

**LESA
Mathematics Curriculum
2007**

1. Number Sense and Operations

(NCTM 2000 #1; MO #5 & 9;
IL #6)

A. Demonstrate knowledge and use of numbers: representations, systems, and relationships.

Objective

Suggested Activities

Suggested Assessment

The student will be able to:

1 - show interest in counting and quantity.

1a. Do finger plays using backward counting methods such as "Five Speckled Frogs".
1b. Have the helper of the day count friends at circle time.

Observe children holding up fingers for finger play; listen for oral counting of children.

2 - rote count by ones to 10 or higher.

2a. Counting 1-10 with a clap on each number
2b. This activity can be extended by clapping every 2, 3, or 4 numbers. This is not intended to teach them to count by 2's and 3's, but to simply expose them to this idea.

Ask child 'How high can you count?'

3 - count objects using one-to-one correspondence.

3a. Setting the table for snack: have a helper pass out one napkin to each child.
3b. Using counting bears, ask the child to give teacher three bears.

Observe that the child gives each friend at snack one napkin.
Look for child to give the teacher the requested amount.

Key for Assessment

- N: not currently performing
- O: occasionally performing
- C: consistently performing

Grade level: Pre-K

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4 - distinguish numbers from letters.	Use objects with numbers on them, such as: calculators, playing cards, thermometers, simple board games with dice or spinner.	Ask child to point to the numbers.
5 - understand sequence of events.	5a. At circle time discuss order of events for the day. For example, "First we will have prayer time, then circle time, center time, and snack. 5b. Use sequencing cards.	Observe that child puts sequencing cards in correct order.
6 - develop an emerging understanding of first and last.	Use your class line to illustrate first and last. You can have a leader and caboose for example.	Child can identify who is first and last in line.
7 - begin to demonstrate part of and whole with real objects.	Group part of and whole: At circle time, ask those who have blue on to stand, girls or boys to stand, can also consider hair color, etc.	Child begins to demonstrate an understanding of the concepts part of and whole.
8 - use drawings to represent numbers.	8a. Draw pictures showing the number of family members. 8b. Give each child a specific number of circles and encourage them to draw a face on each circle, for example, 12 circles for 12 disciples.	Observe child's growth over time.
9 - identify numbers in everyday situations.	9a. Find numbers in the classroom on posters, toys... 9b. Go on a number search/treasure hunt in the school.	Observe child's growth over time.

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Grade level: Pre-K

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10 - write numbers.

Draw numbers in sand, sidewalk chalk, in pudding, applesauce, and shaving cream.

Child begins to show an interest in writing numbers.

B. Demonstrate knowledge of operations, properties, and their relationships.

Objective

Suggested Activities

Suggested Assessment

The student will be able to:

1 - combine objects and name how many.

Child puts a red, yellow, and blue crayon together and counts "how many".

Child solves simple addition problems using counting-based strategies.

2 - compare increasing quantities.

On a tray place discrete items children can easily count (e.g. beads, blocks, shells, poker chips, bottle caps). Teacher begins with a certain amount and counts out loud with the children. The children then close their eyes and the teacher alters the amount. After altering the amount, the teacher asks children to tell whether there are more or fewer items than before.

Child shows growing awareness and/or accuracy when comparing increasing quantities.

3 - take away and name how many left.

Child plays with a plastic ball and bowling pins and can tell how many fell down and how many are standing.

Child shows increasing awareness of how many are left.

4 - explore everyday fractions.

Snack time: use fruit cut in sections and demonstrate parts and whole.

Child demonstrate an increasing awareness of parts and whole.

Key for Assessment

- N: not currently performing
- O: occasionally performing
- C: consistently performing

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C. Demonstrate fluency in computation and make appropriate estimates.

Objective

Suggested Activities

Suggested Assessment

The student will be able to:

1 - name how many there are in a group (up to five objects) without counting.

Roll a number cube and tell how many dots are on it without counting.

Child is able to determine amounts up to 5 without counting.

2 - compare attributes of groups of objects.

Using a container of dinosaurs, child separates according to color, size, length of neck, tail, etc.

Child has increasing ability to distinguish different characteristics.

3 - estimate, then count to verify the number of objects.

Use an estimating jar filled with counters, jelly beans, cotton balls, etc., and have the child guess amount without touching the items. At the beginning, start with a manageable number of objects no more than 10.

Child shows growth over time in ability to estimate.

4 - use language to compare number (e.g. more/less, greater/fewer, equal to).

During block play, children can observe each others' towers and determine who has more/less blocks, who has a taller tower, etc.

Child demonstrates increasing vocabulary in math language.

Key for Assessment

N: not currently performing

O: occasionally performing

C: consistently performing

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2. Patterns, Relationships, and Algebraic Methods

(NCTM 2000 #2; MO #8; IL #8)

A. Describe numerical relationships using patterns and functions.

Objective

Suggested Activities

Suggested Assessment

The student will be able to:

1 - imitate pattern sound and physical movement (e.g., clap, stomp, clap, stomp...).

1a. At circle time, teacher leads children in a clapping, stomping pattern and encourages them to follow along.
1b. Use songs with repetition, melody, and words. For example, "One, Two, Buckle My Shoe".

Child can follow simple physical movement patterns. Child may also be able to sing songs with repeating words.

2 - understand simple patterning such as ABAB patterns.

Use materials to copy and create series and patterns such as stringing beads.

Child can create simple patterns.

3 - recognize patterns in their environment.

Take a shape walk throughout your school.

Children are able to point out simple patterns on walls, floors, and in the classroom.

4 - begin to predict simple patterns.

4a. Using counting bears, line up several bears in a red, blue, red, blue, red, blue pattern, and ask the child to extend the pattern.
4b. Using the story of Joseph, start off his coat with 3-4 colors and have the children repeat the pattern.

Child demonstrates awareness of simple patterns by completing the extension.

Key for Assessment

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Grade level: Pre-K

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5 - create their own patterns.

Give child a variety of collage materials and encourage them to make a simple pattern.

Observe child making simple patterns.

6 - order things according to relative differences.

Tell the children a flannel board story with characters of relative differences such as "The Three Bears", "Billy Goats Gruff", and "The Three Little Pigs". Encourage the children to order items according to their relative differences such as size and strength.

Begins to have an understanding of relative differences.

B. Describe numerical relationships using mathematical models.

Objective

The student will be able to:

1 - recognize the similarities between two objects and match them consistently.

Suggested Activities

1a. Provide child with a variety matching games where the child is asked to select two alike items. You can use crayons, mittens, sock, bears, cars, etc.

1b. Give children images or pictures of different shapes and objects and match like items. For example, you could use Christmas symbols of angels, baby Jesus, crosses, stars, etc.

Suggested Assessment

Child demonstrate awareness of like items by matching pairs.

Key for Assessment

N: not currently performing

O: occasionally performing

C: consistently performing

Grade level: Pre-K

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2 - identify the differences between objects and group them by one attribute.

Provide child with several objects and encourage him/her to note differences between objects and create a subset of items with a common attribute. For example, use a bucket of vehicles and separate cars from trucks but can also group all the blue vehicles together.

Child demonstrates awareness of observing differences and similarities through grouping.

C. Analyze, interpret, and solve problems using algebraic concepts and expressions.

Objective

The student will be able to:

1 - begin to recognize and perform simple addition problems using tangible objects.

Suggested Activities

Use a story problem in which the child begins with 1 toy and is given 2 toys for his/her birthday. Ask how many toys he/she now has. Teacher can increase the challenge of this activity by increasing the number of toys, but be sure the action of joining is explicit. Possible actions include earns, finds, and is given/receives.

Suggested Assessment

Child has an increasing understanding of problem solving.

Key for Assessment

N: not currently performing
O: occasionally performing
C: consistently performing

Grade level: Pre-K

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2 - begin to recognize and perform simple subtraction problems using tangible objects.

Use a story problem in which the child begins with 3 apples and eats 1 apple. Ask how many apples he/she now has. Teacher can increase the challenge of this activity by increasing the number of toys, but be sure to the action of taking away is explicit. Possible actions include lost, gave away, and ate.

Child has an increasing understanding of problem solving.

D. Analyze change in various contexts.

Objective

The student will be able to:

1 - describe qualitative change in objects.

Suggested Activities

- 1a. Plant seeds. Chart and observe their growth.
- 1b. Place a large carrot on a board and outline its shape in black marker. Observe over time the shrinkage of the carrot's size.

Suggested Assessment

Children will be able to visually see and verbally describe the increase or decrease in size.

Key for Assessment
N: not currently performing
O: occasionally performing
C: consistently performing

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3. Geometry

(NCTM 2000 #3; MO #6; IL #9)

A. Analyze characteristics and properties of geometric shapes and develop mathematical arguments about geometric relationships.

Objective

Suggested Activities

Suggested Assessment

The student will be able to:

1 - talk about and begin to recognize the characteristics of shapes.

1a. Play "I Spy" in the classroom. "I spy a circle or something that's round like a ball."
1b. Use tangrams to expose children to a variety of shapes.

Children show increasing awareness of shapes.

2 - take apart objects and put them together.

2a. Teacher cuts variety of shapes (circles, triangles, squares) out of poster board. Teacher encourages children to create pictures/designs out of shapes.
2b. Provide different types of blocks (waffle, duplo, mega) to create different structures.

Observe children manipulating shapes.

3 - identify and name some shapes (circle, triangle, square, rectangle).

Musical Shapes: Make outlines of big shapes on floor out of tape. Play music. When the music stops, every child has to be on a shape. Each child needs to shout out the shape he/she is on.

Children begin to recognize and name correctly the four simple shapes (circle, triangle, square, rectangle).

Key for Assessment

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- O: occasionally performing
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Grade level: Pre-K

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4 - relate ideas in geometry to ideas in number and measurement.

2a. Draw shapes on the board and point out the number of sides, corners, etc. of each shape.

2b. Use shapes (squares, triangles, etc.) and use them to cover a surface. Point out that it may take 10 triangles to cover a table top.

Children demonstrate increasing awareness of the relationship between geometry and number.

5 - identify straight and curved lines.

Use string, yarn, or pipe cleaners to create straight lines and curved lines.

Observe children manipulating materials into straight or curved lines and discuss their work.

6 - identify horizontal and vertical lines.

4a. Finger play: Use popsicle sticks...one little stick goes up and down, one little stick lays on the ground, one little stick is on a slant, straighten up stick, oh no I can't.

4b. Encourage children to look around the classroom and find vertical and horizontal lines. For example, a cross has one of each.

Children demonstrate increasing ability to identify horizontal and vertical lines.

Key for Assessment

N: not currently performing

O: occasionally performing

C: consistently performing

Grade level: Pre-K

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7 - sort objects into groups by an attribute and begins to explain how the grouping was done.

7a. For a simple beginning sorting activity, have children sort by color.
7b. Collect several different kinds of small objects in three or more different colors. Place the objects in a box and mix them up. Ask children to take objects out of the box and sort them into different groups by attributes.
7c. Sort animals on Noah's ark into categories of animals that live on the land, animals that live in the sea, etc.

Teacher observes growth over time.

B. Specify locations and describe spatial relationships using representational systems.

Objective

The student will be able to:

1 - use actions and words to indicate position and location.

Suggested Activities

Use a manipulative and another object. Ask the children to place the manipulative under, over, in, behind, etc. the other object.

Suggested Assessment

Children show an increasing awareness of positional terms.

Key for Assessment
N: not currently performing
O: occasionally performing
C: consistently performing

Grade level: Pre-K

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2 - use actions and words to indicate movement and orientation.

2a. Human obstacle: Divide class into two halves. The first half is the obstacle course and the second half is the players. For example, using position words the children will jump over the log, run around the tree, or crawl under the tunnel.

2b. Squirrels in a Tree: Two children are the trees and hands are up in the air. When the whistle blows the squirrels run around and when the whistle blows again the squirrels go in the tree and the tree limbs lower.

Teacher can individually assess each child using a doll and a bed, blocks, or other objects asking for under, over, in, out, behind, and in front.

C. Apply transformations and use symmetry to analyze mathematical situations.

Objective

The student will be able to:

1 - use simple shapes to create new shapes and designs.

Suggested Activities

Use a set of tangrams.

Suggested Assessment

Observe children manipulating shapes to create new shapes and designs.

Key for Assessment

N: not currently performing
O: occasionally performing
C: consistently performing

Grade level: Pre-K

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D. Use visualization, spatial reasoning, and geometric modeling to solve problems.

Objective

The student will be able to:

1 - identify shapes in their environment.

Suggested Activities

Go on a shape walk and have children point out rectangular doors, square windows, circular clocks, etc.

Suggested Assessment

Observe increasing awareness of children finding shapes in their environment.

Key for Assessment

N: not currently performing
O: occasionally performing
C: consistently performing

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4. Measurement

(NCTM 2000 #4; IL #7)

A. Determine measurable attributes of objects and the units, systems, and processes of measurement.

Objective

Suggested Activities

Suggested Assessment

The student will be able to:

1 - recognize the attributes of length, volume, weight, area, and time.

1a. Through dramatic play, children can experience this objective. For example, measuring a doll's temperature with a thermometer. Provide a scale to determine weight.
1b. Use tape measures in a construction play theme to measure length.

Shows increasing awareness of using measurement tools.

2 - compare objects according to length, volume, weight, area, and time.

2a. Use a balance scale and provide children with a variety of objects to weigh.
2b. Read the story of David and Goliath and compare the similarities and differences between the two characters.

Shows progress in recognition of comparing objects based on measurement.

Key for Assessment

N: not currently performing
O: occasionally performing
C: consistently performing

Grade level: Pre-K

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3 - use language associated with time in everyday situations.

3a. Use holiday opportunities to teach children about calendars.
3b. Create a daily time line by hanging up a clothesline. On separate pieces of paper, draw pictures of activities you would routinely do each day. Encourage the children to clip the activity pictures on the clothesline in the desired order. You may unclip them as you complete the activity during the day.

Ask the children questions about what morning, noon, and night mean, seasons, and daily routine. For example, "When you get to school what is the first thing you do?".

4 - begin to demonstrate part of and whole with real objects.

At snack time, cut apples or oranges into halves, fourths, etc. Can also be used with pizza, crackers.

Child has an increasing awareness of parts of and whole.

B. Apply appropriate techniques, tools, and formulas to determine measurements.

Objective

The student will be able to:

1 - begin to understand appropriate tools for measurement (e.g., yarn, ruler, scale).

Suggested Activities

Provide children with rulers, tape measures, scales, clocks, grid paper, thermometer, measuring spoons, and graduated cylinders to measure objects in the classroom.

Suggested Assessment

Observe children using rulers, tape measures, etc. to measure objects.

Key for Assessment

N: not currently performing
O: occasionally performing
C: consistently performing

Grade level: Pre-K

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2 - understand how to measure using standard and nonstandard units.

2a. Provide children with yarn, ribbon, blocks, cubes, containers of all shapes and sizes.

2b. Provide the class with a pumpkin. Pass around a ball of yarn and have each child choose the length he/she thinks they need to measure the circumference of the pumpkin. Allow each child to have a turn measuring the pumpkin with the yarn.

See that children participate with increasing interest in using conventional and unconventional measuring tools.

3 - use tools to measure.

Have each child bring in a measuring tool such as measuring cups, yard sticks, and rulers to measure. Let them move about the room measuring items of their choosing.

Child shows an increasing awareness of using measuring tools in an appropriate manner.

4 - use repetition of a single unit to measure something larger than the unit (e.g. measuring the length of a room with a single yard-stick).

Use a child's hand to measure the length of a table.

Child gains ability in using repetition in measurement.

Key for Assessment

N: not currently performing
O: occasionally performing
C: consistently performing

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5. Data Analysis and Probability

(NCTM 2000 #5; MO #7 ; IL #10)

A. Formulate and answer questions by collecting and organizing data and communicate findings.

Objective

The student will be able to:

1 - understand how to gather information during an exploratory time.

Suggested Activities

1a. Apples: Poll children on their apple preferences. Provide them with yellow, red, and green apple slices. After the taste test, teacher and children record answers on a chart/board and use this information to find out what the children like most or least.
1b. This activity can be done with any candy, food, pet preference, eye color, clothes colors, hair color, milk preference, etc.

Suggested Assessment

Child shows an increasing awareness of how to gather information.

Key for Assessment
N: not currently performing
O: occasionally performing
C: consistently performing

Grade level: Pre-K

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2 - ask questions to gather information.

At circle time, the teacher places cards with familiar pictures, such as food items on them, face down on the carpet. One child chooses a card and holds it up so others can see it, but the child cannot. The child holding the card asks questions of his/her classmates, with some support from the teacher, to gather information about the picture he/she is holding.

Child begins to ask and answer questions.

3 - experiment with materials whose attributes involve all the senses, such as shape, texture, size, color, pitch, loudness, taste, and aroma.

Make a fruit salad snack. Cut apples to demonstrate part of and whole as well as the crunchy texture and sweet taste. Add in other textures, tastes, aromas by using a variety of fruits to create the salad.

Child enjoys and participates in the group experiment.

4 - represent data using concrete objects, pictures, and graphs.

Using the activities suggested above, record the information in the following way: make construction paper apples in red, yellow, and green. Allow the children to choose their favorite apple and place this on the board. This creates a clear visual of the most or least chosen apple type.

Child develops increasing ability to represent data with pictures, objects, and graphs.

Key for Assessment

N: not currently performing
O: occasionally performing
C: consistently performing

Grade level: Pre-K

LESA Mathematics Curriculum 2007

5 - sort objects into groups by an attribute and begin to explain how the grouping was done.

5a. For a simple beginning sorting activity, have children sort a variety of items by color.

5b. Collect several different kinds of small objects in three or more different colors. Place the objects in a box and mix them up. Ask them to take objects out of the box and sort them into different groups by attributes.

5c. Sort animals on Noah's ark into categories of animals that live on the land, animals that live in the sea.

Teacher observes growth over time.

B. Use appropriate statistical methods to analyze data properly.

Objective

The student will be able to:

1 - match objects that are alike.

2 - compare the number of objects in groups.

Suggested Activities

Children can play a simple shape matching game where they are given 2 circles, 2 squares, and 2 rectangles and the shapes are mixed up. Teacher asks child to match the like shapes.

For above examples (apples and Noah's animals), the teacher may ask questions such as: Do more students like red, yellow, or green apples? Do we have more animals who live on the land or in the sea?

Key for Assessment

N: not currently performing

O: occasionally performing

C: consistently performing

Suggested Assessment

Child shows an increasing awareness of similarities and differences.

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C. Develop and evaluate inferences and predictions that are based on data.

Objective

Suggested Activities

Suggested Assessment

The student will be able to:

(Pre-Kindergarten children are not developmentally ready for this goal.)

D. Understand and apply basic concepts of probability.

Objective

Suggested Activities

Suggested Assessment

The student will be able to:

1 - have increasing understanding of how likely an event is.

Play question games at circle time where teacher asks things that are likely or unlikely. For example, in May the teacher may ask, "Do you think it will snow today?"

Child develops an awareness of events that are likely to happen or not likely.

2 - discuss events related to students' experiences as likely or unlikely.

Create an experiment using the concept of sink or float. The teacher prepares a tub of water and items that sink or float. The children are asked to predict which items will sink or float and then chart their answers on a paper. The results are also charted and the teacher can talk about predictions and outcomes.

Child shows increasing ability to explain how and why he/she predicted that certain items will float or sink.

Key for Assessment

- N: not currently performing
- O: occasionally performing
- C: consistently performing

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6. Discrete Math

(MO #10)

A. Apply systematic listing, counting, and reasoning.

Objective

Suggested Activities

Suggested Assessment

The student will be able to:

1 - determine what should be counted as a set of objects and actually count objects.

The teacher can offer a mixture of lizards and snakes. The child is asked to combine like items and count the sets of objects.

Child should be able to separate like objects and group them. Demonstrate increasing ability to accurately count small set of objects.

2 - predict whether the set contain more or fewer of one subset that the other.

Allow the child to guess which type of objects there are more of. For example, in the pile of snakes and lizards, have the child predict whether there are more lizards or snakes.

Child demonstrates increasing ability to estimate small amounts.

3 - explain how subsets of objects are the same or different.

Give the child an opportunity to note similarities and differences in the subsets.

Child shows increasing ability to use vocabulary to describe similarities and differences in the objects.

Key for Assessment

- N: not currently performing
- O: occasionally performing
- C: consistently performing

Grade level: Pre-K

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B. Apply discrete mathematical modeling using graphs and trees.

Objective

Suggested Activities

Suggested Assessment

The student will be able to:

1 - determine a path through a maze.

Have children find their way through an obstacle course in the classroom.

C. Use iterative (repetitive) patterns and processes.

Objective

Suggested Activities

Suggested Assessment

The student will be able to:

1 - determine and continue a pattern.

Using counting bears, line up several bears in a red, blue, red, blue, red, blue pattern and ask the child to extend the pattern (AB pattern).

Child demonstrates awareness of simple patterns by completing the extension.

Key for Assessment
N: not currently performing
O: occasionally performing
C: consistently performing

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D. Organize and process information.

Objective

The student will be able to:

1 - identify and discuss overlapping subsets of objects (Venn diagrams).

Suggested Activities

Using literature, compare different versions of the same story noting things that were the same and different. For example, read different versions of Goldilocks and the Three Bears.

Suggested Assessment

Child shows an increasing ability to discuss these similarities and differences.

E. Find the best solution to the problems using algorithms.

Objective

The student will be able to:

1 - create a simple math procedure based on constructing meaning from explorations.

Suggested Activities

Teacher places a box containing 1 toy and a pile of toys on the table. The teacher asks the children how many more toys are needed in the box to have 2 toys. Teacher can increase the challenge of this activity by increasing the number of toys.

Suggested Assessment

Child shows an increasing understanding of problem solving.

Key for Assessment
N: not currently performing
O: occasionally performing
C: consistently performing

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7. Problem Solving and Reasoning

(NCTM 2000 #6 & 7a; MO #1 & 3; IL #1)

A. Apply and adapt appropriate strategies to solve problems.

Objective

Suggested Activities

Suggested Assessment

The student will be able to:

1 - think critically and use spatial visualization.

In small groups, ask obvious questions about real world situations. For example, in May, "Do you think it will snow today?" Take it one step further and ask, "Why?". The teacher could also use this at snack time..."I have a whole apple, how can I share this among 4 children?"

Child is able to think critically and use spatial visualization.

2 - use self expression/drama to solve problems.

Act out The Three Little Pigs story. Have the children problem solve several aspects of the story. For example, choosing the building material (straw, sticks, brick); how to build the houses, etc.

Child shows an interest in participating and solving problems using self-expression and drama.

Key for Assessment

- N: not currently performing
- O: occasionally performing
- C: consistently performing

Grade level: Pre-K

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B. Use reasoning to build new mathematical knowledge through problem solving.

Objective

Suggested Activities

Suggested Assessment

The student will be able to:

1 - use trial and error.

Puzzle play/manipulatives

Child is able to manipulate a puzzle with increasing ease.

2 - begin to use reasoning to solve problems.

In a social situation, two children fight over one toy. Have the children use reasoning to come up with ways to solve the problem. For instance, they could share the toy, one could play with it for a while and then trade, or one child could choose to play with a different toy.

Observe the child's reasoning skills.

Key for Assessment

N: not currently performing
O: occasionally performing
C: consistently performing

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8. Communication

(NCTM 2000 #7b, 8, & 10; MO #2; IL #2, 3, & 4)

A. Work both individually and cooperatively.

Objective

Suggested Activities

Suggested Assessment

The student will be able to:

1 - stay on task for an appropriate amount of time and attempt to solve problems that arise.

1a. Math/art project using mosaic tiles (or other geometric shaped collage pieces), paper, and glue. Encourage the children to create geometric shapes and patterns with materials.

Child demonstrates the ability to be actively engaged in the activity for an appropriate period of time.

1b. Size comparison: Divide a piece of paper in half. On one side write the word ME. The child draws a picture of herself/himself. On the other side the child has a choice of drawing something bigger or small than him/her and writes the word BIGGER or SMALLER.

2 - verbally express thoughts and information.

This is something that can naturally occur during centers or free choice time as well as circle time activities such as show & tell.

Child shows increasing ability to verbally express him/herself.

3 - participate in group activities.

Children sit down in circle formation. Each child takes a turn saying another child's name and rolling a ball to the other child.

Teacher observation of participation

Key for Assessment

- N: not currently performing
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Grade level: Pre-K

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B. Represent mathematical data and concepts using a variety of media, including technology.

Objective

Suggested Activities

Suggested Assessment

The student will be able to:

1 - use computers and other electronic equipment in a respectful and responsible manner.

Provide electronic equipment to children to use (computer games) and provide instruction regarding respect and care of all electronic equipment.

Child uses some form of electronic equipment appropriately.

2 - represent numbers.

2a. Offer calculators to allow children to type numbers, a variety of art materials to allow children to draw numbers, and computer software with math themes.
2b. Visit the following website:
www.pbs.org/teachers/math/

Child shows increasing ability to represent numbers with media and technology.

3 - use picture and bar graphs.

(See activity in section 5, letter B, objective 1) Record the information in the following way: make construction paper apples in red, yellow, and green. Allow the children to choose their favorite apple and place this on the board. This creates a clear visual of the most or least chosen apple type.

Children develops increasing ability to represent date with pictures, objects, and graphs.

Key for Assessment

- N: not currently performing
- O: occasionally performing
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Grade level: Pre-K

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C. Analyze, evaluate, and communicate mathematical thinking using the language of mathematics coherently and clearly.

Objective

The student will be able to:

1 - begin to discuss the meanings of the operations.

Suggested Activities

At circle time, teacher can lead the children in simple math problems using real life objects and encourage children to discuss joining, combining, take away, etc.

Suggested Assessment

Child shows increasing ability to use math language to discuss meaning of operations.

Key for Assessment

- N: not currently performing
- O: occasionally performing
- C: consistently performing

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(NCTM 2000 #9; MO #4; IL #5)

9. Connections

A. Use technology to access and process information.

Objective

The student will be able to:

1 - begin to start-up, use, and exit software programs.

2 - use a variety of software programs with graphics, audio, and video to enhance math learning experiences.

Suggested Activities

1a. Provide children with instruction on how to respect and operate a computer. For example, how to start a game, exit a game, and turn off the computer.

1b. To help children learn finger positions on keyboard and mouse usage, teach simple finger play songs such as "Where is thumbkin?"

Visit www.pbs.org/teachers/math.

Suggested Assessment

Child shows increasing ability to independently operate a computer.

Observe children using variety of software.

Key for Assessment

- N: not currently performing
- O: occasionally performing
- C: consistently performing

Grade level: Pre-K

**LESA
Mathematics Curriculum
2007**

B. Understand how mathematical ideas connect internally, among other disciplines, and in daily life to build on one another and produce a coherent whole.

Objective

The student will be able to:

1 - participate in a variety of activities with math components.

Suggested Activities

Math should be incorporated into all aspects of the Pre-K day: centers, snack, circle, Jesus time, etc. For example, at circle time you can count friends, do calendar, make charts and graphs on similarities and differences, sing count down songs with finger plays, patterning with instruments, or calendar. At snack time, one-to-one correspondence with passing out napkins and reinforce part of and whole with pieces of fruit (apple slices) and cracker pieces.

Suggested Assessment

Child actively participates in math activities throughout the day.

Key for Assessment

N: not currently performing
O: occasionally performing
C: consistently performing