

IDAHO EARLY LEARNING EGUIDELINES

GOAL 40: CHILDREN DEMONSTRATE UNDERSTANDING OF MEASURABLE ATTRIBUTES OF OBJECTS AND THE UNITS, SYSTEMS, AND PROCESSES OF MEASUREMENT (INCLUDING SIZE, VOLUME, HEIGHT, WEIGHT, LENGTH, AREA, AND TIME).

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](#)

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SUB-DOMAIN: MATHEMATICS AND NUMERACY			
MEASUREMENT			
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Age Range	Developmental Growth	Child Indicators	Caregiver Strategies
Birth through 8 Months	Uses sensory exploration to investigate environment and spatial relationships.	<ul style="list-style-type: none"> ▪ Shows awareness of own body space. ▪ Holds, handles, mouths, and plays with toys and objects of different sizes and shapes. ▪ Moves to get a toy. ▪ Reaches for and grasps toy. ▪ Finds toy that is partially hidden. ▪ Uses senses to explore and distinguish objects' attributes (e.g. sucking, turning head toward sounds, looking, throwing, moving, grasping, dropping, touching, and rubbing.) ▪ Moves items across midline without intention, and later with intentionality. 	<ul style="list-style-type: none"> ▪ Provide defined areas that allow for movement and exploration of personal space with materials and activities. ▪ Provide opportunities to reach and grab adult fingers and objects. ▪ Use vocabulary that describes spatial relationships such as "in" and "out" as baby explores items. ▪ Gently stretch baby's arms over head or wide from sides saying "SO BIG!" ▪ While baby watches, cover a toy with a clear cup and ask where is the ...? You can find it." Then, let baby find it under the cup. ▪ Describe and make simple comparisons such as more, less, same, as you interact with the baby in daily routines. ▪ Provide baby with toys that have incremental sizes (nesting cups, stackable rings) from own and other cultural backgrounds. ▪ During daily care routines, talk with the baby about their surroundings, their body movements, and what will happen next. ▪ Describe baby's sensory explorations (e.g. you moved the rattle and it made a tinkling sound; you held the bear in your hand and then dropped it; you found your thumb!; you touched the book's page; you tasted that doll's head; or, you saw your hand when it came over your chest).

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Age Range	Developmental Growth	Child Indicators	Caregiver Strategies
6 to 18 Months	Investigates environments to compare spatial relationships among objects.	<ul style="list-style-type: none"> ▪ Increases awareness of body space in relation to people and objects. ▪ Intentionally passes objects from hand to hand. ▪ Moves one object to gain access to another object. ▪ With assistance, matches a few objects by simple size attributes (big, little). ▪ Fills and empties containers with objects, sometimes filling and emptying when full, but typically simply putting items in containers and then emptying without concern for amount. ▪ Looks under a blanket or pillow to find a toy that child has seen adult “hide” there. ▪ Nests two to three objects, such as cups or blocks, though not always sequentially. ▪ Takes objects apart and attempts to put them together. ▪ Moves wheeled toys around furniture or large objects. 	<ul style="list-style-type: none"> ▪ Provide defined areas that allow for spatial movement activities. ▪ Offer a variety of materials that are different sizes, volume, height, weight, and lengths. ▪ Provide containers of various sizes and shapes to fill and empty with toys and objects. ▪ Help children begin to understand volume (filling, emptying) by offering water and sand play often. ▪ Play hiding and find games (e.g. Peek-a-boo). ▪ Model language for making comparisons such as more, less, or same and encourage child to make comparisons. ▪ Provide safe, simple, and multi-part toys such as snap-together blocks and simple puzzles. ▪ Comment on items and activities using vocabulary for size, volume, weight, and length (e.g. “Please hand me the big truck,” or, “Let’s go sit on the long rug,” or “My, that is a heavy block you are moving.”). ▪ During daily care routines, talk about measurement concepts using everyday activities and language such as tiny and big, more, less, colder, raining harder, all gone, or lots of cereal in the bowl. ▪ To show the passage of time, use familiar events and “what comes next” or “what comes after” language (e.g. “After we eat snack, your mommy will come to take you home,” or “When you wake up from your nap, we will go outside.”). Then follow through. Remind the child...“You took a nap, and now it is time to go outside,” or “We had snack, and now I see your mommy coming in to get you.”

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16 to 38 Months	Orders and sequences objects according to different dimensions.	<ul style="list-style-type: none"> ▪ Uses size words, such as “many,” “big,” and “little,” appropriately. ▪ Fills and empties containers with attention to amounts (with sand, water, blocks, or objects). ▪ Compares the size of various everyday objects (e.g. puts different people’s shoes side by side to see differences). ▪ Identifies objects by a single characteristic such as big or small, heavy or light, and tall or short, with assistance. ▪ Looks at two objects and identifies which one is bigger or smaller. ▪ Explores with simple measuring tools such as measuring cups with water or sand. ▪ Explores change of size and volume by squeezing, patting, and rolling play dough. ▪ Demonstrates comparative behavior by nesting up to five cups. ▪ Orders objects by size, volume, height, weight, and length, with assistance. 	<ul style="list-style-type: none"> ▪ Provide sand and water play; giving child opportunities to pour, fill, scoop, weigh, and dump with a variety of containers. ▪ Use language for comparisons according to size, volume, weight, and height (length) of people, toys, and objects. ▪ Use language about basic shapes: square, circle, rectangle, and triangle (e.g. “Can you bite the corner off of the triangle sandwich?”). ▪ In small groups, offer activities where children learn about different sizes of blocks and objects, then offer opportunity to create simple structures with direction. ▪ In free play time, offer blocks of different sizes, weights, lengths, and such, and observe to see when a child might need a prop or comment to build successfully. ▪ Help child arrange toys or objects from smallest to largest or longest to shortest. ▪ Look at pictures of the child, with the child talking about how s/he is getting bigger. ▪ Provide play dough for children to explore, squish, and manipulate. Encourage rolling and pulling to alter clay to take on different dimensions. ▪ Offer opportunity for children to serve themselves at mealtimes, using individual measuring cups with small amounts of liquid, from which each child can pour into their own glass. ▪ Use child sized serving utensils for children to serve solids and beverages at mealtimes, and talk about how much the serving utensil holds. ▪ Talk about times of the day (e.g. this morning, after lunch, arrival time, leaving time, lunch time, and diapering time).

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<p>36 to 60 Months</p>	<p>Uses geometric modeling and spatial reasoning according to different dimensions.</p>	<ul style="list-style-type: none"> ▪ Matches, sorts, groups, and classifies objects based on one or more attributes or related characteristics. ▪ Compares several objects based on one or more attributes (length, size, weight) using words such as “shorter,” and “shortest,” “bigger,” and “lighter.” ▪ Uses positional terms such as “between,” “inside,” “over,” “under,” and “behind.” ▪ Orders objects by size, volume, height, weight, and length; with assistance. ▪ Orders events in terms of time. ▪ Uses vocabulary to explain passage of time, including yesterday, today, tomorrow, next week, though not always accurately. ▪ Uses events to show passage of time (e.g. when I go home after school, my nana will be coming to my house). ▪ Uses descriptive words for measurable properties such as length and weight, or capacity. ▪ Uses measuring tools in play activities (e.g. measuring tape, measuring cups, and scales and balances). ▪ Measures liquids, solids, and semi-solids, such as sand and water, using a variety of containers. ▪ Measures objects using variable nonstandard units (e.g. “It’s five shoes long!”). ▪ Uses measuring tools for objects using standard units and vocabulary, though not always accurately 	<ul style="list-style-type: none"> ▪ Demonstrate, explain, and engage child in activities that use nonstandard measurement (e.g. use handfuls to measure rice, use footsteps to measure distance). ▪ Provide sand and water play with measurement tools to explore measurement, volume, and weight. ▪ Model language and use body and objects using positional terms (behind, inside, on top, under). ▪ Provide materials that support classifying and ordering objects by size, shape, color, and volume. ▪ Provide a variety of measuring tools (tape measures, rulers, balance scales, measuring cups) for child to use in purposeful ways (e.g. cooking experiences). ▪ Model and engage use of conventional measuring tools and methods in everyday situations (e.g. during cooking, art projects, grocery shopping). ▪ Continue to model language involving comparisons for size, volume, weight, and height (length) of people, toys, and objects. ▪ Play measuring games with child (e.g. “Which is heavier?” “Which is longer?” or “Let’s see if we can tell what comes next in our schedule.”). ▪ Display information using measurement graphs to visually compare activities and experiences (e.g. how many children have had asparagus or which is heavier, a pine cone, or a rectangular block). ▪ Measure objects using standard measuring units (measure a wooden block using paper clips, markers, then – ruler, tape measure, and balance.) Document findings with the

		<p>(rulers, tape measures, scales).</p> <ul style="list-style-type: none"> ▪ Standard unit (one-inch cubes, paper clips). ▪ Uses picture cookbook to follow sequence and measures amounts for cooking projects, with assistance. ▪ Uses some vocabulary in relationship to measurement tools (scale, cup, and ruler). May not have accurate understanding of meaning. ▪ Estimates size (e.g. "I'm as tall as the yellow bookshelf."). 	<p>children.</p>
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<p>60 Months through Kindergarten</p>	<p>Orders objects according to spatial attributes using nonstandard and standard units of measurement.</p>	<ul style="list-style-type: none"> ▪ Compares objects by measurement attributes (e.g. longer/shorter, heavy/light, or more/less). ▪ Uses multiple attributes for comparisons when sorting, classifying, and placing objects in a series (e.g. size, volume, height, weight, and length). ▪ Uses basic measurement with standard units in the customary and metric systems (e.g. inches using a ruler or measuring tape). ▪ Independently measures amounts and follows steps in simple experiments or cooking projects ▪ Estimates everyday measures (e.g. how many steps are needed to walk across a street.) ▪ Uses conventional vocabulary of measurement (“pound,” “inch,” “cup”), though not always accurately. ▪ Uses basic time vocabulary (e.g. minute, hour). ▪ Names days of the week. ▪ Orders events in a day. ▪ Use comparison vocabulary for temperatures (hotter/colder). ▪ Reads calendar according to days, 	<ul style="list-style-type: none"> ▪ Demonstrate, explain, and engage child in activities that measure with standard traditional measuring units (e.g. measure a table by inches using measuring tape). ▪ Provide a variety of measuring tools (tape measures, rulers, balance scales, measuring cups, or thermometers) and opportunities for child to select the tool needed for an appropriate measurement (e.g. using a scale to measure the apple’s weight). ▪ Introduce charts and graphing for children to use as a way to show sequences and quantity comparisons. ▪ Provide calendar activities to describe and discuss events according to days, weeks, months. ▪ Celebrate anniversaries, such as 100 days in school, or a month completed, or 10 days of sunny days. ▪ Provide cooking experiences (including ethnic “home” foods) using written and picture recipes, sequences, and measurements with teacher support. ▪ Play measuring games (e.g. “Which is heavier?” “Which is longer?” or “How many steps?”). ▪ Use posters, rhymes, and songs to support understanding that standard units of measurement remain constant (a foot in measurement is always 12 inches). ▪ Provide opportunities to explore the concept that shape can change, but volume/amount remains constant (conservation of volume/mass). Include water and sand play with variable size containers, and play dough for rolling, patting, and mashing opportunities. ▪ Pose many “What if you change…” and “How do you know…” questions about measurement and experiments with materials

		<p>weeks, months.</p> <ul style="list-style-type: none"> ▪ Directly compare two objects with a measurable attribute. ▪ Understands that standard unit of measurement is common, to see which objects have “more” or “less.” ▪ Classifies objects into given categories; count the numbers of objects in each category and sort the categories by count. 	<p>such as sand, water, and play dough.</p> <ul style="list-style-type: none"> ▪ In dramatic play areas, include measuring tools, growth charts, dolls, and stuffed animals for weighing and determining height. Be sure to offer pencils and paper for recording findings.
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