

IDAHO EARLY LEARNING EGUIDELINES

GOAL 39: CHILDREN DEMONSTRATE UNDERSTANDING OF NUMBERS, WAYS OF REPRESENTING NUMBERS, RELATIONSHIPS AMONG NUMBERS, AND NUMBER SYSTEMS.

Domain 4: General Knowledge

Sub-Domain: Mathematics and Numeracy

[Birth through 8 Months](#)

[6 to 18 Months](#)

[16 to 38 Months](#)

[36 to 60 Months](#)

[60 Months through Kindergarten](#)

DOMAIN 4: GENERAL KNOWLEDGE			
SUB-DOMAIN: MATHEMATICS AND NUMERACY			
NUMBER SENSE AND OPERATIONS			
GOAL 39: CHILDREN DEMONSTRATE UNDERSTANDING OF NUMBERS, WAYS OF REPRESENTING NUMBERS, RELATIONSHIPS AMONG NUMBERS, AND NUMBER SYSTEMS.			
Age Range	Developmental Growth	Child Indicators	Caregiver Strategies
Birth through 8 Months	Begins to show awareness of quantity.	<ul style="list-style-type: none"> ▪ Shows cues of hunger and fullness. ▪ Begins to show awareness of differences between people and objects. ▪ Responds by focusing on an object pointed to by someone. ▪ Begins to show awareness of small quantity differences; looking at or reaching for two or more people or holds an object in each hand. ▪ Begins to respond to the spoken concept, “more” in reference to food or play. ▪ Uses gestures to request “more.” 	<ul style="list-style-type: none"> ▪ Feed infants in relation to hunger and fullness cues. ▪ Respond to child’s hunger and fullness cues with either more food or by withdrawing food. ▪ Pair words for “more” with action around hunger, fullness, reaching for more toys, more hugs, or more music. ▪ Talk about the size of everyday objects (e.g. big, little, tall, short, heavy, light). ▪ Engage children in activities that show “more.” Eating, dressing, and singing or play times are good times to talk about concepts of more. ▪ Use number games and vocabulary with child, using numerical terms (e.g. two eyes, one nose, two hands, one belly button). ▪ Comment on socks and shoes as they are put on the infant (e.g. say, “One shoe . . . two shoes”). ▪ Count objects in child’s environment “out loud” in the home language. ▪ Use counting finger-plays, songs, and number rhymes (e.g. “One, Two, Buckle My Shoe”). ▪ Tell stories and read books about amounts.

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6 to 18 Months	Manipulate objects with a variety of attributes and quantities.	<ul style="list-style-type: none"> ▪ Notices characteristics of objects (e.g. size, color, shape, or quantity). ▪ Use all senses to manipulate objects and people (e.g. selects objects to taste, touch, smell, and listen to sounds). ▪ Drops objects; then looks for the object. ▪ Begins to use symbols, signs, and utterances to show “more” and “all gone.” ▪ Fills and dumps containers with objects. ▪ Searches for objects that are out of sight. ▪ Shows interest in real-life mathematical concepts (e.g. matching objects, lining up objects, enjoying books with numbers and counting). 	<ul style="list-style-type: none"> ▪ Engage child in activities that show “more.” ▪ Provide toys and objects that have a variety of sensory attributes. ▪ Use number words to label items in daily routines (e.g. counting shoes, toes, or food). ▪ Use counting finger-plays, songs, and number rhymes. ▪ Provide opportunities for child to fill and dump containers with objects. ▪ Tell stories and read books with number words and counting. ▪ Provide number/numeral materials in child’s environment (e.g. posters and pictures that include numerals or blocks with numerals on them). ▪ Read books that have themes such as big and little, more, all gone, and counting. ▪ Sing songs that introduce numbers and encourage the child to sing some of the song (e.g. 3 little ducks, 3 little monkeys). ▪ Describe the groups/arrangements of objects that the child places together (e.g. “I see you put more blocks over here.”). ▪ Hide objects to be found.

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16 to 38 Months	Compare differences between two or more objects, groups of objects, and quantity of objects.	<ul style="list-style-type: none"> ▪ Matches objects by a single characteristic (e.g. size, color, shape, or quantity; puts all the toy cars together). ▪ Sorts objects by a single characteristic (e.g. size, color, shape, or quantity; puts all of the balls in one basket). ▪ Begins to imitate counting, using number words without one to one correspondence, and without order. ▪ Counts rote, saying number words, though not always in the correct order. ▪ Recognizes that a single object is “one” regardless of size, shape, or other attributes. ▪ Imitates counting rhymes or songs such as Five Little Monkeys. ▪ Recognizes small quantities and assigns number, though not always correctly (e.g. sees two blocks and says, “Two”). ▪ Manipulates sets of up to three items. ▪ Uses words to symbolize quantity and comparisons of quantity (e.g. all, some, none, more). ▪ Recognizes basic common relations (sock and shoe go together). 	<ul style="list-style-type: none"> ▪ Use quantity concepts in everyday routines (e.g. “Would you like one more or two more pieces?”). ▪ Pair objects during daily activities (e.g. one child gets one spoon at the lunch table). ▪ Provide child with math-related toys and objects for matching, sorting, and counting that are representative of their own and other cultural backgrounds. ▪ Model using math in daily activities (e.g. count children who want milk). ▪ Use counting finger-plays, songs, and number rhymes, and repeat them often. ▪ Tell and retell stories, sing songs, and read books with numbers and counting. ▪ Provide opportunities for child to fill and dump containers with objects at the water table and sand table. ▪ Provide opportunities to sort common objects and offer commentary as the child sorts (e.g. sorting laundry: “You put all of the socks in this basket. I’ll fold the shirts.”). ▪ Provide small table blocks and unit blocks for child to play, build, and explore. ▪ Comment on sorting and matching during clean-up (e.g. “Do you want to put the big ones on the shelf, or the little ones?”).

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36 to 60 Months	Uses number words and concepts to explore and manipulate quantity, size, and relationships.	<ul style="list-style-type: none"> ▪ Uses counting concepts including recognizing and naming numerals for 1, 2, and 3, and counting up to ten in home language without assistance (e.g. rote counting, saying one, two, three, four). ▪ Uses number to represent quantity (e.g. gets three apples out of the box). ▪ Matches objects. ▪ Sorts and groups objects, then uses number concepts to explain the effort (e.g. "These two tiny cats are the same and I put them in this little basket." "There are lots of red bears; I put them in the big purse." "The little dolls are in the cradle but the big dolls have to sit here. They are too big for the cradle."). ▪ Counts objects without assigning number to object. ▪ Counts quantities up to ten, recognizing that the last number counted represents the "total objects" and that counting is cumulative. ▪ Counts objects matching number and object in daily activities (e.g. one shoe and one foot, one for you and one for me, three boys need a biscuit so we need three in the 	<ul style="list-style-type: none"> ▪ During daily routines, talk aloud about number, using number words and concepts to engage child in meaningful counting and activities that incorporate simple math computations (e.g. number of snacks needed for the number of children, number of containers at the sand table, number of teachers in the room, or how many more paint brushes we need for everyone at the art table). ▪ Have child divide objects equally among a group of people (e.g. each child gets three crackers or two different colors for crayons). ▪ Pose math questions relevant to daily life (e.g. "How many days until your birthday? How many days until the field trip?"). ▪ Estimate how many objects you have or will see and then count out loud (e.g. "How many children are here? Who is not?"). ▪ Offer small group activities where child uses pricing, money exchange, and recording of inventory and sales. ▪ Play culturally-appropriate card and board games using counting and number concepts with children. ▪ Make available daily puzzles and manipulative materials such as lotto games that link numerals to pictures to represent quantity. ▪ Post numerals and icons (simple pictures) at child level to indicate group size limits for each learning center. ▪ Describe and explain how printed numbers have different meanings (speed limits, temperature, clock, prices). ▪ Use pictures to represent real life situations involving mathematical concepts (such as simple addition used in cooking

		<p>basket).</p> <ul style="list-style-type: none"> ▪ When counting, assigns number to each item, leaving none out, and counts the item only once. ▪ Applies counting to varied situations (e.g. counting objects, counting groups, counting people). ▪ Uses quantity comparison concepts (more, less, some, many, all, a few, none, huge, tiny, small, smaller, large, larger). ▪ May rote count backwards from ten. ▪ Differentiates numerals from letters. ▪ Recognizes and names numerals (pointing to written numerals as they are named by adult). ▪ Writes and identifies some numerals named by adult. ▪ Uses meanings of numbers to create strategies for solving problems and responding to practical situations, with assistance (e.g. "Jimmy took two crackers and I didn't get any."). 	<p>recipes).</p> <ul style="list-style-type: none"> ▪ Provide a variety of objects for the child to collect, handle, and sort into groups (buttons, stones, pine cones). ▪ Provide cooking activities with recipes that link numerals to pictures to represent quantity. ▪ Count down as you start an activity (e.g. running a race, jumping and counting game). ▪ Repeat finger-plays, songs, and rhymes that use numbers. ▪ Tell and retell stories and read books about number concepts, counting, and with numerals. ▪ Point out numerals that represent page numbers, as you read.
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60 Months through Kindergarten	Counts with understanding and recognizes “how many” are in sets of objects, showing understanding of discrete numbers.	<ul style="list-style-type: none"> ▪ Shows verbal, symbolic, and physical representation of numbers up to ten. ▪ When asked, tells what number comes before or after a given number up to ten. ▪ Tells what number comes before or after a given number up to 20, with assistance. ▪ Demonstrates the difference between addition (more) and subtraction (take away), with assistance. ▪ Counts using one to one correspondence to answer “how many?” ▪ Demonstrates counting where quantity is not affected by the arrangement of the objects being counted. ▪ When counting items, counts each item only once and does not leave any out. ▪ Uses numbers to predict and make realistic estimates (e.g. “I think there are about 20 marbles in that jar.”). ▪ Helps another child count or group objects or solve a quantity based problem. ▪ Puts numeral cards in order 1 to10. ▪ Uses number in daily functions and in meaningful ways. ▪ Demonstrates knowledge of numeration 	<ul style="list-style-type: none"> ▪ Engage the child in activities and interactions that use numbers and counting (e.g. surveying each other about class activities, playing bank, post office, or cooking activities, or keeping a count of individual, physical, or academic accomplishments). ▪ Have children divide objects equally among a group of people (e.g. each child gets three crackers or five different color crayons). ▪ Use counting finger-plays, songs, and number rhymes, and repeat them frequently. ▪ Estimate how many objects there are and then count out loud. ▪ Child and adult pose math questions relevant to daily life (“How many days until your birthday? How many days until the field trip?”). ▪ Use printed numerals in meaningful ways (recording daily temperature for weather forecasts, posting prices for a lemonade stand or bake sale). ▪ Use pictures to represent real-life situations involving mathematical concepts (simple addition used in cooking recipes). ▪ Tell and retell stories and read books with numbers and counting. ▪ Model writing simple math equations that are relevant to real-life situations (e.g. create and record recipes). ▪ Plan small group times where children solve word

		<p>system by counting forward by ones to at least 31.</p> <ul style="list-style-type: none"> ▪ Identifies a penny as a value of money. ▪ By end of kindergarten year: <ul style="list-style-type: none"> ➤ Selects strategies appropriate for solving a problem. ➤ Uses concrete objects to illustrate the concepts of addition and subtraction. ➤ Counts to 100 by ones. ➤ Counts forward beginning from a given number (e.g. twenty one, twenty two...). ➤ Writes numerals from 0-20. ➤ Identifies whether the number of objects in one group is greater than, less than, or equal. ➤ Compares two numbers between 1 and 10 presented as written numerals. ➤ Represents addition and subtraction with objects, fingers, mental images, or drawings. ➤ Solves addition and subtraction word problems. ➤ For numbers less than or equal to ten, decomposes that number in more than one way. ➤ Fluently adds and subtracts within five. ➤ With assistance, composes and decomposes numbers from 11-19 into tens and ones. 	<p>problems, and document their findings using equations.</p> <ul style="list-style-type: none"> ▪ Provide objects and opportunities for manipulating and arranging objects into groups and sub-groups and for counting. ▪ Count and provide opportunities to think and talk about number concepts in everyday conversations (e.g. “The bookshelf has room for books, but how many will fit?” “Shall we count the blocks you used for your building?”).
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