

USING THE GUIDELINES TO MAKE
MATH MEANINGFUL
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- The Five Math Skill Areas
 - Counting
 - Adding to/Taking Away
 - Geometry and Spatial Sense
 - Measurement
 - Classification and Patterns

BACKGROUND INFORMATION ON MATH

- During math activities children learn to think quantitatively and problem solve. For example, they know if someone get more cookies than they do.
- Children need multiple opportunities with fun materials, to learn that things can be counted, sorted, compared and measured.
- Teachers help by asking math questions, using math vocabulary, and doing math games and activities throughout the day.

FIRST MATH DOMAIN

- The first domain of counting is foundational to the development of math skills and understanding.
- Children can have fun counting everything in the school environment from crayons and books to blocks and furniture.
- Teachers start slowly with small sets of items and advance to larger sets and higher numbers as children demonstrate consistent ability to count accurately.

OBJECTIVES FOR COUNTING

- Child knows that objects, or parts of an object, can be counted.
- Child uses words to rote count from 1-30.
- Child counts 1-10 items, with one count per item.
- Child demonstrates that the order of the counting sequence is always the same regardless of what is counted.

OBJECTIVES FOR COUNTING

- Child counts up to 10 items, and demonstrates that the last count indicates how many items were counted.
- Child demonstrates understanding that when counting, the items can be chosen in any order.
- Child uses the verbal ordinal terms.
- Child verbally identifies, without counting, the number of objects from 1-5.
- Child recognized one-digit numerals, 0-9.

IMPLEMENTATION AND IDEAS

- They learn that a set of things can be represented numerically (Child counts six dogs and when teacher asks how many are in the set child responds “six”).
- They can recognize how many items are in a small group instantly (up to three items without counting by 4 years up to five items by 5).
- They can count consistently and accurately in order to ten.
- They can understand saying a number with an object (one to one correspondence – example one peg to one peg board opening)
- They learn the principal of cardinality.

SECOND MATH DOMAIN

ADDING AND TAKING AWAY

- This domain provides experiences for children to engage in simple adding and subtracting games.
- Children need concrete and interesting materials to play the adding and subtracting games.
- Simple game boards are helpful during the math activities and provide opportunities for using math and thematic vocabulary.

OBJECTIVES FOR ADDING TO/TAKING AWAY

- Child uses concrete models or makes a verbal word problem for adding up to 5 objects.
- Child uses concrete models or makes a verbal word problem for subtracting 1-5 objects from a set.
- Child uses informal strategies to share or divide up to 10 items equally.

IMPLEMENTATION AND IDEAS

- Children can practice solving simple addition, subtraction, and division problems (show 2 items and 2 more join the group so now how many?)
- Children can solve problems using small sets of 1 -3 visible or hidden objects (show three bears going into a cave and one more goes in so now how many?)
- Children can practice one to one correspondence and problem solving (such as one egg to one egg carton, one marker top for each marker, one fork on one napkin).

BACKGROUND INFORMATION FOR GEOMETRY AND SPATIAL SENSE

- For young children geometry means using shapes to look at attributes and discuss their characteristics. Teachers can help by noticing and discussing everything in the classroom and outdoors and its shape. Children need to know the distinguishing characteristics of various shapes such as sides, corners, angles.
- Spatial reasoning includes using position words (above, below) and relationships between objects (both have line and corners).

OBJECTIVES FOR GEOMETRY AND SPATIAL SENSE

- Child names common shapes.
- Child creates shapes.
- Child demonstrates use of location words (over, under, above, on beside, etc.)
- Child slides, flips and turns shapes to demonstrate that the shapes remain the same.

IMPLEMENTATION AND IDEAS

- Children can identify shapes and play shape games.
- Children can create shape pictures with objects or create artistic designs with shapes.
- Children can use story mats to show understanding of positional words like above, below, beside, behind, near by, far away, etc.
- Children can participate in math games using two and three dimensional figures.

BACKGROUND INFORMATION FOR MEASUREMENT

- During early childhood children start to understand measurement through their experiences with objects.
 - They learn that objects have attributes like length, weight, capacity (volume), temperature, texture.
 - Teachers provide measurement experiences and tools so that children can compare and order these items.
 - Children then acquire and use measurement language such as longer, shorter, heavier, lighter.
 - Both standard (ruler, tape measure) and non standard (blocks, a foot, a book) measurement tools can be used.

MEASUREMENT OBJECTIVES

- Children recognize and compare heights or lengths of people and things.
- Child recognizes how much can be placed within an object.
- Child informally recognizes and compares weights or objects or people.
- Child uses language to describe concepts associates with the passing of time.

IMPLEMENTATION AND IDEAS

- Measure any toy or furniture in room
- Measure items in nature, compare and contrast findings
- Use blocks, hands, feet, yarn or string pieces, lego pieces to measure
- Line up by tall to short, weigh children at intervals during the year and discuss
- Discuss, collect and post measurements
- Use balance scales to compare heavier and lighter items that might be a similar size but different weight

BACKGROUND INFORMATION FOR CLASSIFICATION AND PATTERNS

- This skill area develops more slowly for children at this age. Learning about patterns and how to create them helps build early algebraic reasoning foundation.
- When we teach patterns it is critical to teach “units” in a pattern and always to give at least two full “units” before we ask children what the pattern is or to extend the pattern.(“a blue and green, and another blue and green, and another blue and green to reinforce the concepts of unit)

CLASSIFICATION AND PATTERNS OBJECTIVES

Child sorts objects that are the same or different into groups and uses language to describe how the groups are similar or different.

Child collects data and organizes it in a graphic representation.

Child recognizes and creates patterns.

IMPLEMENTATION AND IDEAS

- Sort anything by a characteristic (rough-smooth, shiny-dull, hard-soft). These might be rocks, shells, lemons, apples, pennies, buttons.
- Classify items in any way you can (living-non living, large-small, sweet- sour). Ask children why something would not fit in a group.
- Organize or order from large to small, thin to wide, long to short. Use blocks, paper, pipe cleaners.
- Graph favorite foods, animals, vehicles.
- Ask children to predict outcomes, record the predictions, then compare results (Have them guess how many steps to get outdoors, how long before a seed will germinate).
- Use math concepts in large and small group, during transitions, for parent connections, all day in all centers.