Ohio's Early Learning and Development Standards (Birth to age 5): Implementation Guide
Domain: Cognitive Development and General Knowledge (including Math, Science and Social Studies)

Introduction

The standards for cognition and general knowledge encompass children's knowledge of their physical and social worlds and refer to the underlying cognitive mechanisms, skills and processes that support learning and reasoning across domains, including the development of memory, symbolic thought, reasoning and problem solving. It also addresses the ability to learn about complex ideas or events through imitation. This domain also includes concepts and skills in three content areas: mathematics, social studies and science.

The strategies in this guidance document are not designed to be specific activities or "lesson plans." Rather, they represent broad approaches to implementation in each strand that may help teachers create meaningful learning activities and experiences to support development and learning.

Standard Statements	Implementation Strategies
The child will:	The teacher may:
Cognitive Skills *Memory*	
<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	Introduce unfamiliar people in a familiar environment with familiar adults providing proximity, encouragement, security and support as needed. Stay near children, and encourage them to seek out and explore new toys or objects. Provide a variety of toys and materials to explore, noticing which are favored. Engage babies in reciprocal conversations, allowing time for baby to respond. Model new uses for familiar objects (e.g., clapping two blocks together, etc.).

	Model simple movements to music. Verbalize actions during daily routines. Read and re-read interactive books. Describe actions during daily routines as they occur (e.g., "It's time for lunch! Up we go into your highchair. I'll fasten your bib, and let's eat."). Read and reread interactive books, such as *Pat the Bunny*.
<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.	Provide a picture schedule of daily routines and refer to it as the events occur. Encourage children's repeated play with toys and materials and describe the outcome (e.g., "You squeezed the duck and made him quack!"). Describe the steps while performing routine tasks and ask the children "What comes next?" Provide activities, songs, stories, materials and other experiences multiple times so children become familiar with them and can participate. Establish rituals to engage the children in routine activities (e.g., sing a "clean-up" song, or when caregiver sits in the rocking chair, it's time for story, etc.).
<u>Older Toddlers</u> Recall information over a longer period of time without contextual cues. Reenact a sequence of events accomplished or observed at an	Display a picture schedule of daily routines and ask children what happens next throughout the day. Provide dramatic play props and invite children to "play" previous events or experiences.

earlier time. Anticipate routines. Link past and present activities.	Invite children to reenact a favorite story using props or flannel board pieces, etc. Play simple “memory” games with children, remembering that individual achievement is more important than having a winner. Engage children in reflecting upon previous experiences while doing a present activity (e.g., while exploring the seeds in a small pumpkin, say, “Remember when we visited the pumpkin patch and picked out this pumpkin?”). Engage children in conversations about what has happened in their home environments. Establish rituals to engage the children in routine activities (e.g., sing a “clean-up” song, or when caregiver sits in the rocking chair, it’s time for story, etc.).
<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.	Display a daily schedule with pictures and words describing daily routines. Invite children to use it independently to find out what comes next. Engage individuals or small groups of children in conversations about events that occurred at home. Invite children to recall and discuss classroom events and experiences and their reactions/feelings, etc., (e.g., a classroom visitor, an outdoor experience). Provide a variety of materials and props in the dramatic play area, invite the children to reenact stories, dramatize events or experiences, providing support as they establish and assign roles, plan the scenario and develop and act out the plot. Invite children to express their recollections, thoughts and ideas using a variety of methods and materials (e.g., construction, dramatic play, art, writing, sculpting, etc.).

	Provide directions to accomplish a task using an increasing number of steps (e.g., 1. “Wash your hands for lunch.” 2. “Wash your hands and find a seat at the table for lunch.” 3. “Put your coat in your cubby, wash your hands and find a seat at the table for lunch.”). Support children in remembering complex directions by reminding them of next steps, etc.
Symbolic Thought	
<u>Infants</u> Explore real objects, people and actions.	Provide interesting, colorful objects and toys around room to capture infants’ attention. Provide a clean, safe environment where babies can explore safely. Provide space in the environment for infants to move (e.g., crawl, pull-up, stand, walk, etc.). Introduce new toys or objects. Invite the baby to play. Place mirrors at eye level when babies are on the floor. Encourage children to explore objects with all senses (e.g., mouth, touch, smell, manipulate).
<u>Young Toddlers</u> Use one or two simple actions or objects to represent another in pretend play.	Describe an alternative use for familiar objects (e.g., “Could you use this pan for a drum?” or “I wonder if this blanket would work as a cape?”). Provide props, colorful fabrics and other open-ended materials to encourage pretend play.

	Encourage children to move materials from one classroom area to another to support pretend play (e.g., blocks in the house corner to serve as the telephone). Question to encourage symbolic thinking (e.g., "I wonder how else we could use this blanket?" or "I hear that you want a cape, what could we use?"). Use sounds during stories, songs and finger plays and invite the children to repeat the sounds and join in (e.g., "Chug, chug" while reading *The Little Engine that Could*, or create animal sounds while singing *Old MacDonald had a Farm*).
<u>Older Toddlers</u> Engage in pretend play involving several sequenced steps and assigned roles.	Participate with children during pretend play of familiar scenarios, verbalizing what is happening, and asking questions about what might come next (e.g., "Jasmine has her purse, she must be going to the store. I wonder what she'll buy."). Provide ample time, choices, props and materials to support pretend play of familiar events or experiences both indoors and out. Remind children about a previous event and invite them to play about it. Support the play by asking what they might need, etc. Provide materials, opportunities and support for children to engage in pretend play together (e.g., two "moms" cooking dinner side-by-side in the house corner). Encourage children to discuss their play. 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.). Provide toys that represent real objects in all areas of the classroom (e.g., vehicles in block area, play phone in house corner, etc.).
<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.	Participate with children in simple games with rules (e.g., lotto, "path" games, etc.). Provide architectural drawings, photographs or other graphics in the block area to provide inspiration for building. Invite each child to select a symbol to represent him/her and place it on his/her cubby, sign-in sheet, etc. Provide a variety of props and materials in the dramatic play area to encourage pretend play with others. Rotate materials regularly. Provide a variety of construction, art, natural and found materials and invite children to use them to represent their thoughts, ideas and to create representations to support their play. Schedule large blocks of time for cooperative pretend play, and allow the children to leave the scenario, props or structures in place over several days to extend the complexity of the play. Provide opportunities for children to purposefully plan their play: Where in the classroom they will play? What they might do/build/pretend? Who they would like to invite to join them? Support children's planning pretend play by asking guiding questions about the scenario, the players and the "script." Engage the children in a discussion of feelings using

	photographs to represent emotions (e.g., happy, sad, irritated, surprised, anxious, frightened, etc.). Point out where icons on the computer/iPad are used to represent functions. Support children in dramatizing particular roles using "role cards" (e.g., baby, cat, dog, falling leaf, etc.).
Reasoning and Problem Solving	
<u>Infants</u> Actively use the body to find out about the world.	Provide engaging materials for children to explore. Provide space for infants to move around. Provide surfaces in a variety of textures (e.g., carpet squares of different piles, contact paper sticky-side up, etc.). Allow infants to mouth, shake and manipulate a variety of objects and toys.
<u>Young Toddlers</u> With modeling and support, use simple strategies to solve problems.	Provide knob puzzles, shape sorters, etc., and support children in turning pieces in different ways until they fit. Read stories involving characters solving problems, identify the problem and talk about how the character solved it. Acknowledge when a child completes a puzzle, figures something out or solves a simple problem on his/her own. Pose questions about how to solve a problem (e.g., “How do you think we can reach the car under the toy shelf?”).
<u>Older Toddlers</u>	Remind the child about previous similar situations and how he/she solved the problem.

In familiar situations, solve problems without having to try every possibility while avoiding solutions that clearly will not work.	Ask “What if…” or “I wonder…” questions. Provide ample time for children to figure out a solution, offering encouragement but not answers. Read stories and books about characters that solved problems. Discuss both the problem and how it was solved.

<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.	Support children in remembering previous experiences and how they accomplished tasks. Ask children about the process they used to solve a problem (e.g., "What were you thinking when you decided to use wire to hold the sail?"). Provide opportunities for children to create play plans: where I will play, what I plan to do there, who I will play with, etc…. Allow children to revisit their plans and discuss whether they were carried out. (Plan, Do, Review - High Scope) Encourage children to develop alternative solutions to accomplish a task (e.g., ask "What did you try? What else might you try?"). Ask "I wonder…" questions, allowing children time to think about alternatives. Ask questions to inspire creative thinking (e.g., "How do you catch an elephant?" or "How can we make the clay horse stand up?" Encourage children to use materials in new ways to accomplish a task.

Mathematics Number Sense *Number Sense and Counting*	
<u>Infants</u>	• Provide a variety of objects and materials for exploration. • Sing and say songs, chants, rhymes, poems and finger

Explore objects and attend to events in the environment	plays. • Playfully direct baby's attention to interesting objects and events. • Play disappearing and reappearing games (e.g., Peek-a-Boo, cover objects with a blanket and uncover). • Model and invite children to explore objects and toys in different ways (e.g., touching, banging, shaking and rolling helps them learn how things work; describe baby's actions, "You got the car to move by pulling the string!"). • Be deliberate in developing children's English vocabulary by touching objects or demonstrating concepts as you model what the child did.
<u>Young Toddlers</u> Pay attention to quantities when interacting with objects	• Sing and say counting songs, chants, rhymes, poems and finger plays. • Model stable-order counting during routine classroom experiences and in play. Encourage children to repeat counting aloud with you.
<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.	• Sing and say counting songs, chants, rhymes, poems and finger plays. • Model stable-order counting during routine classroom experiences and in play. • Provide counting opportunities in other languages also, since many English language learners may already be counting in their native languages. • Provide multiple opportunities and a variety of materials and manipulatives for counting.
<u>Prekindergarten</u> Count to 20 by ones with increasing accuracy. Identify and name numerals one-nine.	• Sing and say counting songs, chants, rhymes, poems and finger plays. • Model stable-order counting during routine classroom experiences and in play using concrete objects. • Encourage English language learners to repeat counting aloud with you; repetition and use of the language are key

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.	for English language learners' language and concept development. • Provide opportunities for children to name numbers presented as written numerals (e.g., present number card with the numeral five and ask "What number is this?"). • Provide opportunities to demonstrate/practice one-to-one correspondence during routines (e.g., ensuring each child has a napkin at snack). • Provide opportunities for the children to find the same number of objects as that represented in a prompt or model (e.g., select three crackers to match the picture of three crackers in a rebus snack chart, or counting napkins for the number of seats at the snack table). • Provide multiple opportunities and a variety of materials and manipulatives for counting aloud. • Ensure English language learners get ample opportunity to vocalize numbers during activities, not just hear them…employ multiple modalities and repetition in learning times). • Invite the children to participate in counting games. • Play gross motor games where children roll a large cube with quantities of dots (die) and move an equivalent number. • Read counting books during shared reading, pausing to count items in the story or informational text. (Introduce key vocabulary to English language learners prior to activity so they can concentrate on learning to associate the number word with the number symbol, participate in counting, and not be distracted by too many unknown words in the text.) • Add authentic props to dramatic play to familiarize children with numerals (e.g., menus, price lists, telephone and

	phone numbers, etc.). • Question children to determine quantity within the context of daily experiences and conversations. • Provide opportunities for children to identify small quantities of items without counting. • Encourage children to create and compare sets and explore number relationships in many contexts (e.g., during dramatic play or snack). • Count and compare the numbers of letters in the children's names. • Using concrete objects, model comparative language such as "greater than," "less than" and "same as or equal to." • Encourage children to create and compare sets (e.g., "I have five blocks, you have six blocks. Who has more?").
Number Relationships and Operations *Number Relationships*	
<u>Infants</u> Explore objects and attend to events in the environment.	• Provide a variety of objects and materials for exploration. • Sing and say songs, rhymes, poems and finger plays. • Playfully direct baby's attention to, touch or point out and label interesting objects and events. • Read interactive story books like *Pat the Bunny*.
<u>Young Toddlers</u> Notice changes in quantity of objects (especially ones that can be detected visually with ease).	• Model quantity language during daily routines and play (e.g., "Do you want more Cheerios®?" "You have a lot of blocks." "Are your Cheerios® all gone?" "You have two crackers."). • Draw children's attention to changes in quantity, asking "Where did it go?" when you move the ball behind you. • 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 (e.g., *Spot Goes to the Farm* or *Peek-a-Boo, You*") or "hello/goodbye" board books.
<u>Older Toddlers</u> Demonstrate an understanding that *adding to* increases the number of objects in the group. Place objects in one-to-one correspondence relationships during play.	• Read children's literature selections illustrating the concept of more or "adding to." (e.g., *The Hungry Caterpillar*). • Model and verbalize "adding to" language during daily routines and play (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 in the house corner.) • When you are distributing items, emphasize the concept of one-to-one correspondence: "One for you, one for me, one for Tyler." Or, "Let's put on your shoes: one, two."
<u>Pre-Kindergarten</u> Count to solve simple addition and subtraction problems with totals smaller than eight, using concrete objects.	• Model mathematic vocabulary in conversation, using concrete objects and other visuals, within the context of daily routines and play (e.g., joining, more than, less than, equal to, same as, groups, bigger and smaller, taller, shorter, etc.). • Use flannel board pieces and/or concrete objects to group and count sets or demonstrate grouping (e.g., three dogs and two cats equals five animals; four dogs and one cat equals five animals or act out *Ten in the Bed* using concrete objects). • Pose and solve addition and subtraction problems within the context of real situations in the classroom (e.g., "How many people will be at the snack table if Jenny comes?"). • Solve simple addition and subtraction problems based on the counting sequence (add one or subtract—take away—one).

Algebra *Group and Categorize*	
<u>Infants</u> Notice differences between familiar and unfamiliar people, objects and places	• Design the environment for safe exploration and interaction with materials. • Stay near children but encourage them to separate and seek out toys or objects. • Introduce new adults in the comfort of familiar adults and environments. • Avoid sudden changes to routines or adults.
<u>Young Toddlers</u> Match two objects that are the same and select similar objects from a group.	• Provide pairs of objects and multiples of materials for matching. • Model matching objects and describe similarities. • Prompt children to look for similarities (e.g., “Find the mitten that looks just like this.” Or, "Can you find your other shoe?”). • Provide shape sorters and other materials designed to promote matching.
<u>Older Toddlers</u> Sort objects into two or more groups by their properties and uses.	• Provide pairs of objects and multiples of materials for sorting and classifying. • Model sorting by one attribute (e.g., “red” and “not red,” or “round” and “not round”—or by simply creating a set of the red items and all the round items). • Invite children to sort and organize objects into groups by one attribute (e.g., color, size, shape, function).
<u>Pre-Kindergarten</u> Sort and classify objects by one or more attributes (e.g., size or shape).	• Provide a variety of manipulatives, objects, and natural and found materials for sorting and classifying. • Model sorting and classifying language and conversation to compare attributes in everyday play or group experiences. • Explicitly teach English language learners English shape, size, color, etc., vocabulary, acknowledging that they may know that vocabulary in their home languages. • Invite children to sort and organize collected materials by color, size, shape, etc., and ask them to count to find

	which group has the most. • Use “not” language to help children sort by one attribute (e.g., “These bears are all red, and these bears are NOT red.”). • Provide opportunities within the context of daily routines and play to observe and count children and objects in groups. Examples might include: “How many children are at school?” “How many are at home?” “How many girls are here?” “How many boys?" Expand one-word answers modeling complete sentences (e.g., “Yes, there are 5 girls here.”). • Consider times for choosing and storing toys as on-going opportunities 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 together, dishes together and dress-up clothes sorted by type).
Patterning	
Infants Imitate repeated movements	• Sing and say songs, chants, poems, rhymes and finger plays with simple movements. • Invite baby to attend to and play simple games with movements (e.g., Patty-Cake, Peek-a-Boo).
Young Toddlers Participate in adult-initiated movement patterns.	• Invite children to participate in movement songs and games (e.g., “Wheels on the Bus” or “Where is Thumbkin?”). • Read stories that have movement patterns (e.g., *From Head to Toe*). • Verbalize the pattern sequence in daily routines (e.g., “Off comes the dirty diaper, use a wipe to clean you up and now a brand new diaper! That feels better!”)

Older Toddlers Copy and anticipate a repeating pattern.	• Provide a variety of materials and objects—including natural and found materials—for patterning (e.g., pattern blocks, picture cards, shells, bottle caps, marker lids, etc.). • Point out patterns during daily routines (e.g., as you get ready to go to the playground: "First we fill our bag with toys, then we put on our shoes and coats, then we turn the lights off, then we go out the door and walk to the playground." • Model creating a simple A-B pattern and invite the child to make one that looks the same. • Model creating a simple A-B pattern and invite the child to select what comes next.
Pre-Kindergarten Recognize, duplicate and extend simple patterns using attributes such as color, shape or size. Create patterns.	• Point out patterns in the environment (e.g., tile floors, brick patterns on buildings, patterns on clothing, jewelry, decorations, the sun is out during the day vs. the moon is out at night, etc.) and discuss the features of a pattern. • Provide children opportunities to participate in daily routines (e.g., setting the table for snack, preparing for naptime or clean-up). • Sing, dance, clap, chant and move with children to different rhythmic patterns. Include those that are representative of ethnic and cultural backgrounds of the group. • Model patterning with objects and materials and invite the children to duplicate and extend the patterns, encouraging them to create patterns of their own. Encourage children to verbalize the structure of the pattern. Model/narrate what the child is doing as appropriate. • Provide collections of materials and manipulatives for children to make their own patterns across the curriculum (e.g., art materials, pattern blocks, unfix cubes, attribute blocks, picture cards, buttons, keys, nuts, etc.).
Measurement and Data *Describe and Compare Measureable Attributes*	
Infants	

Explore properties of objects.	• Provide a variety of objects and materials for exploration. • Sing and say songs, chants, rhymes, poems and finger plays. • Playfully direct baby's attention to interesting objects and events. • Play disappearing and reappearing games (e.g., Peek-a-Boo, cover objects with a blanket and uncover). • Model and invite children to explore objects and toys in different ways (e.g., touching, banging, shaking and rolling helps them learn how things work; describe baby's actions, "You got the car to move by pulling the string!").
<u>Young Toddlers</u> Show awareness of the size of objects.	• Provide similar toys and materials in a variety of sizes (e.g., balls, blocks, cars, etc.). • Label objects by size (e.g., "You have the big ball and Jason has the little ball.").
<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.	• Provide toys and materials that can be compared. • Model using comparative language to describe attributes of objects (e.g., bigger, smaller, shorter, taller, etc.). • Sort objects by one attribute (e.g., littlest toy farm animals, long blocks). • Explicitly teach vocabulary to English language learners with visuals and concrete objects.
<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.	• Relate measurement language to children's interests, experiences and prior knowledge versus abstract ideas and data. • Provide a variety of manipulatives and collections of natural and found materials for exploration and comparison of attributes. • Model and encourage the use of comparison language (e.g., bigger/smaller, longer/shorter, heavier/lighter) in the context of daily experiences and play (e.g., "This block feels heavier than that book. I wonder if this block tower is taller than the table." • Provide opportunities for children to sort and classify in the context of daily routines and play (e.g., at clean-up time,

	children sort blocks by size and shape for stacking on the labeled block shelves). • Provide opportunities to describe and compare attributes of objects. • 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. Ask the children to describe how they are sorting and/or ordering the items. • Read stories in which size relationships play an important part and encourage children to represent stories using real objects (e.g., doll house furniture to retell *The Three Bears*). • Invite families of English language learners to visit and read familiar stories like *The Three Bears* in their home languages. • Provide non-standard containers and cups of various sizes in the sensory table to determine how many of the small cups a large container will hold. • Encourage measurement using non-standard measuring devices (e.g., use one-inch Unifix cubes to determine how tall the amaryllis plant is).
Data Analysis	
<u>Pre-Kindergarten</u> Collect data by categories to answer questions.	• Provide interesting materials for sorting and comparing. • Model sorting and classifying language and conversation to compare attributes in everyday play or group experiences. • Invite children to sort and organize collected materials by color, size, shape, etc., and ask them to count to find which group has the most or least. (Intentionally clarify the concepts “most” and “least” for English language learners) • Explore graphing by arranging objects within a floor and/or table graph. • Engage the children in conducting surveys of their peers (e.g., “Do you have a pet?” Or, a more complex survey,

	"What kind of pet do you have?"). • Create graphs to organize data (e.g., graph the outcome of the surveys; the number of children who have a pet and the number of children who do not, etc.). • Model analyzing the graph to answer questions.
Geometry *Spatial Relationships*	
<u>Infants</u> Explore the properties of objects	• Provide a variety of objects and materials for exploration. • Sing and say songs, chants, rhymes, poems and finger plays. • Playfully direct baby's attention to interesting objects and events. • Play disappearing and reappearing games (e.g., Peek-a-Boo, cover objects with a blanket and uncover). • Model and invite children to explore objects and toys in different ways (e.g., touching, banging, shaking and rolling helps them learn how things work; describe baby's actions, "When you pulled the string the car moved!").
<u>Young Toddlers</u> Explore how things fit and move in space.	• Provide manipulatives that can be put together and taken apart (e.g., knob puzzles, shape-sorters, stacking rings, etc.). • Provide opportunities and materials including their own bodies to explore movement in space. • Create a simple obstacle course.
<u>Older Toddlers</u> Demonstrate how things fit together and/or move in space with increasing accuracy.	• Provide more complex manipulatives that can be put together and taken apart (e.g., peg board/pegs, puzzles, shape-sorters, Duplo® blocks, etc.). • Provide a variety of toys with wheels (e.g., vehicles in the block area, riding toys, wagons, shopping carts, etc.). • Engage children in parachute play. • Provide opportunities and materials, including their own bodies, to explore movement in space.
<u>Pre-Kindergarten</u>	• Model and encourage positional vocabulary (e.g., up, down, over, under) in conversation and in the context of

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.	daily routines and play. • 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., *Going on a Bear Hunt, Inside Outside Upside Down*).
Identify and Describe Shapes	
<u>Older Toddlers</u> Recognize basic shapes.	• Provide shape-sorters, knob shape puzzles and other shape manipulatives. • Read picture books like *Shapes, Shapes, Shapes* or *So Many Circles, So Many Squares*. • Go on a "shape hunt" and find examples of common shapes (e.g., circles, squares, triangles). • Encourage play sorting and matching shapes (e.g., pattern blocks, tangrams, cut/laminated paper shapes, etc.).
<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.).	• Introduce and label a wide variety of two and three-dimensional shapes pointing out and discussing distinctive features. • Provide a variety of regularly-shaped materials and manipulatives. • Encourage play experiences sorting and matching shapes. • Listen for children's use of "shape talk" or vocabulary describing two and three dimensional shapes occurring during play (e.g., building in the block center, painting/drawing in the art center). • Provide well-designed learning experiences, learning centers and guided conversations where children explore, predict and reason about geometric ideas (e.g., a "shape hunt" to match a given shape in the classroom environment, continuing patterns with geometric shapes).
Analyze, Compare and Create Shapes	
<u>Pre-Kindergarten</u>	• Model and encourage conversation describing and

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.	comparing the sizes and orientations of two- and three-dimensional shapes. • Encourage children to make and talk about models created with blocks and toys. • Provide two- and three-dimensional shapes for children to explore, questioning where they might find the two-dimensional shapes "in" the three-dimensional shapes. • Watch for shape-making play using a variety of manipulatives (e.g., tangrams, puzzles, pattern blocks) and listen for "shape talk." • Scaffold children's use of descriptive language, modeling mathematical language. • Provide blueprints, architectural models, photographs and other authentic props and engage the children in exploring the presence of shapes. • Provide a variety of art media and materials for children to use to model, construct and draw familiar shapes in the learning environment indoors and outdoors. • Provide materials (pattern blocks, tangrams, geometric solids, etc., appropriate for combining shapes to form larger shapes). • Build shapes using sticks, clay or other materials.

Social Studies **Self** *Social Identity*	
<u>Infants</u> Show awareness of self and others.	• Mount mirrors on the wall so babies can see their images while lying on the floor. • Call baby's attention to reflection in the mirror, call him/her by name and describe body parts. • Refer to other infants and adults by name, describe their actions (e.g., "Miss Angie is fixing your bottle; it's almost time to eat!" or "Jasmine wants to read *Pat the Bunny* with

	us."
<u>Young Toddlers</u> Prefer familiar adults and recognize familiar actions and routines	• Interact with children on their level, making eye contact. • Offer toddlers simple choices. • Pay attention to children's non-verbal cues indicating preferences. • Maintain consistency of care with familiar adults. • Describe what the toddler sees, hears and does. • Acknowledge children's resistance to new situations or people. • Continue to offer familiar experiences, even if child is not interested.
<u>Older Toddlers</u> Identify self and others as belonging to one or more groups by observable characteristics.	• Provide opportunities to group *same* and *different* objects by one attribute. • During conversations, daily routines and play, draw children's attention to similarities (e.g., "You and Dalia are both wearing red shoes today."). • Model and support children as they study their reflections in mirrors, describing features, similarities and differences (e.g., hair/eye colors, freckles, short/long hair, etc.). • Provide opportunities for children and their families to describe their family compositions. • Invite families to provide a family picture to support the English language learner in describing his/her family or as a non-verbal means of communication. • Determine the cultural make-up of the group and design curriculum experiences and the environment accordingly (e.g., display posters of various cultures, add familiar foods to the dramatic play center and play cultural music). • Explore cultures by having lunch/snack from each culture or invite families to share music, games, languages and dress. • Using photos/pictures or other visuals, talk about the multiple groups/communities in which we live;

	home/family, classroom community, school/center community and neighborhood. • Invite families to provide a family photo, frame and put it on child's cubby space. Talk to the children about their family structures, intentionally using "family words" like brother, sister, grandma or other words specific to the child's family.
History *Historical Thinking and Skills*	
<u>Pre-Kindergarten</u> Demonstrate an understanding of time in the context of daily experiences. Develop an awareness of his/her personal history.	• Construct the daily schedule with the children during class meeting using photos/pictures and words in English and other languages represented in the classroom. • Create an authentic monthly calendar and with the children, record important classroom events and experiences. **NOTE: Rote recitation of months, days and dates is *not* an authentic use of a classroom calendar.** • Model and support children retelling stories with an emphasis on what happened first, next, last. • Review the events of the day during closing circle. • Use words like now, later and next in the context of daily routines and experiences. • English language learners may understand these concepts in their home languages. Invite families to provide the words and correct pronunciation and incorporate them into the context of daily routines and experiences. • Work with families to construct child timelines (e.g., sequence pictures of children from birth to current age). Create a class photo album documenting classroom experiences over time; review regularly to note changes. • Mark and display growth charts in the classroom. • Create and review with each child personal portfolios of children's work samples, photos and other documentation

	to illustrate change over time.
Heritage	
Pre-kindergarten Develop an awareness and appreciation of family cultural stories and traditions.	• Invite families to share objects, visuals, traditions and customs that reflect their heritage. • Invite children to share and celebrate important family events (e.g., births, weddings, new pets or death). • Read books that describe a variety of those family structures, cultures and traditions represented in the learning community. • Invite English language learners' families to share books in their home languages. • Create a learning environment that is reflective of the culture, heritage and ethnicity of the members of the classroom community. • Support families in using technology (e.g., video, web-cams, digital cameras, etc.) to share events, traditions, music and other elements of their cultures.
Geography *Spatial Thinking and Skills*	
Pre-Kindergarten Demonstrate a beginning understanding of maps as actual representations of places.	• Read children's literature selections about places, locations and directional concepts (e.g., *Rosie's Walk*). • Provide photographs, maps, architectural drawings, signs and logos and other representations of familiar places in the blocks and dramatic play areas. • Plan a scavenger hunt using maps of the classroom, school and playground. • Invite the children to create maps in the context of meaningful experiences and play (e.g., create a treasure map; make a map of the building to guide parents coming for a class party).
Human Systems	
Pre-Kindergarten Identify similarities and differences of personal, family and	• Invite children to group themselves by a particular characteristic identified by the teacher to build an awareness of similarities and differences. Use props and

cultural characteristics and those of others.	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.). • Invite families to share elements of their cultures and traditions, and explore the similarities and differences. • Provide opportunities for children and families to describe and discuss the similarities and differences of their family compositions. • Describe and discuss the different elements, similarities and differences represented in the learning environment that is reflective of the culture, heritage and ethnicity of the members of the classroom community. • Send home personal photo albums for children and their families to fill with photographs of family members, customs and traditions, pets, etc. Encourage children to share and compare and contrast family characteristics with those of their peers.
Government *Civic Participation and Skills*	
<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.	• Have meaningful conversations about the importance of cooperation in working together in the learning community. Include discussions defining pro-social behaviors like taking turns, helping, sharing, etc. • Acknowledge children when they demonstrate pro-social behaviors; describe the behavior and why it is important to getting along. • Encourage children to identify those jobs and responsibilities that make the learning community function (e.g., feed the class pet, water the plants, help set up snack, etc.) and have each one volunteer to do one of them for an agreed-upon period of time. • Encourage children to form committees to accomplish tasks or be responsible for special events (e.g., the Birthday Committee is responsible for creating a special

	gift to celebrate each classmate's birthday, the Recycle Committee is responsible for making sure the recycle bin is available to collect paper scraps). • Provide opportunities for children to work in pairs and small groups on projects of shared interest. Model and support listening, perspective-taking and negotiation to accomplish a shared goal. • Use appropriate guidance strategies to teach children the process to solve social conflicts: o Approach calmly, stopping any hurtful actions; o Acknowledge children's feelings; o Gather information; o Restate the problem; o Ask for ideas for solutions and choose one together; and o Be prepared to give follow-up support. (High Scope 2013) • Work with individual or small groups of English language learners to model the appropriate ways to solve social conflicts with their limited English skills. Develop teacher cues they can use when they need help; explicitly teach vocabulary, phrases, words they can use; use books that illustrate pro-social behaviors for dialogic reading focusing on related vocabulary; add in role playing as appropriate. • Create an environment that provides opportunities for making choices in everyday experiences and play (e.g., all toys and materials are accessible and available at all times). • Support children in identifying how their choices have consequences (e.g., Alex was so busy in the blocks that she didn't get to the art table and was upset that she didn't have a painting to take home. The teacher explained that she chose to work in the blocks instead of painting. Alex was disappointed, but the teacher assured her she could choose painting in the morning).

Rules and Laws	
Pre-Kindergarten With modeling and support, demonstrate understanding that rules play an important role in promoting safety and protecting fairness.	• Engage the children in a conversation about what is a rule and why rules are important. • Invite parents of English language learners to provide you with some home "rules" that can be used as examples to make the home/language connection to rules at school. • Discuss with the children what cooperation means and listen to their ideas about how they might cooperate. • Engage the children in co-constructing meaningful rules that are necessary to keep everyone safe and support cooperation and fairness. • Gently remind children of the rules when necessary, understanding that it takes time and self-regulation skills to follow the rules all the time. • Use conflict-resolution situations to teach perspective-taking, empathy and problem solving.
Economics *Scarcity*	
Pre-Kindergarten With modeling and support, recognize that people have wants and must make choices to satisfy those wants because resources and materials are limited.	• Discuss the different centers or areas in which the children chose to play. Highlight the idea that not all children chose to play in the same area or with the same materials because they are interested in and like different things. o Provide clipboards with visual organizers and prompts and invite the children to keep track of/document their play for several days. Talk about their findings in class meeting. Discuss what impact this might have on the environment—are more resources necessary? Are things not regularly used? Discuss what might be done. Incorporate the children's ideas into changes in the environment to better satisfy their wants. o Model and support English language learners in using organizers to document their play, and use

	objects, visuals, etc., to engage them in the conversation. • 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. o With modeling and support, engage English language learners with limited English to non-verbally demonstrate solutions; support their learning by narrating what they are doing and encourage English language learners to repeat some of your language. • Problem-solve with the children to generate ideas to ensure that everyone gets a turn in a high-interest area or with a particularly popular material (e.g., sign up on a waiting list, assigning a length of time at the computer). • Ask the children how they might structure snack time so everyone's wants are satisfied (e.g., everyone takes two crackers allowing seconds for those who are still hungry).
Production and Consumption	
<u>Pre-kindergarten</u> With modeling and support, demonstrate understanding of where goods and services originate and how they are acquired. With modeling and support, demonstrate responsible consumption and conservation of resources.	• Plant seeds that are likely to produce a fruit or vegetable (e.g., tomato plant). Harvest the produce and cook something (e.g., spaghetti sauce, ketchup). • With the children using a combination of words and pictures, make a grocery list of items and ingredients needed for a cooking project. Take a trip to the store to purchase the items. • Take a field trip to a farm or orchard to pick produce; use it in a cooking project (e.g., apples for applesauce). • Recycle classroom materials (e.g., paper scraps in the art area, plastic yogurt cups after snack).

Science **Science Inquiry and Application** *Inquiry*	
<u>Infants</u> Examine objects with lips and tongue. Make sure objects are not choking hazards) Observe, hold, smell, touch and manipulate objects.	• Develop a system of toy sanitation that allows children to safely manipulate objects in a variety of ways. • Place objects at varying distances and positions within infants' reach. • Maintain an appropriate number and variety of objects and materials, rotated regularly as infants' abilities and familiarities with objects change. • Ensure toys and materials are accessible for mobile and non-mobile children. • Provide items of various textures, colors and patterns appropriate for mouthing.
<u>Young Toddlers</u> Try different things with *(manipulate and test)* objects to see what happens or how things work. Notice and observe the surrounding physical and natural world.	• Provide sensory activities with a variety of objects, materials and tools for manipulation and exploration (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). • Encourage and model playing "kitchen band" items to strike, shake, pound, etc. Identify objects and verbalize actions to build vocabulary. • Offer items that require use of both large and fine motor skills. • Introduce and describe new objects and materials and

	invite exploration. • Engage the children in conversations about what is happening in the indoor and outdoor environments. • Encourage children to look out windows. Identify and describe what they see. • Ensure that objects and materials are rotated frequently and are accessible. • Provide a science table or science center with a variety of authentic experiences and meaningful, natural materials to explore (e.g., in the fall, have pumpkin pie pumpkins that are whole and cut apart).
<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.	• Provide extended periods of time for play and exploration. • Offer a variety of natural and found materials for exploration (e.g., rocks, shells, seed pods, soil, leaves, sticks, plants, etc.). • Model and describe making observations of objects or events using explicit vocabulary. • Model asking open-ended questions to stimulate thinking and inquiry. • Encourage children to ask questions about objects, events and other phenomena in the indoor and outdoor environment and scaffold how to act upon these questions to design explorations around these questions. • Invite children to document and discuss their observations through drawing, sketching, sculpting with clay or play dough, writing, etc. • Provide magnifiers, collection jars, shovels and other simple tools to support exploration.
<u>Pre-Kindergarten</u> With modeling and support, engage in scientific inquiry: • Explore objects, materials and events.	• Envision and support children as capable. • Value the process of discovery as supporting scientific learning, even if the process does not seem to be the most efficient • Model and encourage a sense of wonder about nature, the world and science.

• 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).	• Listen to children's questions to guide course of study. • Use the process of webbing with children to expand their thinking, vocabulary and questioning skills. • 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. • Validate all answers whether correct or incorrect as children begin to explore and discover answers. • Create a classroom that maintains a warm, accepting and nurturing atmosphere where all questions are important and investigation and exploration are valued. • Encourage English language learners to express their questions through drawings, gestures, phrases and whatever means available to them to communicate their inquiries and ideas. • Emphasize child-initiated, authentic, first-hand experience and exploration rather than science taught by the teacher. • Create project-based learning opportunities. • Provide learning experiences in many modalities and learning styles. • Keep children actively involved. • Put emphasis on relationships with ourselves (feeling self-assured), with others (sharing and learning from each other), and our world (how we impact our surroundings). • Ensure that children have their own logbooks to record their thoughts and pictures as they work. • Encourage children to ask "How?" and "Why?" questions. Support English language learners comprehension by incorporating words from their home languages for "how" and "why"; use them together. • Encourage children to explore how organisms live and record their observations through a variety of media (e.g., dance, music, stories, poetry, drawing, sketching, charts, graphs, photographs, recorded conversations and

	observations). • Encourage children to use scientific thinking processes: asking questions, gathering evidence to address these questions and making sense of the evidence to understand what is happening. • 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?"). • Support children in their exploration by providing resources, materials, time, opportunities and activities that help children discover solutions and maintain enthusiastic interest. • Plan activities in response to children's ideas that will help them discover solutions. • Encourage children to share their ideas and explanations with others through a variety of means and modalities (e.g., pictures, clay, puppets, log books, show and tell). • Support children's ideas and explanations whether correct or incorrect, and guide them with open-ended questions to discover their own corrections. Model language. • Capitalize on naturally occurring events as opportunities to explore helpful/hurtful actions (e.g., dead fish in the aquarium, size differences among plants, worms on the sidewalk). • Explore ways to improve conditions for living things in and around the classroom through active involvement in care (e.g., taking proper care of classroom pets, constructing and observing activity at bird feeders, tending a garden). • Provide 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). • Allow extended time for in-depth exploration when

	children are engaged in experimentation and discovery. • Provide opportunities, materials and technology (e.g., iPads, digital cameras, computers) for children to record/represent their findings.
Cause and Effect	
Infants Use simple actions to make things happen.	• Provide toys and materials to touch, feel, grasp and move. • Hang a mobile over the diapering area, tie a ribbon to it and let the infant pull on the ribbon to see what happens. • Describe how infant's action made something happen (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, dry pasta) and encourage children to shake or roll to create movement and sounds. • Provide opportunities for baby to initiate movement to indicate desire for continuation of activity.
Young Toddlers Purposefully combine actions to make things happen.	• Provide opportunities and support for children to perform actions repeatedly (e.g., sing repeating songs or perform dances with repeated steps to create different sounds). • Provide or create "pop-up books" and read aloud with individuals and small groups. • Provide toys that produce a response to an action and toys that produce different responses to actions (e.g., rolling balls through differently sized or shaped tubes or tubes that are closed at one end vs. open). NOTE: Toys should NOT BE BATTERY OPERATED to encourage exploration beyond pushing a button. • Model and support exploration and actions to make things happen. • Provide blocks for stacking and tubs and buckets for filling and emptying.

Older Toddlers Demonstrate understanding that events have a cause. Make predictions.	• 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 and explore alternative solutions to problems. • Ask questions such as 'What might happen if…" or "Can you find a way to…?" Encourage children to explore these alternatives using concrete objects. • Describe the effects of an action (e.g., "What are some things that might happen if you don't keep all of the chair's legs on the floor?"). • Place pinwheels in different directions to see which direction makes the pinwheel go the fastest/slowest. • Take two different balls of similar size and have children predict which ball will roll the farthest. • Put water in the sensory table and include funnels, containers and floating/sinking objects of various shapes and sizes.
Earth and Space Science *Explorations of the Natural World*	
Pre-Kindergarten 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). 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.	• Encourage children to use all their senses in exploring the weather (e.g., the sound of thunder, the feel of snow on your face, how the wind pushes against your body, how the temperature changes and how the atmosphere darkens when a cloud moves in front of the sun, etc.). • Provide English language learners with descriptive words with accompanying pictures for them to use to associate the sense response with vocabulary words in English. • Provide children with materials and opportunities to record observations through sketching, writing and drawing. • Before taking nature walks to address children's questions about changes in the environment ask the

	children: “What do you think we might see?” “What kind of things should we collect?” After the nature walk discuss what happened, compare to predictions, examine collections, etc. • Infuse environmental responsibility *in all aspects* of the curriculum. • Reuse and recycle materials in the classroom. • Engage children in projects to help the environment, such as playground clean-up. • Conduct experiments to illustrate helpful and harmful actions and the impact on the environment (e.g., place lunch napkins in a large jar of clean water, put the lid on and observe and document what happens to the water over time). • Use children’s literature selections in languages representative of the group, with high-quality illustrations or photographs that have simple language to teach stewardship and environmental consciousness. • Using high-quality pictures or photographs, make monthly graphs of weather conditions (sunny, cloudy, snowy, rainy). Be sensitive to those children who may never have experienced snow. • Provide opportunities for shadow play using both natural and artificial light. • Initiate discussions, sorting, and graphing or charting activities done during night and day. • Provide flannel board activities and puzzles of things to do at night and during the day. • Play recorded sounds of day and night so the children can dance, move or draw to them. • Track movement of the sun by placing an object on the window and map the movement of the shadow throughout the day. • Walk/hike to different locations to see how the sun moves/changes. • Display maps of the night sky.

	• Encourage children to observe the moon with their eyes, binoculars and telescopes and record moon phases. • Take the children on field trips to a planetarium or observatory. Before the trip, using photos, videos, etc., explain what a planetarium and observatory are and introduce relevant vocabulary to make the trip meaningful. • Collect 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).
Physical Science *Explorations of Matter and Energy*	
<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.	• Provide parts of familiar objects for children to identify (e.g., knob from dresser; pedal from bicycle). • Provide many different sensory experiences in the classroom (sensory table, feely box, sound identification games, smell identification games, film canisters with items inside). • Create simple machines from classroom and found materials to explore motion (e.g., lever, wheel and axle, pulley, inclined plane, etc.). • Engage in simple cooking experiences to observe solids, liquids, gasses and to watch substances change between the three stages of matter. • Provide different sources of light for exploration (e.g. overhead projector, flashlight). • Provide opportunities to watch snow and ice melt. Note changes and rate of change. Vary with material such as salt. • Provide opportunities for children to discover how things work by taking apart and putting together many different objects (e.g., toy vehicles, old appliances). Introduce new vocabulary, narrate actions and describe objects.

	Encourage children to use new vocabulary. • Provide a variety of purposeful materials in the sensory table, such as soil, sand, clay, cotton, pebbles, rocks, sponge pieces, cups and water. • Provide opportunities for children to explore manipulating their own voices by changing pitch, volume or quality (e.g., talk into different lengths of cardboard tubing, talk with wax paper against lips, talk into a kazoo). • Provide opportunities for children to explore resonance by making sounds with various materials (e.g., compare striking instrumental wood blocks and blocks of wood; using different mallet types such as wood, hard felt, soft felt, sponge, rubber). • Provide materials to explore timbre with different maracas and dynamics with different rattles. • Provide materials for experimenting with water levels in glasses to make different sounds. • Provide opportunities for children to be active explorers of their environment. Give them tools to use such as magnifying glasses, cardboard tubes as viewers, spray bottles to note changes from water, bottomless paper cups to use as sound catchers against ear. • Provide materials for constructing instruments, such as rubber bands strung across a shoebox and empty containers with various fillers (pasta, marbles, rice, stones, etc.). • Be deliberate in supporting English language learners' language development for all explorations, experiments, and sensory experiences. Don't assume they know or understand the words being used. Help them make the connections through formal and informal methods employing photos, pictures, labeling, one-to-one teacher "talks," language peer support, etc.
Life Science *Explorations of Living Things*	

Pre-Kindergarten With modeling and support, identify physical characteristics and simple behaviors of living things. With modeling and support, identify and explore the relationship between living things and their environments (e.g., habitats, food, eating habits, etc.). With modeling and support, demonstrate knowledge of body parts and bodily processes (e.g., eating, sleeping, breathing, walking) in humans and other animals. With modeling and support, demonstrate an understanding that living things change over time (e.g., life cycle). With modeling and support, recognize similarities and differences between people and other living things.	• Provide a variety of living things in the classroom (e.g., gerbils, fish, ants, earthworms, plants) for children to care for and meet their needs, as well as make and record observations about. • Collect leaves (which may be pressed in wax paper or used for rubbings) to make comparisons and sort by size, shape, color, etc. • Explore why leaves might be different (e.g., leaves from deciduous trees vs. pine needles, etc.); then ask children to consider why the different leaf structures exist. • Read and discuss children's books such as *Be Nice to Spiders* (Graham, 1967) to encourage appreciation for living things. • Provide opportunities to explore nature such as taking a bird walk to observe and discuss ways that the environment supports birds. Discuss ways to support the habitat of the birds (e.g., Do the children notice that the birds need a place to perch? To bathe? To exercise? Do different birds need different things?). • Take children on guided field trips (e.g., zoo, children's museum, farm) to demonstrate common needs of living things (e.g., cows on farm eating grass). • Use photographs, pictures, etc. to categorize animals by various needs (e.g., food, habitats). • Cut open fruit/vegetable and plant seeds to identify needs of the plants as the seeds grow. • Explore the ways animals move; compare that to the way humans move. • Using props, photos, videos and observations of real animals, identify body parts and bodily processes; compare characteristics of animals to other animals and to humans. • Provide material for children to experiment with growing plants (e.g., water/no water, light/no light, soil/no soil. • Guide the children in making observations, predictions about the plants and graphs the plants' growth. Invite

	them to document their predictions and observations. • Invite children to choose a tree in the school yard beginning in the fall and observe it daily, record observations, photograph and make pictures throughout the year to document changes. • Provide opportunities for children to taste different flavors and consistencies and make comparisons. • Provide recordings of environmental sounds for children to identify; let children record their own sounds for others to identify. • Provide children with opportunities to grow and prepare healthful foods to reflect sound nutrition practices. • 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.* • Help children develop a rubric for real and not real that they can use when reading stories. • Provide books, pictures, videos, etc., to explore animals and insects that move at night and day. • Take children on a walk outside with an old sock over one shoe then "plant" the sock (moisten sock in a tray) to predict, observe and record what happens. • Provide opportunities for children to explore camouflage (e.g., mammals, reptiles, insects, plants). • Have children bring in family photos to make comparisons of characteristics among family members and children. • Provide opportunities to compare similarities/differences with young and adult animals (e.g., frogs/tadpoles, caterpillars/butterflies, kittens/cats). • Provide opportunities to observe, compare and chart physical differences of people (eye colors, hand sizes, heights, etc.), animals (number of legs, body coverings), and plants (colors, heights, types of leaves). • Explicitly teach vocabulary, phrases, and model asking and answering questions for English language learners

	for all concept areas of exploration, so they can be actively engaged in the whole learning process, not just the hands on and observation portions. Extend vocabulary beyond the "moment" for re-enforcement. Words common to native English speakers are not necessarily in the language "bank" of English language learners.

Support for Differentiation

1. Accept children's approximations and attempts and elaborate/expand on these as appropriate.

2. Scaffold each learner in his zone of proximal development.

3. Use assistive technology when appropriate. Assistive technology is technology used by individuals with disabilities in order to perform functions that might otherwise be difficult or impossible. For more information on specific strategies visit: http://www.newton.k12.ks.us/at/examples.htm).

4. Resources based on the *Universal Design for Learning* principles are available at www.cast.org.

Support for English Language Learners

- Use multimedia such as videos, pictures and concrete objects to create connections with vocabulary words.
- Use gestures and body language.
- Speak slowly and enunciate clearly. Do not raise your voice.
- Repeat information and review. If a child does not understand, try rephrasing in short sentences and simpler syntax.
- Try to avoid idioms and slang words.
- Try to anticipate words that might be unfamiliar and give explicit meaning to them.
- Make use of the excellent language learning that occurs among children by supporting play and small-group activities.
- Show children how much you enjoy them and appreciate their efforts to learn a new language.

Adapted from Cecil, N.L. (1999) *Striking a balance: Positive practices for early literacy*. Scottsdale, AZ: Holcomb Hathaway.

Resources:
Preschool English Learners: Principles and Practices to Promote Language, Literacy and Learning. California Department of Education. http://www.cde.ca.gov/sp/cd/re/documents/psenglearnersed2.pdf.

Guidelines for Addressing the Needs of Preschool English Language Learners. Ohio Department of Education, Lau Resource Center. http://education.ohio.gov/getattachment/Topics/Special-Education/Limited-English-Proficiency-(1)/About-the-Lau-Resource-Center/Guidelines-for-Addressing-the-Needs-of-Preschool-English-Language-Learners-(1).pdf.aspx.

Principles of Second Language Development. Ohio Department of Education, Lau Resource Center. http://education.ohio.gov/Topics/Other-Resources/Limited-English-Proficiency/Research/Principles-of-Second-Language-Development-in-Teach#.Ukm8lvkzFC8.gmail.

McGlothlin, Barry (1995). *Fostering second language development in young children: Principles and practices.* http://www.escholarship.org/uc/item/23s607sr#page-1.

Espinosa, L. (2008). Challenging common myths about young English language learners. The Foundation for Child Development. http://fcd-us.org/sites/default/files/MythsOfTeachingELLsEspinosa.pdf.