after hearing a story about clowns). | Recalls information about past experiences and applies the information to make a plan for a similar experience in the future (e.g., remembers planting a class garden and uses that information to plan a science project about plants). |

*Appendix C: Learning Progressions*

## Social Studies: Events in the Context of Time

**Operational Definition:** Distinguishes among past, present, and future experiences and events in the context of daily routines and experiences

| | Level A | Level B | Level C | Level D | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
|---|---|---|---|---|---|---|---|---|---|
| **Past, Present, and Future** | Responds to communication of others. | | | Demonstrates awareness of steps within a familiar routine or activity. | Demonstrates an awareness of what comes "next" during the day (e.g., gets pillow from cubby after lunch in preparation for anticipated naptime). | Recalls, chronologically, some steps in a familiar routine (e.g., wash hands, eat snack, go outside) in order to tell what will be done later in the day. | Describes events that occurred in the recent past and events that are planned for the near future (e.g., in the morning, in the afternoon). | Describes the events of a day in chronological order, using appropriate terms (e.g., first, then, now, before, after, finally). | Describes a series of events that span a short period of time that includes the past, present, and future (e.g., yesterday, today, tomorrow). |

## Social Studies: Responsible Behavior

**Operational Definition:** Is able to identify home and school rules and explain their importance

| | Level A | Level B | Level C | Level D | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
|---|---|---|---|---|---|---|---|---|---|
| **Rules at Home and School** | Responds to communication of others. | | Demonstrates some awareness of adult requests/ expectations. | Complies with specific adult requests with adult guidance, sometimes following adult requests on own. | Identifies simple rules used at home and at school, but cannot tell why it is important to follow them. | Identifies simple rules used at home and at school, and explains the importance of following them in terms of compliance (e.g., "'cause Mommy'll be mad"). | Identifies rules used at home and at school, and can give a basic reason why the rules should be followed (e.g., "so we won't get hurt"). | Identifies rules used at home and at school, and explains how each rule promotes order, safety, and/or fairness. | Explains how the rules used at home and at school promote order, safety, and fairness, and describes what life would be like if the rules were not followed. |

*Appendix C: Learning Progressions*

## Fine Arts: Dance

**Operational Definition:** Demonstrates knowledge of how elements of dance are used to communicate meaning by producing and combining body movements

| | Level A | Level B | Level C | Level D | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
|---|---|---|---|---|---|---|---|---|---|
| **Movement Through Space** | Moves body or body parts with increasing control. | Moves whole body or parts of body in response to rhythmic sounds or vibrations. | | Moves whole body or parts of body through space in coordination with music or with rhythmic sounds or vibrations. | Moves forward/backward and up/down through space in a chosen pathway at high levels (e.g., reaching high or jumping) and low levels (e.g., crawling or slithering along the floor). | Moves forward/backward, up/down, and sideways, turning across a space in a straight or curved pathway at high and low levels. | Dances across a space in a straight, curved, or circular pathway at high, middle (e.g., with the feet or hands in contact with the floor), and low levels. | Dances across a space in a straight, curved, circular, diagonal, or zigzag pathway at high, middle, and low levels. | Dances across a space in a combination of pathways at high, middle, and low levels. |
| **Body Movements and Shapes** | Moves body or body parts with increasing control. | | | Dances with body movements that are big/little. | Dances with body movements and shapes that are straight/round and big/little, exploring different movement qualities (e.g., tension, force) to communicate ideas, thoughts, and feelings. | Dances with body movements that make straight, bent, and curved lines, exploring different movement qualities (e.g., effort, weight) to communicate ideas, thoughts, and feelings. | Dances with body movements that demonstrate geometric shapes (e.g., circle, rectangle, triangle, star), using different movement qualities to communicate ideas, thoughts, and feelings. | Dances with body movements that demonstrate clear shapes and designs (e.g., oval, crescent, common objects), using different movement qualities to communicate ideas, thoughts, and feelings. | Dances with body movements that demonstrate a variety of shapes and designs (e.g., letters, numbers, spirals), using combinations of movement qualities to communicate ideas, thoughts, and feelings. |
| **Spatial Relationship to Others** | Moves body or body parts with increasing control. | Moves whole body or parts of body in response to rhythmic sounds. | | Dances alongside others or with others to music. | Dances with others to fast or slow music with a steady beat. | Dances in spatial relationship to others (e.g., beside, behind, in front of), moving with a steady beat and following a rhythmic pattern with one part of the body in response to music. | Dances in clear spatial relationship to others (e.g., toward, away from), with a steady beat in relation to the music. | Dances in clear spatial relationship to others (e.g., in a line, circle), keeping a steady beat in relation to the music and changing tempo as the music changes. | Dances in clear spatial relationship to others (e.g., diagonal, arm's length apart), with a steady beat in relation to the music and changing tempo as the music changes. |

*Appendix C: Learning Progressions*

# Fine Arts: Music

**Operational Definition:** Develops awareness of and responds to the characteristics of musical sounds through singing and playing instruments

| | Level A | Level B | Level C | Level D | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
|---|---|---|---|---|---|---|---|---|---|
| **Rhythm** | Moves body or body parts with increasing control. | Moves whole body or parts of body in response to musical rhythms or rhythmic vibrations. | | Claps hands or pats body after adult claps, but with own rhythm. | Claps hands along with an adult, following the adult's simple rhythm. | Claps or drums a simple rhythmic pattern, with adult modeling. | Repeats a rhythmic pattern several times, with adult prompting. | Repeats a rhythmic pattern several times, without adult prompting. | Creates a rhythmic phrase by combining known patterns. |
| **Response to Change** | Attends to musical sounds or rhythmic vibrations. | Demonstrates awareness of familiar music or rhythmic vibrations. | Recognizes when music starts and stops. | Modifies actions in response to change in the music with adult modeling. | Recognizes when there is a change in the music (e.g., loud to soft or fast to slow). | Recognizes when there is a change between loud and soft music or fast and slow music and identifies what the change is. | Identifies the difference between long and short sounds or high and low pitch in music. | Responds to a single change heard in music by adjusting own actions to reflect the change. | Responds to multiple changes heard in music by adjusting own actions to reflect the change. |
| **Singing** | Attends to singing or gestures. | Demonstrates awareness of familiar songs or familiar hand movements in songs. | Makes sounds or gestures in a sing-song or rhythmic way. | Sings or signs a few words of familiar songs. | Chants words to familiar songs with adult modeling. | Sings parts of familiar songs as adult sings the songs. | Sings familiar songs, varying the voice to fit the song (e.g., a chant, a lullaby, a marching song), with adult prompting. | Sings familiar songs on own, varying the voice to fit the song. | Creates and sings songs that intentionally use the voice in a variety of ways. |
| **Playing Rhythm Instruments** | Attends to musical sounds or rhythmic vibrations. | Demonstrates awareness of rhythmic variation produced by instruments. | Explores instrument play. | Uses instruments to create patterns of music-like sounds. | Taps on a drum repeatedly, in an attempt to follow an adult's steady beat on a drum. | Taps on a drum, following an adult's steady beat on a drum, for a short time. | Plays a drum or other rhythm instrument, following an adult's steady beat throughout most of a simple song. | Plays a rhythm instrument to accompany a simple song, keeping a steady beat from beginning to end. | Plays a rhythm instrument to accompany a complex song, keeping a steady beat from beginning to end. |
| **Following Directions and Cues** | Responds to communication of others. | Imitates (or mimics) adult's simple action(s) or simple vocalization(s) during interaction with adult. | Imitates a few simple gestures or actions from a song with actions modeled by an adult. | Participates in some parts of simple songs that have gestures or movements with an adult and peers. | Participates in simple singing games with an adult and peers, by imitating the adult's actions. | Follows directions or cues to participate in simple singing games with peers, with adult modeling and guidance. | Follows directions or cues to participate in simple singing games with peers, with adult prompting. | Follows directions or cues to participate in simple singing games with peers. | Follows directions or cues to participate in more complex singing games with peers. |

*Appendix C: Learning Progressions*

## Fine Arts: Theater

**Operational Definition:** Explores stories, themes, and ideas about people and events through dramatic play and story dramatization

| | Level A | Level B | Level C | Level D | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
|---|---|---|---|---|---|---|---|---|---|
| **Dramatizing Stories** | Attends to communication of others. | Uses simple actions or vocalizations to communicate needs. | Communicates using simple gestures or actions to represent something symbolically. | Repeats a few words or actions from familiar finger plays, nursery rhymes, or simple stories with adult modeling. | Repeats the gestures and motions for finger plays, nursery rhymes, and stories, with adult modeling. | Recites nursery rhymes and finger plays, integrating gestures and motions, and acts out distinct and defined characters from familiar stories. | Dramatizes familiar stories, taking the role of the main character and integrating props into the dramatization. | Reenacts and/or extends familiar stories, and integrates improvised props and costumes into the dramatization. | Plans and dramatizes new stories or modifies familiar stories and integrates improvised props, scenery, and costumes into the dramatization, in collaboration with peers. |
| **Engaging in Dramatic Play** | Attends to communication of others. | Engages in familiar games with adults that involve repeating a single action. | Imitates parts of simple games with adult (e.g., peek-a-boo, pat-a-cake). | Plays social games with a peer by assuming simple roles (e.g., one child is the mommy and one is the baby, one child is serving lunch to another). | Engages with peers in dramatic play of familiar routines and scenarios. | Engages with peers and coordinates roles in dramatic play of familiar characters, routines, and stories. | Engages with peers in extended periods of dramatic play around an idea related to an experience or observation. | Engages with peers in a dramatic play sequence about an experience or observation, offering specific details, solutions to problems, and other related ideas. | Creates, with peers, imaginary worlds comprised of characters, settings, and stories in dramatic play and story dramatization. |
| **Contributing Original Ideas** | Attends to communication of others. | Imitates (or mimics) adult's action during interaction with adult. | | Imitates adult's gestures, sounds, actions, or words experienced in the recent past. | Imitates an adult and begins to contribute gestures, sounds, words, and actions while dramatizing a story. | Contributes gestures, sounds, words, and actions while participating in a story dramatization led by an adult. | Contributes, through gestures, sounds, words, and actions, to the development of simple dramatic play scenarios and improvised story dramatization guided by an adult. | Contributes original ideas for movement, sound, dialogue, and solutions to problems within a story dramatization and/or improvised drama guided by an adult. | Contributes original ideas for movement, extended dialogue, and solutions to problems that further the development of the plot within a story dramatization and/or improvised drama guided by an adult. |

## Fine Arts: Visual Arts

**Operational Definition:** Begins to identify, describe, and experiment with elements of art, such as colors, shapes, and lines, that are found in the environment, and to create artworks that are personally meaningful

|  | Level A | Level B | Level C | Level D | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
|---|---|---|---|---|---|---|---|---|---|
| **Colors, Shapes, and Lines** | Attends to objects of different colors. | Explores objects of different colors or shapes. | Recognizes familiar objects that differ in color or shape. | Identifies some colors and shapes but not consistently. | Identifies some colors and shapes (e.g., circle/ball, square/box) in the environment. | Identifies a variety of colors and shapes in the environment. | Identifies a variety of colors and shapes in the environment and in art made by self and others. | Identifies a variety of colors, shapes, and lines (e.g., straight, curved, wavy) in the environment and discusses how they are used in artworks. | Identifies and discusses which colors can be combined to make a different color, which shapes can be used to make familiar objects, and how different kinds of lines can be used in artworks. |
| **Drawing** | Explores objects by grasping them. | Adjusts grasp to size of object when handling it. | Makes marks on various surfaces with hands or drawing objects. | Scribbles with large vertical strokes. | Produces random scribbles by combining different types of drawing action (e.g., rapid horizontal arcing gestures followed by pushing-pulling gestures). | Produces controlled scribbles by drawing in a rotational movement to make circular shapes such as circles and the sun. | Produces drawings that are intentional (e.g., combines a circle and lines to represent a person), often using a favorite color instead of a realistic color, and may name the drawings (e.g., "This is daddy."). | Produces and describes drawings that are planned, observational, and representational of people, places, and objects, using colors, shapes, and lines to express ideas and feelings. | Produces and describes realistic and detailed representations of a person or object that are repeated in multiple drawings, changing colors, shapes, and lines across drawings to express ideas and feelings. |

# Appendix D: Learning Progressions – References and Source Materials

**Language and Literacy: Communication**

Anthony, J. L., Lonigan, C. J., Driscoll, K., Phillips, B. M., & Burgess, S. R. (2003). Phonological sensitivity: A quasi-parallel progression of word structure units and cognitive operations. *Reading Research Quarterly, 38*(4), 470–487.

Bates, E. A. (2004). Explaining and interpreting deficits in language development across clinical groups: Where do we go from here? *Brain and Language, 88*, 248–253.

Chapman, M., Zahn-Waxler, C., Cooperman, G., & Iannotti, R. J. (1987). Empathy and responsibility in the motivation of children's helping. *Developmental Psychology, 23*, 140–145.

Curenton, S. M., & Justice, L. M. (2004). African American and Caucasian preschoolers' use of decontextualized language: Literate language features in oral narratives. *Language, Speech, and Hearing Services in Schools, 35*, 240–253.

Cutting, A. L., & Dunn, J. (2006). Conversations with siblings and with friends: Links between relationship quality and social understanding. *British Journal of Developmental Psychology, 24*, 73–87.

Foy, J. G., & Mann, V. (2001). Does strength of phonological representations predict phonological awareness in preschool children? *Applied Psycholinguistics, 22*, 301–325.

Girolametto, L., & Weitzman, E. (2002). Responsiveness of child care providers in interactions with toddlers and preschoolers. *Language, Speech, and Hearing Services in Schools, 33*, 268–281.

Grosse, G., Behne, T., Carpenter, M., & Tomasello, M. (2010). Infants communicate in order to be understood. *Developmental Psychology, 46*(6), 1710–1722.

Huttenlocher, J., Vasilyeva, M., Cymerman, E., & Levine, S. (2002). Language input and child syntax. *Cognitive Psychology, 45*, 337–374.

Huttenlocher, J., Vasilyeva, M., Waterfall, H. R., Vevea, J. L., & Hedges, L. V. (2007). The varieties of speech to young children. *Developmental Psychology, 43*(5), 1062–1083.

Lonigan, C. J., Anthony, J. L., Phillips, B. M., Purpura, D. J., Wilson, S. B., & McQueen, J. D. (2009). The nature of preschool phonological processing abilities and the relations to vocabulary, general cognitive abilities, and print knowledge. *Journal of Educational Psychology, 101*(2), 345–358.

MacWhinney, B. (2011). Language development. In M. H. Bornstein & M. E. Lamb (Eds.), *Developmental science: An advanced textbook* (6th ed., pp. 389–423). New York, NY: Psychology Press.

McDowell, K. D., Lonigan, C. J., & Goldstein, H. (2007). Relations among socioeconomic status, age, and predictors of phonological awareness. *Journal of Speech, Language, and Hearing Research, 50*, 1079–1092.

Nippold, M. A., Hesketh, L. J., Duthie, J. K., & Mansfield, T. C. (2005). Conversational versus expository discourse: A study of syntactic development in children, adolescents, and adults. *Journal of Speech, Language, and Hearing Research, 48*, 1048–1064.

Paris, A. H., & Paris, S. G. (2003). Assessing narrative comprehension in young children. *Reading Research Quarterly, 38*(1), 36–76.

Phillips, B. M., Clancy-Menchetti, J., & Lonigan, C. J. (2008). Successful phonological awareness instruction with preschool children: Lessons from the classroom. *Topics in Early Childhood Special Education, 28*(1), 3–17. doi: http://dx.doi.org/10.1177/0271121407313813

Siegel, M., & Surian, L. (2007). Conversational understanding in young children. In E. Hoff & M. Shatz (Eds.), *Blackwell handbook of language development* (pp. 304–323). Malden, MA: Blackwell Publishing.

Tomasello, M., Hare, B., & Agnetta, B. (1999). Chimpanzees, Pan troglodytes, follow gaze direction geometrically. *Animal Behaviour, 58*(4), 769–777.

Vasilyeva, M., Casey, B. M., Dearing, E., & Ganley, C. M. (2009). Measurement skills in low-income elementary school students: Exploring the nature of gender differences. *Cognition and Instruction, 27*(4), 401–428.

**Language and Literacy: Emergent Writing**

Curenton, S. M., & Justice, L. M. (2004). African American and Caucasian preschoolers' use of decontextualized language: Literate language features in oral narratives. *Language, Speech, and Hearing Services in Schools, 35*, 240–253.

Dahl, K. L., & Freppon, P. A. (1995). A comparison of innercity children's interpretations of reading and writing instruction in early grades in skills-based and whole language classrooms. *Reading Research Quarterly, 30*(1), 50–74.

Duke, N. K., & Kays, J. (1998). "Can I say 'once upon a time'?": Kindergarten children developing knowledge of information book language. *Early Childhood Research Quarterly, 13*(2), 295–318.

Dyson, A. H. (2000). Writing and the sea of voices: Oral language in, around, and about writing. In R. Indrisano & J. Squire (Eds.), *Perspectives on writing research, theory, and practice* (pp. 45–65). Newark, DE: International Reading Association.

Genishi, C., & Dyson, A. H. (2009). *Children, language, and literacy: Diverse learners in diverse times*. New York, NY: Teachers College Press.

Huttenlocher, J., Vasilyeva, M., Cymerman, E., & Levine, S. (2002). Language input and child syntax. *Cognitive Psychology, 45*, 337–374.

National Institute for Literacy. (2008). *Developing early literacy: Report of the National Early Literacy Panel*. Washington, DC: Government Printing Office.

Norris, E., Mokhtari, K., & Reichard, C. (1998). Children's use of drawing as a pre-writing strategy. *Journal of Research in Reading, 21*(1), 69–74.

Paris, A. H., & Paris, S. G. (2003). Assessing narrative comprehension in young children. *Reading Research Quarterly, 38*(1), 36–76.

Peterson, C., Jesso, B., & McCabe, A. (1999). Encouraging narratives in preschoolers: An intervention study. *Journal of Child Language, 26*, 49–67.

Puranik, C. S., & Lonigan, C. J. (2011). From scribbles to scrabble: Preschool children's developing knowledge of written language. *Reading and Writing, 24*(5), 567–589. doi: http://dx.doi.org/10.1007/s11145-009-9220-8

Rowe, D. W. (2008). Social contracts for writing: Negotiating shared understandings about text in the preschool years. *Reading Research Quarterly, 43*(1), 66–95. doi: http://dx.doi.org/10.1598/RRQ.43.1.5

Rowe, D. W., & Neitzel, C. (2010). Interest and agency in 2- and 3-year-olds' participation in emergent writing. *Reading Research Quarterly, 45*(2), 169–195. doi: http://dx.doi.org/10.1598/RRQ.45.2.2

Rowe, M. L., Özçalişkan, Ş., & Goldin-Meadow, S. (2008). Learning words by hand: Gesture's role in predicting vocabulary development. *First Language, 28*(2), 182–199. doi: http://dx.doi.org/10.1177/0142723707088310

Schickedanz, J. A., & Collins, M. F. (2013). *So much more than the ABCs: The early phases of reading and writing*. Washington, DC: National Association for the Education of Young Children.

Whitehurst, G. J., & Lonigan, C. J. (1998). Child development and emergent literacy. *Child Development, 69*(3), 848–872.

**Language and Literacy: Grammar**

Charity, A. H., Scarborough, H. S., & Griffin, D. M. (2004). Familiarity with school English in African American children and its relation to early reading achievement. *Child Development, 75*(5), 1340–1356.

Curenton, S. M., & Justice, L. M. (2004). African American and Caucasian preschoolers' use of decontextualized language: Literate language features in oral narratives. *Language, Speech, and Hearing Services in Schools, 35*, 240–253.

Gutierrez-Clellen, V. F. (2002). Narratives in two languages: Assessing performance in bilingual children. *Linguistics and Education, 13*(2), 175–197.

Hoff, E. (2004). Progress, but not a full solution to the logical problem of language acquisition. *Journal of Child Language, 31*(4), 923–926.

Hoff, E. (2012). Interpreting the early language trajectories of children from low-SES and language minority homes: Implications for closing achievement gaps. *Developmental Psychology, 49*(1), 4–14.

Huttenlocher, J., Vasilyeva, M., Cymerman, E., & Levine, S. (2002). Language input and child syntax. *Cognitive Psychology, 45*, 337–374.

Huttenlocher, J., Vasilyeva, M., Waterfall, H. R., Vevea, J. L., & Hedges, L. V. (2007). The varieties of speech to young children. *Developmental Psychology, 43*(5), 1062–1083.

Huttenlocher, J., Waterfall, H. R., Vasilyeva, M., Vevea, J. L., & Hedges, L. V. (2010). Sources of variability in children's language growth. *Cognitive Psychology, 61*, 343–365.

Justice, L. M., Meier, J., & Walpole, S. (2005). Learning new words from storybooks: An efficacy study with at-risk kindergartners. *Language, Speech, and Hearing Services in Schools, 36*, 17–32.

Lonigan, C. J. (2006). Development, assessment, and promotion of preliteracy skills. *Early Education and Development, 17*(1), 91–114.

MacWhinney, B. (2011). Language development. In M. H. Bornstein & M. E. Lamb (Eds.), *Developmental science: An advanced textbook* (6th ed., pp. 389–423). New York, NY: Psychology Press.

Nippold, M. A., Hesketh, L. J., Duthie, J. K., & Mansfield, T. C. (2005). Conversational versus expository discourse: A study of syntactic development in children, adolescents, and adults. *Journal of Speech, Language, and Hearing Research, 48*, 1048–1064.

Paris, A. H., & Paris, S. G. (2003). Assessing narrative comprehension in young children. *Reading Research Quarterly, 38*(1), 36–76.

Peterson, C., Jesso, B., & McCabe, A. (1999). Encouraging narratives in preschoolers: An intervention study. *Journal of Child Language, 26*, 49–67.

Rose, S. A., Feldman, J. F., & Jankowski, J. J. (2009). A cognitive approach to the development of early language. *Child Development, 80*(1), 134–150.

Shimpi, P., Gamez, P., Huttenlocher, J., & Vasilyeva, M. (2007). Using syntactic priming to track emerging linguistic representations of transitive dative constructions. *Developmental Psychology, 43*(6), 1334–1346.

Siegel, M., & Surian, L. (2007). Conversational understanding in young children. In E. Hoff & M. Shatz (Eds.), *Blackwell handbook of language development* (pp. 304–323). Malden, MA: Blackwell Publishing.

Vasilyeva, M., Casey, B. M., Dearing, E., & Ganley, C. M. (2009). Measurement skills in low-income elementary school students: Exploring the nature of gender differences. *Cognition and Instruction, 27*(4), 401–428.

**Language and Literacy: Phonics and Letter Recognition**

Anthony, J. L., Lonigan, C. J., Burgess, S. R., Driscoll, K., Phillips, B. M., & Cantor, B. G. (2002). Structure of preschool phonological sensitivity: Overlapping sensitivity to rhyme, words, syllables, and phonemes. *Journal of Experimental Child Psychology, 82*, 65–92.

Connor, M., Morrison, F., & Slominski, L. (2006). Preschool instruction and children's emergent growth. *Journal of Educational Psychology, 98*(4), 665–689.

Ehri, L. C. (1995). Phases of development in learning to read words by sight. *Journal of Research in Reading, 18*(2), 116–125.

Kuhn, M., & Stahl, S. (2003). Fluency: A review of developmental and remedial practices. *Journal of Educational Psychology, 95*(1), 3–21.

National Institute for Literacy. (2008). *Developing early literacy: Report of the National Early Literacy Panel*. Washington, DC: Government Printing Office.

Nazzi, T., Dilley, L. C., Jusczyk, A. M., Shattuck-Hufnagel, S., & Jusczyk, P. W. (2005). English-learning infants' segmentation of verbs from fluent speech. *Language and Speech, 48*(3), 279–298.

Newman, R., Ratner, N. B., Jusczyk, A. M., Jusczyk, P. W., & Dow, K. A. (2006). Infants' early ability to segment the conversational speech signal predicts later language development: A retrospective analysis. *Developmental Psychology, 42*(4), 643–655.

Nippold, M. A., Hesketh, L. J., Duthie, J. K., & Mansfield, T. C. (2005). Conversational versus expository discourse: A study of syntactic development in children, adolescents, and adults. *Journal of Speech, Language, and Hearing Research, 48*, 1048–1064.

Snow, C. E., Burns, S., & Griffin, P. (1998). *Preventing reading difficulties in young children*. Washington, DC: National Academies Press.

Sparling, J. (2004). Earliest literacy: From birth to age 3. In B. H. Wasik (Ed.), *Handbook of family literacy* (pp. 45–56). Mahwah, NJ: Erlbaum.

Treiman, R., & Broderick, V. (1998). What's in a name: Children's knowledge about the letters in their own name. *Journal of Experimental Child Psychology, 70*(2), 97–116.

Treiman, R., & Kessler, B. (2003). The role of letter names in the acquisition of literacy. In R. V. Kail (Ed.), *Advances in child development and behavior* (Vol. 31, pp. 105–135). San Diego, CA: Academic Press.

Ukrainetz, T. A., Nuspi, J. J., Wilkerson, K., & Beddes, S. R. (2011). The effects of syllable instruction on phonemic awareness in preschoolers. *Early Childhood Research Quarterly, 26*, 50–60.

Verhoeven, L., & Van Leeuwe, J. (2008). Prediction of the development of reading comprehension: A longitudinal study. *Applied Cognitive Psychology, 22*, 407–423.

Wasik, B. H., & Newman, B. A. (2009). Teaching and learning to read. In O. A. Barbarin & B. H. Wasik (Eds.), *Handbook of child development and early education* (pp. 303–327). New York, NY: Guilford Press.

Worden, P. E., & Boettcher, W. (1990). Young children's acquisition of alphabet knowledge. *Journal of Reading Behavior, 22*(3), 277–295.

## Language and Literacy: Phonological Awareness

Anthony, J. L., Lonigan, C. J., Burgess, S. R., Driscoll, K., Phillips, B. M., & Cantor, B. G. (2002). Structure of preschool phonological sensitivity: Overlapping sensitivity to rhyme, words, syllables, and phonemes. *Journal of Experimental Child Psychology, 82*, 65–92.

Anthony, J. L., Lonigan, C. J., Driscoll, K., Phillips, B. M., & Burgess, S. R. (2003). Phonological sensitivity: A quasi-parallel progression of word structure units and cognitive operations. *Reading Research Quarterly, 38*(4), 470–487.

Bus, A. G., & van Ijzendoorn, M. H. (1999). Phonological awareness and early reading: A meta-analysis of experimental training studies. *Journal of Educational Psychology, 91*(3), 403–414.

Connor, M., Morrison, F., & Slominski, L. (2006). Preschool instruction and children's emergent growth. *Journal of Educational Psychology, 98*(4), 665–689.

Jusczyk, P. W. (1995). Language acquisition: Speech sounds and the beginning of phonology. In J. L. Miller & P. D. Eimas (Eds.), *Speech, language, and communication* (pp. 263–301). San Diego, CA: Academic Press.

Jusczyk, P. W., Luce, P. A., & Charles-Luce, J. (1994). Infants' sensitivity to phonotactic patterns in the native language. *Journal of Memory and Language, 33*(5), 630–645. doi: http://dx.doi.org/10.1006/jmla.1994.1030

Kuhl, P. K. (2004). Early language acquisition: Cracking the speech code. *Nature Reviews Neuroscience, 5*, 831–843.

Lonigan, C. J. (2006). Development, assessment, and promotion of preliteracy skills. *Early Education and Development, 17*(1), 91–114.

Lonigan, C. J., Anthony, J. L., Phillips, B. M., Purpura, D. J., Wilson, S. B., & McQueen, J. D. (2009). The nature of preschool phonological processing abilities and the relations to vocabulary, general cognitive abilities, and print knowledge. *Journal of Educational Psychology, 101*(2), 345–358.

Lonigan, C. J., Burgess, S. R., & Anthony, J. L. (2000). Development of emergent literacy and early reading skills in preschool children: Evidence from a latent-variable longitudinal study. *Developmental Psychology, 36*(5), 596–613. doi: http://dx.doi.org/10.1037/0012-1649.36.5.596

MacWhinney, B. (2011). Language development. In M. H. Bornstein & M. E. Lamb (Eds.), *Developmental science: An advanced textbook* (6th ed., pp. 389–423). New York, NY: Psychology Press.

McBride-Chang, C. (2004). *Children's literacy development*. London, England: Arnold Publishers.

Metsala, J. L., & Walley, A. C. (1998). Spoken vocabulary growth and the segmental restructuring of lexical representations: Precursors to phonemic awareness and early reading ability. In J. L. Metsala & L. C. Ehri (Eds.), *Word recognition in beginning literacy* (pp. 89–120). Mahwah, NJ: Lawrence Erlbaum Associates Publishers.

National Institute for Literacy. (2008). *Developing early literacy: Report of the National Early Literacy Panel*. Washington, DC: Government Printing Office.

Nazzi, T., Dilley, L. C., Jusczyk, A. M., Shattuck-Hufnagel, S., & Jusczyk, P. W. (2005). English-learning infants' segmentation of verbs from fluent speech. *Language and Speech, 48*(3), 279–298.

Newman, R., Ratner, N. B., Jusczyk, A. M., Jusczyk, P. W., & Dow, K. A. (2006). Infants' early ability to segment the conversational speech signal predicts later language development: A retrospective analysis. *Developmental Psychology, 42*(4), 643–655.

Phillips, B. M., Clancy-Menchetti, J., & Lonigan, C. J. (2008). Successful phonological awareness instruction with preschool children: Lessons from the classroom. *Topics in Early Childhood Special Education, 28*(1), 3–17. doi: http://dx.doi.org/10.1177/0271121407313813

Rose, S. A., Feldman, J. F., & Jankowski, J. J. (2009). A cognitive approach to the development of early language. *Child Development, 80*(1), 134–150.

Shimpi, P., Gamez, P., Huttenlocher, J., & Vasilyeva, M. (2007). Using syntactic priming to track emerging linguistic representations of transitive dative constructions. *Developmental Psychology, 43*(6), 1334–1346.

Wasik, B. H., & Newman, B. A. (2009). Teaching and learning to read. In O. A. Barbarin & B. H. Wasik (Eds.), *Handbook of child development and early education* (pp. 303–327). New York, NY: Guilford Press.

*Appendix D: Learning Progressions – References and Source Materials*

**Language and Literacy: Story/Text Comprehension**

Adomat, D. S. (2012). Drama's potential for deepening young children's understandings of stories. *Early Childhood Education Journal, 40*, 343–350.

Anthony, J. L., & Lonigan, C. J. (2004). The nature of phonological awareness: Converging evidence from your studies of preschool and early grade school children. *Journal of Educational Psychology, 96*(1), 43–55.

Anthony, J. L., Lonigan, C. J., Burgess, S. R., Driscoll, K., Phillips, B. M., & Cantor, B. G. (2002). Structure of preschool phonological sensitivity: Overlapping sensitivity to rhyme, words, syllables, and phonemes. *Journal of Experimental Child Psychology, 82*, 65–92.

Brandão, A. C. P., & Oakhill, J. (2005). "How do you know this answer?"—Children's use of text data and general knowledge in story comprehension. *Reading and Writing, 18*, 687–713.

Connor, M., Morrison, F., & Slominski, L. (2006). Preschool instruction and children's emergent growth. *Journal of Educational Psychology, 98*(4), 665–689.

Hancock, M. R. (2007). *A celebration of literature and response* (3rd ed.). Upper Saddle River, NJ: Merrill.

Hoff, E., & Naigles, L. (2002). How children use input to acquire a lexicon. *Child Development, 73*(2), 418–433.

Kuhn, M., & Stahl, S. (2003). Fluency: A review of developmental and remedial practices. *Journal of Educational Psychology, 95*(1), 3–21.

Lonigan, C. J. (2006). Development, assessment, and promotion of preliteracy skills. *Early Education and Development, 17*(1), 91–114.

Lonigan, C. J., Anthony, J. L., Phillips, B. M., Purpura, D. J., Wilson, S. B., & McQueen, J. D. (2009). The nature of preschool phonological processing abilities and the relations to vocabulary, general cognitive abilities, and print knowledge. *Journal of Educational Psychology, 101*(2), 345–358.

Lorch, E. P., O'Neil, K., Berthiaume, K. S., Milich, R., Eastham, D., & Brooks, T. (2004). Story comprehension and the impact of studying on recall in children with Attention Deficit Hyperactivity Disorder. *Journal of Clinical Child and Adolescent Psychology, 33*(3), 506–515.

National Institute for Literacy. (2008). *Developing early literacy: Report of the National Early Literacy Panel*. Washington, DC: Government Printing Office.

Perfetti, C. A. (2003). The universal grammar of reading. *Scientific Studies of Reading, 7*(1), 3–24.

Sparling, J. (2004). Earliest literacy: From birth to age 3. In B. H. Wasik (Ed.), *Handbook of family literacy* (pp. 45–56). Mahwah, NJ: Erlbaum.

Ukrainetz, T. A., Nuspi, J. J., Wilkerson, K., & Beddes, S. R. (2011). The effects of syllable instruction on phonemic awareness in preschoolers. *Early Childhood Research Quarterly, 26*, 50–60.

Verhoeven, L., & Perfetti, C. A. (2008). Advances in text comprehension: Model, process and development. *Applied Cognitive Psychology, 22*, 293–301.

Verhoeven, L., & Van Leeuwe, J. (2008). Prediction of the development of reading comprehension: A longitudinal study. *Applied Cognitive Psychology, 22*, 407–423.

Wasik, B. H. (2007). *Interactive book reading: Growing literacy curriculum*. Chapel Hill, NC: Partners for Literacy.

Wasik, B. H., & Newman, B. A. (2009). Teaching and learning to read. In O. A. Barbarin & B. H. Wasik (Eds.), *Handbook of child development and early education* (pp. 303–327). New York, NY: Guilford Press.

**Language and Literacy: Vocabulary**

Curenton, S. M., & Justice, L. M. (2004). African American and Caucasian preschoolers' use of decontextualized language: Literate language features in oral narratives. *Language, Speech, and Hearing Services in Schools, 35*, 240–253.

Devascovi, A., Caselli, M. C., Marchione, D., Pasqualetti, P., Reilly, J., & Bates, E. (2005). A crosslinguistic study of the relationship between grammar and lexical development. *Journal of Child Language, 32,* 759–786.

Hoff, E. (2004). Progress, but not a full solution to the logical problem of language acquisition. *Journal of Child Language, 31*(4), 923–926.

Hoff, E. (2012). Interpreting the early language trajectories of children from low-SES and language minority homes: Implications for closing achievement gaps. *Developmental Psychology, 49*(1), 4–14.

Landauer, T. K., & Dumais, S. T. (1997). A solution to Plato's problem: The latent semantic analysis theory of acquisition, induction, and representation of knowledge. *Psychological Review, 104*(2), 211–240. doi: http://dx.doi.org/10.1037/0033-295X.104.2.211

MacWhinney, B. (2011). Language development. In M. H. Bornstein & M. E. Lamb (Eds.), *Developmental science: An advanced textbook* (6th ed., pp. 389–423). New York, NY: Psychology Press.

Nagy, W. E., Herman, P. A., & Anderson, R. C. (1985). Learning words from context. *Reading Research Quarterly, 20*(2), 233–253. doi: http://dx.doi.org/10.2307/747758

Rose, S. A., Feldman, J. F., & Jankowski, J. J. (2009). A cognitive approach to the development of early language. *Child Development, 80*(1), 134–150.

Woodward, A. L., Markman, E. M., & Fitzsimmons, C. M. (1994). Rapid word learning in 13- and 18-month-olds. *Developmental Psychology, 30*(4), 553–566. doi: http://dx.doi.org/10.1037/0012-1649.30.4.553

**Mathematics: Classification**

Blair, M., & Somerville, S. C. (2009). The importance of differentiation in young children's acquisition of expertise. *Cognition, 112*, 259–280.

Bornstein, M. H., & Arterberry, M. E. (2010). The development of object categorization in young children: Hierarchical inclusiveness, age, perceptual attribute, and group versus individual analyses. *Developmental Psychology, 46*(2), 350–365.

Clements, D. H., & Sarama, J. (2004). Learning trajectories in mathematics education. *Mathematical Thinking and Learning, 6*(2), 81–89.

Clements, D. H., & Stephan, M. (2004). Measurement in Pre-K to grade 2 mathematics. In D. H. Clements, J. Sarama, & A. M. DiBiase (Eds.), *Engaging young children in mathematics: Standards for early childhood mathematics education*. Mahwah, NJ: Lawrence Erlbaum Associates.

DeLoache, J. S., Uttal, D. H., & Rosengren, K. S. (2004). Scale errors offer evidence for a perception-action dissociation early in life. *Science, 304*, 1027–1029.

Graham, S. A., Namy, L. L., Gentner, D., & Meagher, K. (2010). The role of comparison in preschoolers' novel object categorization. *Journal of Experimental Child Psychology, 107*, 280–290.

Kemler Nelson, D. G., Frankenfield, A., Morris, C., & Blair, E. (2000). Young children's use of functional information to categorize artifacts: Three factors that matter. *Cognition, 77*, 133–168.

Kemler Nelson, D. G., Herron, L., & Holt, M. (2003). The sources of young children's name innovations for novel artifacts. *Journal of Child Language, 30*, 823–843.

Namy, L. L., & Clepper, L. E. (2010). The differing roles of comparison and contrast in children's categorization. *Journal of Experimental Child Psychology, 107*(3), 291–305.

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

Oakes, L. M., & Madole, K. L. (2003). Principles of developmental change in infants' category formation. In D. H. Rakison & L. M. Oakes (Eds.), *Early category and concept development: Making sense of the blooming, buzzing confusion* (pp. 132–158). New York: NY: Oxford University Press.

Paik, J. H., & Mix, K. S. (2006). Preschoolers' use of surface similarity in object comparisons: Taking context into account. *Journal of Experimental Child Psychology, 95*, 194–214.

Rakison, D. H., & Butterworth, G. E. (1998). Infants' attention to object structure in early categorization. *Developmental Psychology, 34*(6), 1310–1325.

Smith, L. B., Jones, S. S., Landau, B., Gershkoff-Stowe, L., & Samuelson, L. (2002). Object name learning provides on-the-job training for attention. *Psychological Science, 13*(1), 13–19. doi: http://dx.doi.org/10.1111/1467-9280.00403

**Mathematics: Measurement**

Blair, M., & Somerville, S. C. (2009). The importance of differentiation in young children's acquisition of expertise. *Cognition, 112*, 259–280.

Bornstein, M. H., & Arterberry, M. E. (2010). The development of object categorization in young children: Hierarchical inclusiveness, age, perceptual attribute, and group versus individual analyses. *Developmental Psychology, 46*(2), 350–365.

Clements, D. H., & Sarama, J. (2004). Learning trajectories in mathematics education. *Mathematical Thinking and Learning, 6*(2), 81–89.

Clements, D. H., & Stephan, M. (2004). Measurement in Pre-K to grade 2 mathematics. In D. H. Clements, J. Sarama, & A. M. DiBiase (Eds.), *Engaging young children in mathematics: Standards for early childhood mathematics education*. Mahwah, NJ: Lawrence Erlbaum Associates.

Curry, M., & Outhred, L. (2005). Conceptual understanding of spatial measurement. In P. Clarkson, A. Downton, D. Gronn, M. Horne, A. McDonough, R. Pierce, & A. Roche (Eds.), *Building connections: Theory, research, and practice (Proceedings of the 27th annual conference of the Mathematics Education Research Group of Australia)* (pp. 265–272). Sydney, Australia: MERGA.

DeLoache, J. S., Uttal, D. H., & Rosengren, K. S. (2004). Scale errors offer evidence for a perception-action dissociation early in life. *Science, 304*, 1027–1029.

Ginsburg, H. P., Inoue, N., & Seo, K.-H. (1999). Young children doing mathematics: Observations of everyday activities. In J. V. Copley (Ed.), *Mathematics in the early years* (pp. 88–99). Washington, DC: National Association for the Education of Young Children.

Graham, S. A., Namy, L. L., Gentner, D., & Meagher, K. (2010). The role of comparison in preschoolers' novel object categorization. *Journal of Experimental Child Psychology, 107*, 280–290.

Greenes, C. (1999). Ready to learn: Developing young children's mathematical powers. In J. V. Copley (Ed.), *Mathematics in the early years* (pp. 39–47). Washington, DC: National Association for the Education of Young Children.

Huntley-Fenner, G. (2001). Why count stuff? Young preschoolers do not use number for measurement in continuous dimensions. *Developmental Science, 4*(4), 456–462. doi: http://dx.doi.org/10.1111/1467-7687.00187

Kemler Nelson, D. G., Frankenfield, A., Morris, C., & Blair, E. (2000). Young children's use of functional information to categorize artifacts: Three factors that matter. *Cognition, 77*, 133–168.

Kemler Nelson, D. G., Herron, L., & Holt, M. (2003). The sources of young children's name innovations for novel artifacts. *Journal of Child Language, 30*, 823–843.

Namy, L. L., & Clepper, L. E. (2010). The differing roles of comparison and contrast in children's categorization. *Journal of Experimental Child Psychology, 107*(3), 291–305.

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

Oakes, L. M., & Madole, K. L. (2003). Principles of developmental change in infants' category formation. In D. H. Rakison & L. M. Oakes (Eds.), *Early category and concept development: Making sense of the blooming, buzzing confusion* (pp. 132–158). New York, NY: Oxford University Press.

Paik, J. H., & Mix, K. S. (2006). Preschoolers' use of surface similarity in object comparisons: Taking context into account. *Journal of Experimental Child Psychology, 95*, 194–214.

Rakison, D. H., & Butterworth, G. E. (1998). Infants' attention to object structure in early categorization. *Developmental Psychology, 34*(6), 1310–1325.

Smith, L. B., Jones, S. S., Landau, B., Gershkoff-Stowe, L., & Samuelson, L. (2002). Object name learning provides on-the-job training for attention. *Psychological Science, 13*(1), 13–19. doi: http://dx.doi.org/10.1111/1467-9280.00403

**Mathematics: Number Operations**

Barth, H., La Mont, K., Lipton, J., Stanislas, D., Kanwisher, N., & Spelke, E. (2006). Non-symbolic arithmetic in adults and young children. *Cognition, 98*, 199–222.

Clements, D. H., & Stephan, M. (2004). Measurement in Pre-K to grade 2 mathematics. In D. H. Clements, J. Sarama, & A. M. DiBiase (Eds.), *Engaging young children in mathematics: Standards for early childhood mathematics education*. Mahwah, NJ: Lawrence Erlbaum Associates.

Condry, K. F., & Spelke, E. (2008). The development of language and abstract concepts: The case of natural number. *Journal of Experimental Psychology: General, 137*(1), 22–38.

Gelman, R., & Gallistel, C. R. (2004). Language and the origin of numerical concepts. *Science, 306*, 441–443.

Ginsburg, H. P. (2009). Early mathematics education and how to do it. In O. A. Barbarin & B. H. Wasik (Eds.), *Handbook of child development and early education* (pp. 403–428). New York, NY: Guilford Press.

Huang, Y. T., Spelke, E., & Snedeker, J. (2010). When is *four* far more than *three?*: Children's generalization of newly acquired number words. *Psychological Science, 21*(4), 600–606.

Huttenlocher, J., Jordan, N. C., & Levine, S. C. (1994). A mental model for early arithmetic. *Journal of Experimental Psychology: General, 123*(3), 284–296.

Jordan, N. C., Huttenlocher, J., & Levine, S. C. (1992). Differential calculation abilities in young children from middle- and low-income families. *Developmental Psychology, 28*(4), 644–653. doi: http://dx.doi.org/10.1037/0012-1649.28.4.644

Lipton, J. S., & Spelke, E. (2009). Preschool children master the logic of number word meanings. *Cognition, 98*, B57–B66.

Mix, K. S., Huttenlocher, J., & Levine, S. C. (2002). Multiple cues for quantification in infancy: Is number one of them? *Psychological Bulletin, 128*(2), 278–294. doi: http://dx.doi.org/10.1037/0033-2909.128.2.278

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

Siegler, R. S. (2009). Improving preschoolers' number sense using information-processing theory. In O. A. Barbarin & B. H. Wasik (Eds.), *Handbook of child development and early education* (pp. 429–454). New York, NY: Guilford Press.

Siegler, R. S., & Opfer, J. E. (2003). The development of numerical estimation: Evidence for multiple representations of numerical quantity. *Psychological Science, 14*(3), 237–243.

Starkey, P., Klein, A., & Wakeley, A. (2004). Enhancing young children's mathematical knowledge through a pre-kindergarten mathematics intervention. *Early Childhood Research Quarterly, 19*, 99–120.

**Mathematics: Number Sense**

Barth, H., La Mont, K., Lipton, J., Stanislas, D., Kanwisher, N., & Spelke, E. (2006). Non-symbolic arithmetic in adults and young children. *Cognition, 98*, 199–222.

Barth, H., Starr, A., & Sullivan, J. (2009). Children's mappings of large number words to numerosities. *Cognitive Development, 24*, 248–264.

Brannon, E. M. (2002). The development of ordinal numerical knowledge in infancy. *Cognition, 83*(3), 223–240. doi: http://dx.doi.org/10.1016/S0010-0277(02)00005-7

Casey, B. (2009). Applying developmental approaches to learning math. In O. A. Barbarin & B. H. Wasik (Eds.), *Handbook of child development and early education* (pp. 478–498). New York, NY: Guilford Press.

Clements, D. H., & Stephan, M. (2004). Measurement in Pre-K to grade 2 mathematics. In D. H. Clements, J. Sarama, & A. M. DiBiase (Eds.), *Engaging young children in mathematics: Standards for early childhood mathematics education*. Mahwah, NJ: Lawrence Erlbaum Associates.

Condry, K. F., & Spelke, E. (2008). The development of language and abstract concepts: The case of natural number. *Journal of Experimental Psychology: General, 137*(1), 22–38.

Cordes, S., & Brannon, E. M. (2008). Quantitative competencies in infancy. *Developmental Science, 11*(6), 803–808. doi: http://dx.doi.org/10.1111/j.1467-7687.2008.00770.x

Feigenson, L., Dehaene, S., & Spelke, E. (2004). Core systems of number. *Trends in Cognitive Sciences, 8*(7), 307–314. doi: http://dx.doi.org/10.1016/j.tics.2004.05.002

Gelman, R., & Gallistel, C. R. (2004). Language and the origin of numerical concepts. *Science, 306*, 441–443.

Ginsburg, H. P. (2009). Early mathematics education and how to do it. In O. A. Barbarin & B. H. Wasik (Eds.), *Handbook of child development and early education* (pp. 403–428). New York, NY: Guilford Press.

Huang, Y. T., Spelke, E., & Snedeker, J. (2010). When is *four* far more than *three?*: Children's generalization of newly acquired number words. *Psychological Science, 21*(4), 600–606.

Klein, A., & Starkey, P. (2004). Fostering preschool children's mathematical knowledge: Findings from the Berkeley Math Readiness Project. In D. H. Clements, J. Sarama, & A.-M. DiBiase (Eds.), *Engaging young children in mathematics: Standards for early childhood mathematics education* (pp. 343–360). Mahwah, NJ: Lawrence Erlbaum Associates.

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

Lipton, J. S., & Spelke, E. (2009). Preschool children master the logic of number word meanings. *Cognition, 98*, B57–B66.

McCrink, K., & Spelke, E. (2010). Core multiplication in childhood. *Cognition, 116*, 204–216.

Mix, K. S., Huttenlocher, J., & Levine, S. C. (2002). Multiple cues for quantification in infancy: Is number one of them? *Psychological Bulletin, 128*(2), 278–294. doi: http://dx.doi.org/10.1037/0033-2909.128.2.278

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

Sarnecka, B. W., & Gelman, S. A. (2004). *Six* does not just mean *a lot*: Preschoolers see number words as specific. *Cognition, 92*, 329–352.

Siegler, R. S. (2009). Improving preschoolers' number sense using information-processing theory. In O. A. Barbarin & B. H. Wasik (Eds.), *Handbook of child development and early education* (pp. 429–454). New York, NY: Guilford Press.

Siegler, R. S., & Opfer, J. E. (2003). The development of numerical estimation: Evidence for multiple representations of numerical quantity. *Psychological Science, 14*(3), 237–243.

Starkey, P., Klein, A., & Wakeley, A. (2004). Enhancing young children's mathematical knowledge through a pre-kindergarten mathematics intervention. *Early Childhood Research Quarterly, 19*, 99–120.

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

*Appendix D: Learning Progressions – References and Source Materials*

**Mathematics: Shapes**

Blair, M., & Somerville, S. C. (2009). The importance of differentiation in young children's acquisition of expertise. *Cognition, 112*, 259–280.

Bornstein, M. H., & Arterberry, M. E. (2010). The development of object categorization in young children: Hierarchical inclusiveness, age, perceptual attribute, and group versus individual analyses. *Developmental Psychology, 46*(2), 350–365.

Clements, D. H., & Sarama, J. (2004). Learning trajectories in mathematics education. *Mathematical Thinking and Learning, 6*(2), 81–89.

Clements, D. H., & Stephan, M. (2004). Measurement in Pre-K to grade 2 mathematics. In D. H. Clements, J. Sarama, & A. M. DiBiase (Eds.), *Engaging young children in mathematics: Standards for early childhood mathematics education*. Mahwah, NJ: Lawrence Erlbaum Associates.

Clements, D. H., Swaminathan, S., Hannibal, M. A. Z., & Sarama, J. (1999). Young children's concepts of shape. *Journal for Research in Mathematics Education, 30*(2), 192–212. doi: http://dx.doi.org/10.2307/749610

DeLoache, J. S., Uttal, D. H., & Rosengren, K. S. (2004). Scale errors offer evidence for a perception-action dissociation early in life. *Science, 304*, 1027–1029.

Ginsburg, H. P. (2009). Early mathematics education and how to do it. In O. A. Barbarin & B. H. Wasik (Eds.), *Handbook of child development and early education* (pp. 403–428). New York, NY: Guilford Press.

Hannibal, M. A. Z., & Clements, D. H. (2008). Young children's developing understanding of basic geometric shapes. *Teaching Children Mathematics, 5*(6), 353–357.

Kemler Nelson, D. G., Frankenfield, A., Morris, C., & Blair, E. (2000). Young children's use of functional information to categorize artifacts: Three factors that matter. *Cognition, 77*, 133–168.

Kemler Nelson, D. G., Herron, L., & Holt, M. (2003). The sources of young children's name innovations for novel artifacts. *Journal of Child Language, 30*, 823–843.

Namy, L. L., & Clepper, L. E. (2010). The differing roles of comparison and contrast in children's categorization. *Journal of Experimental Child Psychology, 107*(3), 291–305.

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

Oakes, L. M., & Madole, K. L. (2003). Principles of developmental change in infants' category formation. In D. H. Rakison & L. M. Oakes (Eds.), *Early category and concept development: Making sense of the blooming, buzzing confusion* (pp. 132–158). New York, NY: Oxford University.

Paik, J. H., & Mix, K. S. (2006). Preschoolers' use of surface similarity in object comparisons: Taking context into account. *Journal of Experimental Child Psychology, 95*, 194–214.

Rakison, D. H., & Butterworth, G. E. (1998). Infants' attention to object structure in early categorization. *Developmental Psychology, 34*(6), 1310–1325.

Smith, L. B., Jones, S. S., Landau, B., Gershkoff-Stowe, L., & Samuelson, L. (2002). Object name learning provides on-the-job training for attention. *Psychological Science, 13*(1), 13–19. doi: http://dx.doi.org/10.1111/1467-9280.00403

**Physical Well-Being and Motor Development: Coordination–Large Motor**

Adolph, K. E., & Berger, S. E. (2006). Motor development. In D. Kuhn & R. S. Siegler (Eds.), *Handbook of developmental psychology* (6th ed., Vol. 2, pp. 161–213). New York, NY: John Wiley & Sons.

Adolph, K. E., & Berger, S. E. (2011). Physical and motor development. In M. H. Bornstein & M. E. Lamb (Eds.), *Developmental science: An advanced textbook* (6th ed., pp. 241–302). New York, NY: Psychology Press.

Butterfield, S. A., Angell, R. M., & Mason, C. A. (2012). Age and sex differences in object control skills by children ages 5 to 14. *Perceptual and motor skills, 114*(1), 261–274.

Gallahue, D. L. (2005). Transforming physical education curriculum. In S. Bredekamp & T. Rosegrant (Eds.), *Reaching potentials: Transforming early childhood curriculum and assessment* (pp. 125–143). Washington, DC: National Association for the Education of Young Children.

Gallahue, D. L., & Ozmun, J. C. (2006). Motor development in young children. In B. Spodek & O. N. Saracho (Eds.), *Handbook of research on the education of young children* (2nd ed., pp. 105–210). Mahwah, NJ: Erlbaum.

Garcia, C. (2002). Childhood. In D. L. Gallahue & J. C. Ozmun (Eds.), *Understanding motor development: Infants, children, adolescents and adults* (5th ed., pp. 161–286). Boston, MA: McGraw-Hill.

Garcia, C., & Garcia, L. (2002). Examining developmental changes in throwing: A closeup look. *Motor development research and reviews, 2*, 62–95.

Geuze, R. H. (2003). Static balance and developmental coordination disorder. *Human Movement Science, 22*(4–5), 527–548. doi: http://dx.doi.org/10.1016/j.humov.2003.09.008

Gimenez, R., de J. Manoel, E., de Oliveira, D. L., Dantas, L., & Marques, I. (2012). Integrating fundamental movement skills in late childhood. *Perceptual and Motor Skills, 114*(2), 563–583.

Haywood, K. M., & Getchell, N. (2005). *Life span motor development* (4th ed.). Champaign, IL: Human Kinetics.

Kakebeeke, T. H., Caflisch, J., Locatelli, I., Rousson, V., & Jenni, O. G. (2012). Improving in gross motor performance between 3 and 5 years of age. *Perceptual and motor skills, 114*(3), 795–806.

Lopes, V. P., Maia, J. A. R., Rodrigues, L. P., & Malina, R. (2012). Motor coordination, physical activity and fitness as predictors of longitudinal change in adiposity during childhood. *European Journal of Sport Science, 12*(4), 384–391.

Örnkloo, H., & von Hofsten, C. (2007). Fitting objects into holes: On the development of spatial cognition skills. *Developmental Psychology, 43*(2), 404–416. doi: http://dx.doi.org/10.1037/0012-1649.43.2.404

Roncesvalles, M. N. C., Woollacott, M. H., & Jensen, J. L. (2001). Development of lower extremity kinetics for balance control in infants and young children. *Journal of Motor Behavior, 33*(2), 180–192. doi: http://dx.doi.org/10.1080/00222890109603149

Sanders, S. (2002). *Active for life: Developmentally appropriate movement programs for young children*. Champaign, IL: Human Kinetics.

Shutts, K., Örnkloo, H., von Hofsten, C., Keen, R., & Spelke, E. S. (2009). Young children's representations of spatial and functional relations between objects. *Child Development, 80*(6), 1612–1627. doi: http://dx.doi.org/10.1111/j.1467-8624.2009.01357.x

Thibaut, J.-P., & Toussaint, L. (2010). Developing motor planning over ages. *Journal of Experimental Child Psychology, 105*, 116–129.

Witherington, D., von Hofsten, C., Rosander, K., Robinette, A., Woollacott, M. H., & Bertenthal, B. I. (2002). The development of anticipatory postural adjustments in infancy. *Infancy, 3*(4), 495–517.

Yan, J. H., Thomas, K. T., Stelmach, G. E., & Thomas, J. (2003). Developmental differences in children's ballistic aiming movements of the arm. *Perceptual and Motor Skills, 96*(2), 589–598.

*Appendix D: Learning Progressions – References and Source Materials*

**Physical Well-Being and Motor Development: Coordination–Small Motor**

Amundson, S. (2005). Prewriting and handwriting skills. In J. Case-Smith (Ed.), *Occupational therapy for children* (5th ed., pp. 587–614). St. Louis, MO: Elsevier Mosby.

Feder, K. P., & Majnemer, A. (2007). Handwriting development, competency, and intervention. *Developmental Medicine & Child Neurology, 49*, 312–317.

Feder, K. P., Majnemer, A., Bourbonnais, D., Platt, R., Blayney, M., & Synnes, A. (2005). Handwriting performance in preterm child compared with term peers at age 6 to 7 years. *Developmental Medicine and Child Neurology, 47*(3), 163–170.

Geerts, W. K., Einspieler, C., Dibiasi, J., Garzarolli, B., & Bos, A. F. (2003). Development of manipulative hand movements during the second year of life. *Early Human Development, 75*(1–2), 91–103. doi: http://dx.doi.org/10.1016/j.earlhumdev.2003.09.006

Gimenez, R., de J. Manoel, E., de Oliveira, D. L., Dantas, L., & Marques, I. (2012). Integrating fundamental movement skills in late childhood. *Perceptual and Motor Skills, 114*(2), 563–583.

Örnkloo, H., & von Hofsten, C. (2007). Fitting objects into holes: On the development of spatial cognition skills. *Developmental Psychology, 43*(2), 404–416. doi: http://dx.doi.org/10.1037/0012-1649.43.2.404

Rueckriegel, S. M., Blankenburg, F., Roland, B., Ehrlich, S., Henze, G., Mergl, R., & Driever, P. H. (2008). Influence of age and movement complexity on kinematic hand movement parameters in childhood and adolescence. *International Journal of Developmental Neuroscience, 26*, 655–663.

Shutts, K., Örnkloo, H., von Hofsten, C., Keen, R., & Spelke, E. S. (2009). Young children's representations of spatial and functional relations between objects. *Child Development, 80*(6), 1612–1627. doi: http://dx.doi.org/10.1111/j.1467-8624.2009.01357.

Thibaut, J.-P., & Toussaint, L. (2010). Developing motor planning over ages. *Journal of Experimental Child Psychology, 105*, 116–129.

Yan, J. H., Thomas, K. T., Stelmach, G. E., & Thomas, J. (2003). Developmental differences in children's ballistic aiming movements of the arm. *Perceptual and Motor Skills, 96*(2), 589–598.

**Physical Well-Being and Motor Development: Personal Care Tasks**

Eiser, C. (1985). Changes in the understanding of illness as the child grows. *Archives of Disease in Childhood, 60*, 489–492.

Goldman, S. L., Whitney-Saltiel, D., Granger, J., & Rodin, J. (1991). Children's representations of "everyday" aspects of health and illness. *Journal of Pediatric Psychology, 16*(6), 747–766.

Kalish, C. (1996). Causes and symptoms in preschoolers' conceptions of illness. *Child Development, 67*(4), 1647–1670.

Kalish, C. (1998). Young children's predictions of illness: Failure to recognize probabilistic causation. *Developmental Psychology, 34*(5), 1046–1058.

Kalnins, I., & Love, R. (1982). Children's concepts of health and illness—and implications for health education: An overview. *Health Education and Behavior, 9*, 8–12.

Niffenegger, J. P. (1997). Proper handwashing promotes wellness in child care. *Journal of Pediatric Health Care, 11*(1), 27–31.

Poche, C., McCubbrey, H., & Munn, T. (1988). The development of correct toothbrushing technique in preschool children. *Journal of Applied Behavior Analysis, 15*(2), 315–320.

Rosen, L., Manor, O., Engelhard, D., Brody, D., Rosen, B., Peleg, H., Meir, M., & Zucker, D. (2006). Can a handwashing intervention make a difference? Results from a randomized controlled trial in Jerusalem preschools. *Preventative Medicine, 42*, 27–32.

Siegal, M. (1988). Children's knowledge of contagion and contamination as causes of illness. *Child Development, 59*(5), 1353–1359.

Springer, K., & Ruckel, J. (1992). Early beliefs about the cause of illness: Evidence against immanent justice. *Cognitive Development, 7*(4), 429–443.

**Physical Well-Being and Motor Development: Safety and Injury Prevention**

Agran, P. F., Anderson, C., Winn, D., Trent, R., Walton-Haynes, L., & Thayer, S. (2003). Rates of pediatric injuries by 3-month intervals for children 0 to 3 years of age. *Pediatrics, 111*(6), 682–693.

Cole, P. M., Dennis, T. A., Smith-Simon, K. E., & Cohen, L. H. (2009). Preschoolers' emotion regulation strategy understanding: Relations with emotion socialization and child self-regulation. *Social Development, 18*(2), 324–352.

Coppens, N. M. (1986). Cognitive characteristics as predictors of children's understanding of safety and prevention. *Journal of Pediatric Psychology, 11*(2), 189–202.

Hahn, E. J., Hall, L. A., Rayens, M. K., Burt, A. V., Corley, D., & Sheffel, K. L. (2000). Kindergarten children's knowledge and perceptions of alcohol, tobacco, and other drugs. *Journal of School Health, 70*(2), 51–55.

Morrongiello, B. A., Midgett, C., & Shields, R. (2001). Don't run with scissors: Young children's knowledge of home safety rules. *Journal of Pediatric Psychology, 26*(2), 105–115.

Morrongiello, B. A., Sandomierski, M., & Valla, J. (2010). Early identification of children at risk of unintentional injury: A sensation seeking scale for children 2–5 years of age. *Accident Analysis and Prevention, 42*(4), 1332–1337. doi: 10.1093/jpepsy/jsh046

Rivara, F. P., Booth, C. L., Bergman, A. B., Rogers, L. W., & Weiss, J. (1991). Prevention of pedestrian injuries to children: Effectiveness of a school training program. *Pediatrics, 88*(4), 770–775.

Schwebel, D. C., & Gaines, J. (2007). Pediatric unintentional injury: Behavioral risk factors and implications for prevention. *Journal of Developmental and Behavioral Pediatrics, 28*(3), 245–254. doi: 10.1093/jpepsy/jsh046

Slaughter, V., Jaakkola, R., & Carey, S. (1999). Constructing a coherent theory: Children's biological understanding of life and death. In M. Siegal & C. Peterson (Eds.), *Children's understanding of biology and health* (pp. 71–96). Cambridge, MA: Cambridge University Press.

Ulione, M. S., & Dooling, M. (1997). Preschool injuries in child care centers: Nursing strategies for prevention. *Journal of Pediatric Health Care, 11*(3), 111–116.

**Science: Inquiry and Observation**

Cicchino, J. B., & Rakison, D. H. (2008). Producing self-propelled motion in infancy. *Developmental Psychology, 44*, 1232–1241.

Cohen, L. B., & Cashon, C. H. (2006). Infant cognition. In W. Damon & R. M. Lerner (Eds.), *The handbook of child psychology* (6th ed., Vol. 2, pp. 214–251). Hoboken, NJ: John Wiley & Sons.

Harris, P. L. (2006). Social cognition. In W. Damon & R. M. Lerner (Eds.), *The handbook of child psychology* (6th ed., Vol. 2, pp. 811–858). Hoboken, NJ: John Wiley & Sons.

Hatano, G., & Inagaki, K. (1994). Young children's naive theory of biology. *Cognition, 50*(1–3), 171–188. doi: http://dx.doi.org/10.1016/0010-0277(94)90027-2

Inagaki, K., & Hatano, G. (1993). Young children's understanding of the mind-body distinction. *Child Development, 64*(5), 1534–1549. doi: http://dx.doi.org/10.2307/1131551

Inagaki, K., & Hatano, G. (2004). Vitalistic causality in young children's naive biology. *Trends in Cognitive Sciences, 8*(8), 356–362. doi: http://dx.doi.org/10.1016/j.tics.2004.06.004

Inagaki, K., & Hatano, G. (2006). Young children's conception of the biological world. *Current Directions in Psychological Science, 15*(4), 177–181. doi: http://dx.doi.org/10.1111/j.1467-8721.2006.00431.x

Kalish, C. (1998). Young children's predictions of illness: Failure to recognize probabilistic causation. *Developmental Psychology, 34*(5), 1046–1058.

Meltzoff, A. N. (1995). Understanding the intentions of others: Re-enactment of intended acts by 18-month-old children. *Developmental Psychology, 31*, 838–850.

Spelke, E. S., Breinlinger, K., Macomber, J., & Jacobson, K. (1992). Origins of knowledge. *Psychological Review, 99*(4), 605–632. doi: http://dx.doi.org/10.1037/0033-295X.99.4.605

Thompson, R. A. (2006). Conversation and developing understanding: Introduction to the special issue. *Merrill-Palmer Quarterly, 52*, 1–16.

**Social Foundations: Awareness and Expression of Emotion**

Adolph, K. E., & Berger, S. E. (2006). Motor development. In D. Kuhn & R. S. Siegler (Eds.), *Handbook of developmental psychology* (6th ed., Vol. 2, pp. 161–213). New York, NY: John Wiley & Sons.

Denham, S. A., & Kochanoff, A. (2002). "Why is she crying?": Children's understanding of emotion from preschool to preadolescence. In L. F. Barrett & P. Salovey (Eds.), *The wisdom in feeling: Psychological processes in emotional intelligence* (pp. 234–270). New York, NY: Guilford Press.

Dunn, J. (2003). Emotional development in early childhood: A social relationship perspective. In R. J. Davidson, K. S. Scherer, & H. H. Goldsmith (Eds.), *Handbook of affective sciences* (pp. 332–345). New York, NY: Oxford University Press.

Eisenberg, N., Fabes, R. A., & Spinrad, T. L. (2006). Prosocial development. In W. Damon & R. M. Lerner (Eds.), *The handbook of child psychology* (6th ed., pp. 646–717). Hoboken, NJ: John Wiley & Sons.

Harter, S. (2006). The self. In W. Damon & R. M. Lerner (Eds.), *The handbook of child psychology* (6th ed., pp. 505–570). Hoboken, NJ: John Wiley & Sons.

Hastings, P. D., Rubin, K. H., & DeRose, L. (2005). Links among gender, inhibition, and parental socialization in the development of prosocial behavior. *Merrill-Palmer Quarterly, 51*(4), 467–493.

Hay, D. F., & Cook, K. V. (2007). The transformation of prosocial behavior from infancy to childhood. In C. A. Brownell & C. B. Kopp (Eds.), *Socioemotional development in the toddler years* (pp. 100–131). New York, NY: Guilford Press.

Hoffman, M. L. (2007). The origins of empathic morality in toddlerhood. In C. A. Brownell & C. B. Kopp (Eds.), *Socioemotional development in the toddler years* (pp. 132–145). New York, NY: Guilford Press.

Knafo, A., Zahn-Waxler, C., Van Hulle, C., Robinson, J. L., & Rhee, S. H. (2008). The developmental origins of a disposition toward empathy: Genetic and environmental contributions. *Emotion, 8*(6), 737–752.

Lewis, M., & Ramsay, D. (2004). Development of self-recognition, personal pronoun use, and pretend play during the 2nd year. *Child Development, 75*(6), 1821–1831.

Mascolo, M. E., & Fischer, K. W. (2007). The codevelopment of self and sociomoral emotions during the toddler years. In C. A. Brownell & C. B. Kopp (Eds.), *Socioemotional development in the toddler years: Transitions and transformations* (pp. 66–99). New York, NY: Guilford Press.

Saarni, C., Campos, J. J., Camras, L. A., & Witherington, D. (2006). Emotional development: Action, communication, and understanding. In W. Damon & R. M. Lerner (Eds.), *The handbook of child psychology* (6th ed., Vol. 3, pp. 227–299). Hoboken, NJ: John Wiley & Sons.

Svetlova, M., Nichols, S. R., & Brownell, C. A. (2010). Toddlers' prosocial behavior: From instrumental to empathic to altruistic helping. *Child Development, 81*(6), 1814–1827.

Thompson, R. A., & Lagattuta, K. H. (2006). Feeling and understanding: Early emotional development. In K. McCartney & D. Phillips (Eds.), *Blackwell handbook of early childhood development* (pp. 317–337). Malden, MA: Blackwell Publishing.

Thompson, R. A., Thompson, J. E., & Winer, A. C. (2012). Establishing the foundations: Prosocial education in early childhood development. In A. Higgins-D'Alessandro, M. Corigan, & P. M. Brown (Eds.), *The handbook of prosocial education: Developing caring, capable citizens* (pp. 535–544). New York, NY: Roman & Littlefield.

Widen, S. C., & Russell, J. A. (2003). A closer look at preschoolers' freely produced labels for facial expressions. *Developmental Psychology, 39*(1), 114–128.

Widen, S. C., & Russell, J. A. (2010). Differentiation in preschoolers' categories of emotion. *Emotion, 10*(5), 651–661.

**Social Foundations: Conflict Resolution**

Asendorph, J. B. (2002). Self-awareness, other-awareness, and secondary representation. In A. Meltzoff & W. Prinz (Eds.), *The imitative mind: Development, evaluation, and brain bases* (pp. 63–73). Cambridge, England: Cambridge University Press.

Brownell, C. A., & Kopp, C. B. (2007). Transitions in toddler socioemotional development: Behavior, understanding, relationship. In C. A. Brownell & C. B. Kopp (Eds.), *Socioemotional development in the toddler years: Transitions and transformations* (pp. 1–39). New York, NY: Guilford Press.

Eder, R. A. (1990). Uncovering young children's psychological selves: Individual and developmental differences. *Child Development, 61*(3), 849–863.

Genyue, F., & Lee, K. (2007). Social grooming in the kindergarten: The emergence of flattery behavior. *Developmental Science, 10*(2), 255–265.

Gifford-Smith, M. E., & Brownell, C. A. (2003). Childhood peer relationships: Social acceptance, friendships, and peer networks. *Journal of School Psychology, 41*, 235–284.

Goldstein, H., & Lindee, M. (2002). Social interaction and models of friendship development. In H. Goldstein, L. A. Kaczmarek, & K. M. English (Eds.), *Promoting social communication: Children with developmental disabilities from birth to adolescence* (pp. 5–25). Baltimore, MD: Brookes Publishing.

Hay, D. (2006). Yours and mine: Toddlers' talk about possessions with familiar peers. *British Journal of Developmental Psychology, 24*(1), 39–52.

Hay, D. F., & Cook, K. V. (2007). The transformation of prosocial behavior from infancy to childhood. In C. A. Brownell & C. B. Kopp (Eds.), *Socioemotional development in the toddler years: Transitions and transformations* (pp. 100–131). New York, NY: Guilford Press.

Howes, C., & Spieker, S. J. (2008). Attachment relationships in the context of multiple caregivers. In J. Cassidy & P. R. Shaver (Eds.) *Handbook of attachment: Theory, research, and clinical applications* (2nd ed.). New York, NY: Guilford Press.

Laursen, B., & Hartup, W. W. (2002). The origins of reciprocity and social exchange in friendships. *New Directions for Child and Adolescent Development, 95*, 27–40.

Nielsen, M. (2006). Copying actions and copying outcomes: Social learning through the second year. *Developmental Psychology, 42*(3), 555–565.

Rubin, K. H., Bukowski, W., & Parker, J. G. (2006). Peer interactions, relationships, and groups. In W. Damon & R. M. Lerner (Eds.), *Handbook of child psychology* (Vol. 3, pp. 571–645). New York, NY: Wiley.

Rubin, K. H., Chen, X., Coplan, R., Buskirk, A. A., & Wojslawowicz, J. C. (2005). Peer relationships in childhood. In M. H. Bornstein & M. E. Lamb (Eds.), *Developmental science: An advanced textbook* (pp. 469–512). New York, NY: Psychology Press.

Rubin, K. H., & Coplan, R. J. (1992). Peer relationships in childhood. In M. H. Bornstein & M. E. Lamb (Eds.), *Developmental psychology: An advanced textbook* (3rd ed.). Hillsdale, NJ: Erlbaum.

Sroufe, A. L., Egeland, B., Carlson, E. A., & Collins, W. A. (2005). *The development of the person: The Minnesota study of risk and adaptation from birth to adulthood*. New York, NY: Guilford Press.

Thompson, R. A. (2002). The roots of school readiness in social and emotional development. *The Kauffman Early Education Exchange, 1*, 8–29.

Thompson, R. A. (2006). The development of the person: Social understanding, relationships, conscience, self. In W. Damon & R. M. Lerner (Eds.), *The handbook of child psychology* (6th ed., Vol. 3, pp. 24–95). Hoboken, NJ: John Wiley & Sons.

Warneken, F., Chen, F., & Tomasello, M. (2006). Cooperative activities in young children and chimpanzees. *Child Development, 77*(3), 640–663.

*Appendix D: Learning Progressions – References and Source Materials*

**Social Foundations: Cooperation with Peers**

Adolph, K. E., & Berger, S. E. (2006). Motor development. In D. Kuhn & R. S. Siegler (Eds.), *Handbook of developmental psychology* (6th ed., Vol. 2, pp. 161–213). New York, NY: John Wiley & Sons.

Benenson, J. F., Markovits, H., Roy, R., & Denko, P. (2003). Behavioural rules underlying learning to share: Effects of development and context. *International Journal of Behavioral Development, 27*(2), 116–121. doi: http://dx.doi.org/10.1080/01650250244000119

Brownell, C. A., Svetlova, M., & Nichols, S. (2009). To share or not to share: When do toddlers respond to another's needs? *Infancy, 14*(1), 117–130.

Cole, P. M., Dennis, T. A., Smith-Simon, K. E., & Cohen, L. H. (2009). Preschoolers' emotion regulation strategy understanding: Relations with emotion socialization and child self-regulation. *Social Development, 18*(2), 324–352.

Cole, P. M., Tan, P. Z., Hall, S. E., Zhang, Y., Crnic, K. A., Blair, C. B., & Li, R. (2011). Developmental changes in anger expression and attention focus: Learning to wait. *Developmental Psychology, 47*(4), 1078–1089.

Denham, S. A., & Kochanoff, A. (2002). "Why is she crying?": Children's understanding of emotion from preschool to preadolescence. In L. F. Barrett & P. Salovey (Eds.), *The wisdom in feeling: Psychological processes in emotional intelligence* (pp. 234–270). New York, NY: Guilford Press.

Eisenberg, N., Fabes, R. A., & Spinrad, T. L. (2006). Prosocial development. In W. Damon & R. M. Lerner (Eds.), *The handbook of child psychology* (pp. 646–717). Hoboken, NJ: John Wiley & Sons.

Gifford-Smith, M. E., & Brownell, C. A. (2003). Childhood peer relationships: Social acceptance, friendships, and peer networks. *Journal of School Psychology, 41*, 235–284.

Harris, P. L. (2006). Social cognition. In W. Damon & R. M. Lerner (Eds.), *The handbook of child psychology* (6th ed., Vol. 2, pp. 811–858). Hoboken, NJ: John Wiley & Sons.

Hastings, P. D., Rubin, K. H., & DeRose, L. (2005). Links among gender, inhibition, and parental socialization in the development of prosocial behavior. *Merrill-Palmer Quarterly, 51*(4), 467–493.

Hay, D. F., & Cook, K. V. (2007). The transformation of prosocial behavior from infancy to childhood. In C. A. Brownell & C. B. Kopp (Eds.), *Socioemotional development in the toddler years* (pp. 100–131). New York, NY: Guilford Press.

Hoffman, M. L. (2007). The origins of empathic morality in toddlerhood. In C. A. Brownell & C. B. Kopp (Eds.), *Socioemotional development in the toddler years* (pp. 132–145). New York, NY: Guilford Press.

Knafo, A., Zahn-Waxler, C., Van Hulle, C., Robinson, J. L., & Rhee, S. H. (2008). The developmental origins of a disposition toward empathy: Genetic and environmental contributions. *Emotion, 8*(6), 737–752.

Laursen, B., & Hartup, W. W. (2002). The origins of reciprocity and social exchange in friendships. *New Directions for Child and Adolescent Development, 95*, 27–40.

Mascolo, M. E., & Fischer, K. W. (2007). The codevelopment of self and sociomoral emotions during the toddler years. In C. A. Brownell & C. B. Kopp (Eds.), *Socioemotional development in the toddler years: Transitions and transformations* (pp. 66–99). New York, NY: Guilford Press.

Rubin, K. H., Bukowski, W., & Parker, J. G. (2006). Peer interactions, relationships, and groups. In W. Damon & R. M. Lerner (Eds.), *Handbook of child psychology* (Vol. 3, pp. 571–645). New York, NY: Wiley.

Rubin, K. H., Chen, X., Coplan, R., Buskirk, A. A., & Wojslawowicz, J. C. (2005). Peer relationships in childhood. In M. H. Bornstein & M. E. Lamb (Eds.), *Developmental science: An advanced textbook* (pp. 469-512). New York, NY: Psychology Press.

Rubin, K. H., Coplan, R. J., Chen, X., Bowker, J., & McDonald, K. L. (2011). Peer relationships in childhood. In M. H. Bornstein & M. E. Lamb (Eds.), *Developmental science: An advanced textbook* (6th ed., pp. 519–570). New York, NY: Psychology Press.

Svetlova, M., Nichols, S. R., & Brownell, C. A. (2010). Toddlers' prosocial behavior: From instrumental to empathic to altruistic helping. *Child Development, 81*(6), 1814–1827.

Thompson, R. A. (2002). The roots of school readiness in social and emotional development. *The Kauffman Early Education Exchange, 1*, 8–29.

Thompson, R. A., & Lagattuta, K. H. (2006). Feeling and understanding: Early emotional development. In K. McCartney & D. Phillips (Eds.), *Blackwell handbook of early childhood development* (pp. 317–337). Malden, MA: Blackwell Publishing.

Thompson, R. A., Meyer, S., & McGinley, M. (2006). Understanding values in relationships: The development of conscience. In M. Killen & J. Smetana (Eds.), *The handbook of moral development* (pp. 267–297). Mahwah, NJ: Erlbaum.

Thompson, R. A., & Raikes, H. A. (2007). The social and emotional foundations of school readiness. In D. F. Perry, R. K. Kaufmann, & J. Knitzer (Eds.), *Social and emotional health in early childhood: Building bridges between services and systems* (pp. 13–35). Baltimore, MD: Paul H. Brookes Publishing Co.

Thompson, R. A., Thompson, J. E., & Winer, A. C. (2012). Establishing the foundations: Prosocial education in early childhood development. In A. Higgins-D'Alessandro, M. Corigan, & P. M. Brown (Eds.), *The handbook of prosocial education: Developing caring, capable citizens* (pp. 535–544). New York, NY: Roman & Littlefield.

Thompson, R. A., Winer, A. C., & Goodvin, R. (2011). The individual child: Temperament, emotion, self and personality. In M. H. Bornstein & M. E. Lamb (Eds.), *Developmental science: An advanced textbook* (6th ed., pp. 427–468). New York, NY: Psychology Press.

Widen, S. C., & Russell, J. A. (2003). A closer look at preschoolers' freely produced labels for facial expressions. *Developmental Psychology, 39*(1), 114–128.

Widen, S. C., & Russell, J. A. (2010). Differentiation in preschoolers' categories of emotion. *Emotion, 10*(5), 651–661.

Zahn-Waxler, C., Park, J.-H., Usher, B., Belouad, F., Cole, P. M., & Gruber, R. (2008). Young children's representations of conflict and distress: A longitudinal study of boys and girls with disruptive behavior problems. *Development and Psychopathology, 20*, 99–119.

**Social Foundations: Initiative**

Altermatt, E. R., Pomerantz, E. M., Ruble, D. N., Frey, K. S., & Greulich, F. K. (2002). Predicting changes in children's self-perceptions of academic competence: A naturalistic examination of evaluative discourse among classmates. *Developmental Psychology, 38*(6), 903–917.

Baker, L., & Scher, D. (2010). Beginning readers' motivation for reading in relation to parental beliefs and home reading experiences. *Reading Psychology, 23*, 239–269.

Cohen, L. B., & Cashon, C. H. (2006). Infant cognition. In W. Damon & R. M. Lerner (Eds.), *The handbook of child psychology* (6th ed., Vol. 2, pp. 214–251). Hoboken, NJ: John Wiley & Sons.

Conklin, H., Luciana, M., Hooper, C., & Yarger, R. S. (2007). Working memory performance in typically developing children and adolescents: Behavioral evidence of protracted frontal lobe development. *Developmental Neuropsychology, 31*, 103–128.

Dweck, C. S. (2002). The development of ability conceptions. In A. Wigfield & J. S. Eccles (Eds.), *Development of ability conceptions*. San Diego, CA: Academic Press.

Dweck, C. S., & Master, A. (2009). Self-theories and motivation: Students' beliefs about intelligence. In K. Wentzel & A. Wigfield (Eds.), *Handbook of motivation at school* (pp. 123–140). New York, NY: Routledge/Taylor & Francis Group.

Flavell, J. H., Miller, P. H., & Miller, S. A. (1993). *Cognitive development* (3rd ed.). Englewood Cliffs, NJ: Prentice Hall.

Flynn, E. T., & Whiten, A. (2008). Cultural transmission of tool use in young children: A diffusion chain study. *Social Development, 17*(3), 699–718.

Forman, D. R., Askan, N., & Kochanska, G. (2004). Toddlers' responsive imitation predicts preschool-age conscience. *Psychological Science, 15*(10), 699–704.

Harter, S. (2006). The self. In W. Damon & R. M. Lerner (Eds.), *The handbook of child psychology* (6th ed., pp. 505–570). Hoboken, NJ: John Wiley & Sons.

McGuigan, N., & Whiten, A. (2009). Emulation and "overemulation" in the social learning of causally opaque versus causally transparent tool use by 23- and 30-month-olds. *Journal of Experimental Child Psychology, 104*, 367–381.

Meltzoff, A., & Brooks, R. (2008). Self-experience as a mechanism for learning about others: A training study in social cognition. *Developmental Psychology, 44*(5), 1257–1265.

Neitzel, C., Alexander, J. M., & Johnson, K. E. (2008). Children's early interest-based activities in the home and subsequent information contributions and pursuits in kindergarten. *Journal of Educational Psychology, 100*(4), 782–797.

Renninger, K. A. (2009). Interest and identity development in instruction: An inductive model. *Educational Psychologist, 44*(2), 105–118.

Renninger, K. A., & Su, S. (2012). Interest and its development. In R. M. Ryan (Ed.), *The Oxford handbook of human motivation* (pp. 167–187). New York, NY: Oxford University Press.

Stipek, D., Newton, S., & Chudgar, A. (2010). Learning-related behaviors and literacy achievement in elementary school-aged children. *Early Childhood Research Quarterly, 25*, 385–395.

Thompson, R. A. (2002). The roots of school readiness in social and emotional development. *The Kauffman Early Education Exchange, 1*, 8–29.

Wellman, H. M., Lopez-Duran, S., LaBounty, J., & Hamilton, B. (2008). Infant attention to intentional action predicts preschool theory of mind. *Developmental Psychology, 44*(2), 618–623. doi: http://dx.doi.org/10.1037/0012-1649.44.2.618

Williamson, R. A., Jaswal, V. K., & Meltzoff, A. (2010). Learning the rules: Observation and imitation of a sorting strategy by 36-month-old children. *Developmental Psychology, 46*(1), 57–65.

*Appendix D: Learning Progressions – References and Source Materials*

**Social Foundations: Persistence**

Altermatt, E. R., Pomerantz, E. M., Ruble, D. N., Frey, K. S., & Greulich, F. K. (2002). Predicting changes in children's self-perceptions of academic competence: A naturalistic examination of evaluative discourse among classmates. *Developmental Psychology, 38*(6), 903–917.

Conklin, H., Luciana, M., Hooper, C., & Yarger, R. S. (2007). Working memory performance in typically developing children and adolescents: Behavioral evidence of protracted frontal lobe development. *Developmental Neuropsychology, 31*, 103–128.

Diamond, A., Kirkham, N., & Amso, D. (2002). Conditions under which young children can hold two rules in mind and inhibit a prepotent response. *Developmental Psychology, 38*(3), 352–362.

Dweck, C. S. (2002). The development of ability conceptions. In A. Wigfield & J. S. Eccles (Eds.), *Development of ability conceptions*. San Diego, CA: Academic Press.

Dweck, C. S., & Master, A. (2009). Self-theories and motivation: Students' beliefs about intelligence. In K. Wentzel & A. Wigfield (Eds.), *Handbook of motivation at school* (pp. 123–140). New York, NY: Routledge/Taylor & Francis Group.

Gathercole, S. E., Durling, E., Evans, M., Jeffcock, S., & Stone, S. (2008). Working memory abilities and children's performance in laboratory analogues of classroom activties. *Applied Cognitive Psychology, 22*, 1019–1037.

Harter, S. (2006). The self. In W. Damon & R. M. Lerner (Eds.), *The handbook of child psychology* (6th ed., pp. 505–570). Hoboken, NJ: John Wiley & Sons.

Kochanska, G., & Knaack, A. (2003). Effortful control as a personality characteristic of young children: Antecedents, correlates, and consequences. *Journal of Personality, 71*(6), 1087–1112.

McWayne, C. M., Fantuzzo, J. W., & McDermott, P. A. (2004). Preschool competency in context: An investigation of the unique contribution of child competencies to early academic success. *Developmental Psychology, 40*(4), 635–645.

Nelson, C. A., Thomas, K. M., & Haan, M. D. (2006). Neural bases of cognitive development. In W. Damon & R. M. Lerner (Eds.), *The handbook of child psychology* (6th ed., Vol. 2, pp. 3–57). Hoboken, NJ: John Wiley & Sons.

Rothbart, M. E., & Bates, J. E. (2006). Temperament. In W. Damon & R. M. Lerner (Eds.), *The handbook of child psychology* (6th ed., pp. 99–165). Hoboken, NJ: John Wiley & Sons.

Rothbart, M. K., Ellis, L. K., Rueda, M. R., & Posner, M. I. (2003). Developing mechanisms of temperamental effortful control. *Journal of Personality, 71*(6), 1113–1143. doi: http://dx.doi.org/10.1111/1467-6494.7106009

Rueda, M. R., Fan, J., McCandliss, B. D., Halparin, J. D., Gruber, D. B., Lercari, L. P., & Posner, M. I. (2004). Development of attentional networks in childhood. *Neuropsychologia, 42*, 1029–1040.

Stipek, D., Newton, S., & Chudgar, A. (2010). Learning-related behaviors and literacy achievement in elementary school-aged children. *Early Childhood Research Quarterly, 25*, 385–395.

Thompson, R. A. (2002). The roots of school readiness in social and emotional development. *The Kauffman Early Education Exchange, 1*, 8–29.

Welsh, J. A., Nix, R. L., Blair, C., Bierman, K. L., & Nelson, K. E. (2010). The development of cognitive skills and gains in academic school readiness for children from low-income families. *Journal of Educational Psychology, 102*(1), 45–53.

## Social Foundations: Problem Solving

Bauer, P. J. (2006). Event memory. In W. Damon & R. M. Lerner (Eds.), *The handbook of child psychology* (6th ed., Vol. 2, pp. 373–425). Hoboken, NJ: John Wiley & Sons.

Blair, C., & Diamond, A. (2008). Biological processes in prevention and intervention: The promotion of self-regulation as a means of preventing school failure. *Development and Psychopathology, 20*, 899–911.

Carroll, D. J., Riggs, K. J., Apperly, I. A., Graham, K., & Geoghegan, C. (2012). How do alternative ways of responding influence 3- and 4-year-olds' performance on tests of executive function and theory of mind? *Journal of Experimental Child Psychology, 112*, 312–325.

Cohen, L. B., & Cashon, C. H. (2006). Infant cognition. In W. Damon & R. M. Lerner (Eds.), *The handbook of child psychology* (6th ed., Vol. 2, pp. 214–251). Hoboken, NJ: John Wiley & Sons.

Flynn, E. T., & Whiten, A. (2008). Cultural transmission of tool use in young children: A diffusion chain study. *Social Development, 17*(3), 699–718.

Forman, D. R., Askan, N., & Kochanska, G. (2004). Toddlers' responsive imitation predicts preschool-age conscience. *Psychological Science, 15*(10), 699–704.

Friedman, W. J. (2005). Developmental and cognitive perspectives on humans' sense of the times of past and future events. *Learning and Motivation, 36*, 145–158.

Joh, A. S., Jaswal, V. K., & Keen, R. (2011). Imagining a way out of the gravity bias: Preschoolers can visualize the solution to a spatial problem. *Child Development, 82*(3), 744–750.

McColgan, K. L., & McCormack, T. (2008). Searching and planning: Young children's reasoning about past and future event sequences. *Child Development, 79*(5), 1477–1497.

McGuigan, N., & Whiten, A. (2009). Emulation and "overemulation" in the social learning of causally opaque versus causally transparent tool use by 23- and 30-month-olds. *Journal of Experimental Child Psychology, 104*, 367–381.

Meltzoff, A. N. (2007). "Like me": A foundation for social cognition. *Developmental Science, 10*(1), 126–134.

Nielsen, M. (2006). Copying actions and copying outcomes: Social learning through the second year. *Developmental Psychology, 42*(3), 555–565.

Rueda, M. R., Fan, J., McCandliss, B. D., Halparin, J. D., Gruber, D. B., Lercari, L. P., & Posner, M. I. (2004). Development of attentional networks in childhood. *Neuropsychologia, 42*, 1029–1040.

Wellman, H. M. (2011). Reinvigorating explanations for the study of early cognitive development. *Child Development Perspectives, 5*(1), 33–38.

Welsh, J. A., Nix, R. L., Blair, C., Bierman, K. L., & Nelson, K. E. (2010). The development of cognitive skills and gains in academic school readiness for children from low-income families. *Journal of Educational Psychology, 102*(1), 45–53.

Winsler, A., & Naglieri, J. (2003). Overt and covert verbal problem-solving strategies: Developmental trends in use, awareness, and relations with task performance in children aged 5 to 17. *Child Development, 74*(3), 659–678.

**Social Foundations: Relationships with Adults**

Adolph, K. E., & Berger, S. E. (2006). Motor development. In D. Kuhn & R. S. Siegler (Eds.), *Handbook of developmental psychology* (6th ed., Vol. 2, pp. 161–213). New York, NY: John Wiley & Sons.

Brownell, C. A., Svetlova, M., & Nichols, S. (2009). To share or not to share: When do toddlers respond to another's needs? *Infancy, 14*(1), 117–130.

Cole, P. M., Tan, P. Z., Hall, S. E., Zhang, Y., Crnic, K. A., Blair, C. B., & Li, R. (2011). Developmental changes in anger expression and attention focus: Learning to wait. *Developmental Psychology, 47*(4), 1078–1089.

Eder, R. A. (1990). Uncovering young children's psychological selves: Individual and developmental differences. *Child Development, 61*(3), 849–863.

Eisenberg, N., Fabes, R. A., & Spinrad, T. L. (2006). Prosocial development. In W. Damon & R. M. Lerner (Eds.), *The handbook of child psychology* (pp. 646–717). Hoboken, NJ: John Wiley & Sons.

Harter, S. (2006). The self. In W. Damon & R. M. Lerner (Eds.), *The handbook of child psychology* (6th ed., pp. 505–570). Hoboken, NJ: John Wiley & Sons.

Hay, D. F., & Cook, K. V. (2007). The transformation of prosocial behavior from infancy to childhood. In C. A. Brownell & C. B. Kopp (Eds.), *Socioemotional development in the toddler years* (pp. 100–131). New York, NY: Guilford Press.

Howes, C., & Spieker, S. J. (2008). Attachment relationships in the context of multiple caregivers. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (2nd ed.). New York, NY: Guilford Press.

Kochanska, G. (2002). Mutually responsive orientation between mothers and their young children: A context for the early development of conscience. *Current Directions in Psychological Science, 11*, 191–195.

Laursen, B., & Hartup, W. W. (2002). The origins of reciprocity and social exchange in friendships. *New Directions for Child and Adolescent Development, 95*, 27–40.

Pianta, R. C., & Stuhlman, M. (2004). Teacher-child relationships and children's success in the first years of school. *School Psychology Review, 33*(3), 444–458.

Sroufe, A. L. (2002). From infant attachment to promotion of adolescent autonomy: Prospective longitudinal data on the role of parents in development. In J. G. Borkowski, S. L. Ramey, & M. Bristol-Power (Eds.), *Parenting and the child's world: Influences on academic, intellectual, and social-emotional development.* New York, NY: Lawrence Erlbaum.

Sroufe, A. L., Egeland, B., Carlson, E. A., & Collins, W. A. (2005). *The development of the person: The Minnesota study of risk and adaptation from birth to adulthood*. New York, NY: Guilford Press.

Svetlova, M., Nichols, S. R., & Brownell, C. A. (2010). Toddlers' prosocial behavior: From instrumental to empathic to altruistic helping. *Child Development, 81*(6), 1814–1827.

Thompson, R. A. (2006). The development of the person: Social understanding, relationships, conscience, self. In W. Damon & R. M. Lerner (Eds.), *The handbook of child psychology* (6th ed., Vol. 3, pp. 24–95). Hoboken, NJ: John Wiley & Sons.

Thompson, R. A., Meyer, S., & McGinley, M. (2006). Understanding values in relationships: The development of conscience. In M. Killen & J. Smetana (Eds.), *The handbook of moral development* (pp. 267–297). Mahwah, NJ: Erlbaum.

Thompson, R. A., & Raikes, H. A. (2007). The social and emotional foundations of school readiness. In D. F. Perry, R. K. Kaufmann, & J. Knitzer (Eds.), *Social and emotional health in early childhood: Building bridges between services and systems* (pp. 13–35). Baltimore, MD: Paul H. Brookes Publishing Co.

*Appendix D: Learning Progressions – References and Source Materials*

**Social Foundations: Self Control**

Cole, P. M., Dennis, T. A., Smith-Simon, K. E., & Cohen, L. H. (2009). Preschoolers' emotion regulation strategy understanding: Relations with emotion socialization and child self-regulation. *Social Development, 18*(2), 324–352.

Cole, P. M., Martin, S. E., & Dennis, T. A. (2004). Emotional regulation as a scientific construct: Methodological challenges and directions for child development research. *Child Development, 75*(2), 317–333.

Cole, P. M., Tan, P. Z., Hall, S. E., Zhang, Y., Crnic, K. A., Blair, C. B., & Li, R. (2011). Developmental changes in anger expression and attention focus: Learning to wait. *Developmental Psychology, 47*(4), 1078–1089.

Dennis, T. A., & Kelemen, D. A. (2009). Preschool children's view on emotion regulation: Functional associations and implications for social-emotional adjustment. *International Journal of Behavioral Development, 33*(3), 243–252.

Lagattuta, K., & Wellman, H. (2002). Differences in early parent-child conversations about negative versus positive emotions: Implications for the development of psychological understanding. *Developmental Psychology, 38*(4), 564–580.

Olson, S. L., Sameroff, A. J., Kerr, D. C. R., Lopez, N. L., & Wellman, H. (2005). Developmental foundations of externalizing problems in young children: The role of effortful control. *Development and Psychopathology, 17*, 25–45.

Thompson, R. A. (2002). The roots of school readiness in social and emotional development. *The Kauffman Early Education Exchange, 1*, 8–29.

Thompson, R. A., Lewis, M. D., & Calkins, S. D. (2008). Reassessing emotion regulation. *Child Development Perspectives, 2*(3), 124–131.

Thompson, R. A., & Raikes, H. A. (2007). The social and emotional foundations of school readiness. In D. F. Perry, R. K. Kaufmann, & J. Knitzer (Eds.), *Social and emotional health in early childhood: Building bridges between services and systems* (pp. 13–35). Baltimore, MD: Paul H. Brookes Publishing Co.

Thompson, R. A., & Winer, A. C. (in press). Cognition and emotion in development. In M. Robinson, E. Harmon-Jones, & E. R. Watkins (Eds.), *Guilford handbook of cognition and emotion*. New York, NY: Guilford Press.

Thompson, R. A., Winer, A. C., & Goodvin, R. (2011). The individual child: Temperament, emotion, self and personality. In M. H. Bornstein & M. E. Lamb (Eds.), *Developmental science: An advanced textbook* (6th ed., pp. 427–468). New York, NY: Psychology Press.

Zelazo, P. D., & Cunningham, W. A. (2007). Executive function: Mechanisms underlying emotion regulation. In J. J. Gross (Ed.), *Handbook of emotion regulation* (pp. 135–158). New York, NY: Guilford.

**Social Foundations: Working Memory**

Bauer, P. J. (2006). Event memory. In W. Damon & R. M. Lerner (Eds.), *The handbook of child psychology* (6th ed., Vol. 2, pp. 373–425). Hoboken, NJ: John Wiley & Sons.

Carroll, D. J., Riggs, K. J., Apperly, I. A., Graham, K., & Geoghegan, C. (2012). How do alternative ways of responding influence 3- and 4-year-olds' performance on tests of executive function and theory of mind? *Journal of Experimental Child Psychology, 112*, 312–325.

Cowan, N., AuBuchon, A. M., Gilchrist, A. L., Ricker, T. J., & Saults, J. S. (2011). Age differences in visual working memory capacity: Not based on encoding limitations. *Developmental Science, 14*(5), 1066–1074.

Davidson, M. C., Amso, D., Anderson, L. C., & Diamond, A. (2006). Development of cognitive control and executive functions from 4 to 13 years: Evidence from manipulations of memory, inhibition, and task switching. *Neuropsychologia, 44*, 2037–2078.

Flynn, E. T., & Whiten, A. (2008). Cultural transmission of tool use in young children: A diffusion chain study. *Social Development, 17*(3), 699–718.

Forman, D. R., Askan, N., & Kochanska, G. (2004). Toddlers' responsive imitation predicts preschool-age conscience. *Psychological Science, 15*(10), 699–704.

Friedman, W. J. (2005). Developmental and cognitive perspectives on humans' sense of the times of past and future events. *Learning and Motivation, 36*, 145–158.

Gathercole, S. E., Pickering, S. J., Ambridge, B., & Wearing, H. (2004). The structure of working memory from 4 to 15 years of age. *Developmental Psychology, 40*(2), 177–190.

McGuigan, N., & Whiten, A. (2009). Emulation and "overemulation" in the social learning of causally opaque versus causally transparent tool use by 23- and 30-month-olds. *Journal of Experimental Child Psychology, 104*, 367–381.

Meltzoff, A. N. (2007). "Like me": A foundation for social cognition. *Developmental Science, 10*(1), 126–134.

Nielsen, M. (2006). Copying actions and copying outcomes: Social learning through the second year. *Developmental Psychology, 42*(3), 555–565.

Pelphrey, K. A., & Reznick, J. S. (2009). Working memory in infancy. In R. V. Kail (Ed.), *Advances in child development and behavior* (Vol. 31, pp. 173–227). San Diego, CA: Academic Press.

Riggs, K. J., McTaggart, J., Simpson, A., & Freeman, R. P. J. (2006). Changes in the capacity of visual working memory in 5- to 10-year-olds. *Journal of Experimental Child Psychology, 95*, 18–26.

Rueda, M. R., Fan, J., McCandliss, B. D., Halparin, J. D., Gruber, D. B., Lercari, L. P., & Posner, M. I. (2004). Development of attentional networks in childhood. *Neuropsychologia, 42*, 1029–1040.

Williamson, R. A., Jaswal, V. K., & Meltzoff, A. (2010). Learning the rules: Observation and imitation of a sorting strategy by 36-month-old children. *Developmental Psychology, 46*(1), 57–65.

**Social Studies: Events in the Context of Time**

Atance, C. M. (2008). Future thinking in young children. *Current Directions in Psychological Science, 17*, 295–298.

Atance, C. M., & Jackson, L. K. (2009). The development and coherence of future-oriented behaviors during the preschool years. *Journal of Experimental Child Psychology, 102*, 379–391.

Atance, C. M., & Meltzoff, A. (2005). My future self: Young children's ability to anticipate and explain future states. *Cognitive Development, 20*, 341–361.

Atance, C. M., & O'Neill, D. K. (2005). The emergence of episodic future thinking in humans. *Learning and Motivation, 36*, 126–144.

Bauer, P. J. (2006). Event memory. In W. Damon & R. M. Lerner (Eds.), *The handbook of child psychology* (6th ed., Vol. 2, pp. 373–425). Hoboken, NJ: John Wiley & Sons.

Busby, J., & Suddendorf, T. (2005). Recalling yesterday and predicting tomorrow. *Cognitive Development, 20*, 362–372.

Friedman, W. J. (2003). The development of a differentiated sense of self of the past and the future. In R. V. Kail (Ed.), *Advances in child development and behavior* (Vol. 31, pp. 229–269). San Diego, CA: Academic Press.

Friedman, W. J. (2005). Developmental and cognitive perspectives on humans' sense of the times of past and future events. *Learning and Motivation, 36*, 145–158.

Friedman, W. J. (2007). The development of temporal metamemory. *Child Development, 78*(5), 1472–1491.

Friedman, W. J., Reese, E., & Dai, X. (2011). Children's memory for the times of events from the past years. *Applied Cognitive Psychology, 25*, 156–165.

Grant, J. B., & Suddendorf, T. (2011). Production of temporal terms by 3-, 4-, and 5-year-old children. *Early Childhood Research Quarterly, 26*, 87–95.

Harter, S. (2006). The self. In W. Damon & R. M. Lerner (Eds.), *The handbook of child psychology* (6th ed., pp. 505–570). Hoboken, NJ: John Wiley & Sons.

Nelson, K., & Fivush, R. (2004). The emergence of autobiographical memory: A social cultural developmental theory. *Psychological Review, 111*(2), 486–511. doi: http://dx.doi.org/10.1037/0033-295X.111.2.486

Povinelli, D. J. (2001). The self: Elevated in consciousness and extended in time. In C. Moore, K. Lemmon, & K. Skene (Eds.), *The self in time: Developmental perspectives* (pp. 75–95). Mahwah, NJ: Lawrence Erlbaum Associates.

Povinelli, D. J., & Simon, B. B. (1998). Young children's understanding of briefly versus extremely delayed images of the self: Emergence of the autobiographical stance. *Developmental Psychology, 34*(1), 188–194.

**Social Studies: Responsible Behavior**

Bronson, M. B. (2000). *Self-regulation in early childhood: Nature and nurture*. New York, NY: Guilford Press.

Calkins, S. D., & Williford, A. P. (2009). *Taming the terrible twos: Self-regulation and school readiness.* New York, NY: Guilford Press.

Cole, P. M., Tan, P. Z., Hall, S. E., Zhang, Y., Crnic, K. A., Blair, C. B., & Li, R. (2011). Developmental changes in anger expression and attention focus: Learning to wait. *Developmental Psychology, 47*(4), 1078–1089.

Denham, S. A. (2006). Social-emotional competence as support for school readiness: What is it and how do we assess it? *Early Education and Development, Special Issue: Measurement of School Readiness, 17*, 57–89.

Denham, S. A. (2010). Emotion regulation: Now you see it, now you don't. *Emotion Review, 2*(3), 297–299.

Harris, P. L. (2006). Social cognition. In W. Damon & R. M. Lerner (Eds.), *The handbook of child psychology* (6th ed., Vol. 2, pp. 811–858). Hoboken, NJ: John Wiley & Sons.

Hudson, J. A. (1993). Understanding events: The development of script knowledge. In M. Bennett (Ed.), *The child as psychologist* (pp. 142–167). London, England: Wiley.

Kochanska, G. (2002). Mutually responsive orientation between mothers and their young children: A context for the early development of conscience. *Current Directions in Psychological Science, 11*, 191–195.

Kochanska, G., & Thompson, R. A. (1997). The emergence and development of conscience in toddlerhood and early childhood. In J. E. Grusec & L. Kuczynski (Eds.), *Parenting strategies and children's internalization of values: A handbook of theoretical and research perspectives* (pp. 53–77). New York: Wiley.

Kopp, C. B., & Wyer, N. (1994). Self-regulation in normal and atypical development. In D. Cicchetti & S. L. Toth (Eds.), *Disorders and dysfunctions of the self* (pp. 31–56). Rochester, NY: University of Rochester Press.

Lagattuta, K. H. (2005). When you shouldn't do what you want to do: Young children's understanding of desires, rules, and emotions. *Child Development, 76*(3), 713–733. doi: http://dx.doi.org/10.1111/j.1467-8624.2005.00873.x

Nelson, K. (1993). Events, narratives, and memory: What develops? In C. A. Nelson (Ed.), *Memory and affect in development* (pp. 1–24). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.

Smetana, J. (2005). Social-cognitive domain theory: Consistencies and variations in children's moral and social judgments. In M. Killen & J. Smetana (Eds.), *The handbook of moral development* (pp. 119–153). Mahwah, NJ: Erlbaum.

Smetana, J. G., & Braeges, J. L. (1990). The development of toddlers' moral and conventional judgments. *Merrill-Palmer Quarterly, 36*, 329–346.

Smetana, J. G., Rote, W. M., Jambon, M., Tasopoulos-Chan, M., Villalobos, M., & Comer, J. (2012). Developmental changes and individual differences in young children's moral judgments. *Child Development, 83*(2), 683–696. doi: 10.1037/0012-1649.33.2.228

Thompson, R. A., Meyer, S., & McGinley, M. (2006). Understanding values in relationships: The development of conscience. In M. Killen & J. Smetana (Eds.), *The handbook of moral development* (pp. 267–297). Mahwah, NJ: Erlbaum.

Thompson, R. A., & Raikes, H. A. (2007). The social and emotional foundations of school readiness. In D. F. Perry, R. K. Kaufmann, & J. Knitzer (Eds.), *Social and emotional health in early childhood: Building bridges between services and systems* (pp. 13–35). Baltimore, MD: Paul H. Brookes Publishing Co.

Thompson, R. A., Winer, A. C., & Goodvin, R. (2011). The individual child: Temperament, emotion, self and personality. In M. H. Bornstein & M. E. Lamb (Eds.), *Developmental science: An advanced textbook* (6th ed., pp. 427–468). New York, NY: Psychology Press.

Tisak, M. S., Crane-Ross, D., Tisak, J., & Maynard, A. M. (2000). Mothers' and teachers' home and school rules: Young children's conceptions of authority in context. *Merrill-Palmer Quarterly, 46*(1), 168–187.

Zelazo, P. D., & Cunningham, W. A. (2007). Executive function: Mechanisms underlying emotion regulation. In J. J. Gross (Ed.), *Handbook of emotion regulation* (pp. 135–158). New York, NY: Guilford.

*Appendix D: Learning Progressions – References and Source Materials*

## Fine Arts: Dance

Adolph, K. E., & Berger, S. E. (2006). Motor development. In D. Kuhn & R. S. Siegler (Eds.), *Handbook of developmental psychology* (6th ed., Vol. 2, pp. 161–213). New York, NY: John Wiley & Sons.

Ames, L. B., & Ilg, F. L. (1976). *Your four-year-old: Wild and wonderful*. New York, NY: Dell Publishing.

Ames, L. B., & Ilg, F. L. (1985). *Your three-year-old: Friend or enemy*. New York, NY: Dell Publishing.

Brownell, C. A., Zerwas, S., & Ramani, G. B. (2007). "So big": The development of body self-awareness in toddlers. *Child Development, 78*(5), 1426–1440.

Cone, T. P., & Cone, S. L. (2004). *Teaching children to dance*. Champaign, IL: Human Kinetics, Inc.

Destefanis, J., & Firchow, N. (2008). Developmental milestones: Ages 3 through 5. *Great schools: Involved parents, successful kids*.

Gallahue, D. L., & Ozmun, J. C. (2006). Motor development in young children. In B. Spodek & O. N. Saracho (Eds.), *Handbook of research on the education of young children* (2nd ed., pp. 105–210). Mahwah, NJ: Erlbaum.

Haywood, K. M., & Getchell, N. (2005). *Life span motor development* (4th ed.). Champaign, IL: Human Kinetics.

Kakebeeke, T. H., Caflisch, J., Locatelli, I., Rousson, V., & Jenni, O. G. (2012). Improving in gross motor performance between 3 and 5 years of age. *Perceptual and motor skills, 114*(3), 795–806.

Moog, H. (1976). *The musical experience of the preschool child*. London, England: Schott Music Limited.

Music Educators National Conference Task Force For National Standards in the Arts. (1994). *The school music program: A new vision: The K-12 national standards, preK standards, and what they mean to music educators*, Reston, VA.

National Dance Education Organization. (2005). *Standards for learning and teaching dance in the arts: Ages 5-18*. Bethesda, MD: National Dance Education Organization.

National Dance Education Organization. (2009). *Standards for dance in early childhood*. Bethesda, MD: National Dance Education Organization.

Roncesvalles, M. N. C., Woollacott, M. H., & Jensen, J. L. (2001). Development of lower extremity kinetics for balance control in infants and young children. *Journal of Motor Behavior, 33*(2), 180-192. doi: http://dx.doi.org/10.1080/00222890109603149

Sanders, S. (2002). *Active for life: Developmentally appropriate movement programs for young children*. Champaign, IL: Human Kinetics.

Yan, J. H., Thomas, K. T., Stelmach, G. E., & Thomas, J. (2003). Developmental differences in children's ballistic aiming movements of the arm. *Perceptual and Motor Skills, 96*(2), 589–598.

Zachopoulou, E., Tsapakidou, A., & Derri, V. (2004). The effects of a developmentally appropriate music and movement program on motor performance. *Early Childhood Research Quarterly, 19*, 631–642.

**Fine Arts: Music**

Barrett, M. S. (1996). Children's aesthetic decision-making and analysis of children's musical discourse as composers. *International Journal of Music Education, 28*, 37–62.

Barrett, M. S. (1998). Researching children's compositional process and products: Connection to music education practice. In B. Sundrin, G. E. MacPherson & G. Folkestad (Eds.), *Children composing* (pp. 10–35). Malmo: Malmo Academy of Music.

Barrett, M. S. (2011). Musical narratives: A study of a young child's identity work in and through music-making. *Psychology of Music, 39*(4), 403-423. doi: 10.1177/0305735610373054

Davies, C. (1992). Listen to my song: A study of songs invented by children aged 5-7 years. *British Journal of Music Education, 9*, 19–49.

Harrison, C., & Pound, L. (1996). Talking music: Empowering children as musical communicators. *British Journal of Music Education, 13*(3), 233–242.

Jarjisian, C. (1983). Pitch pattern instruction and the singing achievement of young children. *Psychology of Music, 11*, 19–25.

Jordan-DeCarbo, J., & Nelson, J. (2002). Music in early childhood education. In R. Colwell & C. Richardson (Eds.), *The new handbook of research in music teaching and learning*. New York, NY: Oxford University Press.

Mastropieri, D., & Turkewitz, G. (1999). Prenatal experience and neonatal responsiveness to vocal expressions of emotion. *Developmental Psychobiology, 35*, 204–214.

McDonald, D. T., & Simons, G. M. (1989). *Musical growth and development: Birth through six*. New York, NY: Schirmer Books.

Moog, H. (1976). *The musical experience of the preschool child*. London, England: Schott Music Limited.

Moorhead, G. E., Sandvik, F., & Wight, D. (1951). *Music of young children, Vol. IV: Free use of music for musical growth*. Santa Barbara, C: Pillsbury Foundation for Advancement of Music Education.

Music Educators National Conference Task Force For National Standards in the Arts. (1994). *The school music program: A new vision: The K-12 national standards, preK standards, and what they mean to music educators*, Reston, VA.

Scott-Kassner, C. (1993). Musical characteristics. In M. Palmer & W. L. Sims (Eds.), *Music in prekindergarten: Planning and teaching*. Reston, VA: Music Educators National Conference.

Shuter-Dyson, R., & Gabriel, C. (1981). *The psychology of musical ability*. London, England: Methuen.

## Fine Arts: Theater

Adomat, D. S. (2012). Drama's potential for deepening young children's understandings of stories. *Early Childhood Education J, 40*, 343–350.

Asendorph, J. B. (2002). Self-awareness, other-awareness, and secondary representation. In A. Meltzoff & W. Prinz (Eds.), *The imitative mind: Development, evolution, and brain bases* (pp. 63–73). Cambridge, England: Cambridge University Press.

Brown, V., & Pleydell, S. (1999). *The dramatic difference: Drama in the preschool and kindergarten classroom*. Portsmouth, NH: Heinemann.

Brownell, C. A., & Kopp, C. B. (2007). Transitions in toddler socioemotional development: Behavior, understanding, relationship. In C. A. Brownell & C. B. Kopp (Eds.), *Socioemotional development in the toddler years: Transitions and transformations* (pp. 1–39). New York, NY: Guilford Press.

Curenton, S. M., & Justice, L. M. (2004). African American and Caucasian preschoolers' use of decontextualized language: Literate language features in oral narratives. *Language, Speech, and Hearing Services in Schools, 35*, 240–253.

Forbes, D., & Yablick, G. (1984). The organization of dramatic content in children's fantasy play. *New Directions for Child Development, 25*, 23–36.

Gifford-Smith, M. E., & Brownell, C. A. (2003). Childhood peer relationships: Social acceptance, friendships, and peer networks. *Journal of School Psychology, 41*, 235–284.

Hancock, M. R. (2007). *A celebration of literature and response* (3rd Ed. ed.). Upper Saddle River, NJ: Merrill.

Hendy, L., & Toon, L. (2001). *Supporting drama and imaginative play in the early years*. Buckingham, England: Open University Press.

Hereford, N. J., & Shall, J. (1991). *Learning through play: Dramatic play, a practical guide for teaching young children*. New York, NY: Scholastic.

Huttenlocher, J., Vasilyeva, M., Cymerman, E., & Levine, S. (2002). Language input and child syntax. *Cognitive Psychology, 45*, 337–374.

Hiatt, K. (2006). *Drama play: Bringing books to life through drama for 4-7 year olds*. Abingdon, England: David Fulton Publishers.

Laursen, B., & Hartup, W. W. (2002). The origins of reciprocity and social exchange in friendships. *New Directions for Child and Adolescent Development, 95*, 27–40.

Nielsen, M. (2006). Copying actions and copying outcomes: Social learning through the second year. *Developmental Psychology, 42*(3), 555–565.

Paris, A. H., & Paris, S. G. (2003). Assessing narrative comprehension in young children. *Reading Research Quarterly, 38*(1), 36–76.

Rubin, K. H., Bukowski, W., & Parker, J. G. (2006). Peer interactions, relationships, and groups. In W. Damon & R. M. Lerner (Eds.), *Handbook of child psychology* (Vol. 3, pp. 571–645). New York, NY: Wiley.

Rubin, K. H., Coplan, R. J., Chen, X., Bowker, J., & McDonald, K. L. (2011). Peer relationships in childhood. In M. H. Bornstein & M. E. Lamb (Eds.), *Developmental science: An advanced textbook* (6th ed., pp. 519–570). New York, NY: Psychology Press.

Warneken, F., & Tomasello, M. (2006). Altruistic helping in human infants and young chimpanzees. *Science, 311*, 1301–1303.

**Fine Arts: Visual Arts**

Bickerton, D. (1981). *The roots of language*. Ann Arbor, MI: Karoma Publishing.

Cohen, L. B., & Cashon, C. H. (2006). Infant cognition. In W. Damon & R. M. Lerner (Eds.), *The handbook of child psychology* (6th ed., Vol. 2, pp. 214–251). Hoboken, N.J.: John Wiley & Sons.

Dyson, A. H. (2000). Writing and the sea of voices: Oral language in, around, and about writing. In R. Indrisano & J. Squire (Eds.), *Perspectives on writing research, theory, and practice* (pp. 45–65). Newark, DE: international Reading Association.

Gardner, H. (1980). *Artful scribbles: The significance of children's drawings*. New York, NY: Basic Books.

Genishi, C., & Dyson, A. H. (2009). *Children, language, and literacy: Diverse learners in diverse times*. New York: Teachers College Press.

Hilliker, J. (1998). Labeling to beginning narrative. In T. Newkirk & N. Atwell (Eds.), *Understanding writing: Ways of observing, learning, and teaching* (2nd ed., pp. 14–22). Portsmouth, NH: Heinemann.

Kellogg, R. (1969). *Analyzing children's art*. Palo Alto, CA: National Press Books.

Kellogg, R. (1967). Understanding children's art. *Psychology Today, 1*(1), 16–25.

Matthews, J. (1994). Deep structures in children's art: Development and culture. *Visual Arts Research, 20*, 29–50.

Matthews, J. (1997). The 4-dimensional language of infancy: The interpersonal basis of art practice. *Journal of Art & Design Education, 16*(3), 285–293.

Matthews, J., & Jessel, J. (1993). Very young children and electronic pain: The beginnings of drawing with traditional media and computer paintbox. *Early Years, 13*(2), 15–22.

Schickedanz, J. A., & Collins, M. F. (2013). *So much more than the ABCs: The early phases of reading and writing*. Washington, DC: NAEYC.

Schirrmacher, R. (2002). *Art and creative development for young children* (4th ed.). Albany, NY: Delmar.

Thompson, S. C. (2005). *Children as illustrators*. Washington, DC: National Association for the Education of Young Children.

# Appendix E: Early Learning Assessment Framework

Shaded cells indicate a level for which there is not a descriptor within the corresponding Learning Progression and Skills, Knowledge, or Behaviors (SKB).

| Domain | Strand | Learning Progression | Skills, Knowledge, or Behaviors (SKB) | Level A | Level B | Level C | Level D | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Social Foundations | Social Emotional | Awareness and Expression of Emotion | Emotion Identification | | | | | | | | | |
| | | | Response to Distressed Peer | | | ▨ | | | | | | |
| | | Relationships with Adults | Separation from Familiar Adults | | | | | | ▨ | ▨ | ▨ | |
| | | | Seeking Emotional Support | | ▨ | | ▨ | | ▨ | | ▨ | |
| | | Conflict Resolution | Conflict Resolution Strategies | | | ▨ | | | | | | |
| | Approaches to Learning/Executive Functioning | Self Control | Self Control Strategies | | | | | | | | | |
| | | Persistence | Persisting with Tasks | | | | | | | | | |
| | | Working Memory | Following Directions | | | | | | ▨ | | ▨ | |
| | | | Information Recall and Connection | | | | | | | | | |
| | | Problem Solving | Using Logic | | | | | | | | | |
| | | Initiative | Interest | | | | | | | | | |
| | | | Planning | ▨ | ▨ | ▨ | ▨ | ▨ | ▨ | | | |
| | | Cooperation with Peers | Play/Work with Peers | | | | | | ▨ | | ▨ | |
| | | | Social Behaviors | | | | | | | | | |

Appendix E: Early Learning Assessment Framework

| Domain | Strand | Learning Progression | Skills, Knowledge, or Behaviors (SKB) | Level A | Level B | Level C | Level D | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Language and Literacy | Reading | Story/Text Comprehension | Respond to Questions About Text | | | | | | | | | |
| | | | Retell a Text | | | | | | | | | |
| | | Phonological Awareness | Rhyming Words | | ▓ | | | | ▓ | | ▓ | |
| | | | Syllables/Onsets and Rimes/Phonemes | ▓ | ▓ | ▓ | ▓ | ▓ | | | | |
| | | | Initial/Final/Medial Sounds | ▓ | ▓ | ▓ | ▓ | ▓ | | | | |
| | | | Adding/Deleting/Substituting Sounds | ▓ | ▓ | ▓ | ▓ | ▓ | ▓ | ▓ | | |
| | | Phonics and Letter Recognition | Uppercase Letters | | ▓ | | | | | | | |
| | | | Lowercase Letters | ▓ | ▓ | ▓ | ▓ | ▓ | | | | |
| | | | Letters-Sounds | ▓ | ▓ | ▓ | ▓ | ▓ | ▓ | | | |
| | Speaking and Listening | Communication | Purposes and Situations | | | | | | | | | |
| | Writing | Emergent Writing | Name Recognition and Writing | | ▓ | | | | | | | |
| | | | Writing to Convey Meaning | | ▓ | | | | | | | |
| | Language | Grammar | Sentences | | | | | | | | | |
| | | | Questions | | ▓ | ▓ | | | | | | |
| | | | Prepositions | | ▓ | ▓ | | | ▓ | | ▓ | |
| | | | Inflections | | ▓ | ▓ | | | | ▓ | | ▓ |
| | | Vocabulary | Word Meanings | | | | | | | | | |
| | | | Word Relationships | ▓ | ▓ | ▓ | ▓ | ▓ | ▓ | | | |

*Appendix E: Early Learning Assessment Framework*

| Domain | Strand | Learning Progression | Skills, Knowledge, or Behaviors (SKB) | Level A | Level B | Level C | Level D | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mathematics | Counting and Cardinality | Number Sense | Number Words | | ▓ | | | | | | | |
| | | | Object Counting | | ▓ | ▓ | | | | | | |
| | | | Number Concepts | ▓ | ▓ | ▓ | ▓ | ▓ | | | | |
| | | | Subitizing | ▓ | ▓ | ▓ | ▓ | ▓ | ▓ | | | |
| | | | Numeral Identification/Writing | ▓ | ▓ | ▓ | ▓ | ▓ | ▓ | | | |
| | Operations and Algebraic Thinking | Number Operations | Addition Problems | ▓ | ▓ | ▓ | ▓ | ▓ | | | | |
| | | | Subtraction Problems | ▓ | ▓ | ▓ | ▓ | ▓ | | | | |
| | | | Decomposing Numbers | ▓ | ▓ | ▓ | ▓ | ▓ | ▓ | ▓ | | |
| | | | Completing a Set | ▓ | ▓ | ▓ | ▓ | ▓ | ▓ | ▓ | | |
| | Measurement and Data | Classification | Sorting and Classifying | | | ▓ | | | | | | |
| | | | Comparing and Describing | ▓ | ▓ | ▓ | ▓ | ▓ | ▓ | ▓ | | |
| | | Measurement | Identifying/Comparing/Measuring | | ▓ | ▓ | | | | | | |
| | Geometry | Shapes | Two-Dimensional Shapes | | | | | | | | | |
| | | | Three-Dimensional Shapes | ▓ | ▓ | ▓ | ▓ | ▓ | | | | |
| | | | Combining Shapes | ▓ | ▓ | ▓ | ▓ | ▓ | ▓ | ▓ | | |

*Appendix E: Early Learning Assessment Framework*

| Domain | Strand | Learning Progression | Skills, Knowledge, or Behaviors (SKB) | Level A | Level B | Level C | Level D | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Physical Well-Being and Motor Development | Physical Education | Coordination–Large Motor | Locomotor Skills | | | | | | ■ | | | |
| | | | Non-Locomotor Skills | | | | | | ■ | | | |
| | | | Spatial Awareness | | | | | | ■ | | | |
| | | Coordination–Small Motor | Tool and Object Manipulation | | | | | | ■ | | | |
| | | | Writing Tool Grasp | | ■ | | | | | ■ | | |
| | Health | Safety and Injury Prevention | Safe and Unsafe Behaviors | | | ■ | | | ■ | | ■ | |
| | | | Safety Rules | | | ■ | | | ■ | | ■ | |
| | | | Ways Adults Help Keep Children Safe | ■ | ■ | ■ | ■ | | | ■ | | ■ |
| | | Personal Care Tasks | Personal Care and Basic Health | | | ■ | | | | | | |

| Domain | Strand | Learning Progression | Skills, Knowledge, or Behaviors (SKB) | Level A | Level B | Level C | Level D | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Science | Skills and Processes/Life Science | Inquiry and Observation | Explore, Examine, and Investigate | | | | | | | | | |

| Domain | Strand | Learning Progression | Skills, Knowledge, or Behaviors (SKB) | Level A | Level B | Level C | Level D | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Social Studies | Government | Responsible Behavior | Rules at Home and School | | ■ | | | | | | | |
| | History | Events in the Context of Time | Past, Present, and Future | | ■ | ■ | | | | | | |

*Appendix E: Early Learning Assessment Framework*

| Domain | Strand | Learning Progression | Skills, Knowledge, or Behaviors (SKB) | Level A | Level B | Level C | Level D | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Fine Arts** | **Music** | **Music** | Rhythm | | | ▓ | | | | | | |
| | | | Response to Change | | | | | | | | | |
| | | | Singing | | | | | | | | | |
| | | | Playing Rhythm Instruments | | | | | | | | | |
| | | | Following Directions and Cues | | | | | | | | | |
| | **Visual Arts** | **Visual Arts** | Colors, Shapes, and Lines | | | | | | | | | |
| | | | Drawing | | | | | | | | | |
| | **Theater** | **Theater** | Dramatizing Stories | | | | | | | | | |
| | | | Engaging in Dramatic Play | | | | | | | | | |
| | | | Contributing to Original Ideas | | | ▓ | | | | | | |
| | **Dance** | **Dance** | Movement through Space | | | ▓ | | | | | | |
| | | | Body Movements and Shapes | | ▓ | ▓ | | | | | | |
| | | | Spatial Relationship to Others | | | ▓ | | | | | | |

*Appendix E: Early Learning Assessment Framework*