

Ohio Early Learning and Development Standard (Birth to 5): Implementation Guide

Domain: Cognitive Development and General Knowledge (including Math, Science and Social Studies)

Introduction

The Cognition and General Knowledge domain includes those cognitive processes that enable all other learning to take place, as well as children’s knowledge of the social and physical world. There is one strand (Cognitive Skills) and three sub-domains under Cognition and General Knowledge. The sub-domains are: Mathematics, Social Studies and Science.

Mathematics: The sub-domain of mathematics encompasses the mathematical concepts and skills that children develop during the birth-to-five-year period, including children’s developing understanding of number and quantity, number relationships, and basic algebraic concepts. A meta-analysis conducted by Duncan and colleagues (2007) suggest that specific early math skills such as knowledge of numbers and ordinality are important predictors of later achievement in math and reading. The Mathematics subdomain also addresses children’s developing knowledge of key attributes of objects, including size and shape, and the way objects fit, are positioned, and move in space. The Mathematics sub-domain consists of the following strands: Number Sense, Number Relationships and Operations, Algebra, Measurement and Data, and Geometry.

Social Studies: The sub-domain of social studies includes basic skills and competencies that set the foundation for learning about concepts of social science. At a young age, children begin to develop their social identity and to think about their place in the social world. As they grow, they develop an increased awareness of their personal histories and heritage, and a sense of time and place. Through everyday interactions with children and adults, they develop an appreciation for rights and responsibility within a group, and how social rules help people in promoting safety and fairness (Mindes, 2005). The Social Studies sub-domain consists of the following strands: Self, History, Geography, Government, and Economics.

Science: This sub-domain focuses on children’s curiosity to explore and learn about their environment. It includes behaviors of exploration and discovery, and fundamental conceptual development such as problem solving and cause and effect. These early behaviors develop into increasingly systematic inquiry skills, and the ability to observe, investigate and communicate about the natural environment, living things, and objects and materials (Gelman and Brenneman, 2004). The Science sub-domain consists of the following strands: Science Inquiry and Application, Earth and Space Science, Physical Science, and Life Science.

The strategies in this guidance document are not designed to be specific activities or “storytime plans.” Rather, they represent broad approaches to implementation in each strand that may help storytime providers become more intentional to support the early learning domains in fun, creative and meaningful ways. These strategies are not comprehensive. You may think of other ways that you support the strands.

Strand <i>Topic</i>	Standard Statement The child will	Storytime Provider Strategies The storytime provider may
Cognitive Skills <i>Memory</i>	<u>Infants</u> Exhibit differentiated responses to familiar and unfamiliar people, events, objects and their features Mirror simple actions and facial expressions of others previously experienced Anticipate next steps in simple familiar routines and games	<ul style="list-style-type: none"> • Facilitate singing and saying of songs, chants, rhymes, poems, and fingerplays between adults and infants. • Repeat books songs, rhymes, and fingerplays within a program and over consecutive storytimes. • Choose a matching hello and goodbye song – using same tune and similar words. (e.g. <i>Hello, Friends/Goodbye Friends</i> or <i>Bread and Butter</i>) • Read and re-read interactive books (e.g. <i>Pat the Bunny</i> by Dorothy Kunhardt). • Narrate what you are doing between storytime segments (e.g. “Time to get out the flannel board!” or “Now I will pick out the next book.”). • Provide continuity by setting up the storytime room in a similar fashion each week and having some elements that repeat. • Model simple movements to music. • Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive development and school readiness.

Infants = Birth to 8 Months, Young Toddlers = 6 to 18 Months,
 Older Toddlers = 16-36 Months, Pre-Kindergarten = 3 to 5 Years

Strand Topic	Standard Statement The child will	Storytime Provider Strategies The storytime provider may
Cognitive Skills <i>Memory</i>	<u>Young Toddlers</u> Recall information over a period of time with contextual cues. Mirror and repeat something seen at an earlier time Anticipate the beginning and ending of activities, songs and stories	<ul style="list-style-type: none"> • Provide a picture schedule of storytime routine and refer to it as the events occur. • Provide activities, songs, stories, materials and other experiences multiple times so children become familiar with them and can participate, repeating within a storytime and over consecutive storytimes. • Narrate what you are doing between storytime segments (e.g. "Time to get out the flannel board!" or "Now I will pick out the next book."). • Provide continuity by setting up the storytime room in a similar fashion each week and having some elements that repeat. • Choose books that have a repetitive phrase or sentence. The group can practice saying it before reading the book, then say it together when reading. • Sing multiple, similar verses of songs (e.g. <i>If You're Happy and You Know It</i>) • Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive development and school readiness.
Cognitive Skills <i>Memory</i>	<u>Older Toddlers</u> Recall information over a longer period of time without contextual cues. Reenact a sequence of events accomplished or observe at an earlier time Anticipate routines Link past and present activities	<ul style="list-style-type: none"> • Repeat a story in multiple formats. (e.g. read a book, then do it again as a flannel story or using props, like puppets). • Provide activities, songs, stories, materials and other experiences multiple times so children become familiar with them and can participate, repeating within a storytime and over consecutive storytimes. • Play simple "memory" games with children. (e.g. bring 5 or so things out of a box. Name the objects, then cover the objects and take one away. Show the objects and see if they can remember what was removed.) • Narrate what you are doing between storytime segments (e.g. "Time to get out the flannel board!" or "Now I will pick out the next book."). • Provide continuity by setting up the storytime room in a similar fashion each week and having some elements that repeat. • Choose books that have a repetitive phrase or sentence. The group can practice saying it before reading the book, then say it together when reading. • Sing multiple, similar verses of songs (e.g. <i>If You're Happy and You Know It</i>) • Engage children in reflecting upon previous experiences while reading a book ("Have you been to the beach/pumpkin farm or played in the snow?" etc.) • Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive development and school readiness.

Infants = Birth to 8 Months, Young Toddlers = 6 to 18 Months,
Older Toddlers = 16-36 Months, Pre-Kindergarten = 3 to 5 Years

Strand Topic	Standard Statement The child will	Storytime Provider Strategies The storytime provider may
Cognitive Skills Memory	<u>Pre-Kindergarten</u> Communicate about past events and anticipate what comes next during familiar routines and experiences With modeling and support remember and use information for a variety of purposes Recreate complex ideas, events/situations with personal adaptations	<ul style="list-style-type: none"> Repeat a story in multiple formats. (e.g. read a book, then do it again as a flannel story or using props, like puppets). Share a fairytale and its retelling (e.g. <i>Goldilocks and the Three Dinosaurs</i> by Mo Willems) Use factual books as opportunities for children to share what they know on topics of interest Ask children to anticipate what comes next in an established storytime routine Play memory or matching games on the flannel board Choose books that have a repetitive phrase or sentence. Encourage participation. Sing multiple, similar verses of songs (e.g. <i>If You're Happy and You Know It</i>) Engage children in reflecting upon previous experiences while reading a book ("Have you been to the beach/pumpkin farm or played in the snow?" etc.) Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive development and school readiness.
Cognitive Skills Symbolic Thought	<u>Infants</u> Explore real objects, people and actions	<ul style="list-style-type: none"> Encourage interactions between parent/caregiver and infant like "peek-a-boo" or pointing out body parts Include fingerplays and movement songs that encourage infant to learn words for actions through interactions with parent/caregiver. Provide interesting, colorful objects and toys around the storytime room to capture infants' attention. Provide storytime props for children and their caregivers to explore together (scarves, shakers, etc.) Offer playtime where babies can explore safely At playtime, place mirrors at eye level when babies are on the floor. Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive development and school readiness.
Cognitive Skills Symbolic Thought	<u>Young Toddlers</u> Use one or two simple actions or objects to represent another in pretend play	<ul style="list-style-type: none"> Demonstrate an alternate use for familiar objects (e.g. use storytime scarves for tails in <i>Little Bo Peep</i>) Invite children to join in/repeat sounds during stories, songs and fingerplays (e.g.: "chug, chug" while reading <i>Freight Train</i> by Donald Crews or create animal sounds while singing <i>Old McDonald had a Farm</i>) Include hand or body motions to represent motions in a book or song (circular arm motions to represent wheels of train). Use puppets to represent characters in a story. Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive development and school readiness.
Cognitive Skills Symbolic Thought	<u>Older Toddlers</u> Engage in pretend play involving several sequenced steps and assigned roles	<ul style="list-style-type: none"> Provide props and materials and invite the children to act out favorite parts of a story or book Invite children to join in/repeat sounds during stories, songs and fingerplays (e.g.: "chug, chug" while reading <i>Freight Train</i> by Donald Crews or create animal sounds while singing <i>Old McDonald had a Farm</i>) Encourage imagination by suggesting creative movements (e.g. move like a cat in the grass, fly like a bird, etc.) Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive development and school readiness.

Infants = Birth to 8 Months, Young Toddlers = 6 to 18 Months,
 Older Toddlers = 16-36 Months, Pre-Kindergarten = 3 to 5 Years

Strand <i>Topic</i>	Standard Statement The child will	Storytime Provider Strategies The storytime provider may
Cognitive Skills <i>Symbolic Thought</i>	<u>Pre-Kindergarten</u> Demonstrate understanding that symbols carry meaning and use symbols to represent thinking (e.g. drawings, construction or movement) Participate cooperatively in complex pretend play, involving assigned roles and an overall plan	<ul style="list-style-type: none"> • Provide props and materials and invite the children to act out favorite parts of a story or book • Encourage imagination by suggesting creative movements (e.g. move like a cat in the grass, fly like a bird, etc.) • Encourage children to make up a new ending to a story. • Provide opportunities for children to draw and explain what they have drawn. • Encourage imaginative play during playtime. • Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive development and school readiness.
Cognitive Skills <i>Reasoning and Problem Solving</i>	<u>Infants</u> Actively use the body to find out about the world	<ul style="list-style-type: none"> • Provide copies of board books for each child to explore with their caregiver while you are reading • Encourage parents/caregivers to describe what baby is doing; what baby may be thinking. • Provide scarves, shakers or other props for infants to explore • Offer playtime where babies can explore safely • Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive development and school readiness.
Cognitive Skills <i>Reasoning and Problem Solving</i>	<u>Young Toddlers</u> With modeling and support, use simple strategies to solve problems.	<ul style="list-style-type: none"> • Identify a problem encountered by a book character and talk about how the character solved it. • At playtime, provide knob puzzles, shape sorters, etc. and encourage caregivers to support children in turning pieces in different ways until they fit. • Encourage parents/caregivers to give children time to reach for item, figure out how to accomplish a task • Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive development and school readiness.
Cognitive Skills <i>Reasoning and Problem Solving</i>	<u>Older Toddlers</u> In familiar situations, solve problems without having to try every possibility while avoiding solutions that clearly will not work	<ul style="list-style-type: none"> • When reading books about characters that solve problems. Discuss both the problem and how it was solved. • Ask “What if...” or “I wonder...” questions while reading a book • Encourage children to brainstorm/share solutions for problems encountered in a story. • Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive development and school readiness.
Cognitive Skills <i>Reasoning and Problem Solving</i>	<u>Pre-Kindergarten</u> Demonstrate ability to solve everyday problems based upon past experience Solve problems by planning and carrying out a sequence of actions Seek more than one solution to a question, problem or task Explain reasoning for the solution selected	<ul style="list-style-type: none"> • When reading books about characters that solve problems. Discuss both the problem and how it was solved. • Ask questions to inspire creative thinking (e.g. “How do you catch an elephant?”) • Encourage children to brainstorm/share solutions for problems encountered in a story. Provide opportunities for children to discuss possibilities with parent/caregiver. • Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive development and school readiness.

Infants = Birth to 8 Months, Young Toddlers = 6 to 18 Months,
 Older Toddlers = 16-36 Months, Pre-Kindergarten = 3 to 5 Years

Strand <i>Topic</i>	Standard Statement The child will	Storytime Provider Strategies The storytime provider may
Mathematics - Number Sense <i>Number Sense and Counting</i>	<u>Infants</u> Explore objects and attend to events in the environment	<ul style="list-style-type: none"> • Provide a variety of objects and materials for exploration before and/or after storytime. • Incorporate counting rhymes, chants, songs, and finger plays into storytime (e.g. <i>5 Little Ladybugs</i>, <i>5 Elephants in the Bathtub</i>). • Interact with children before and/or after storytime and encourage them to explore objects and toys in different ways. (e.g., touching, banging, shaking and rolling helps them learn how things work). Narrate the child's action (e.g. "look at how the wheels on the car roll"). • Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive and mathematical development and school readiness.
Mathematics - Number Sense <i>Number Sense and Counting</i>	<u>Young Toddlers</u> Pay attention to quantities when interacting with objects	<ul style="list-style-type: none"> • Incorporate counting rhymes, chants, poems and finger plays (e.g. <i>5 Little Ladybugs</i>, <i>5 Elephants in the Bathtub</i>). • Sing counting songs (e.g., <i>Jumping and Counting</i> by Jim Gill). • Provide counting opportunities such as having children count flannel board items as you place them on the board, or counting items as you pass out scarves, shakers, etc. • Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive and mathematical development and school readiness.
Mathematics - Number Sense <i>Number Sense and Counting</i>	<u>Older Toddlers</u> Show understanding that numbers represent quantity and demonstrate understanding of words that identify how much Use number words to indicate the quantity in small sets of objects (e.g. two, three) and begin counting aloud	<ul style="list-style-type: none"> • Incorporate counting rhymes, chants, poems and finger plays (e.g. <i>5 Little Ladybugs</i>, <i>5 Elephants in the Bathtub</i>). • Sing counting songs in storytime (e.g. <i>Jumping and Counting</i> by Jim Gill). • Provide counting opportunities such as having children count flannel board items as you place them on the board, or counting items as you pass out scarves, shakers, etc. • Use storytime routines/structure to support counting. ("Today I plan to read these three books...") • Have children count flannel board pieces as you place them on the board. • Incorporate counting rhymes in other languages • Offer playtime including a variety of materials and manipulatives for counting. • When reading counting books, encourage children to count the items on a page. • Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive and mathematical development and school readiness.

Infants = Birth to 8 Months, Young Toddlers = 6 to 18 Months,
 Older Toddlers = 16-36 Months, Pre-Kindergarten = 3 to 5 Years

Strand Topic	Standard Statement The child will	Storytime Provider Strategies The storytime provider may
Mathematics - Number Sense <i>Number Sense and Counting</i>	<u>Pre-Kindergarten</u> Count to 20 by ones with increasing accuracy Identify and name numerals one-nine Identify without counting small quantities of up to three items (subitize) Demonstrate one-to-one correspondence when counting objects up to 10 Understand that the last number spoken tells the number of objects counted Identify whether the number of objects in one group is greater than, less than or equal to the number of objects in another group up to 10	<ul style="list-style-type: none"> • Incorporate counting rhymes, chants, poems and finger plays (e.g. <i>5 Little Ladybugs</i>, <i>5 Elephants in the Bath tub</i>). • Sing counting songs (e.g. <i>Jumping and Counting</i> by Jim Gill). • Provide counting opportunities such as having children count flannel board items as you place them on the board, or counting items as you pass out scarves, shakers, etc. • Use storytime routines/structure to support counting. (Today I plan to read these three books . . .) • Provide opportunities for children to name numbers presented as written numerals (e.g., provide number matching activities in storytime). • Emphasize the concept of one-to-one correspondence when you hand out shaker eggs or scarves (e.g., “One for you, one for Tyler, one for Jane, etc.”) • Provide storytime activities where children are given the opportunity to match numbers (e.g., play a cookie counting game where you have children match the number of chocolate chips on paper cookies). • Offer playtime with a variety of materials and manipulatives for counting aloud. Model for parents how to have children count the items. • Invite children to participate in counting games, such as having children sit in a circle on the storytime rug. Roll a large foam die and when it lands on a number have the children say the number and clap accordingly. • Encourage children to count when books provide opportunities for counting. • Provide authentic props during playtime to familiarize children with numerals (e.g., menus, price lists, telephone and phone numbers, etc.). • Find ways to question children to determine quantity within the context of daily experiences and conversations (e.g., if you read a book about ice cream ask each child how many scoops of ice cream they would like). Encourage parents to do the same throughout the day. • Write each child’s name on a chart, and work together to figure out how many letters are in each name. • Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive and mathematical development and school readiness.
Mathematics - Number Relationships and Operations <i>Number Relationships</i>	<u>Infants</u> Explore objects and attend to events in the environment	<ul style="list-style-type: none"> • Provide a variety of objects and materials for exploration during playtime. • Provide opportunities for parents/caregivers to interact with infants around books, rhymes, and toys through pointing for joint attention and labeling objects, narrating actions and events. • Incorporate counting rhymes, chants, poems and finger plays (e.g. <i>5 Little Ladybugs</i>, <i>5 Elephants in the Bath tub</i>). • Read touch-and-feel books, making sure to walk around to allow children to interact with the book. • Walk around with a puppet and have the puppet interact with each child. • Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive and mathematical development and school readiness.

Infants = Birth to 8 Months, Young Toddlers = 6 to 18 Months,
 Older Toddlers = 16-36 Months, Pre-Kindergarten = 3 to 5 Years

Strand Topic	Standard Statement The child will	Storytime Provider Strategies The storytime provider may
Mathematics - Number Relationships and Operations <i>Number Relationships</i>	<u>Young Toddlers</u> Notice changes in quantity of objects (especially ones that can be detected visually with ease).	<ul style="list-style-type: none"> • Model quantity language for caregivers during playtime (e.g., “You have a lot of blocks.” “You have two crayons.”). • Incorporate counting rhymes and fingerplays including visuals such as on flannel board. • With one puppet on each hand, playfully put one behind your back, then the other, then both, engaging the children with “Where’s Mr. Bear? Here he is! Uh oh...where’d they go?” prompts to draw their attention to the changes in quantity. • Read sturdy lift-the-flap or “hello/goodbye” board books (e.g. <i>Where is Baby’s Belly Button</i> by Karen Katz). • Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive and mathematical development and school readiness.
Mathematics - Number Relationships and Operations <i>Number Relationships</i>	<u>Older Toddlers</u> Demonstrate an understanding that <i>adding to</i> increases the number of objects in the group. Place objects in one-to-one correspondence relationships during play.	<ul style="list-style-type: none"> • Talk about number of objects or one-to-one correspondence when books provide opportunities to do so. • Use felt stories that illustrate the concept of adding more (e.g. <i>5 Elephants in the Bathtub</i>). • Model and verbalize “adding to” language during play time (e.g., “I’ll add a block to the basket, then you add a block, I’ll add a block, then you add a block. Wow! The basket is really full!”). • Model placing objects in one-to-one correspondence during play (e.g., put one truck on each block in a row, or give each baby doll a bottle). • Emphasize the concept of one-to-one correspondence when you hand out shaker eggs or scarves (e.g., “One for you, one for Tyler, one for Jane, etc.”) • Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive and mathematical development and school readiness.
Mathematics - Number Relationships and Operations <i>Number Relationships</i>	<u>Pre-Kindergarten</u> Count to solve simple addition and subtraction problems with totals smaller than eight, using concrete objects.	<ul style="list-style-type: none"> • Use math vocabulary when encountered in books such as big and small or tall and short (e.g., <i>Big Bear, Small Mouse</i> by Karma Wilson). • Expand on math vocabulary when sharing books, even if not in text. • Use flannel board pieces and/or concrete objects to group and count sets or demonstrate grouping (e.g., three dogs and two cats equal five animals or act out <i>Ten in the Bed</i> using felt pieces). • Pose and solve addition and subtraction problems within the context of a book or felt story (e.g., “If I add another frog to the felt board how many will we have?”). • Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive and mathematical development and school readiness.
Mathematics - Algebra <i>Group and Categorize</i>	<u>Infants</u> Notice differences between familiar and unfamiliar people, objects and places.	<ul style="list-style-type: none"> • Offer playtime that allows for safe exploration and interaction with materials. • Encourage caregivers to allow their child to separate from them to seek out toys or objects during playtime. • Introduce yourself at the beginning of storytime. • Interact with each child, even if briefly. • Include a consistent opening and closing song/rhyme in storytime. • Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive and mathematical development and school readiness.

Infants = Birth to 8 Months, Young Toddlers = 6 to 18 Months,
 Older Toddlers = 16-36 Months, Pre-Kindergarten = 3 to 5 Years

Strand Topic	Standard Statement The child will	Storytime Provider Strategies The storytime provider may
Mathematics - Algebra <i>Group and Categorize</i>	<u>Young Toddlers</u> Match two objects that are the same and select similar objects from a group.	<ul style="list-style-type: none"> • Prompt children to look for similarities by playing matching games during storytime (e.g., mitten match, shape match). • Share books by same illustrator or books with similar illustrations, pointing out similarities and differences. • Model matching objects and describe similarities. • Provide shape sorters and other materials designed to promote matching, during playtime. • Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive and mathematical development and school readiness.
Mathematics - Algebra <i>Group and Categorize</i>	<u>Older Toddlers</u> Sort objects into two or more groups by their properties and uses.	<ul style="list-style-type: none"> • Share books by same illustrator or books with similar illustrations, pointing out similarities and differences. • Provide pairs of objects and multiples of materials for sorting and classifying. • Play matching games that invite children to sort and organize objects into groups by one attribute (e.g., color, size, shape, function). • Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive and mathematical development and school readiness.
Mathematics - Algebra <i>Group and Categorize</i>	<u>Pre-Kindergarten</u> Sort and classify objects by one or more attributes (e.g., size or shape).	<ul style="list-style-type: none"> • Share books by same illustrator or books with similar illustrations, pointing out similarities and differences. • Play games and/or provide a variety of manipulatives, objects, and natural and found materials for sorting and classifying during playtime (e.g., sensory bin with leaves). Encourage children to sort and organize the collected materials by color, size, or shape, and ask them to count to find which group has the most. • Compare size, shape, color in illustrations when sharing books • Have children help clean up toys and manipulatives during playtime as an on-going opportunity for children to sort and match or order and classify materials (e.g., putting blocks of the same shape in the appropriate spaces on the block shelf; putting dramatic play materials away based on their functions, such as food items or dishes). • Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive and mathematical development and school readiness.
Mathematics - Algebra <i>Patterning</i>	<u>Infants</u> Imitate repeated movements	<ul style="list-style-type: none"> • Sing and say songs, rhymes, and finger plays with simple, repeated movements. • Encourage babies, and have parents/caregivers encourage babies to imitate movements, allowing time for babies to respond. • Model for parents how to play simple games with movements (e.g., <i>Patty-Cake</i>, <i>Peek-a-Boo</i>). • Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive and mathematical development and school readiness.
Mathematics - Algebra <i>Patterning</i>	<u>Young Toddlers</u> Participate in adult-initiated movement patterns	<ul style="list-style-type: none"> • Invite children to participate in movement songs and games (e.g., <i>Wheels on the Bus</i> or <i>Where are Baby's Fingers?</i>) • Encourage children to participate in movement patterns encountered in books (e.g., <i>From Head to Toe</i> by Eric Carle). • Verbalize the pattern sequence in daily routines (e.g., Talk about what we will do in storytime today). • Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive and mathematical development and school readiness.

Infants = Birth to 8 Months, Young Toddlers = 6 to 18 Months,
Older Toddlers = 16-36 Months, Pre-Kindergarten = 3 to 5 Years

Strand Topic	Standard Statement The child will	Storytime Provider Strategies The storytime provider may
Mathematics - Algebra <i>Patterning</i>	<u>Older Toddlers</u> Copy and anticipate a repeating pattern	<ul style="list-style-type: none"> • Invite children to participate in movement songs and games (e.g., <i>Wheels on the Bus</i> or <i>Where are Baby's Fingers?</i>) • Encourage children to participate in movement patterns encountered in books (e.g., <i>From Head to Toe</i> by Eric Carle). • Provide a variety of materials and objects—including natural and found materials—for patterning during playtime (e.g., pattern blocks, picture cards, shells, bottle caps, marker lids, etc.). Model for children how to make a pattern with these items. • Model creating a simple A-B pattern on the felt board/whiteboard and invite children to help you decide what comes next. • Verbalize the pattern sequence in daily routines (e.g., Talk about what we will do in storytime today). • Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive and mathematical development and school readiness.
Mathematics - Algebra <i>Patterning</i>	<u>Pre-Kindergarten</u> Recognize, duplicate and extend simple patterns using attributes such as color, shape or size. Create patterns	<ul style="list-style-type: none"> • Talk about patterns in book illustrations when encountered in books. • Have children clap, use shaker eggs, or rhythm sticks to follow along with different rhythmic patterns. Try to include songs/rhymes that are representative of ethnic and cultural backgrounds of the group. • When reading books that have repeated phrases, encourage children to say the repeated phase along with you. Pause and let children complete the pattern. • Provide collections of materials and manipulatives for children to use for pattern making, before and/or after storytime (e.g., art materials, pattern blocks, unifix cubes, attribute blocks, picture cards, buttons, keys, nuts, etc.). Model patterning with these objects and invite children to duplicate and extend the patterns. • Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive and mathematical development and school readiness.
Mathematics - Measurement and Data <i>Describe and Compare Measurable Attributes</i>	<u>Infants</u> Explore properties of objects	<ul style="list-style-type: none"> • Provide a variety of objects and materials for exploration during playtime. • Playfully direct baby's attention to interesting objects and events in a story. • Use books and other items such as scarves/shakers to talk about properties of objects (weight, texture, size, etc.) • Interact with children before and/or after storytime and encourage them to explore objects and toys in different ways. (e.g., touching, banging, shaking and rolling helps them learn how things work), making sure to narrate the child's action (e.g., saying "look at how the wheels on the car roll"). • Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive and mathematical development and school readiness.
Mathematics - Measurement and Data <i>Describe and Compare Measurable Attributes</i>	<u>Young Toddlers</u> Show awareness of the size of objects	<ul style="list-style-type: none"> • Provide similar toys and materials in a variety of sizes during playtime (e.g., balls, blocks, cars, etc.) and model labeling the objects by size. • Use flannel board, props, manipulatives to describe size • Talk about size and compare sizes in picture books and board books that offer those opportunities. Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive and mathematical development and school readiness.

Infants = Birth to 8 Months, Young Toddlers = 6 to 18 Months,
Older Toddlers = 16-36 Months, Pre-Kindergarten = 3 to 5 Years

Strand Topic	Standard Statement The child will	Storytime Provider Strategies The storytime provider may
Mathematics - Measurement and Data <i>Describe and Compare Measurable Attributes</i>	<u>Older Toddlers</u> Demonstrate awareness that objects can be compared by attributes (e.g., size, weight, capacity), and begin to use words such as bigger, smaller and longer.	<ul style="list-style-type: none"> • Provide toys and materials that can be compared by different attributes during playtime. • Model using comparative language to describe attributes of objects in a story (e.g., bigger, smaller, shorter, taller, etc.), before, during and after storytime. • Play sorting games that have children sort objects by one attribute (e.g., baby animals and adult animals). • Talk about size and compare size and other attributes in picture books and board books that offer those opportunities (e.g. <i>Goldilocks and the Three Bears.</i>). • Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive and mathematical development and school readiness.
Mathematics - Measurement and Data <i>Describe and Compare Measurable Attributes</i>	<u>Pre-Kindergarten</u> Describe and compare objects using measureable attributes (e.g., length, size, capacity and weight). Order objects by measureable attribute (e.g., biggest to smallest, etc.). Measure length and volume (capacity) using non-standard or standard measurement tools.	<ul style="list-style-type: none"> • Relate measurement language to children’s interests, experiences and prior knowledge versus abstract ideas and data (e.g. tape a dinosaur footprint on the floor and see how many children can fit inside the footprint). • Provide a variety of manipulatives and collections of natural and found materials for exploration and comparison of attributes, during playtime. • Model and encourage the use of comparison language (e.g., bigger/smaller, longer/shorter) during playtime (e.g., “This block feels heavier than that book). • Provide opportunities for children to sort and classify items during playtime (e.g., children sort blocks by size and shape for stacking on the labeled block shelves). • Provide collections and sets of materials (e.g., measuring cups and spoons, nesting blocks, beads) that can be sorted, ordered and classified by one attribute, during play/discovery time. As you see children sorting items, ask them to describe how they are sorting and/or ordering the items. • When reading stories in which measurement attributes play an important part and have the children help you retell the story using real objects (e.g., using felt pieces or puppets to retell <i>Goldilocks and the Three Bears</i>). • Create a sensory bin/table that has non-standard containers and cups of various sizes for children to use during playtime. • Provide counting cubes during playtime, and encourage children to measure different items using the cubes. • Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive and mathematical development and school readiness.
Mathematics - Measurement and Data <i>Data Analysis</i>	<u>Pre-Kindergarten</u> Collect data by categories to answer questions.	<ul style="list-style-type: none"> • Invite children to help you sort and organize items on the felt board by color, size, or shape, and ask them to count to find which group has the most or least. • Conduct a survey at the beginning of storytime (e.g., “Which animal do you like the best: dogs, cats, fish?”) and create a bar graph with the data you collected. • Model analyzing the graph to answer questions (e.g., “Which animal does everyone like the best?”). • Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive and mathematical development and school readiness.

Infants = Birth to 8 Months, Young Toddlers = 6 to 18 Months,
 Older Toddlers = 16-36 Months, Pre-Kindergarten = 3 to 5 Years

Strand Topic	Standard Statement The child will	Storytime Provider Strategies The storytime provider may
Mathematics - Geometry <i>Spatial Relationships</i>	<u>Infants</u> Explore the properties of objects.	<ul style="list-style-type: none"> • Provide a variety of objects and materials for exploration during playtime. • Playfully direct baby's attention to interesting objects and events. • Use shakers, scarves, bubbles, etc. as opportunities to talk about properties of objects. • Interact with children before and/or after storytime and encourage them to explore objects and toys in different ways. (e.g., touching, banging, shaking and rolling helps them learn how things work), making sure to narrate the child's action (e.g., saying "look at how the wheels on the car roll"). • Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive and mathematical development and school readiness.
Mathematics - Geometry <i>Spatial Relationships</i>	<u>Young Toddlers</u> Explore how things fit and move in space.	<ul style="list-style-type: none"> • Provide knob puzzles, shape-sorters, and stacking rings during playtime. • Incorporate action rhymes and songs that allow children explore movement in space (e.g. <i>The Hokey Pokey</i>). • Provide crafts/activities/experiences that support learning how things fit and move in space. Articulate words for spatial relationships. • Create a simple obstacle course for children as they enter the storytime room/space. • Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive and mathematical development and school readiness.
Mathematics - Geometry <i>Spatial Relationships</i>	<u>Older Toddlers</u> Demonstrate how things fit together and/or move in space with increasing accuracy.	<ul style="list-style-type: none"> • Provide more complex manipulatives that can be put together and taken apart during playtime (e.g., peg board/pegs, puzzles, shape-sorters, blocks, etc.). • Incorporate action rhymes and songs that allow children explore movement in space (e.g. <i>The Hokey Pokey</i>). • Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive and mathematical development and school readiness.
Mathematics - Geometry <i>Spatial Relationships</i>	<u>Pre-Kindergarten</u> Demonstrate understanding of the relative position of objects using terms such as in/on/under, up/down, inside/outside, above/below, beside/between, in front of/behind and next to.	<ul style="list-style-type: none"> • Use and point out positional vocabulary when singing songs and doing activities that encourage positional vocabulary such as up, down, over, under (e.g., <i>We're Going on a Bear Hunt</i>). • Use language to describe spatial relationships when describing pictures in books, whether or not words for spatial relationships are used in the text. • Provide opportunities and materials to explore spatial concepts by moving objects, including their own bodies, through space (e.g., obstacle course or treasure hunt). • Select children's books that use "spatial language" (e.g., <i>Up, Down, and Around</i> by Katherine Ayres). • Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive and mathematical development and school readiness.

Infants = Birth to 8 Months, Young Toddlers = 6 to 18 Months,
 Older Toddlers = 16-36 Months, Pre-Kindergarten = 3 to 5 Years

Strand Topic	Standard Statement The child will	Storytime Provider Strategies The storytime provider may
Mathematics - Geometry <i>Identify and Describe Shapes</i>	<u>Older Toddlers</u> Recognize basic shapes	<ul style="list-style-type: none"> • Provide shape-sorters, knob shape puzzles and other shape manipulatives during playtime. • Talk about shapes when sharing books that offer opportunities to do so, whether or not the book is about shapes. (e.g., <i>Mouse Shapes</i> by Ellen Walsh or <i>Round is a Tortilla</i> by Roseanne Thong). • Tape pictures of shapes around the room and have kids go on a “shape hunt” to find examples of common shapes (e.g., circles, squares, triangles). • Incorporate activities that encourage play, sorting, and matching shapes during playtime (e.g., pattern blocks, tangrams, cut/laminated paper shapes, etc.), using words for both 2D and 3D shapes. • Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive and mathematical development and school readiness.
Mathematics - Geometry <i>Identify and Describe Shapes</i>	<u>Pre-Kindergarten</u> Understand and use names of shapes when identifying objects. Name three-dimensional objects using informal, descriptive vocabulary (e.g., “box” for cube, “ice cream cone” for cone, “ball” for sphere, etc.).	<ul style="list-style-type: none"> • Talk about shapes when sharing books that offer opportunities to do so, whether or not the book is about shapes. • Provide a variety of regularly-shaped materials and manipulatives for playtime and encourage children to sort and match shapes, using words for both 2D and 3D shapes. • Tape shape pictures around the room and have kids go on a “shape hunt” to find examples of common shapes (e.g., circles, squares, triangles). • Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive and mathematical development and school readiness.
Mathematics - Geometry <i>Analyze, Compare and Create Shapes</i>	<u>Pre-Kindergarten</u> Compare two-dimensional shapes, in different sizes and orientations using informal language. Create shapes during play by building, drawing, etc. Combine simple shapes to form larger shapes.	<ul style="list-style-type: none"> • Model and encourage conversations describing and comparing the sizes and orientations of two- and three dimensional shapes. • During playtime, encourage children to make and talk about models created with blocks and toys. • Provide opportunities for shape-making play using a variety of manipulatives (e.g., puzzles, pattern blocks, playdoh, and shaving cream). As children play, scaffold their use of descriptive language, modeling mathematical language. • Provide a variety of art media and materials for children to use to model, construct and draw familiar shapes. • Provide materials during craft or playtime that allow children to combine shapes to form larger shapes (e.g., pattern blocks, tangrams, geometric solids, etc.). • Provide popsicle sticks, clay or other materials, and have children make different shapes with these materials. • Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive and mathematical development and school readiness.
Social Studies - Self <i>Social Identity</i>	<u>Infants</u> Show awareness of self and others.	<ul style="list-style-type: none"> • Place mirrors at infants’ eye levels when they are on the floor. • Offer playtime where you encourage infants to observe/interact with each other. • Provide nametags for infants in order to call them by name. • Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive and social studies development and school readiness.

Infants = Birth to 8 Months, Young Toddlers = 6 to 18 Months,
 Older Toddlers = 16-36 Months, Pre-Kindergarten = 3 to 5 Years

Strand Topic	Standard Statement The child will	Storytime Provider Strategies The storytime provider may
Social Studies - Self <i>Social Identity</i>	<u>Young Toddlers</u> Prefer familiar adults and recognize familiar actions and routines.	<ul style="list-style-type: none"> • Interact with children on their level, making eye contact. • Pay attention to children’s non-verbal cues indicating preferences, and adjust storytime plan if necessary. • Acknowledge children’s resistance to new situations or people. • Establish storytime routines, including consistent opening and closing songs. • Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive and social studies development and school readiness.
Social Studies - Self <i>Social Identity</i>	<u>Older Toddlers</u> Identify self and others as belonging to one or more groups by observable characteristics	<ul style="list-style-type: none"> • Use a flannel board to provide opportunities to group <i>same</i> and <i>different</i> objects by one attribute. • Offer play opportunities including mirrors so children can see themselves, having conversations about what they see (clothing styles and colors, body parts and characteristics). • Encourage children to notice similarities and differences between themselves and others. • Offer writing opportunities that encourage depiction of self—appearance, feelings, interests. • Offer play opportunities and have children describe characteristics that are similar and different. • Draw children’s attention to similarities (e.g. action rhyme that asks everyone who is wearing this color to stand up and turn around). • Choose books with racially diverse characters. • Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive and social studies development and school readiness.
Social Studies - History <i>Historical Thinking and Skills</i>	<u>Pre-Kindergarten</u> Demonstrate an understanding of time in the context of daily experiences. Develop an awareness of his/her personal history.	<ul style="list-style-type: none"> • Read books with familiar routines (e.g. <i>Llama, Llama Wakey Wake</i> by Anna Dewdney or <i>Time for Bed</i> by Mem Fox). • Model and support children in retelling stories with an emphasis on what happened first, next, last. • Offer opportunities for children and families to describe experiences of their past. • Use words like now, later and next in the context of storytime routines and experiences. • Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive and social studies development and school readiness.
Social Studies - History <i>Heritage</i>	<u>Pre-Kindergarten</u> Develop an awareness and appreciation of family cultural stories and traditions.	<ul style="list-style-type: none"> • Read books that describe a variety of family structures, cultures and traditions. • Offer opportunities for children and families to share cultural stories/traditions. • Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive and social studies development and school readiness.
Social Studies - Geography <i>Spatial Thinking and Skills</i>	<u>Pre-Kindergarten</u> Demonstrate a beginning understanding of maps as actual representations of places.	<ul style="list-style-type: none"> • Talk about setting, location, places, directional concepts when sharing books that provide such opportunities. (e.g. <i>Rosie’s Walk</i> by Pat Hutchins). • Plan a scavenger hunt in the library, using directional words intentionally. • Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive and social studies development and school readiness.

Infants = Birth to 8 Months, Young Toddlers = 6 to 18 Months,
Older Toddlers = 16-36 Months, Pre-Kindergarten = 3 to 5 Years

Strand <i>Topic</i>	Standard Statement The child will	Storytime Provider Strategies The storytime provider may
Social Studies - Geography <i>Human Systems</i>	<u>Pre-Kindergarten</u> Identify similarities and differences of personal, family and cultural characteristics and those of others.	<ul style="list-style-type: none"> • Invite children to group themselves by a particular characteristic to build an awareness of similarities and differences. Use props and visuals to promote understanding (e.g. those that have a pet, those that have a sibling, those that play a sport, those with blue/brown eyes, etc.). • Encourage children and families to share cultural experiences. • Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive and social studies development and school readiness.
Social Studies - Government <i>Civic Participation and Skills</i>	<u>Pre-Kindergarten</u> Understand that everyone has rights and responsibilities within a group. Demonstrate cooperative behaviors and fairness in social interactions. With modeling and support, negotiate to solve social conflicts with peers. With modeling and support, demonstrate an awareness of the outcomes of choices.	<ul style="list-style-type: none"> • When distributing and collecting props, ask children to wait patiently for the bag or basket. Model and support taking turns and sharing. • Acknowledge children when they demonstrate pro-social behaviors (e.g. sitting so everyone can see); describe the behavior and why it is important. • Discuss choices and consequences when sharing books that provide such opportunities. (e.g. <i>Bear Wants More</i> by Karma Wilson). • Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive and social studies development and school readiness.
Social Studies - Government <i>Rules and Laws</i>	<u>Pre-Kindergarten</u> With modeling and support, demonstrate understanding that rules play an important role in promoting safety and protecting fairness.	<ul style="list-style-type: none"> • If stating a rule, include why it is important (e.g. sitting so everyone can see, taking turns at flannel board, etc.). • Discuss cooperation when sharing books that provide such opportunities (e.g. <i>The Lion and the Mouse</i> by Jerry Pinkney). • Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive and social studies development and school readiness.
Social Studies - Economics <i>Scarcity</i>	<u>Pre-Kindergarten</u> With modeling and support, recognize that people have wants and must make choices to satisfy those wants because resources and materials are limited.	<ul style="list-style-type: none"> • Discuss sharing when sharing books that provide such opportunities (e.g. <i>The Doorbell Rang</i> by Pat Hutchins). • Prepare an art activity with too few materials for each child (e.g. three scissors and two glue sticks for five children). Engage the children in a problem-solving discussion to help them generate some strategies for sharing and taking turns with the materials. • Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive and social studies development and school readiness.

Strand <i>Topic</i>	Standard Statement The child will	Storytime Provider Strategies The storytime provider may
Social Studies - Economics <i>Production and Consumption</i>	<p><u>Pre-Kindergarten</u> With modeling and support, demonstrate understanding of where goods and services originate and how they are acquired.</p> <p>With modeling and support, demonstrate responsible consumption and conservation of resources.</p>	<ul style="list-style-type: none"> • Discuss how goods or services are made when sharing books that provide such opportunities (e.g. <i>Froggy's Lemonade Stand</i> by Jonathon London or <i>Little Red Hen</i>). • Include factual books in storytime (e.g. how crayons are made, from cow to milk, etc.) • Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive and social studies development and school readiness.
Science - Science Inquiry and Application <i>Inquiry</i>	<p><u>Infants</u> Examine objects with lips and tongue. (Make sure objects are not choking hazards.)</p> <p>Observe, hold, smell, touch and manipulate objects</p>	<ul style="list-style-type: none"> • Have a procedure in place for sanitizing toys after playtime, to allow children to safely manipulate objects in a variety of ways. • Provide opportunities for children to handle books, manipulatives • Place objects at varying distances and positions within infants' reach during playtime. • Ensure toys and materials are accessible for mobile and non-mobile children. • Provide items of various textures, colors and patterns. • Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive and science development and school readiness.
Science - Science Inquiry and Application <i>Inquiry</i>	<p><u>Young Toddlers</u> Try different things with (<i>manipulate and test</i>) objects to see what happens or how things work.</p> <p>Notice and observe the surrounding physical and natural world.</p>	<ul style="list-style-type: none"> • Provide a sensory table or bin with a variety of objects, materials and tools for manipulation and exploration during playtime (e.g., sensory table filled with sand/water and cups for scooping; light table with a variety of colorful opaque and transparent objects; shiny, silky, soft and textured fabrics; scented materials or "scent" bottles; rattles, shakers, bells and other auditory items in clear or opaque boxes that can be easily opened and closed). • Incorporate fingerplays in storytime to help support the development of fine motor skills, and incorporate action rhymes and movement songs to support gross motor skills. • Introduce and describe new objects and materials when they are added to the sensory table/bin. • Share informational books about the natural world, relating the books to children's own experiences (e.g., after reading <i>The Busy Little Squirrel</i> by Nancy Tafuri ask children if they have seen any squirrels running around like the squirrel in the story). • Encourage children to look out windows. Identify and describe what they see. • Ensure that objects and materials are rotated frequently and are accessible. • Create a science table or science center with a variety of authentic experiences and meaningful, natural materials to explore during playtime (e.g., in the fall, have pumpkin pie pumpkins that are whole and cut apart). • Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive and science development and school readiness.

Infants = Birth to 8 Months, Young Toddlers = 6 to 18 Months,
Older Toddlers = 16-36 Months, Pre-Kindergarten = 3 to 5 Years

Strand <i>Topic</i>	Standard Statement The child will	Storytime Provider Strategies The storytime provider may
Science - Science Inquiry and Application Inquiry	<u>Older Toddlers</u> Engage in sustained and complex manipulation of objects. Engage in focused observations of objects and events in the environment. Ask questions about objects and events in the environment. With modeling and support, use simple tools to explore the environment.	<ul style="list-style-type: none"> • Provide an open-ended playtime before and/or after storytime and provide a variety of natural and found materials for exploration (e.g., rocks, shells, seed pods, soil, leaves, sticks, plants, etc.). • Read a story and model how to make observations of objects or events in the story. • Share factual picture books and model asking open-ended questions to stimulate thinking and inquiry. • Model for parents how to encourage children’s questions about objects, events, and other phenomena in the indoor and outdoor environment (e.g. If a child is interested in birds, encourage the child’s caregivers to take them bird watching). • Share factual books and invite children to document and talk about their observations through drawing, sketching, sculpting with clay or play dough, writing, etc. • Provide magnifiers, jars, shovels and other simple tools to support exploration during playtime. • Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive and science development and school readiness.
Science - Science Inquiry and Application Inquiry	<u>Pre-Kindergarten</u> With modeling and support, engage in scientific inquiry: <ul style="list-style-type: none"> • Explore objects, materials and events • Make careful observations • Pose questions about the physical and natural environment • Engage in simple investigations • Describe, compare, sort, classify and order • Record observations using words, pictures, charts, graphs, etc. • Use simple tools to extend investigation. • Identify patterns and relationships. • Make predictions. • Make inferences, generalizations and explanations based on evidence. • Collaborate and communicate with peers. • Share findings, ideas and explanations (may be correct or incorrect) through a variety of methods (e.g., pictures, words, dramatization). 	<ul style="list-style-type: none"> • Use factual picture books to model and encourage a sense of wonder about nature, the world and science. • Listen to children’s questions about the natural world. • While reading factual books, ask open-ended, guiding questions to promote investigative questions and deductive thinking (e.g., “What do you notice?” “What might happen if...?”) • Allow children enough “wait time” to think, before responding, and validate all answers whether correct or incorrect as children begin to explore and discover answers. • Create a storytime environment that maintains a warm, accepting and nurturing atmosphere where all questions are important and investigation and exploration are valued. • While reading factual books, take advantage of questions and curious comments as opportunities to engage in scientific study, observation and experimentation rather than simply telling children the “right” answers (e.g., answering with, “Why do you think...?” Or, “How could we find out?”). • Provide opportunities for children to predict what might happen in a story. • Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive and science development and school readiness.

Infants = Birth to 8 Months, Young Toddlers = 6 to 18 Months,
Older Toddlers = 16-36 Months, Pre-Kindergarten = 3 to 5 Years

Strand <i>Topic</i>	Standard Statement The child will	Storytime Provider Strategies The storytime provider may
Science - Science Inquiry and Application <i>Cause and Effect</i>	<u>Infants</u> Use simple actions to make things happen.	<ul style="list-style-type: none"> • Offer a playtime with toys and materials for children to touch, feel, grasp and move. • Model for parents a back-and-forth conversation: respond to a child's sounds and gestures, and give them time to respond • Model for parents how to narrate their child's actions (e.g., "You squeezed the duck to make it quack." "If you pound on the table or a plastic bucket, it makes a sound and the sounds are different.>"). • Fill clear bottles with water and interesting items (e.g., glitter, shells, colorful plastic fish, and dry pasta) and encourage children to shake or roll to create movement and sounds. Have these items available during play/discovery time. • Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive and science development and school readiness.
Science - Science Inquiry and Application <i>Cause and Effect</i>	<u>Young Toddlers</u> Purposefully combine actions to make things happen.	<ul style="list-style-type: none"> • Provide opportunities and support for children to perform actions repeatedly (Roly-Poly rhyme). • Read "pop-up books" during storytime. Articulate connection between turning pages and item popping up. • Provide toys that produce a response to an action and toys that produce different responses to actions during playtime. Toys should not be battery operated to encourage exploration beyond pushing a button. • Provide blocks for stacking and tubs and buckets for filling and emptying during play/exploration time. Model for parents how to support exploration and actions to make things happen. • Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive and science development and school readiness.
Science - Science Inquiry and Application <i>Cause and Effect</i>	<u>Older Toddlers</u> Demonstrate understanding that events have a cause. Make predictions.	<ul style="list-style-type: none"> • Model for caregivers how to ask questions or provide information for children to consider (e.g., "What might happen if you put the big block on the bottom? Let's try it and find out!" "How do you think the ball will move if we push the ramp higher? Lower?") • Talk about cause and effect when sharing books that provide such opportunities. • Provide a sensory table/bin during play/discovery time with water and include funnels, containers and floating/sinking objects of various shapes and sizes. Ask questions such as "What might happen if..." or "Can you find a way to...?" • Make sure to give children adequate "wait time" when asking questions (5-7 seconds). • Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive and science development and school readiness.

Infants = Birth to 8 Months, Young Toddlers = 6 to 18 Months,
 Older Toddlers = 16-36 Months, Pre-Kindergarten = 3 to 5 Years

Strand Topic	Standard Statement The child will	Storytime Provider Strategies The storytime provider may
<p>Science – Earth and Space Science <i>Explorations of the Natural World</i></p>	<p><u>Pre-Kindergarten</u> With modeling and support, recognize familiar elements of the natural environment and understand that these may change over time (e.g., soil, weather, sun and moon).</p> <p>With modeling and support, develop understanding of the relationship between humans and nature; recognizing the difference between helpful and harmful actions toward the natural environment.</p>	<ul style="list-style-type: none"> • While Earth and Space Exploration are not directly supported in a traditional storytime, these skills may be developed in a STEM program. Consider these activities for a STEM program: <ul style="list-style-type: none"> ○ Provide opportunities for children to use their senses to explore the weather (e.g., have children make rain sticks, provide a sensory bin with snow, etc.). ○ Read factual books about helpful and harmful actions and the impact on the environment (e.g. <i>Here Comes the Garbage Barge!</i> by Jonah Winter). ○ Read picture books or factual books about environmental consciousness (e.g., <i>The Earth Book</i> by Todd Parr). ○ Read factual books about weather that have high-quality pictures or photographs. ○ Provide opportunities for shadow play using both natural and artificial light. ○ Play recorded sounds of day and night and have children dance, move or draw to them. ○ Display maps of the night sky for children to explore. ○ Read a factual book about the moon and share pictures or a video of the moon phases. ○ Provide a sensory bin/table during play/discovery time with rocks such as sandstone or granite and use tools like magnifying glasses or paper for rubbings to compare properties (e.g., texture, density, color and other properties). ○ Have a plant in the storytime room or children’s area, and allow children to spend time each week observing how the plant has changed. • Articulate to parents/caregivers the importance of these activities for cognitive and science development and school readiness.

Strand <i>Topic</i>	Standard Statement The child will	Storytime Provider Strategies The storytime provider may
Science –Physical Science <i>Explorations of Matter and Energy</i>	<u>Pre-Kindergarten</u> With modeling and support, explore the properties of objects and materials (e.g., solids and liquids). With modeling and support, explore the position and motion of objects. With modeling and support, explore the properties and characteristics of sound and light.	<ul style="list-style-type: none"> • While physical science is not directly supported in a traditional storytime, these skills may be developed in a STEM program. Consider these activities for a STEM program: <ul style="list-style-type: none"> ○ Play matching games where you provide parts of familiar objects for children to identify (e.g., knob from dresser; pedal from bicycle). ○ Provide a variety of sensory experiences in storytime (sensory table, feely box, sound identification games, smell identification games, film canisters with items inside). ○ Provide a set of gears for children to explore. ○ Provide a “take apart” table during play/discovery time where children can learn how things work by taking apart and putting together many different objects (e.g., toy vehicles, old appliances). Model for caregivers how to introduce new vocabulary, narrate actions and describe objects. ○ Point out new words and explain their meaning while reading books. ○ Provide a variety of purposeful materials in a sensory bin/table, such as soil, sand, clay, cotton, pebbles, rocks, sponge pieces, cups and water. ○ Incorporate items that allow children to explore manipulating their own voices by changing pitch, volume or quality (e.g., talk in to different lengths of cardboard tubing, talk with wax paper against lips, talk into a kazoo). ○ Incorporate instruments that allow children to explore resonance by making sounds with various materials (e.g., rhythm sticks, egg shakers, bells). ○ Provide materials for constructing instruments, such as rubber bands strung across a shoe box and empty containers with various fillers (pasta, marbles, rice, stones, etc.). ○ Provide opportunities for shadow play using both natural and artificial light. ○ Provide a play/discovery time with a variety of easily accessible materials and resources that children may use to extend their explorations (e.g., for experimenting with bubbles, provide bubble solution, cups, trays, straws, funnels, turkey basters, sieves, mesh and bendable wires). • Articulate to parents/caregivers the importance of these activities for cognitive and science development and school readiness.

Strand Topic	Standard Statement The child will	Storytime Provider Strategies The storytime provider may
<p>Science –Life Science <i>Explorations of Living Things</i></p>	<p><u>Pre-Kindergarten</u> With modeling and support, identify physical characteristics and simple behaviors of living things.</p> <p>With modeling and support, identify and explore the relationship between living things and their environments (e.g., habitats, food, eating habits, etc.)</p> <p>With modeling and support, demonstrate an understanding that living things change over time (e.g., life cycle)</p> <p>With modeling and support, recognize similarities and differences between people and other living things.</p>	<ul style="list-style-type: none"> • While life science is not directly supported in a traditional storytime, these skills may be developed in a STEM program. Consider these activities for a STEM program: <ul style="list-style-type: none"> ○ Set up an egg incubator or butterfly chrysalis in the storytime room or children's area where children can observe the life cycle of living things and record their observations. ○ Read factual books about plants and animals, making sure to model for caregivers how to ask guiding questions as you read (e.g., "Why do you think some leaves are orange and others are green?" "How is the body of a spider different than a person's body?"). ○ Provide a collection of leaves to be used for leaf rubbing, sensory play, and/or have children compare and sort by size, shape, color, etc. ○ Read and discuss picture books or factual books about living things, as a way to encourage appreciation for the natural world. ○ Read a factual book about the habitat of birds. Encourage caregivers to go birdwatching with their child to compare/contrast different bird habitats. ○ Read a book about seeds and then cut open a fruit/vegetable for children to explore. ○ Play an animal movement game where children mimic the movements of different animals. Then have children compare these movements to the way humans move. ○ Have a plant available in the storytime room or children's area, and allow children to spend time each week making observations and predictions about how the plant has changed. ○ Provide opportunities for children to taste different flavors and consistencies and make comparisons. ○ Play an animal sound game where children identify different recorded animal sounds. Then give each child the opportunity to make their own sounds for others to identify. ○ Provide actual comparisons of real and pretend, such as having the children plant bean seeds and as the plants grow compare with the bean growth in Jack and the Bean Stalk. ○ Read factual books that explore how animals and insects move during the night and day. ○ Read factual books that allow children to explore the concept of camouflage (e.g. <i>Where in the Wild</i> by David M. Schwartz). ○ Read factual books that compare similarities/differences with young and adult animals (e.g., frogs/tadpoles, caterpillars /butterflies, kittens/cats). • Articulate to parents/caregivers what you are modeling and the importance of these activities for cognitive and science development and school readiness.