



Montessori Academy of Owasso

Preparing Our Children to Change the World

Math

Montessori Scope and Sequence for a Primary Classroom (ages 3.5 - 5)

<u>Sub Category</u>	<u>Lesson</u>	<u>Description</u>	<u>Element</u>
Concept Development	Understanding More, Less, Same	In this activity the child is presented with objects separated into two piles and asked about one of the piles. Does it have more objects, less objects, or is it the same as the other pile?	Understands and appropriately applies the terms "more" "less" and "same"
Concept Development	Pattern Blocks	This material consists of wooden blocks representing various geometric shapes and patterns that form a simple picture. The child arranges the corresponding wooden blocks into the pattern to form the picture.	Completes a picture with the pattern blocks
Concept Development	Various Colors of Discs on Vertical Dowels	This material consists of wooden puzzles of objects ordered by size. The child works with the puzzle to arrange the pieces according to their size (largest to smallest or smallest to largest).	Element 1. Places objects in order from largest to smallest. Element 2. Places objects in order from smallest to largest.
Concept Development	Sorting By Size Activities	In these activities, the child learns to sort objects according to their size. The sorting objects vary, but may include items such as blocks or cut out shapes in varying size. The child is asked to sort the objects into groups of the same size.	Sorts items according to size
Concept Development	Counting Songs and Fingerplays	In these activities, the child learns to count things like fingers and items in the classroom as part of a song.	Participates in counting songs and fingerplays
Concept Development	Early "Counting" Activities	In these activities, the child is asked to do an action a certain number of times. For example, "Hop two times" or "Tap your nose 3 times."	Element 1. Correctly completes an action TWO times. Element 2. Correctly completes an action THREE times. Element 3. Correctly completes an action FOUR times.
Concept Development	One-to-One Association	One-to-one association activities reinforce the concept that in counting, a single number is associated with a single item. When counting items, the child touches each item and says the numbers out loud, counting in order. For example, if the child is counting red circles, the child touches the first circle and says, "One." She touches the second circle and says, "Two."	Element 1. Correctly counts with 1-1 association up to 5. Element 2. Correctly counts with 1-1 association up to 10. Element 3. Correctly counts with 1-1 association higher than 10.
Concept Development	Ordinal Numbers (1st, 2nd, 3rd)	In this activity, children learn the concept of ordinal number words as items are arranged in a sequence and described as 1st, 2nd, 3rd, 4th, and 5th.	Understands and appropriately applies ordinal number words.

Decimal System: 0 to 10.	Red and Blue Number Rods 1 to 10	Red and blue segments equally add up to 1 meter. Each rod displays alternate decimeters. This activity helps the child to construct an understanding of the quantities of 1 to 10. Building on an understanding of length gained from the red rods, the child orders the rods from shortest to longest. This gives students concrete visualizations of numbers and their relative amounts. For example, the number 4 is not seen in isolation as a symbol, but instead is visualized as 4 units on a number rod that is one unit more than the 3-rod and one unit less than the 5-rod. As each "unit" on a rod is 10cm long, this materials also provides an indirect preparation for measurement using the decimal system.	Counts to 10 by units using the red and blue number rods.
Decimal System: 0 to 10.	Sandpaper Numerals 0 to 9.	The sandpaper numerals are wooden tablets on which each of the number from 0 to 9 are printed using sandpaper. The children trace the numerals to develop an impression of how they are written out. The initial goal is to learn to recognize the shape and name of each numeral.	Recognizes numerals from 0 to 9 using the sandpaper numerals
Decimal System: 0 to 10.	Red and Blue Number Rods and Numeral Cards	The second step with the red and blue number rods is to label them with the correct numeral for each number 1 to 10.	Associates the numeral to the quantity using the red and blue number rods and numeral cards.
Decimal System: 0 to 10.	Spindle Boxes 0 to 9	A long wooden box is sectioned into 10 slots. The child places the appropriate number of spindle rods into the numbered slot. The range is from 0 to 9. The concept of 0 as an empty set and the understanding that zero means 0/0 is introduced in the spindle boxes. Beginning set theory is developed with this material. This also reinforces the correlation between quantity and numeral while introducing the concept of zero.	Element 1. Counts to 9 by units using separate units with the spindle boxes. Element 2. Shows an understanding of zero as an empty set. Element 3. Represents individual spindles as sets by binding them together with a rubber band to form a set of 2, 3, etc,
Decimal System: 0 to 10.	Numeral Cards and Counters: 1 to 10.	This activity combines the sequencing of numerals 1 to 10 with an understanding of quantity as the child associates individual quantities with each numeral. The process of aligning counters to cards helps the child refine an understanding of the relationship between counting and cardinal numbers.	Element 1. Counts to 10 by units using cards & counters when cards laid out by teacher. Element 2. Lays out number cards in correct sequence independently and places correct number of counters below each number card.
Linear Counting: 0 to 100	Colored Short Bead Stair: 1 to 9.	The colored short bead stair represents each quantity from 1 to 9 by a set of that number of colored beads with a specific color used for each number. This material is geared towards speeding up counting for future work in math and skip counting with the bead chains. These colors remain consistent throughout the Montessori classroom. For example, the 1 bead is red, 2 is green, 3 is pink, and so on. Eventually the child will readily recognize the quantity by that color.	Associates quantities 1 - 9 with the bars of the Colored Bead Stair.

Linear Counting: 0 to 100	Ten Bead Bars and Colored Short Bead Stair: 11 to 19	The ten bead bars are used in association with the colored bead stair to introduce the concept of teen numbers. In this lesson, the child is introduced to the vocabulary of teen numbers: eleven, twelve, and so on.	Constructs, identifies, and names the quantities from 11 to 19 by using the Golden Bead Ten Bars and the Colored Bead Stair.
Linear Counting: 0 to 100	Teen Boards	On the Teen Boards, the number 10 is printed in the nine spaces created by the frames. The child arranges the number cards from 1 to 9 in order, and slides them into the frames creating the numbers 11, 12, 13, and so on through 19. The next step is for the child to construct each number from 11 to 19 using the Golden Beads.	Element 1: Constructs and names the numbers 11 to 19. Element 2. Associates quantities and numerals from 11 to 19 using the Teen Boards and Golden Beads
Linear Counting: 0 to 100	Tens Board and Golden Beads: Names for Tens	Using the tens board and golden bead ten bars, children are introduced to the names and symbols of tens quantities: ten, twenty, thirty, etc. In this lesson, the child sees the 3 ten bead bars as well as the written 30 and learns to think of the '-ty' sound as meaning "number of tens." Therefore, "eight-ty" means eight tens, and so on.	Constructs, identifies, and names the quantities from 10 to 90 using correct names and the Golden Bead Ten Bars
Linear Counting: 0 to 100	Tens Board and Golden Beads: 11-99	The child counts from 11 - 99 using the tens board and beads. Each time the child needs to add one to nine, the nine beads are replaced with a ten bar, and the beads are moved down to the next "ten."	Element 1: Associates quantities with numerals, using correct names, 1 - 99, by using the ten boards, golden bead ten bars, and golden unit beads. Element 2. Identifies that 1 more than 9 takes the number to the next 10.
Linear Counting: 0 to 100	The Hundred Board	The 100 board is a square, wooden board with 100 square tiles . The child counts from 1 to 100 as he places the numeral tiles onto the board, 10 in each row. This concept reinforces the counting of 1 to 100 without any color coding. It also leads to recognizing patterns in numbers, such as counting by 10s.	Element 1. Counts from 1 to 100 by units recognizing the printing numerals. Element 2. Recognizes vertical and diagonal patterns on the board.
Linear Counting: 0 to 100	The Hundred Chain	This activity is a chain made up of ten individual 10 bead bars linked together. Students work with color coded arrows to indicate the various units as they arrange and count the beads from 1 - 100. This work also introduces the child to skip counting by 10s.	Element 1. Counts from 1 to 100 by units recognizing the printing numerals on the number arrows. Element 2. Counts from 1 to 100 by tens, using the blue arrows
Operations: Static Addition	Red and Blue Number Rods: Addition	Children are introduced to the concept and language of simple addition using the Red and Blue Number Rods. This creates a very concrete image of the process of addition. For example, if the 2 rod is added to the 4 rod, together they are the same length as the 6 rod. Because the Number Rods are painted in alternating 10cm bands of red and blue, it is easy for the young child to both see the length and to count the bands as well in order to understand that $4 + 2 = 6$. In this activity, the child chooses any two rods to add and determines the sum by counting the bands. Additionally, they may choose to add 3 or more rods by lining them up and determining the sum by counting the bands.	Element 1. Adds 2 single-digit numbers, using the Red and Blue Rods. Element 2. Adds 3 or more single-digit numbers, using the Red and Blue Rods.

Operations: Static Addition	Addition Strip Board	This activity includes a chart comprised of 12 by 18 squares with printed numerals at the top of the chart, 1 - 10 in red and 11 - 18 in blue. The accompanying box contains wooden strips that are used to physically illustrate the sum of two addends. This work ensures that the child has a good grasp of the concept of addition before it becomes more abstract. This material also reinforces addition fact memorization.	Element 1. Demonstrates knowledge of addition facts with two addends with a sum no larger than 10. Element 2. Demonstrates knowledge of addition facts with two addends with a sum larger than 10.
Geometry: Exploration of Shapes	Plane Geometry	Children are introduced to the following flat shapes: circle, square, triangle, oval, rhombus, pentagon, hexagon, rectangle.	Correctly Identifies the 8 basic plane geometric shapes.
Geometry: Exploration of Shapes	Solid Geometry	Children are introduced to the following three-dimensional shapes: cube, sphere, cylinder, cone, ovoid, rectangular prism	Correctly Identifies the 6 basic solid geometric shapes.