Sesame Street Framework for School Readiness
Table of Contents

3 Framework Introduction

6 Language Development
  Receptive language
  Expressive language

11 Literacy Knowledge & Skills
  Knowledge of print & its uses
  Phonological awareness
  Alphabet knowledge
  Early writing

18 Mathematics Knowledge
  Number concepts & relations
  Number operations
  Measurement & comparison
  Geometry & spatial sense
  Patterns

27 Science Knowledge & Skills
  Scientific skills & method
  Conceptual knowledge of the natural world
  Conceptual knowledge of the physical world

34 Logic & Reasoning
  Reasoning & problem solving

37 Approaches to Learning
  Initiative & curiosity
  Executive function skills

42 Social & Emotional Development
  Social relationships
  Emotional development & self-regulation

47 Health Knowledge & Practice
  Health knowledge & practice

51 Social Studies Knowledge & Skills

52 Creative Arts Expression

© 2014 Sesame Workshop. Sesame Street and all related characters, trademarks and design elements are owned by Sesame Workshop. All rights reserved.
Framework Introduction

Sesame Workshop is the nonprofit educational organization behind Sesame Street, the landmark program designed to prepare young children for kindergarten. The Workshop’s mission is to use the educational power of media to help children reach their highest potential. For over 40 years, Sesame Street has addressed the critical educational needs of preschool children and delivered research-based, goal-directed content across a variety of media platforms, including the television show, books, games, mobile apps, and community engagement initiatives.

Sesame Street’s engaging and entertaining learning experiences support early childhood development and help prepare children for school by enhancing the following:

- **Knowledge** of core academic content areas (e.g., literacy, mathematics, and science)
- **Behaviors** across social, emotional, and health developmental domains
- **Attitudes** and dispositions for lifelong learning

Sesame Street’s content also models mutual respect and understanding for each other in order to reduce biases, stigma, prejudice, and conflict. To ensure the educational integrity of the media experiences we create, all content is driven by the Sesame Street whole-child curriculum which addresses all aspects of child development. That curriculum is revised annually to ensure that Sesame Street continues to address the current critical educational and societal needs of today’s preschoolers and adheres to the best practices in early childhood education.

High-quality, educational preschool content is needed today more than ever as a significant percentage of children enter school not fully prepared. The most recent report, Kindergartners’ Skills at School Entry, indicates that 44% of children enter kindergarten with one or more risk factors based on their home environment (e.g., poverty, parents with less than a high school education). Children with these risk factors typically have lower school readiness scores than those with no such circumstances, particularly in reading and mathematics. Research shows that these children have difficulty catching up as they progress through the early elementary years. The encouraging news, however, is that quality preschool education can make a significant and lasting impact.

Framework Introduction

To address this critical challenge of school readiness, the Education and Research Department at Sesame Workshop developed this Framework for School Readiness as an internal tool to guide our producers, content creators, and content curators to focus their attention to the core fundamental school readiness concepts and skills that can be addressed through child-directed educational media content experiences (linear or interactive) to help prepare U.S. preschool children for kindergarten.

This Framework is comprised of 8 domains of child development: Language, Literacy, Mathematics, Science, Logic & Reasoning, Approaches to Learning (including executive function skills), Social & Emotional Development (including self-regulation skills), and Health Knowledge & Practice. Across these domains, we have detailed 20 foundational school readiness learning objectives. Within each of these learning objectives, we identify core concepts and skills and provide the developmental progressions from ages 2 to 5. The age progressions explain how typically developing preschoolers in supportive environments learn specific skills, and they guide the creation of Sesame Street’s developmentally-appropriate learning experiences, particularly within our adaptive learning systems.

This Framework is based on Sesame Workshop’s 45 years of research and development in early childhood education, the Sesame Street Whole-Child Curriculum, as well as review and input from a panel of external early childhood content advisors. This Framework has also been guided and informed by the key standards in the field, including The Head Start Child Development and Early Learning Framework and the Teaching Strategies Gold Objectives for Development and Learning (ODL) assessment tool.

The Sesame Street Framework for School Readiness complements the current Sesame Street Whole-Child Curriculum, but is distinct in two regards:

1) The Framework is a guide focused on the core foundational skills (that can be delivered through media) needed to help prepare preschoolers for Kindergarten. It provides content developers with guidelines to create developmentally appropriate child-directed media experiences.

2) It provides the developmental progressions of these foundational skills from ages 2-5 to inform the development of leveled and adaptive learning experiences.

---


Framework Introduction

It is important to note that this Framework is not a diagnostic tool. Moreover, this Framework is not specifically intended to address the needs of children with developmental disabilities or the needs of English language learners. However, this Framework is a dynamic document that will evolve with research and advances in early childhood education and technology. We are currently preparing additional documents to address the specific needs of teachers and parents. These future documents will provide teachers and parents with an understanding of how young children master the foundational school readiness skills outlined in this Framework and what their respective roles are in the development of these skills.

Through the evolution of creating this document, we recognized that there is a great advantage to sharing the Framework for School Readiness Skills externally to help assist other content producers in their production of developmentally appropriate media experience so all of us can collectively do our part to help young children be best prepared for kindergarten and place them on a positive trajectory for lifelong learning.

Acknowledgements

Special thanks to all the content advisors who took the time to review this document and provided detailed notes to ensure its accuracy.

This Framework would not be possible without the guidance from: Arthur Baroody, PhD; Karen Bierman, PhD; Nancy Brasel, MEd; Sue Bredekamp, PhD; Jeff Capizzano, MPP; Stephanie Carlson, PhD; Douglas Clements, PhD; Kathy Conezio, MS; Anne Culp, PhD; Emily DeGroof, MA; Mia Doces, MEd; Ellen Frede, PhD; Judith Levin, PhD; Joan Lombardi, PhD; Sara Sweetman, PhD; Barbara Tinsley, PhD; and Hiro Yoshikawa, PhD.

Contributors

Lewis Bernstein, PhD; Mindy Brooks, MA; Jessica Disalvo, BA; Nancy Garrity, MA; Akimi Gibson, MA; Jennifer Kotler, PhD; Michelle Newman-Kaplan, MA; Jennifer Schiffman-Sanders, MS; Rosemarie Truglio, PhD; and Autumn Zitani, MA.
Language Development includes a child’s growing ability to understand and use language. These receptive and expressive language skills are among the most important during a child’s first five years of life. Strong language skills help a child learn and express knowledge across all domains. They also support successful social interactions as a child’s communication skills grow.

Language and vocabulary development in early childhood is related to later school success. Unfortunately, many children enter preschool with a critical gap in the number of words they can understand or use. Research has found that children from lower socio-economic backgrounds begin preschool with a receptive vocabulary gap of 30 million words.6

Children need meaningful, repeated exposures to words at different levels of complexity in a variety of contexts. They need background knowledge to understand new words, they need to contextualize these words in relation to each other and within a larger category (e.g., car, train, and bus are all forms of transportation), and they need the opportunity to use the words they learn.

Language Development

The learning objectives for Language Development for 2- to 5-year-olds are:

- **Receptive Language:**
  The ability to comprehend or understand language.

  A child developing receptive language skills learns to:
  - **Understand words at different levels of complexity and in a variety of contexts.** Young children learn different levels of words: basic words on their own through their experiences (e.g., zoo, farm); useful content words from trusted adults, books, or media (e.g., square, calendar, alive); and more rare words in special circumstances (e.g., prescription, receipt). They also learn connecting words (e.g., like, than, about) and words that span all domains of learning (e.g., plan, compare, check).
  - **Associate related words and identify them with a larger category.** As young children encounter new words, they connect them to previously learned related words. In this way, they build word clusters (e.g., big, large, huge, gigantic). They also begin to associate those groups of related words with a superordinate word that names a larger category into which the words fit (e.g., snakes, turtles, lizards, and alligators all fit within the larger category known as reptiles).
  - **Follow directions.** When children follow spoken directions, we know they are hearing and understanding new language (e.g., “Walk with very large steps.”).
  - **Behaviorally respond to verbal requests and questions.** When children follow requests, we know they are hearing and understanding new language (e.g., “Please give me the tiny toy dog.”).

**Developmental Considerations:**

- **2 years old:** A two-year-old pays attention to speech around her, especially from familiar voices, and demonstrates engagement by looking in the direction of people speaking to her, looking at an object when it’s labeled and pointed to, and responding to her name. She can identify and point to familiar people, animals, and objects (e.g., she points to a dog in a picture when asked if she can find it), but she may overgeneralize (e.g., she points to different birds when she is asked if she can find the duck). Most of the words that she knows are names of familiar objects and people, action words, and descriptive words. She can respond to simple requests when they are accompanied by gestures (e.g., an adult says “blow kiss” and she blows kisses). As she gets a little older, she can follow familiar one-step directions without the accompanying gesture.
Language Development

3 years old: A three-year-old understands and can respond to simple words, sentences, questions, and stories (e.g., he finds his favorite stuffed animal when asked). He knows some category words (e.g., animals, clothes) and understands how an object fits into a category and relates to other words within that category (e.g., ducks and pigeons are both birds). He knows more nouns, action words, and descriptive words, and he is building his vocabulary of connecting words (e.g., because, about) and content words (e.g., words related to simple shapes and basic emotions). He can follow familiar directions with more than one step (e.g., “Take off your jacket and wash your hands, please.”).

4 years old: A four-year-old can understand more sophisticated vocabulary, sentences, questions, and stories, and she may be able to respond to more complex stories and ideas (e.g., she acts out a multi-part story that has been read to her). She has a deeper understanding of categories and clusters (e.g., bananas and apples are fruits, broccoli and carrots are vegetables, and she knows that all of them are foods she can eat). She is learning to understand words related to time (e.g., yesterday, today, tomorrow, before, after) and more complex emotions (e.g., frustrated, disappointed) as well as more content words and rare words used in special circumstances. She is also learning how to follow more detailed directions with multiple steps.

5 years old: A five-year-old can understand and respond to more complex vocabulary, sentences, questions, and stories (e.g., he can answer the question, “What is your favorite game and why?”). He has a deeper understanding of how different words are related to one another (e.g., winter is connected to a variety of words such as snow, mittens, sled, and holidays) and to a larger category (e.g., winter, spring, summer, and fall are all seasons). He understands many more content words, some rare words used in special circumstances, and a growing number of words that span all domains of learning (e.g., plan, observe, describe). He can now follow more detailed multi-step directions (e.g., he helps set the table by placing a placemat, plate, cup, and napkin for each person who will be eating).
**Language Development**

**Expressive Language:**
The ability to use language.

A child developing expressive language skills learns to:

- **Use an expanding vocabulary to name things they see.** Young children like using words to label and express thoughts, actions, observations, feelings, and needs. As their language skills develop, they will use a growing variety of basic words, useful content words, and rare words.

- **Associate related words and name their larger category.** As children’s language skills develop, they are able to play word games by associating related words or substituting similar words in speech. In this way, they build clusters of related words that create a powerful foundation for new learning. They also learn to use superordinate words that name larger categories (e.g., hammer, screwdriver, and wrench are all tools).

- **Initiate conversations and participate in conversational turn taking.** As children’s language skills develop, they will feel more comfortable starting conversations with others and voicing the questions that are on their minds, supporting both their social-emotional and academic growth. They will learn to stay on topic and take turns speaking and listening during conversations.

- **Tell stories about another time or place.** As children’s language abilities develop, they begin to talk about the past, present, and future (e.g., yesterday I saw, today I see, tomorrow I will see). They also learn to talk about imagined ideas and events.

**Developmental Considerations:**

**2 years old:** A two-year-old can say sentences with two or more words and can begin to have conversations that involve turn taking (two turns). She likely makes grammatical errors in her speech (e.g., “I go zoo.”). She can name familiar people, objects, and animals even when they are not present (e.g., “Doggie go bye-bye.”), but she may over- or under-extend the meaning of words (e.g., she calls a donkey a horse).

**3 years old:** A three-year-old can say longer, multi-word sentences with fewer grammatical errors, and he can have longer turn-taking conversations (three turns). He can tell stories about recent events, although the stories will likely lack details and some story structure (e.g., “I went down the slide. I went to the park.”). He is now able to talk about and describe familiar items (e.g., “This is a toothbrush. I clean my teeth with it.”). He may be able to list items in a category (e.g., fruits or colors), and he has a larger expressive vocabulary of basic words and content words.
**Language Development**

**4 years old:** A four-year-old can speak in full sentences and engage in longer turn-taking conversations (four turns). She can talk about past and future events, often using correct grammar (e.g., “We went to the farm. Tomorrow we are going to the park.”), and she can begin to tell stories about recent events in the correct sequence (e.g., “I went to the park with Daddy. I went down the slide three times.”). She continues to talk about and describe the use of familiar items. She can label more objects in a category and name more categories (e.g., drums and bells are musical instruments). She also uses increased vocabulary of content words (e.g., seed, sprout, roots) and some rare words (e.g., camouflage) that she has picked up in specific contexts.

**5 years old:** A five-year-old speaks in full sentences and can engage in even longer turn-taking conversations (five turns). He can use new vocabulary words and some technical words in his speech, and his storytelling about recent events is now more detailed and elaborate (e.g., he tells you about his school trip, explaining where they went, why they went, how they got there, who was in his group, and what they saw). He can explain how things are related to one another within a larger category (e.g., trees, flowers, and grass are all plants and they all need water, soil, and sunlight to grow).
Literacy Knowledge & Skills

By modeling a love of literacy and exposing young children to a wide variety of reading and writing materials, we can help them build essential skills and a passion for literacy that will prepare them to become successful and joyful readers and writers.

Literacy Knowledge & Skills lay the foundation for future academic achievement, with research showing that early literacy skills are predictive of later reading and writing success. Before being able to read and write, children must first understand the basic concepts of print (text carries meaning, is made up of individual words and letters, and is read from left to right in the English language), recognize and name the letters of the alphabet (uppercase and lowercase), identify and make the sound or sounds associated with each letter, recognize smaller units of sound in spoken language (i.e., words, syllables, onsets and rimes, and phonemes), and begin to experiment with early forms of written communication (drawing and writing).

Young children begin their literacy development with books, storytelling, alphabet songs and games, and early drawing and writing. Early exposure to a variety of written words fosters literacy skills such as letter recognition, meaning derivation from text, the ability to retell a familiar story, and vocabulary growth. Young children develop language and literacy skills during the early years mainly through everyday language-rich experiences. We can help young children deepen their literacy skills by promoting conversation while pointing to and labeling things in the environment, writing children's dictated speech, retelling familiar stories with the help of props or pictures, and encouraging children to express themselves through drawing and writing. Exploring topics of interest through early literacy experiences motivates children and helps them build knowledge that supports success not only in reading and writing but in other domains as well.

---

The learning objectives for Literacy Knowledge & Skills for 2- to 5-year-olds are:

Knowledge of Print & Its Uses:
An understanding of the uses and characteristics of written language—from books to digital texts.

A child developing knowledge of print and its uses learns to:
- **Show an interest in and appreciation for reading all forms of text.** Young children are naturally curious about written language around them, particularly when a trusted adult models a love of reading and writing. They share comments and questions throughout the reading experience.
- **Explore conventions of print.** Through experience, children become increasingly comfortable with conventions such as turning the pages of a book from front to back and one page at a time and reading text from left to right and from top to bottom of a page. They also become aware of basic characteristics such as title, author, and illustrator as well as common features such as spaces between words and punctuation.
- **Recognize story structure and details.** Children begin to recognize story patterns including beginning, middle, and end as well as some details such as story events, characters, and conflict and resolution (cause & effect).
- **Understand and respond to stories and other texts.** Children may demonstrate their understanding of texts by retelling events from a familiar story, acting out the story, drawing a response, choosing to read or learn more on the same topic, etc.
- **Recognize environmental print in everyday life.** Children begin to notice printed text in the world around them on street signs, storefronts, product packaging, etc.
- **Understand that print has meaning.** Through experience, children come to understand that print is speech that has been written down with a particular sequence of letters and that print carries meaning, from grocery lists, to signs, to storybooks.
Developmental Considerations:

2 years old: A two-year-old loves interacting with books in a variety of ways. He enjoys carrying books around and will often ask a grown-up to read (and re-read) his favorite story. When being read to, he might look at pictures, help turn pages, and say repeated phrases out loud at the right time (e.g., “But the bear snores on” from *Bear Snores On* by Wilson and Chapman). A toddler may also interact with books independently by flipping through pages or pretending to read and using the pictures as clues to describe what’s happening. He understands that books are held a certain way, and with help from a grown-up he can retell some familiar story events. At this age, he will also start to notice environmental print and understand that words carry meaning (e.g., by recognizing and naming the word “milk” or the name of a familiar grocery store on packaging).

3 years old: A three-year-old begins to interact with books on a deeper level. She can recognize and choose her favorite books and identify and label pictures and characters. With some adult prompting, she can ask and answer questions about a familiar story and retell some of the events. She begins to understand story structure, follow a story from front to back, and independently turn the pages. She also begins to notice and point out more words in her environment and understands that they carry meaning (e.g., in, out, exit).

4 years old: A four-year-old loves being read to, but he also starts to spend more time interacting with books independently by pretending to read and using memorized language from a story to describe what’s happening on the pages. He can also identify story-related events and retell familiar stories in the correct sequence. While being read to by a grown-up, he can start to follow the words from left to right and may track the text with his finger. He may recognize some familiar words in a story, begin to notice that words are separated by spaces and that there are other markings on the page such as punctuation and page numbers, and become aware that some features of a book connect to specific authors and illustrators. He may begin to copy environmental print for use in his own play (e.g., he copies the word “MENU” from a real menu in the dramatic play area).

5 years old: A five-year-old truly begins her journey toward independent reading. When she pretends to read, she uses appropriate intonation and actual language from a story. As she gets older, she begins to use reading strategies such as sounding out words and noticing word patterns in a text. When being read to, she can match some spoken words to the words on a page, and she can follow words from left to right and from top to bottom. She can make inferences and draw conclusions about a story using details about the characters, events, and storylines, and she can reconstruct familiar stories using pictures, text, and props. A five-year-old can also recognize and respond to environmental print such as signs in store windows.
Literacy Knowledge & Skills

Phonological Awareness:
A sensitivity to the sounds of language; it is the ability to hear, think about, and manipulate units of sound in speech (words, syllables, onsets and rimes, and phonemes), often independent of meaning.

A child developing phonological awareness learns to:
- **Hear and distinguish individual words in spoken language.** Young children can hear and understand that there are individual words in spoken language before they learn that written words are separated by spaces.
- **Hear and distinguish individual syllables in spoken words.** With practice and experience, children can learn to hear the beats or syllables within words (e.g., wa-ter) and mark them by clapping, stomping, etc.
- **Hear and distinguish the sounds of individual phonemes in spoken words.** Young children begin to hear and play with the 44 individual sounds or phonemes in the English language (e.g., /a/, /a/, /k/, /ch/) even before they know the alphabetic symbols associated with the sounds.
- **Identify spoken words that begin with the same initial sound.** Children become more precise in their awareness of sounds, and they learn to isolate and eventually compare the beginning sounds in words (e.g., The story “Lucy the Lazy Lizard” has a lot of words that start with the /l/ sound).
- **Identify spoken words that rhyme (i.e., end in the same sounds).** Children begin to hear and separate “onset” and “rime” or the first and ending sounds in words (e.g., /m/ /op/). When the “rimes” of two words sound the same, the two words rhyme (e.g., shoe/grew).
- **Identify and manipulate spoken individual sounds (phonemes).** Older children start to blend sounds to build words (e.g., /c/ /a/ /l/… cat) and segment words into individual sounds (e.g., cat … /c/ /a/ /l/). They may also play with sounds to change words by deleting, substituting, blending, or stretching sounds (e.g., cat … replace the /c/ with a /r/ and you have rat).

Developmental Considerations:

2 years old: A two-year-old enjoys listening to rhymes and may begin to notice rhyming words in familiar songs and books.

3 years old: A three-year-old enjoys stories and songs with rhymes and may verbally string together rhyming words (e.g., tow, row, bow, mow, snow). He also enjoys chants and songs with alliteration (e.g., “Peter Piper Picked a Peck of Pickled Peppers”). As he gets a little older, he can clap or stomp along with individual single-syllable words in a sentence (e.g., he claps for each word while saying “Who wants to go to the park?”).
4 years old: A four-year-old continues to enjoy listening to and creating rhymes, and she may be able to fill in a missing rhyming word (e.g., “He was very good at standing still and munching shoots off trees. But when he tried to run around, he buckled at the ______.” From *Giraffes Can’t Dance* by Andreae). She may notice when words begin with the same sound (e.g., she notices that the words “purple” and “pencil” both start with the /p/ sound). She may also hear separate syllables in words (e.g., she stomps for each syllable while saying “We are marching to the playground.”).

5 years old: A five-year-old may be able to figure out whether two spoken words rhyme, such as “bear” and “chair,” and match rhyming picture cards. As he gets older, he can begin to blend and segment initial and ending parts of spoken words (e.g., he says “top” after hearing /t/…/op/), as well as individual sounds (phonemes) in simple consonant-vowel-consonant (CVC) words (e.g., he says “top” after hearing /t/…/o/…/p/).

Alphabet Knowledge:
An understanding of the English alphabetic system (letter names, letter shapes, and letter sounds) and the understanding that letters and letter patterns represent the sounds of spoken language.

A child developing alphabet knowledge learns to:
• Identify and name uppercase and lowercase letters. As young children learn to recognize and name the letters of the alphabet, they may need extra support distinguishing letters that look similar in lowercase (e.g., a/d, b/d, b/p, n/u, i/l) or uppercase (e.g., C/G, E/F, I/L, M/N, M/W).
• Associate correct sounds with letters. Young children may need help distinguishing letter sounds from letter names. As they learn the letter sounds, they typically begin with the most useful ones rather than learning them in alphabetical order. They first learn consonant and short vowel sounds that can be heard at the beginning of familiar words. Then, in the preschool classroom, they may focus on the letter-sound combinations found in familiar CVC words that they will begin reading in kindergarten (e.g., cat, hot, pin).
• Recognize that written words are comprised of separate letters. Just as children learn to recognize individual sounds in spoken words, they begin to recognize individual letters in written words. As they learn the sounds associated with those written letters, they’ll make progress toward becoming readers!
Developmental Considerations:

2 years old: A two-year-old is exposed to uppercase letters and as she gets older may begin to recognize some of the letters in her name, particularly the first letter.

3 years old: A three-year-old can recognize some or all of the letters in his name, and he starts to recognize a few other uppercase letters as well. He can begin to match some familiar uppercase and lowercase letters and may produce a few “clear and common” sounds for certain letters where the letter sounds closely relate to the letter names such as b, t, m, s, and f.

4 years old: A four-year-old can name and recognize many uppercase and lowercase letters, and she may be able to produce sounds for quite a few of them. She also begins to show an understanding that an ordered group of letters represents an ordered group of spoken sounds.

5 years old: A five-year-old may be able to recognize and name all the uppercase and lowercase letters of the alphabet. He may attempt to sound out letters as he reads and writes (e.g., reading the word “sit” by sounding out the individual letter sounds /s/ /i/ /t/ and blending them together), though he might not be ready to sound out blends such as pr and fr.

Early Writing:
An understanding that what we say can be written down to be read by others. Early writing skills include drawing, marking, scribbling, and invented spelling.

A child developing early writing abilities learns to:
- **Understand that drawing and writing are ways to communicate ideas and feelings.** Young children understand that writing carries meaning and can be understood by those who read it.
- **Copy, trace, or independently write markings, letters, words, names, or numbers.** Young children may begin writing in many different ways, all of them valuable. In early childhood, there is no wrong way to write.
- **Use emergent writing skills.** Young children may use dictation, drawing, early writing, and sometimes invented spelling to share ideas and feelings. Any of these can make a young child feel like an author.
- **Use a variety of writing tools.** Young children should experiment with different kinds of writing tools from using their own fingers to write in wet sand, shaving cream, or paint to writing with large and small pencils, crayons, markers, chalk, paint brushes, etc.
Developmental Considerations:

2 years old: A two-year-old makes markings on paper (e.g., lines, circles, and scribbles) as her first attempts at early writing. She starts to use drawing and writing to express ideas.

3 years old: A three-year-old’s lines and scribbles begin to resemble letter-like forms and as he gets older he can write some letters accurately, particularly those in his own name.

4 years old: A four-year-old can write groups of letters, some accurately, but often in random order. She may be able to write all of the letters in her own name but often not in the correct sequence. As she gets a little older, she may begin to use invented spelling with initial or ending sounds (e.g., writing “cr” for “car”).

5 years old: A five-year-old can write all of the letters in his own name, although some of the letters may be out of sequence and not oriented correctly or fully formed. As he gets older, he can write his name with letters in the correct order using uppercase or lowercase letters (or both). He can now use invented spelling with initial, middle, and ending sounds (e.g., writing “lit” for “light”).
Children’s desire to explore and make sense of the world around them naturally leads to their use of early math concepts, such as telling how many or how much, comparing, ordering, using their spatial relation skills as they move through the spaces and obstacles around them, and manipulating items as they build and break apart groups.

These early math experiences are essential to children’s later academic success. Research shows that children’s early math knowledge is predictive of their later success in both math and reading.9 We also know that too many children lack the early learning experiences, resources, and educational opportunities to learn math well.10

Mathematics Knowledge includes the foundational understanding that numbers can be used to count, measure, compare, add, and subtract. It also includes children’s ability to use numbers and mathematical thinking to engage with the world around them and to solve problems. In addition to working with numbers, children also identify, take apart, and build shapes. They begin to explore and describe spatial relations in games and other physical activities. They also identify, build, and extend patterns.

Throughout all of this learning, young children begin to develop critical thinking skills by using logic, connecting ideas, and thinking flexibly. This enables them to move from concrete thinking toward abstract thinking and from hands-on activities to story problems. Encouraging children to talk about what they are doing as they engage in math activities helps them build deeper knowledge and understanding of mathematical language and concepts. The amount of “math talk” children use and hear during the preschool years directly correlates with their future understanding of mathematical language and concepts.11

---


The learning objectives for Mathematics Knowledge for 2- to 5-year-olds are:

**Numbers Concepts & Relations:**
An understanding of how numbers are used and how they relate to one another, knowledge of the counting sequence, and the ability to count and quantify.

A child developing number concepts and relations learns to:

- **Recite the number names in order.** Young children learn to recite the names of numbers in order without skipping any, just like they learn to recite the ABCs.
- **Recognize written numerals and understand that they represent number words.** Just as children learn to recognize and name written letters, they also learn to recognize and name written numbers (numerals).
- **Identify printed numerals in the everyday environment.** Children begin to notice numerals being used for different purposes in everyday life, from house numbers (e.g., 123 Sesame Street) to bus numbers, numbered instructions, and more.
- **Understand that spoken or written numbers can represent the total of a collection.** Children develop the concept of cardinality, the understanding that a number can be used to represent the total number of items in a collection (e.g., they learn that we can ask for “three fish” instead of asking for “fish, fish, fish”).
- **Understand that spoken or written numbers can represent a size or amount.** Children begin to understand that, in addition to representing counted collections, numbers can also represent size (e.g., 5 blocks tall) or amount (e.g., 1 gallon of milk, 3 cups of flour).
- **Quantify collections by counting objects in sequence, pointing to each item one time while counting.** One-to-one counting takes practice, as children learn to match their counting and pointing (i.e., not count faster than they’re pointing) and learn that the last number word counted represents the total.
- **Quantify collections by immediately recognizing the total number in a collection.** This skill is called “subitizing.” When we immediately recognize the number of dots on dice without having to count, we are subitizing.
- **Use the one-to-one correspondence between two collections of objects to determine whether or not two collections are equal.** At first, children compare collections through direct comparison, aligning the objects in each collection so they can visually see if they are equal (e.g., line up two collections of bottle caps to see if there is the same number in each collection).
- **Compare and determine the larger of two collections by counting or estimating.** Young children count and quantify (up to 10 items) or estimate (up to 5 items) to compare two collections and determine which is larger.
- **Compare and order collections or objects by relative quantity or size.** This skill is called “ordinality.” Children learn to put things in relative order using comparative language (e.g., big, bigger, biggest) or ordinal numbers (e.g., first, second, third).
Developmental Considerations:

2 years old: A two-year-old can recite several number words but not always in the correct order (e.g., she Pretends to count by saying “one, two, five”). She understands the meaning of the numbers one and two. For example, she can show that two blocks, but not one block or three blocks, is “two.” She can also take or give one or two objects on request, as in “take just one” or “give me two.” She understands when one collection has more than another (e.g., “there are more children than apples”).

3 years old: A three-year-old can verbally count up to five. He understands that the words “one,” “two,” “three,” and maybe “four” represent a specific quantity in a collection (e.g., he can point to the collection of three items). He can accurately count collections of up to three or four objects, pointing to each object once as he counts. He recognizes that “three” is more than “two” and “two” is more than “one.” He begins to know the usual sequence of basic daily events (e.g., saying, “We go outside after lunch”) and is also beginning to identify the “first” and “last” object in a sequence. He can recognize a few numerals (e.g., when asked to find the 3, he can point to it among a set of other single-digit numbers).

4 years old: A four-year-old can verbally count up to ten. She can also figure out what number comes after another number (e.g., “What comes after six? One, two, three, four, five, six, SEVEN!”) or not (e.g., “After four comes … five.”). She is gaining a true command of the concept of “how many” and can accurately count collections with up to five objects, pointing to each object once as she counts. She recognizes that the last number counted represents how many objects there are altogether in a collection, and she is beginning to represent counting through drawing and writing. She can count out up to five objects upon request (e.g., she counts out five crayons from a box). She also understands that numbers farther along in the counting sequence represent larger collections. For example, she recognizes that ten is more than four. She can make counting-based number comparisons up to five (e.g., count a collection of four and a collection of five and realize that because four was passed when counting to five, five must be more than four). She can describe relative order using the words “first,” “second,” and “last” and may identify the “third” object in a sequence. She can read numerals up to 5.
Mathematics Knowledge

5 years old: A five-year-old can verbally count up to 20. He can say the number after a given number up to ten without using a running start (e.g., “After nine comes … ten.”) and can verbally count backward from five and possibly from ten. He accurately points to count collections up to ten objects and can count out up to ten objects upon request (e.g., he counts out ten blocks from a larger pile of blocks). He mentally (without counting) determines the larger of two neighboring numbers up to ten (e.g., knows that nine is more than eight). He gauges the relative proximity of numbers up to ten (e.g., he recognizes that “five” is closer to “three” than to “nine”) and he recognizes that any number that follows another while counting is one more. A five-year-old also understands sequential order of first, second, third … up to tenth (but not beyond). He uses relational terms, such as “greater than,” “less than,” and “equal to.” He makes written representations of collections up to five (e.g., draws the correct number of objects for the spoken number “five”). He can also read and write one-digit numerals up to nine.

Number Operations:
A basic understanding of adding and subtracting, from composing and decomposing collections to using numbers to solve problems.

A child developing number operations learns to:
• Compose a larger set by combining two smaller collections. Young children’s early math experiences include counting different sets of objects, then adding a given number of objects to an existing collection and then counting the total number of objects in all.
• Decompose and compose a collection by breaking it apart and putting it back together. Children also break collections of objects into smaller collections (e.g., seven objects as six and one, or four and three) and then put these smaller collections together to form the original collection.
• Change a collection by taking items away. Children do early subtraction by taking away a given number of objects from a collection and then counting the number of objects that are left.
Mathematics Knowledge

Developmental Considerations:

2 years old: An older two-year-old can recognize that adding or subtracting an object from a collection changes it. She recognizes parts and wholes of a collection and often feels that adding to her collection is positive (e.g., “More!”) and taking away from her collection is negative (e.g., “No! Mine!”). She can also understand that the parts of a collection can be combined in different ways (e.g., she intuitively recognizes that “all” the blocks includes two red blocks and three blue blocks) but does not have the words to express this.

3 years old: A three-year-old can specify the number that results from adding or subtracting one from a collection of up to three objects, but may not yet have the language to verbalize that one was added or taken away. When he sees a group of five or more objects in a collection, he understands that the whole collection is bigger than the parts, but he can’t quantify the exact number (e.g., when shown four red blocks and two blue blocks, he responds using a number that he associates as being a large amount such as “five” or “ten”).

4 years old: A four-year-old can add one to three objects to a collection to create sums up to four and figure out how many objects there are all together. She can also subtract one to three objects from a collection and figure out how many are left (e.g., “There are four crayons on a table. Remove two of them. How many are left?”). She can find several different ways of making a collection (e.g., using two red blocks and two blue blocks or one red block and three blue blocks to make four).

5 years old: A five-year-old models and solves simple addition and subtraction word problems up to five by using an informal strategy such as counting (e.g., to add three and two: count/put out three objects, count out two more objects, then count the objects all together; or to subtract two from three: count/put out three objects, remove two, and count or recognize what is left over). He can also name the parts of any whole up to five or perhaps more (5 = 1 + 4, 2 + 3) or, given the parts, can name the whole. As he becomes older, he can decompose even larger units into smaller units (10 = 1 + 9).
Mathematics Knowledge

Measurement & Comparison:
The ability to measure and compare objects by size, weight, capacity, or area.

A child developing measurement and comparison skills learns to:

• **Compare and differentiate between two objects using simple relational concepts.** Even very young children can notice relative comparisons between two objects, and once they develop the language, they can describe these differences (e.g., small/big, short/tall, slow/fast). Eventually, they learn that comparisons are relative (e.g., taller than … but shorter than …) and can change (e.g., the plant was short compared to the fence, but now it’s tall).

• **Compare and order three objects using simple relational concepts.** Children learn to compare three objects at a time and arrange them in order by a particular concept such as size, length, speed, weight, etc. (e.g., long/longer/longest, big/bigger/biggest, fast/faster/fastest).

• **Understand and use informal or nonstandard units of measurement.** Children progress from relative comparisons to more exact measurements. At first, they measure informally, using familiar objects as units of measure (e.g., a table is five paper towel tubes tall, a slide is ten crayons wide, or a shoe is six blocks long).

• **Understand and use formal units of measurement.** Eventually, children learn to use the most appropriate formal measurement tools for particular measurements (e.g., ruler for length, measuring spoons for volume, scale for weight).

• **Use measurable data to answer a specific question.** Children may begin to measure certain attributes to answer a specific question (e.g., “What do worms like to squirm in most--oil or coffee grounds?”). Graphing or representing the data visually (e.g., T-chart or simple bar graph) can help children make visual one-to-one comparisons as they analyze their data to answer the question (e.g., “I see that more worms like to squirm in coffee grounds.”).

Developmental Considerations:

**2 years old:** A two-year-old can make simple comparisons between two objects (e.g., small/big, short/tall, more/less), and recognize when one object is bigger than another (e.g. she knows to reach for the much bigger cookie on the plate), but she cannot yet distinguish between different ways to compare size or amount.

**3 years old:** A three-year-old can start to compare two objects in more specific ways such as height, length, or weight, and he can figure out which object is taller or longer by putting them side-by-side (e.g., by setting blocks side-by-side vertically to determine which is longer/taller). He often has a difficult time lining up the end points of the objects to truly compare them if they are not already lined up (e.g., stacked upright on a table).
Mathematics Knowledge

4 years old: A four-year-old can compare a small collection of objects based on different attributes (e.g., length, size, weight) and put them in order. She develops language such as “big” or “small,” “long/tall” or “short,” “heavy” or “light,” and “fast” or “slow.” As she becomes older, she makes comparisons between two objects based on a single attribute and uses language such as “big/bigger/biggest” and “small/smaller/smallest” (e.g., “She has a bigger piece of cake than I have.”). When she compares the lengths of two objects, she intentionally aligns the endpoints to determine which is longer. She makes gross comparisons of areas by placing one object on another to figure out which one is larger (“more space”). An older four-year-old begins using informal units of measurement, with the reminder that the units must be the same item and all the same length (e.g., measuring the length of an object with crayons) and becomes familiar with the use of standard measuring tools such as a scale or ruler.

5 years old: A five-year-old can make informal comparisons and estimates (e.g., “I’m as tall as the yellow bookshelf”). As he gets older, he can lay units such as inch cubes end-to-end without gaps to measure the length of an object. He also begins to use measurement words and some standard measurement tools accurately (e.g., saying, “We can use a ruler to measure which block tower is the tallest” or “We can use measuring cups to put two cups of milk in the pancake mix”).

Geometry & Spatial Sense:
The ability to describe how objects are positioned in space or move through space and the ability to identify, name, describe, and compose and decompose the basic shapes.

A child developing geometry and spatial sense skills learns to:
• Talk about position in space. Children start to describe the spatial placement of objects or locations in relation to others (e.g., near/far, above/below, next to, upside down). Eventually, children learn that position is relative (e.g., “My sweater is over my shirt but under my jacket.”) and can change (e.g., “He was standing near me, but now he’s far from me.”).
• Talk about direction through space. Children begin to use directional language to describe movement through space (e.g., over, under, around, through). This language often comes up during a game of Follow the Leader or during obstacle course play.
• Identify, name, and describe common shapes. Children learn to recognize and name common shapes (e.g., circle, square, rectangle, and triangle) based on their parts and attributes (i.e., number of sides and angles). For example, they know that a triangle has three sides and three angles. Eventually, even if children see a nonprototypic triangle (rotated or stretched), they can still recognize it as a triangle.
• Combine and separate shapes to make other shapes. Children begin to play with shapes, combining them and taking them apart to build different shapes (e.g., two triangles can make a square or a rectangle).
Mathematics Knowledge

Developmental Considerations:

2 years old: A two-year-old can match two identical shapes. For example, when completing a puzzle, she can put the triangle piece in the triangle-shaped space. She can understand some spatial relations vocabulary such as “top” and “bottom” and can follow directions that use these words (e.g., “Please put your cup on the table.”).

3 years old: A three-year-old can recognize and name a few basic two-dimensional geometric shapes (e.g., circle, square, and triangle). He also recognizes the placement of objects in relation to other objects and understands language such as “in front of” and “behind” (e.g., “Put the truck in front of the car.”).

4 years old: A four-year-old can describe basic shapes in her own words (e.g., “It’s a square. It has four sides and four angles.”). She begins to recognize and name basic shapes when they are presented in different sizes, orientations, or proportions (e.g., an isosceles triangle and an equilateral triangle are both a triangle). She can name the parts of shapes (sides, angles) and construct shapes from parts (e.g., she builds a rectangle from sticks cut to different lengths). She can also recognize, when playing with a puzzle, that a shape is part of a whole and can begin to think about one puzzle piece in relation to two others. An older four-year-old can make a picture or design by combining shapes (with full sides touching) and can orient objects in different directions. Additionally, a four-year-old can understand and use positional words to describe location (e.g., over, under, in front of, and behind), direction (e.g., up and down), and distance (e.g., near and far).

5 years old: A five-year-old can recognize most familiar shapes and typical examples of some other shapes, such as hexagon, rhombus, or trapezoid. He also begins to understand that properties of a shape can remain the same if you make it larger or turn it (e.g., saying, “I can turn it and it’s still a rectangle.”). He can create new shapes intentionally by combining other shapes. An older five-year-old can begin to create and use simple maps to find objects. He can understand and use positional words (e.g., over, under, above, on, beside, next to, in front of, behind, in, inside, outside, between, up, down, top, bottom, front, back, near, and far) and is developing the ability to view position from more than one point of view. This flexible thinking helps him begin to learn right and left. He is also learning vocabulary for geometric motions, such as slide, turn, and flip.
Patterns:
The recognition of regularly repeating arrangements (patterns) and the critical thinking skills necessary to replicate, describe, extend, fill in, or create a pattern.

A child developing patterning skills learns to:
- **Recognize and describe simple patterns.** Young children learn to recognize simple AB patterns (e.g., tulip, daisy, tulip, daisy, tulip, daisy). This includes visual, sound, and simple action patterns. As children’s patterning abilities progress, they learn to recognize and describe more complicated patterns (e.g., AABB, AABAAB, ABBABB).
- **Replicate patterns, extends patterns, fill in missing parts, and create original patterns.** Young children learn to play with patterns by creating a new pattern that matches an existing one, extending an existing pattern, filling in missing parts in an existing pattern, and eventually creating and describing their own original patterns.

Developmental Considerations:

2 **years old:** A two-year-old is interested in patterns and sequences (e.g., he attempts to follow patterns with stringing beads, magnetic shapes, peg boards).

3 **years old:** A three-year-old recognizes simple repeating AB patterns (e.g., horse, duck, horse, duck, horse, duck) and can recite the pattern aloud while looking at it.

4 **years old:** A four-year-old extends a repeating AB pattern or fixes a pattern by filling in the missing part with AB repeating patterns (e.g., circle, triangle, circle, triangle, __, triangle) and will start to extend or fix more complex patterns, such as ABC or ABB repeating patterns. She also duplicates a repeating pattern from a model pattern, first with an AB pattern and later with more complex patterns.

5 **years old:** A five-year-old can extend and fix those complex repeating patterns, such as ABB or ABC patterns.
Science is the process of learning about and understanding the natural and physical world. Young children are natural scientists, constantly asking questions and investigating the world around them. By helping them develop scientific knowledge and language, we can empower them to make discoveries and engage in the scientific process as they explore and deepen their understanding of how the world works.

There is an urgent need to improve science education and engagement, as U.S. students are trailing behind many of their international peers in science achievement. Fortunately, research suggests that acquiring science knowledge in the preschool years is correlated with higher science scores at the end of kindergarten and third grade.

Early science learning gives children the tools to use the scientific method to satisfy their natural curiosity as they explore, observe, ask questions, predict, test, and develop their own conclusions. Through scientific inquiry, children build on their existing knowledge of the world around them, and they learn to change or modify ideas and concepts to fit evidence from new experiences. Children also develop conceptual knowledge around the natural and physical world, including understanding around living things, weather, force, and engineering. These science topics are best learned when introduced and explored in a child’s familiar world and with age-appropriate language, and research suggests that young children can learn and understand fairly complicated concepts when presented in these ways.

---


The learning objectives for Science Knowledge & Skills for 2- to 5-year-olds are:

Scientific Skills & Method:
An understanding of how to use the appropriate senses and tools to make observations and ask questions and the ability to collect and interpret information and draw and share conclusions.

A child developing knowledge around scientific skills and method learns to:
- **Observe and ask questions.** Children make observations using all five senses, using tools when appropriate, and ask questions to gather new information and pose a problem to solve.
- **Make and test predictions.** Children participate in investigations and experiments (fair tests) and use observations and prior knowledge to make hypotheses, draw conclusions, make predictions, and test ideas.
- **Collect data in an organized way.** Children collect important information and use charts, diagrams, digital photos, etc. to organize the evidence for analysis to support or revise their thinking.
- **Analyze data to answer questions and solve problems.** Children analyze the data they collected and interpret the evidence by making inferences, drawing comparisons, and stating conclusions about their original question.
- **Share and explain conclusions.** Eventually, children learn to summarize what they learned by sharing the original question or problem to be solved, describing the data they collected and how they analyzed it, and presenting and explaining their conclusion. This requires the ability to reflect on one’s own learning, an important developmental milestone.
Developmental Considerations:

2 years old: A two-year-old is fascinated by the world around him, and he loves using his senses to explore. For example, he may look at, touch, and smell a pinecone that he finds on the ground. He will also actively investigate new objects and test ideas such as sending materials down a ramp to see how far they roll. He may not be able to collect data in an organized way, but he can begin to relate pictures and diagrams to real-world objects as well as begin to sort and order items by properties such as size, color, and shape. He also begins to reflect on experiences and make comparisons to previous ones and to discriminate between what belongs and what does not belong in a group.

3 years old: A three-year-old continues to be fascinated by the world around her, and she begins to actively form questions based on her observations. The question “why…?” is heard frequently. She is able to understand and use language to talk about previous experiences and relate them to new information. She begins to use these experiences to revise her ideas about the world around her and to pursue investigations and experiments.

4 years old: A four-year-old has developed stronger motor and language skills and can now further explore the world around him, ask questions, and pose problems that he can solve. He is actively involved in investigating and experimenting and can use prior knowledge and experiences to make predictions and test ideas. He may begin to learn about measurement, although the use of standard measurement units and tools may still be challenging. He can organize evidence into simple charts and diagrams that support his thinking, and he begins to engage in scientific argumentation (i.e., stating conclusions based on evidence). He uses statements such as, “I think this will happen because of ….”

5 years old: A five-year-old is actively engaged in exploring the world around her, including both her immediate surroundings as well as the larger world as seen through television and other media forms. She now has a wider array of knowledge and experiences, which she uses as she comes in contact with new problems and information. She begins to understand that predictions about an investigation can be wrong and that this information can be used to draw new conclusions. She actively engages in problem solving and experimentation, and she has developed the ability and language to use scientific thought processes and provide explanations about what she finds. She can use standard units of measurement and tools to collect information and make comparisons. She can also begin to make charts and diagrams and use early writing skills to document scientific understandings.
**Science Knowledge & Skills**

**Conceptual Knowledge of the Natural World:**
Knowledge about the natural environment and connecting concepts and facts to develop a better understanding of the world.

A child developing conceptual knowledge of the natural world learns to:

- **Observe and compare the needs of living and nonliving things.** Young children learn that living things are different from nonliving things because living things grow and have needs such as water, air, food, shelter, and nutrients to survive.
- **Describe plants and their life cycles.** Children understand the life cycle of plants, including that many plants start as seeds, and learn that plants need sunlight, water, air, and (most need) soil to get their nutrients.
- **Describe animals and their life cycles.** Children learn the different animals and their names, their life cycles (e.g., the metamorphosis of a frog: egg, tadpole, frog), the characteristics of different species of animals (e.g., wings, gills), and their habitats.
- **Describe different kinds of weather.** Children learn to recognize different kinds of weather (e.g., sunny, rainy, snowy, windy, hot, cold) and understand that weather changes. They come to understand that different places on earth have different kinds of weather at the same time.
- **Name the four seasons.** Children learn about the four sequential seasons called winter, spring, summer, and fall. They also learn that animals and plants may change the way they function and appear as seasons change.
- **Tell where food comes from.** Children begin to understand that food comes from plants and farms and then travels to stores, where we buy it to prepare and eat at home.
- **Describe ways people can take care of the environment.** Children learn about activities such as reducing, reusing, recycling, and respecting the earth.

**Developmental Considerations:**

**2 years old**

- A two-year-old is becoming aware of some of the differences between living and nonliving things, but she still considers many inanimate objects to be living, such as stuffed animals and dolls. She is aware of her own needs for water, food, and shelter and may begin to help take care of pets at home. Through hands-on experiences, she may have planted a seed and observed its growth or cared for plants by watering them.
- She knows the names of a number of familiar animals and some of their characteristics and may know that some animals live outside in her yard, some live in the zoo, and some can live inside as pets.
- She is aware that weather can change on a daily basis but does not yet understand seasonal changes. Depending upon her exposure to real-life experiences and media, she may be aware of cold places like the Arctic and hot places like a desert, but unless she has actually experienced these places, she may not understand that they exist in the real world.
### Science Knowledge & Skills

#### 3 years old
- A three-year-old has more knowledge about the characteristics of living things but may still be confused about certain ideas such as understanding that everything he finds outside may not be alive and that cars can move but they are not living things. He has more experiences with and knowledge about plants (e.g., they have leaves and stems, some are really big like trees and some are smaller like house plants). This also helps him understand why a plant needs water, sunlight, or air. He is still uncertain about whether or not they are living because they cannot move like animals and they do not eat.
- He has become familiar with a greater number and wider variety of animals. He can differentiate between fish that live in the water and birds that fly in the sky, and he begins to learn how animals get their food.
- He can talk about the weather and often knows what kind of clothing he should wear in certain kinds of weather. Hands-on experience with different types of weather helps him recognize various climates and seasons (i.e., a child who lives where there are distinct seasonal changes will more easily grow aware of seasonal changes), and travel experiences help build an awareness of weather being different in different places at the same time. He may be aware of animal and plant changes during different seasons.
- He may begin to understand where food comes from (beyond the grocery store) and enjoy participating in gardening activities.

#### 4 years old
- A four-year-old demonstrates a greater understanding of the characteristics of living and nonliving things, but this knowledge will still depend on her own experiences. For example, a child will not be able to explain how a fish can breathe but will be able to demonstrate her own breathing and that of her pet cat or dog. Likewise, if she has had prior experience with plants, she can demonstrate how to plant a seed and care for a growing plant. She knows that living things grow and change over time; sometimes, there are big changes but they look similar (e.g., when children grow into adults). She has greater knowledge about the diversity of animals that live on earth and may be able to identify some of their habitats. She can sort many animals into their species groups, such as birds, fish, and insects.
- She is aware of daily weather and knows how to dress accordingly. She will recognize seasonal changes as they occur but still may not know the order of the seasons. She may be aware of seasonal changes in plants and animals (e.g., birds are flying south or leaves are falling from trees) but still may not be able to tell you what will happen in the next season.
- She is aware of the variety of foods available to her and can usually group foods by type, such as fruits, vegetables, meats, and dairy. She knows that different people like different foods. She is also aware of foods that are nutritious and foods that are less so. She is more willing to try new foods if she has participated in their preparation.
Science Knowledge & Skills

5 years old

- A five-year-old has substantial experience with living and nonliving things and can identify things that belong in each category. When asked why something is nonliving, however, he may not be able to give clear reasons or may focus on only one attribute, such as saying that a rock is a nonliving object because it does not move. With the help of an adult, he can care for a plant or a pet animal. He knows that living things reproduce and that they eventually die, but he cannot explain the underlying processes for these things. He enjoys learning about the diversity of animal and plant life on earth (e.g., some plants and animals live in deserts while others live in rain forests) and is often eager to learn more. He may have a favorite type of animal and demonstrate intense curiosity about it.

- He is aware of daily weather and its variations. He is also aware of seasonal changes and understands that each season will bring different weather conditions, but he may or may not be able to recite the cycle of the seasons. He can tell you about seasonal changes in plants and animal behavior but may not be able to accurately describe what will happen in the next season.

- He is aware of the variety of foods available to him and can group foods by type such as fruits, vegetables, meats, and dairy. He knows that different people have different food preferences. He is also aware of foods that are nutritious and foods that are less so. He enjoys food shopping and is more willing to try new foods if he has participated in their preparation. He has increasing knowledge about where foods come from and enjoys growing foods in a garden.

Conceptual Knowledge of the Physical World:
Knowledge about the physical environment and connecting concepts and facts to develop a better understanding of how the world works.

A child developing conceptual knowledge of the physical world learns to:

- **Explore and talk about the concept of force.** Through experience and explanation, young children come to understand that force is a push or pull used to make something move, stop moving, or change direction. They begin to recognize, explore, and talk about force during their play (e.g., when the ramp has a steeper slope, the car moves faster).

- **Engineer new solutions to solve problems.** Through experience and explanation, children also come to understand that engineering is the process of using tools to design and build something for a specific purpose or to solve a problem. They begin to design, build, and talk about their own inventions during purposeful play and problem solving (e.g., make a sturdy base for a tall block tower).

- **Observe, describe, and relate the properties of materials to their functions.** Children demonstrate knowledge of the physical properties of objects and materials, and they observe, describe, and discuss properties and transformations of matter (e.g., an ice cube is solid and cold but melts and turns into liquid when it becomes warm). They also relate the properties of materials to their possible functions.
Science Knowledge & Skills

Developmental Considerations:

2 years old A two-year-old can use simple tools and modify materials to be used for a specific purpose or to solve a problem. She observes properties of matter through hands-on experiences and can often sort objects by characteristics such as hard and soft. She is very interested in exploring materials such as water, soil, and sand.

3 years old A three-year-old explores force and motion through play with a variety of toys. He understands that to move something farther he needs to apply more force (e.g., to kick a ball across the yard, he needs to kick really hard). He explores the use of tools, and he has an increased understanding of how people can use materials and ideas to design useful things. He is able to describe and discuss properties of matter and can begin to distinguish between solid materials and liquid materials. He is aware that water can exist as both a solid and a liquid.

4 years old A four-year-old has more knowledge about force and motion from hands-on experiences with toys. For example, she can design a ramp that will allow cars to move farther and/or faster than another ramp. She is aware of the force of gravity; she knows that things fall down! She can begin to explore friction and knows that wheels help things move more easily. She loves to make things out of scrap materials and, with help from a grown-up, will readily design things for specific purposes. She has increased knowledge around properties of matter (e.g., she demonstrates and describes why a house built of straw will not be as strong as a house built of bricks). With adult support, she can sort solids and liquids and knows that a solid material has a shape and a liquid takes the shape of its container. She experiments with objects that sink and float and, with help from a grown-up, can demonstrate how air can fill things up and how air can make things move.

5 years old A five-year-old has more knowledge about force and motion from hands-on experiences with toys. He can demonstrate and articulate the effects of increasing or decreasing the amount of force exerted on an object and can show how to change the direction of a moving object. He is also aware of the force of gravity and its effects on objects. He can begin to explore the use of simple machines (e.g., wheels and axles, levers, ramps, and pulleys). He can classify simple materials as solids or liquids and begin to explain why some materials are better than others to do a certain job (e.g., why a car is made of metal rather than paper or why a chair is made of wood rather than rocks). He can demonstrate that air can fill things up and make things move, and he knows that air is present in a room even though it is invisible. He can demonstrate how water changes its state from a liquid to a solid and back again, and he can begin to explain how temperature affects matter (freezing and melting). He also knows that you can mix two or more different kinds of matter together to make a new substance and that this change may or may not be reversible (e.g., a burnt log turns to ash, but you can’t make a log from ash).
Logic & Reasoning includes the ability to identify, understand, and think about a problem and then apply skills and strategies to solve the problem. Logic and reasoning skills empower children to process information, understand connections in the world around them, think critically, and make appropriate decisions.

The development of these critical thinking skills is strongly related to children’s readiness for school learning across content areas. When children become deep and careful thinkers, they are better prepared to learn and assimilate new knowledge and skills.

---

Logic & Reasoning

The learning objectives for Logic & Reasoning for 2- to 5- years old are:

Reasoning & Problem Solving:
The combination of critical thinking skills that enables children to effectively solve a problem or make an appropriate decision.

A child developing reasoning and problem-solving skills learns to:

- **Make connections.** Children learn to process information and connect related information and prior knowledge to complete a task or to solve a problem (e.g., “It's snowing so we need to wear our boots.”).
- **Recognize cause and effect relationships.** Children learn to recognize when one thing makes another thing happen (e.g., poking a bubble will make it pop).
- **Compare, contrast, and sort.** Children learn more about things by observing how certain characteristics are similar or different (e.g., color, shape, size, texture, or sound), and they classify, match, and sort object based on those characteristics (e.g., putting all the blue objects into one group).
- **Consider and choose from multiple solutions or options.** Children learn to investigate multiple solutions or options to solve a problem. They think critically about each one and evaluate it, then choose the most appropriate or effective solution.
- **Evaluate their choice.** Children learn to reflect on the solution or decision they made and decide whether or not it was successful. If it was not the best choice, they may go back and try another option.
Developmental Considerations:

2 years old: A two-year-old is discovering ways to solve problems on his own by reacting to a problem, understanding cause and effect, and figuring out how things are logically connected (e.g., he steps on a box to reach a toy). He can find a hidden toy (if he knows it exists) under two or three covers, and he is able to master a simple shape sorter or a puzzle with few pieces. He can pick up blocks in order of size and can match objects that go together (e.g., a pair of gloves). As he gets older, he can classify, label, and sort familiar objects by a familiar dimension (e.g., texture: hard vs. soft, size: large vs. small, weight: heavy vs. light, color, or shape).

3 years old: A three-year-old is becoming more strategic with her problem-solving skills, and she often looks to see what other people do through observation or asks questions. She may also ask others to help her with her solution (e.g., she asks someone to hold a block while she puts another one on top of it). She understands cause and effect and can play with toys or games that have buttons, levers, and moving parts, including simple keyboard games or digital touch games. She can solve puzzles with ten or fewer large pieces and sort objects into groups based on one characteristic such as color, size, or shape (e.g., she puts the big blocks in one pile and the small blocks in another pile).

4 years old: A four-year-old can start to use some deductive reasoning to solve everyday problems (e.g., he figures out which child is missing by looking at which children are present). He also starts to solve problems by reviewing his options and strategically picking the best one rather than trying out all possible solutions (e.g., he will try to attach puzzle pieces that look like they go together rather than trying to make any two pieces fit). He can order objects from smallest to largest and describe their relation to one another (e.g., big, bigger, biggest). He can sort objects into more than two groups based on a single attribute (e.g., he places pictures into piles by age: babies, older children, and grown-ups). As he becomes older, he begins to group objects by one characteristic, then regroup them using a different characteristic and indicate the reason (e.g., he groups a collection of blocks first by color and then regroups them by shape).

5 years old: A five-year-old becomes more thoughtful in her problem solving, thinking about multiple solutions and what might be the results of each one (e.g., she thinks through a few possibilities about how to fix her fort made up of pillows and blankets and then tries one solution). She can sort objects based on one attribute and then regroup them based on another attribute (demonstrating flexible thinking by being able to focus on a new rule). As she gets older, she can group objects by more than one characteristic at the same time, switching the sorting rules when asked and explaining the reasons (e.g., she creates four piles of shapes--big red triangles, small red triangles, big blue triangles, and small blue triangles--and switches when asked to form two groups by big or small size).
Approaches to Learning

Approaches to Learning refers to how children engage in learning, hold information in their minds, control their own actions and reactions, and apply the skills needed to achieve their goals and for goal-directed problem solving. To support growth in this area, we can foster children’s initiative, curiosity, and executive function skills (i.e., focused attention, working memory, persistence, flexible thinking, planning, and impulse control).

Research shows that preschool children with stronger executive function skills perform better in early math,\(^\text{17}\) language, and literacy learning.\(^\text{18}\) Children with well-developed executive function skills are also less likely to display antisocial behavior with adults and other children.\(^\text{19}\)

Children’s positive and effective approaches to learning enable them to acquire new knowledge, learn new skills, set goals, and engage in task persistence to achieve those goals. These skills provide an essential foundation for later learning across all domains.


Approaches to Learning

The learning objectives for Approaches to Learning for 2- to 5-year olds are:

**Initiative & Curiosity:**
A desire to explore a range of topics, eagerly engage in activities, think creatively, and learn independently.

A child developing initiative and curiosity learns to:
- **Show an interest in learning.** Learning begins with curiosity as children show an interest in learning and talking about a range of topics, ideas, and tasks (i.e., ask questions and seek new information).
- **Show self-confidence in approaching new challenges.** Children are open to learning more things when they have confidence in their abilities and are empowered to take on new challenges and experiences while developing new skills.
- **Think and play imaginatively.** Imagination paves the way for flexible thinking as children think beyond their immediate reality while engaging in dramatic play alone or with others (e.g., fly like a butterfly).
- **Think creatively and symbolically.** Problem solving requires creative thinking and can also require the use of symbols to represent things beyond the here and now. Young children learn these skills as they explore divergent uses of an object (e.g., use a table as a fort) and use one thing to represent another in play (e.g., line up chairs to be a “bus”).

**Developmental Considerations:**

**2 years old:** A two-year-old loves to explore and investigate how things work (cause and effect), often by taking things apart. When trying to figure out how to solve a problem, she will frequently observe and imitate other people. She is literal in her thinking, and during role-play she may mimic the actions of others and use real objects as props (e.g., she holds a real or toy phone to her ear).

**3 years old:** A three-year-old is very curious about the world around him, asking lots of questions about a variety of topics (e.g., he asks questions about everything he sees, from “How did the spider make the web?” to “What are crayons made of?”). He is beginning to solve problems without having to try every possibility (e.g., when trying to create a boat that floats, he’ll try using only materials that he thinks will float and will avoid materials such as rocks, which he knows won’t float). His thinking has become more symbolic, which he demonstrates through play and drawing (e.g., he draws shapes to make a face and says, “That’s Daddy!”). During pretend play, he enjoys acting out familiar or imaginary scenarios, and he may use props to stand for something else (e.g., he uses brown rubber bands as spaghetti).
4 years old: A four-year-old is eager to learn about a variety of topics and with her increased vocabulary asks more focused questions to find answers. She continues to solve problems without having to try every possibility. She is beginning to plan and use drawings, constructions, movements, and dramatizations to represent ideas (e.g., she sees a truck outside and plans how to draw it). She is also beginning to interact with two or more children during pretend play, assigning and/or assuming roles and discussing actions (e.g., she pretends to be a bus driver, taking tickets and giving change, and tells the other children to be the passengers).

5 years old: A five-year-old is beginning to seek knowledge from a variety of resources (e.g., adults, books, TV) and apply it to find answers to questions. He is beginning to think through problems, consider multiple possibilities and predicting the results before choosing which solution to use (e.g., he wants to add glitter to his picture and realizes that glue will work better than tape to make the glitter stick to the page). His thinking is becoming increasingly more abstract, and he uses symbols to represent ideas, places, and objects (e.g., he uses pieces of paper as money when playing store). When he engages in pretend play with other children, he can plan, negotiate, and converse about roles, actions, and stories.

Executive Function Skills:
The combination of skills necessary to learn new things, complete tasks effectively, and solve problems.

A child developing executive function skills learns to:
- **Use their working memory.** Working memory, or the ability to hold information in mind and “work with it,” is a skill that supports learning in all domains. Children learn to remember and follow a routine, rules, or directions using relevant information (e.g., remember a few items your family needs at the grocery store as you shop).
- **Persist at tasks.** Children show self-control by stopping impulsive actions and reactions, and they learn to persist at tasks, sometimes delaying gratification or resisting distractions to continue the task at hand through frustration or challenges (e.g., getting dressed in the morning). If needed, they may break the task into smaller, more manageable components.
- **Think flexibly.** Children learn to think flexibly about a problem or situation by switching rules, doing the opposite, thinking about someone else’s perspective, or transitioning from one activity to another.
- **Plan ahead.** Children learn to anticipate and consider future needs in preparing for activities. They set goals and then develop and follow through on plans.
Approaches to Learning

Developmental Considerations:

2 years old: A two-year-old can repeat sequences of two to three objects (e.g., a set of numbers or list of fruits). She can hold one rule in mind at a time (e.g., green blocks go here in this box), and she can switch to another rule that is not in conflict with the first one (e.g., yellow blocks go in that box). She is able to remember one- or two-step sequences (e.g., “Put your coat on the hook and your boots on the mat.”). She can resist a strong temptation for only a short period of time (under one minute), and she needs support from a grown-up to follow “don’t” commands (e.g., “Don’t line up until your group is called.”). She is beginning to understand others’ intentions (e.g., she offers to help when someone is trying to open a door).

3 years old: A three-year-old can repeat longer sequences (three to four objects). He can hold in mind and follow a pair of rules (e.g., “Red ones go here and blue ones go there.” “Do what the bear tells you but not what the dragon tells you.”), and he can remember two or more steps in a sequence with instruction (e.g., “First put your coat and boots on and then stand in a line in the hall.”). He is learning to resist strong impulses and delay gratification for a longer time (approximately three minutes) and can sometimes follow “don’t” commands on his own. He is able to follow two rules and then switch to an opposite rule (e.g., monkeys go on the top shelf, lions go on the bottom shelf, then reverse). He can understand when someone has a desire that’s different from his own (e.g., “She likes apples even though I like oranges.”) and can understand when someone is not knowledgeable about a subject (e.g., “I don’t know about tying shoes, but she does, so I should listen to her.”).

4 years old: A four-year-old can repeat sequences of four to five objects and can repeat two to three of those items in reverse order. She can hold in mind and follow two pairs of rules (e.g., “Red ones go here and blue ones go there”; “Boats go here and rabbits go there.”). She is able to remember more steps and may begin self-instruction. She can resist temptations and delay gratification for longer periods of time (five to ten minutes). She can often suppress impulses when instructed. She has the ability to sort objects such as red triangles and blue squares according to one dimension (e.g., by color) and then switch to sorting them in a new way (e.g., by shape or size). She can begin to understand someone else’s beliefs (e.g., “She thinks there are crayons in the crayon box even though I know there are really sticks in there.”).

5 years old: A five-year-old can repeat sequences of five to six objects in forward order and can repeat three to four of those objects in reverse order. He can hold in mind a dependent rule (e.g., if there is a border around the card, then play the color game, but if there is no border, then play the shape game). He can remember multi-step sequences and do so without repeated instruction. He may be able to delay gratification for a long period of time (e.g., 15-20 minutes) if there is a justification (e.g., getting more snacks if he waits), and he can suppress impulses on his own (the start of self-monitoring). He has the ability to flexibly and rapidly switch sorting rules (e.g., sort by color, shape, or size). He can also adjust his behavior according to the setting (e.g., it is okay to run and shout in the gym but not in the classroom).
All Ages Utilize These Executive Function Strategies

**Working memory:**
- Create a mental picture of the to-be-remembered items or rules.
- Utilize mnemonic devices, such as noting how many things there are to remember (e.g., “I need to get four things at the store.”), or repeating a rhyme to help remember the rules.
- Self-talk: verbalizing the rules or steps out loud, and/or teaching them to another child.

**Self-control:**
- Physical strategies, such as covering up the object of temptation, or sitting on your hands until permitted to touch the object.
- Distraction: thinking about something else to pass the time.
- Cognitive transformation: thinking about the temptation as less tempting, such as imagining a marshmallow as a white fluffy cloud.
- Self talk targeted at impulse control and keeping the goal in mind (e.g., saying out loud: “I’m going to listen for the words ‘red circle’ before I move.”).

**Flexible thinking:**
- Self talk about the big picture (e.g., “Oh I see, there are two ways to play this game: I can sort by color or by shape”)
- Create and use reminders of appropriate behaviors (e.g., hang and refer to a sign in the classroom that signals “quiet”).
Social & Emotional Development includes the growing ability to identify and manage one’s own feelings and to develop and maintain healthy relationships with others. Children learn to use appropriate strategies to manage and regulate their feelings, and they learn to calm down, focus, and resist impulsive behavior. With these skills, young children are better able to develop and maintain positive relationships with adults and peers. They learn to empathize, take turns, and cooperate with others to build healthy friendships.

Positive social and emotional development provides the foundation for young children to experience school success and life lessons with understanding, flexibility, support, and resiliency. Research shows that children’s ability to regulate their own emotions and behaviors affects their ability to build and maintain relationships with others, which in turn has a direct impact on their academic success.20

---

The learning objectives for Social & Emotional Development for 2- to 5-year-olds are:

**Social Relationships:**
The development of relationships and interactions with adults and peers.

A child developing social relationship skills learns to:

- **Identify and name the feelings of others.** Young children learn that others may have feelings that are different from their own. They learn to identify the feelings of others by using clues such as facial expressions and body language.

- **Recognize and care about the needs and feelings of others.** Children begin to not only identify the feelings of others but also care about them. They may show empathy by expressing support (e.g., drawing a picture to cheer up a friend) or by helping (e.g., helping to look for a friend’s lost toy).

- **Understand what a friend is.** Children learn that a friend is someone who cares about them and whom they care about. They learn that a friend can look different and have different likes, wants, and needs than their own.

- **Develop and maintain friendships.** Children learn to make and keep friends by engaging in fair ways to play (playing together, trading, taking turns), inviting others to play, and entering social groups.

- **Cooperate with others.** Children learn to work together to meet a shared goal, solving problems and resolving conflict along the way.

**Developmental Considerations:**

**2 years old:** A two-year-old can recognize and respond to the emotional cues of others. She uses a familiar and trusted adult as a secure base when exploring her surroundings and seeks emotional reassurance (e.g., facial expressions, body language, and encouragements) from that adult when interacting with new people and places. She responds to the emotional expressions of others (e.g., frowning when she sees another person cry or smiling when she sees someone laugh), and she can respond to others’ perceived wants (e.g., giving a crayon to another child who wants to color too). She begins to show empathy toward others (although she will comfort a child with what comforts her, such as offering her favorite “lovey” when another child is upset). During a conflict, she can easily display emotion with body cues (e.g., crossing her arms when another child takes her seat) but may not have the language to verbally express how she is feeling. She wants to make friends but still needs help with sharing (is not expected to share) and struggles with resolving conflicts. She engages in parallel play where she plays near another child rather than with another child, often doing the same activity. She will often copy what another child is doing (e.g., she chooses to dig at the sand table when she sees a friend digging at the sand table), and she is excited to see other children, especially a familiar friend, and may seek to play with a particular child.
3 years old: A three-year-old has an easier time separating from a caregiver when left with a familiar and trusted adult (e.g., he transitions well during school drop-off). He shows concerns for other people’s feelings and can show empathy for friends (e.g., he offers a toy to a crying child). Friends become important to him, and he begins to notice how people are the same and different from him and each other (e.g., he compares skin and hair color and differentiates boys from girls). He now has a few preferred playmates and will look for them when he can. He will seek help from a grown-up to resolve social conflicts (e.g., he goes to an adult when someone takes the firefighter suit he wanted to wear) and, as he gets older, will attempt strategies to enter social situations with the help of an adult (e.g., he offers to help arrange a row of chairs for pretend play or contributes ideas such as, “I will be the bus driver, okay?”). He starts to take turns appropriately with adult guidance.

4 years old: A four-year-old relies on trusted adults and shares interests with them (e.g., she talks to her neighbor about her garden). She can recognize and care about other people’s needs and feelings (e.g., she asks another child if she is okay after that child’s feelings are hurt) and can begin to articulate why someone might feel a certain way (e.g., “He’s mad because someone took his stuffed doggie.”). She would rather play with other children than play alone, and she continues to work on cooperation skills as she practices taking turns. As she gets older, she suggests more sophisticated solutions to conflicts (e.g., saying, “Let’s take turns choosing the read-aloud book.”). She is now able to share with other children (e.g., she asks another child if he would like to use one of her sand toys in the sandbox), and she can figure out how to use strategies to enter social situations and play with small groups of children (e.g., she finds children in the kitchen corner and says, “Let’s play restaurant together.”). She may establish stronger ties with another child and label him as “her friend.”

5 years old: A five-year-old engages with familiar adults and shares interests with them. He wants to please friends and create a closer friendship with one other child (e.g., he seeks to play with one child in particular), and as he becomes older these friendships begin to last longer. An older five-year-old begins to understand that people may have different feelings about something (e.g., saying, “I like to knock down the blocks but Jordan doesn’t.”). He can play with a larger group of children, work collaboratively with them (e.g., they work together to build a garage that will fit a toy truck), and contribute some of his own ideas. As he gets older, he can start to negotiate and compromise to solve conflicts (e.g., if he and his friend want to ride the same bike, he might say, “You can ride it before lunch and I’ll ride it after lunch.”).
Emotional Development & Self-Regulation:
The ability to recognize and regulate a range of individual emotional expressions, impulses, and behaviors. This includes learning positive alternatives to aggressive and isolating behaviors.

A child developing emotional awareness and self-regulation skills learns to:
- **Identify and name their own emotions.** Children learn to recognize and talk about their feelings, using words like happy, sad, surprised, frustrated, angry, and scared. They come to understand that their feelings can change over time or in different situations and that they can have more than one feeling at the same time.
- **Regulate their emotions.** Children learn to cope with and manage strong feelings appropriately. They become aware of clues inside their bodies to tell the difference between comfortable and uncomfortable feelings. They learn to use calming down strategies such as belly breathing to work through uncomfortable feelings in stressful or emotional situations.
- **Regulate their behavior.** In stressful and emotional situations, children engage in self-regulation strategies such as self-talk, counting, or singing.
- **Demonstrates self-control.** Children resist a strong inclination to do one thing (overcoming an automatic response) and instead do what is most appropriate.

Developmental Considerations:

**2 years old:** A two-year-old is learning what she is and is not allowed to do, but she does not have the ability to stop herself from doing something that is not allowed. When she is upset, she can comfort herself with a special physical item (e.g., a “lovey”). She experiences basic emotions (e.g., happy, sad, scared) but can get overwhelmed by strong feelings and relies on an adult to validate, identify, articulate, and help her regulate her emotions using strategies modeled for her. She wants to do many things by herself and can communicate her needs and wants through gestures and language. She begins to show more independence as well as defiant behavior (e.g., she says “no” frequently), but as she gets older she becomes more receptive to positive redirection from grown-ups (e.g., she draws on a piece of paper rather than directly on the easel surface when requested to do so by her parent).
3 years old: A three-year-old shows a wide range of emotions and may become upset with major changes in routine. He is beginning to use words to describe how he is feeling, limited to basic emotions such as happy, sad, and mad (e.g., “I am sad. I want to go outside.”). He is beginning to understand how to view a situation from different perspectives, and he can start to control his impulses and wait for what he wants (e.g., “When’s she’s finished at the water fountain, it will be my turn to drink.”). He is beginning to understand the idea of “mine” as well as “yours,” “ours,” “his,” and “hers.” He is learning to show more independence by doing things himself (e.g., he puts his toys away), and he is more receptive to positive redirection from grown-ups. As he gets a little older, transitioning, following rules and routines become easier (e.g., he washes his hands after he uses the potty).

4 years old: A four-year-old shows independence by doing things herself (e.g., she puts on a coat without adult assistance and asks for help when needed). She is developing strategies to appropriately assess a situation and uses skills taught by adults to control her impulses and wait (delayed gratification) (e.g., she sings a song to distract herself from feeling frustrated while waiting for a turn). As she becomes older, she may begin to manage some of her strong feelings by using words (e.g., she asserts, “I feel a little scared when we get on the bus. Will you hold my hand?”) and by using self-talk (e.g., she says, “It’s okay, we can fix it!” when trying to overcome the disappointment she feels when a favorite toy is broken). She has become better with transitions and following rules and routines.

5 years old: A five-year-old can identify and respond to his own needs (e.g., he finds a place to sit so he can see during a story). He can regulate emotions (most of the time) with adult support (e.g., he names the feeling and belly breathes when worrying about a stressful event or takes a deep breath and hugs himself when getting too excited or overly aggressive). He can follow a set of rehearsed strategies that help him focus his attention (e.g., “Eyes watching, ears listening, voice quiet, body calm.”), accompanied by physical movements that help remind him what to do. He may also begin to transfer rules and behaviors to new situations (e.g., he puts toys away after playing at a friend’s house just like he does at his own house).
Health Knowledge & Practice refers to the awareness and practice of good personal care (hygiene), healthy nutritional habits, physical fitness, and rest. It also includes an understanding and appreciation of what our bodies can do and what they need for healthy development.

Research shows that children’s physical well-being has a direct impact on their achievement in school. By encouraging children to practice good hygiene, nutrition, fitness, and safety, we can put them on the path to academic success and help them develop healthy habits for life.

Note: This Framework will focus on the domain element Health Knowledge & Practice. Physical Health Status and Gross and Fine Motor skills are important domain elements but will not be included, as they are not well influenced by child-directed media experiences at this time.

The domain elements for Language Development for 2- to 5- years old are:

**Health Knowledge & Practice:**
An understanding of how healthy habits in hygiene, nutrition, physical activity, and rest support overall health.

A child developing healthy habits learns to:
- **Name and practice basic personal care tasks.** As children grow, they take on more and more basic, self-care tasks that help to keep them healthy (e.g., washing hands, brushing teeth, taking a bath, covering their mouth/nose, using the potty).
- **Identify healthy foods.** Children learn to distinguish food on a continuum from more healthy to less healthy. They come to understand that eating healthy foods, including eating a healthy breakfast every morning, gives their bodies energy. They understand that eating a variety of colorful foods is good for their bodies.
- **Participate in regular physical activity.** Children learn that regular movement and exercise help to keep their bodies and minds healthy and strong.
- **Understand the benefits of regular rest and sleep.** Children learn that rest and sleep give their bodies energy.
- **Identify and name body parts and the related senses.** Children learn to identify, label, and recognize the functions of the body parts and senses. They connect the five senses (i.e., sight, smell, touch, hearing, tasting) with the parts of the body that do the sensing (i.e., eyes, nose, skin, ears, mouth).

**Developmental Considerations:**

2 years old
- A two-year-old is learning about personal care routines and, through modeling, practices specific behaviors to carry out these routines (e.g., she applies soap to her hands when adult says, “Now that your hands are wet, put some soap on them”; imitates coughing into the elbow but may not do so effectively; and demonstrates approximate back-and-forth motion with a toothbrush after adult instruction).
- She identifies familiar foods and is beginning to have food preferences (e.g., she puts bananas on one side of her plate during snack time and says, “No like bananas.”). Through pretend play she expresses likes and dislikes (e.g., while pretending to shop in a store, she puts a potato in her shopping cart, announcing, “I like potato.”). She may need prompting to try new foods (e.g., she tastes *arroz con leche* (rice with milk) after an adult says, “Mmm! I used to eat this when I was a little girl. My grandmother made it for me.”).
- She begins to understand that sleep, rest, and physical activity help keep her healthy (e.g., she says, “Nap good for me.”).
- She demonstrates some knowledge about different body parts, a few external and a few internal (e.g., she pats her tummy and says, “Tummy hurt!”) and begins to understand the need to take care of herself and be healthy (e.g., she knows that she goes to the doctor when she is sick).
3 years old

- A three-year-old can complete some personal care routines with reminders about when and how to do them but may omit some of the steps (e.g., he shows a friend how to wash his hands, including washing between fingers, but forgets soap; or he coughs into his elbow at school but may forget when playing at home).
- He has knowledge of different types of foods (e.g., he says, “Look, I draw oatmeal. Yum!”) and, with guidance, tastes or self-serves a greater variety of foods (e.g., when exposed to green beans at lunch for the fourth time, he agrees to taste them when a good friend self-serves some).
- He has an even greater knowledge of how sleep, rest, and physical activity contribute to health (e.g., he says to an adult, “I am really tired. I want to lie down.”).
- He identifies some internal parts of the body and may communicate something about their functions (e.g., he says, “My bones help me stand up.”). He also describes some ways to stay healthy (e.g., he says, “I brush my teeth two times every day.”).

4 years old:

- A four-year-old completes some personal care routines independently and consistently (e.g., she coughs into her elbow as a consistent habit in a variety of contexts) but may need prompting to include all the steps.
- She shows awareness that some foods are healthier than others and expresses this through pretend play (e.g., when putting fruits and vegetables in a play shopping cart, she says to another child that some foods are “healthy” or “good for you”). She also has an increasing interest in new foods (e.g., when an adult puts unfamiliar foods in serving dishes on the table, she asks with curiosity, “What is that food?”).
- She expresses even more detailed and accurate knowledge about rest, sleep, and physical activity needs and gives ideas about things a person might do to stay healthy (e.g., during pretend play, she says, “Okay, kids…let’s sleep good tonight so we are not too tired to go on our field trip.”).
- She knows and understands even more about internal body parts (e.g., she points to her chest and says, “My doctor helped me listen to my heart pumping blood in my body.”).
Health Knowledge & Practice

5 years old:

- A five-year-old completes more personal care routines independently and communicates some understanding of why certain personal care routines are important for health (e.g., he says to another child, “You have to wash your hands to get the germs off. I wash my hands a lot so I don’t get sick.”).
- He shows some understanding of the healthfulness of different food choices and why they are made (e.g., he chooses images of fruits and vegetables when asked to find pictures of healthy foods or says, “Milk is good for my bones” when an adult asks, “Why is milk good for you?”).
- He demonstrates more advanced knowledge of how rest, sleep, and physical activity contribute to health (e.g., he says to a friend, “Naps are healthy. They help us grow and stay strong.”).
- He has a greater knowledge of how behaviors contribute to health (e.g., he says, “Look, there’s a plane in the sky. I can see it because I ate all my carrots.”). He also has some knowledge of the roles different adults can play in maintaining and promoting health (e.g., he shows a desire to be a dentist, “…just like my dentist because she helped me with my toothache so I can play.”).
Social Studies Knowledge & Skills refers to a recognition and appreciation of individual differences and roles, and an understanding that our world is shaped by relationships within families and communities. Social studies helps children appreciate how we are different but also understand how we are the same.

Note: While this is an important domain in early childhood education, it is not considered a foundational skill and, therefore, is not being included in this Framework at this time. However, many of these skills are included in the Social & Emotional Development section of the Framework.
Creative Arts Expression refers to the use of music, movement and dance, visual arts, or drama for personal expression. The arts engage children’s minds, bodies, and senses and can help children express and learn information across all domains.

Note: This Framework will utilize the creative arts as tools to help young children learn and use skills in other domains, such as using music to teach math skills and visual arts to represent thoughts, feelings, people, places or things through drawings (representational art).