A. Counting Skills

By around 48 Months of Age	End of Prekindergarten Year Outcomes	Examples of Child Behaviors	Examples of Instructional Strategies
Child identifies objects.	**V.A.1.** Child knows that objects, or parts of an object, can be counted.	***The child:*** • places objects to be counted in a row and begins counting. • says that the number of polka dots in a picture can be counted.	***The teacher:*** • models objects that can be counted, such as items inside or outside in nature. • uses puppet narrative to explain when items should be counted, such as in The Three Little Pigs, saying, "Let's count the pigs." • models when to count to determine if there are enough materials for an
Child recites number words in order up to 10.	**V.A.2.** Child uses words to rote count from 1 to 30.	***The child:*** • recites number words in order up to 30. • recites number words in order by starting from a number other than "1".	***The teacher:*** • models counting out loud by starting with the number 1. • models counting out loud by starting with a number other than 1. • incorporates counting into everyday activities, such as counting songs and physical activities.
Child counts up to 4 objects with one count per item.	**V.A.3.** Child counts 1–10 items, with one count per item.	***The child:*** • moves, touches, and/or points to each object while counting, using one to one correspondence (one count per item). • knows that each finger represents one count (such as 2 fingers represent two counts and 3 fingers represent three counts).	***The teacher:*** • provides a variety of objects that can be used for counting. • questions child's understanding of quantity by asking, "How many do you have?" • uses a puppet to model correct counting of individual objects.
Child identifies items that can be counted	**V.A.4.** Child demonstrates that the order of the counting sequence is always the same, regardless of what is counted.	***The child:*** • demonstrates the counting sequence when counting does not change (When counting a set of 3 bears, counts 1,2,3. . . ; then when counting 3 monkeys, counts 1,2,3.. .). • counts leaves on the ground, number of grapes on tray, or number of children in library center. • demonstrates counting sequence using puppets. • sings a counting song without support, for example, "1 little, 2 little, 3 little children."	***The teacher:*** • provides a variety of objects (cubes, bears, shapes, etc.) and teaches that the counting sequence remains the same. • uses puppets to demonstrate that counting always proceeds in the same sequence. • provides tools to help child organize number sets such as egg cartons cut to hold a specific number of eggs (a 4-egg carton holding 4 plastic eggs). • models counting songs throughout the day.
Child counts up to 4 items, and demonstrates understanding that the last count indicates how many items were counted.	**V.A.5.** Child counts up to 10 items and demonstrates that the last count indicates how many items were counted.	***The child:*** • counts 8 plastic cows and says, "I have 8 cows." • counts the number of children in a center and says, "Three of my friends are here." • counts the number of balls on the playground. • counts children eating apples during snack. • counts fingers and says, "I have 5 fingers."	***The teacher:*** • questions children while they count (asks, "Ian, how many do you have now?" or "How many apples are there?"). • uses a puppet to model counting children in a small group. • asks children to repeat and emphasize the last number said when counting. • plays games in which children demonstrate that the last count indicates the number in the game. • provides opportunities for children to count and state the last number.
Child begins to understand that items can be counted.	**V.A.6.** Child demonstrates understanding that when counting, the items can be chosen in any order.	***The child:*** • counts 2–10 objects in different orders (such as left to right, right to left, top to bottom, and bottom to top). • counts objects that were placed in a container and dumped to form a set of randomly placed items on the table. • counts the same pile of items on a table in more than one order.	***The teacher:*** • models counting of objects in different orders by using a puppet (puppet starts counting from right to left then counts left to right, etc.). • encourages children to count objects (such as bears or buttons) in different arrangements (vertically, horizontally, straight). • provides opportunities to play games such as bean bag toss, popcorn, etc. during which tossed objects are to be counted. • models counting strategies (moving the object after it is counted, placing objects in several rows, etc.) to show that items can be counted in different order. • shows children that a collection of objects can be lined up in a row and then counted.

A. Counting Skills

By around 48 Months of Age	End of Prekindergarten Year Outcomes	Examples of Child Behaviors	Examples of Instructional Strategies
Child demonstrates proper use of the word "first."	**V.A.7.** Child uses the verbal ordinal terms.	***The child:*** • uses ordinal numbers (first, second, third, fourth, fifth) to count objects. • tells a friend, "You're first in line. I'm second. John is fourth." • identifies in games who was in first place, second place, etc. • uses ordinal numbers to describe the order of what happened in a short story, including the "next" and "last" event in the story. • uses ordinal terms to describe sequence of daily activities (describes daily schedule). • points to card when asked, "Which card is fourth?" "Which card is fifth?"	***The teacher:*** • demonstrates and uses the verbal ordinal terms using varied contexts, such as games, standing in line, etc. • emphasizes who is first place, etc., in a game. • reads stories to children that provide a clear sequence of events (such as The Three Bears), using questions to engage the children in summarizing the story ("What happened first?" "What happened second?"). • models opportunities to use ordinal terms throughout the day such as lining up and sitting at the lunch table.
Child verbally identifies without counting the number of objects from 1 to 3.	**V.A.8.** Child verbally identifies, without counting, the number of objects from 1 to 5.	***The child:*** • looks at a set of 1–5 objects and quickly says the number of objects without counting (looks at 3 red cubes on the table and says three without counting). • looks at two separate groups of objects without counting and says which group has more, less, or equal numbers. • uses the words "equal," "more." "less," or "fewer" to describe sets of up to 5 objects. • says the number of dots on one side of a domino when shown quickly. • looks at a page in a story and says the number of dots, animals, or objects on the page. • points to 4 blocks and says, "There are 4 blocks" without counting.	***The teacher:*** • provides games that involve rapid responses to small sets of objects, such as using cards with 1–5 dots to play "Go Fish." • shows, briefly, a set of cubes and has the children say the number represented. • shows, briefly, half of a domino and has the children decide what number is shown. • provides opportunities to compare sets of up to 5 objects. • asks, "Which set has more? Which set has less?" when showing 2 sets of objects. • provides a set of objects and has the children make a set with the same number, or 1 more or 1 less. • provides 2 groups of cubes and asks, "How many cubes are in each group?" Then, "Do these have the same number in each set?"
Child recognizes one-digit numerals 1–4.	**V.A.9.** Child recognizes one-digit numerals, 0–9.	***The child:*** • says the number name for numerals from 0 to 9 that are written on paper, cards, game pieces. • hop scotches the number of times indicated by a written numeral. • separates cards that have printed numerals from other cards with printed letters. • plays games to find "hidden" numerals in the classroom, such as "I Spy."	***The teacher:*** • tells children the difference between letters and numerals. • provides opportunities to play games that use numeral cards, numbered pieces, or dice with numerals 0–9. • engages children in looking through print items to locate numerals 0–9.

B. Addding to/Taking Away Skills

By around 48 Months of Age	End of Prekindergarten Year Outcomes	Examples of Child Behaviors	Examples of Instructional Strategies
Child understands that adding one or more concrete objects to a set will increase the number of objects in the set.	**V.B.1.** Child uses concrete objects, creates pictorial models and shares a verbal word problem for adding up to 5 objects.	***The child:*** • creates verbal word problems (tells a story) involving adding. • uses a five frame to organize work. • shows 1 finger, then adds 3 more, and adds 1 more to create a set of 5. • shows joining (adds) 1 more cube to a set (up to 5). • plays number games like "Chutes and Ladders." • says how they used adding one more object to solve a problem. • shows joining/adds up to 5 with two and three sets (addends). • counts all objects from the sets that are being joined. (such as having a set of two cubes and three cubes and counting the cubes starting with 1, then, 2, 3, 4, 5 to count all cubes. • counts on from a larger set from the sets that are being joined (such as having a set of two cubes and three cubes and counting the cubes starting with 3, then 4, 5, and counting on).	***The teacher:*** • models word problems such as, "There is 1 bear in a cave. Then 2 more bears walk in the cave. If 1 more bear walks into the cave after them, how many bears are in the cave altogether?" • uses fingers to show children how to put together an addition problem (holds up 2 fingers, adds 1 more finger to show 3,and then adds 1 more finger to show 4). • sets up a row of objects and asks child to devise a story using the objects. • models addition using a set of objects (such as using counters to put together a 2 set addition problem - showing 2 counters and adding 1 more counter to show 3). • extends to the use of joining three sets (such as using 2 fingers, then adding 1finger, and 2 more fingers to show a set of 5) • plays board games with children during center time. • models and demonstrates the use of a five frame to organize their work. • incorporates number games and finger plays that show addition.
Child understands that taking away one or more objects from a set will decrease the number of objects in the set.	**V.B.2.** Child uses concrete models or makes a verbal word problem for subtracting 0–5 objects from a set.	***The child:*** • creates verbal word problems involving subtraction. • separates the parts of a number, for example: starts with 4 fingers, then takes away 1 finger to show 3 are left, and then takes away 2 fingers to show 1 is left. • removes objects from a set and says what is left. • says how they used subtraction to take away from a set of objects. • uses a five frame to organize her work.	***The teacher:*** • models simple word problems, such as "If I have 4 cars and I take 2 away, how many will I have left? "And if I take away 1 more car, how many will I have left?" • uses fingers to show children how to take away for a subtraction problem (holds up 3 fingers and then takes away 1 to show 2 are left and then takes away 1 more finger to show 1 is left). • models subtraction using a set of counters (teacher shows 4 counters and takes away 2 to show 2 are left and then takes away 1 more to show 1 is left). • models and demonstrates the use of a five frame to organize work. • incorporates number games and finger plays that show taking away.
Child identifies two groups of objects placed side-by-side as being equal or non-equal.	**V.B.3.** Child uses informal strategies to separate up to 10 items into equal groups.	***The child:*** • uses informal strategies to produce divvy-up fair-sharing opportunities (takes away 1 item at a time to distribute equally among 2 friends). • trades several small items or sets for a larger one (4 small Tootsie Rolls that appear equal to 1 long Tootsie Roll). • demonstrates sharing up to 10 items with a friend. • uses language associated with fair- sharing/separating into equal amounts: "one for me," "one for you." • acts out literature that shows sharing items. • uses a ten frame to organize work.	***The teacher:*** • demonstrates fair sharing between 2 children by dividing 1 long Tootsie Roll into smaller pieces. • models and observes children using fair share strategy (the child is given a set of objects and is told to share. The child divides the set saying, "one for you, one for me" in order to fair share.). • uses literature that includes stories about children sharing items. • has a child "helper" provide each child in the class a certain number of buttons, such as for a class art project. • encourages children to share items when shown a set of objects. • encourages children to share a set of hidden objects covered with a piece of paper. The child then takes the objects one at a time and shares them with a friend. • demonstrates how to divide into equal parts by taking a container of popcorn and dividing the popcorn into smaller containers.

C. Geometry and Spatial Sense Skills

By around 48 Months of Age	End of Prekindergarten Year Outcomes	Examples of Child Behaviors	Examples of Instructional Strategies
Child recognizes common shapes.	**V.C.1.** Child names common shapes.	***The child:*** • identifies shapes using her sense of touch when blindfolded ("This shape has 4 sides. It's a square."). • identifies common shapes, such as circle, square, rectangle, and triangle. • knows the number of sides and corners for shapes, such as square, rectangle, triangle. • describes attributes of shapes using his own language. • uses mathematical vocabulary to describe shape pictures ("This triangle has 3 sides and 3 corners."). • identifies common solids informally as balls, boxes, cans, and cones, then possibly using more formal language, sphere, cubes, cones.	***The teacher:*** • teaches names of common shapes (circle, square, triangle, rectangle) when showing pictures or in the classroom environment. • uses hiding games or scavenger hunts for children to locate shapes. • uses common objects to model shapes, such as paper plates, placemats, clocks, etc., in dramatic play center. • provides opportunities for children to identify shapes both among various shapes on a table, and identified in real life settings (playground, etc.). • encourages children to use the attributes of shapes to describe artwork ("My car has a door with 4 sides.").
Child manipulates shapes using fine and gross motor skills.	**V.C.2.** Child creates shapes.	***The child:*** • puts together shapes to make real-world objects and other shapes (using a square and a triangle to make a house). • breaks apart shapes to make real-world objects and other shapes (cutting a house picture into a triangle and a square). • creates new shapes by putting together 2 or more shapes to make a new shape (2 triangles together make a square). • uses mathematical vocabulary to describe shapes pictures ("This house has 4 sides and 4 corners."). • puts together or breaks apart solids to make real world objects and other solids (a sphere and a cone make an ice cream cone). • creates shapes by using puzzle pieces.	***The teacher:*** • provides shapes (manipulatives or construction paper) that children can combine (a triangle and a square make a house). • provides materials to make shapes such as play dough and toothpicks. • models a variety of solids to manipulate (play dough and toothpicks, using the play dough to identify the corners and the toothpicks to identify the sides). • models appropriate language to describe shapes ("This square has 4 sides and 4 corners."). • encourages children to use appropriate mathematical language to describe shapes. • provides a variety of solids to manipulate. • takes children outside to identify solids in nature (seeds as spheres).
Child begins to use language to describe location of objects.	**V.C.3.** Child demonstrates use of location words (such as "over," "under," "above," "on," "beside," "next to," "between," "in front of," "near," "far," etc.).	***The child:*** • uses "near" and "far" to describe play on the playground and in the classroom. • follows directions (places a stuffed animal "on," "around," or "under" a chair). • follows directions when playing games like "Follow the Leader." • tells a friend where to find the writing paper in the writing center ("The paper is in front of the markers."). • acts out stories, poems, and nursery rhymes using positional words.	***The teacher:*** • models positional words using a puppet (puppet places a small object on a child's knee). • sings songs about positional words ("Hokey Pokey"). • provides games and/or activities that involve placing objects in certain locations (a chair and a teddy bear). • plays games like "Follow the Leader" with the children. • encourages children to use positional words to describe where things are in the classroom. • reads stories and identifies positions of characters and objects.
Child moves objects during informal play.	**V.C.4.** Child slides, flips, and turns shapes to demonstrate that the shapes remain the same.	***The child:*** • recognizes that a shape stays the same across various orientations (sliding, flipping or turning a geoblock shape on a table). • slides a triangle from one place to another and says that the triangle is the same ("Look, my triangle is the same here and here.") • turns over a shape (flips) to show that it is the same (turns over a square and says, "This is a still a square."). • turns a triangle geoblock clockwise or counterclockwise and says that the triangle is the same shape.	***The teacher:*** • models sliding, flipping, and rotating to show that the shape remains the same. • engages children to make shapes with hands or legs (2 children sit down and join feet to make a square on the floor). • engages children in games that involve moving shapes (children move their own shape game piece around a game board).

D. Measurement Skills

By around 48 Months of Age	End of Prekindergarten Year Outcomes	Examples of Child Behaviors	Examples of Instructional Strategies
Child understands that lengths of objects can vary and be compared.	**V.D.1.** Child recognizes and compares heights or lengths of people or objects.	***The child:*** • tells who is taller when comparing the height of 2 or more friends. • places 2–10 objects from shortest to tallest or tallest to shortest on the table. • uses measurement words that can describe height ("taller," "shorter," "longer," "smaller"). • draws 2–10 objects or people of varying heights or lengths (draws her family and has a taller person as Mom and a shorter figure as herself). • uses building blocks to show that 1 long block can be made up of 2 or more smaller blocks.	***The teacher:*** • compares the height of children by measuring each child on a height chart in the classroom. • uses measurement vocabulary for height ("Children, who is taller, Bob or Susie?"). • encourages children to draw objects and people varying in height or length ("Today, boys and girls in the art center, paint a picture of your family."). • models that 1 long block can be made up of 2 or more smaller blocks. • uses non-standard units of measure including everyday objects to measure length (links, paperclips, inch worms, etc.).
Child begins to recognize how much can be placed within an object.	**V.D.2.** Child recognizes how much can be placed within an object.	***The child:*** • compares the amount of space occupied by objects (places a small block on top of a longer block to determine which occupies more space). • demonstrates capacity using sand and water (at the sand and water table fills containers with sand or water). • compares capacity of containers by size (fills 2 or more different sized containers-cup, quart, etc.-places them from the largest to the smallest or the smallest to the largest). • arranges tea cups in the dramatic play center from smallest to largest or largest to smallest.	***The teacher:*** • asks children to place smaller cups into larger ones. • encourages children to predict how many buckets of water are needed to fill the fish tank. • guides and questions children using sand and water to determine which containers hold more or less ("Which of these holds the most sand?" "Which of these holds the least sand?" "How do you know?" "Show me how you can compare these two containers to see how much they hold?").
Child understands that weights of objects can vary and be compared.	**V.D.3.** Child informally recognizes and compares weights of objects or people.	***The child:*** • uses a rocker balance or see-saw scale to determine heavy and light objects or objects of equal weight. • uses hands to compare weight of objects (holds pumpkins of various sizes and says which is heavier or lighter). • describes which weighs more using mathematical terms (heavy, light, more than, etc.). • compares weight of self with weight of other objects, such as dolls, stuffed animals, etc. ("I am heavier than my doll.").	***The teacher:*** • models using a balance scale to compare items (places 2 bears in 1 bucket and a handful of cotton balls, asks "Which weighs more?" and records the children's answers.). • provides children objects of differing weights to compare and asks, "Which weighs less?" "Which weighs more?" and records answers on charts. • models using comparison words like heavier, lighter, more than, etc. • encourages children to explain which items are heavier or lighter ("Which is lighter, this feather or your toy car?" "How do you know?").
Child shows awareness of the passage of time.	**V.D.4.** Child uses language to describe concepts associated with the passing of time.	***The child:*** • describes the daily schedule by telling what happens next in the day. • talks with friends about what happened yesterday, what is happening today, and what might happen tomorrow. • associates time language to describe events of the day ("in the morning," "after snack," "tomorrow," and "yesterday"). • uses the terms "faster and slower" to describe time or motion.	***The teacher:*** • engages children in "daily news" dialogue and records today's, tomorrow's, or yesterday's events. • discusses daily schedule using terms like "before lunch we will. . . "; "after recess today we will have a visitor," etc. • encourages children to make a class book about experiences that happened in the past. • encourages play that demonstrates faster and slower, such as races at recess. • engages children in activities that can be used to directly compare how long events occur ("How long does it take to listen to a song on a CD?" "How long does it take to eat my snack?").

E. Classification and Patterns Skills

By around 48 Months of Age	End of Prekindergarten Year Outcomes	Examples of Child Behaviors	Examples of Instructional Strategies
Child sorts objects that are the same and different.	**V.E.1.** Child sorts objects that are the same and different into groups and uses language to describe how the groups are similar and different.	***The child:*** • puts all the cars in a box and all the trucks in a different box and says why. • organizes objects with a common attribute (all the tigers in a pile and all the giraffes in another pile and says why). • organizes blocks in the construction center according to shape and size and explains same and different. • sorts a variety of objects (fruits and vegetables, vehicles, animals, etc.) and tells why. • sorts objects into groups and explains bases of grouping.	***The teacher:*** • models and discusses attributes of objects (size, colors, types, etc.). • asks child to sort a variety of materials for classification (bears, shapes, buttons, vehicles, toys, etc.) and records their classification decisions. • models sorting and labeling groups of materials (sorts and labels the red and blue fruits). • prompts children to describe why materials are sorted into specific groups ("Why did you put all these together?" "Why did you put these here?" "How are these the same or different?"). • asks children to describe why materials are sorted into groups ("Why did you put all these together?" "Why did you put these here?" "How are these the same or different?"). • uses cleanup activities to sort where center items are to be placed.
Child recognizes that data can be organized into a graphic representation.	**V.E.2.** Child collects data and organizes it in a graphic representation.	***The child:*** • places concrete objects or picture representations on a floor graph (uses an apple or orange to show his favorite fruit). • answers question of the week ("Do you have a cat?") and places a check on the yes or no graph. • compares data on graphs or charts (e.g., talks about the class-made graph showing how children get to school-walk, car, bus, vans-"Look Juan walks to school. See his name is here."). • uses mathematical language to describe data (more, less, same, longer, shorter, etc.).	***The teacher:*** • models and discusses the information collected ("Who wore the same shoes to school today?"). • encourages comparing; records information (records child saying, "Our class eats more fruits than vegetables!" etc.). • models and discusses the information collected on charts and graphs ("Which flavor of ice cream do most of you like?"). • models the use of tally marks to record data. • models the creation of a real-object or picture graph.
Child begins to recognize patterns.	**V.E.3.** Child recognizes and creates patterns.	***The child:*** • identifies repeating patterns in nature. • recognizes and creates patterns in clothing, carpeting, or other patterns in the classroom (polka dots, squares on carpet). • contributes pictures for the pattern class book (cuts out pictures for the pattern class book). • uses different materials (buttons, beads, color cubes) to create pattern necklaces (2 buttons, 2 beads, 2 buttons, 2 beads). • recognizes repeating patterns in a predictable book and says the next line before turning the page. • creates a repeated pattern using different color blocks.	***The teacher:*** • creates pattern sounds and physical movement for the children to imitate (clap, stomp, clap, stomp. . .). • uses beads and/or other objects to demonstrate patterns and asks children to describe the pattern. • models and allows children to create repeated patterns with the children (interlocking cubes make A,B,A,B and AA,BB,AA,BB and ABC,ABC patterns). • reads literature to children that contains obvious repetitive patterns. • asks children to describe a pattern using manipulatives (a tower made of alternating yellow and red cubes can be presented with questions to prompt children to describe the repeating color pattern.)