



### Let's Count

Finger play - "5 Green and Speckled Frogs"

See Blackline Master Week 10 for words

(Create your own hand motions)

(1.01a)



### I Wonder

Pass a bucket of unifix cubes that reflect eye color i.e. blue, green, etc. Ask students to choose a cube that shows their eye color. After looking at their classmates have them predict the dominant color. Then have students create a concrete floor graph and compare their prediction with their results.

(4.01)



### I Spy

Increase the difficulty of the puzzles in your math area to 10-12 pieces.

(3.04)



### What Do You Think?

Choose 6-8 children and line them up in front of the group by alternating hair color - ex. light, dark, blonde, black. Ask students whether they can find a pattern in the arrangement. If so ask who should line up next and how they know?

(5.02)



### Growing Mathematically

Changing and updating your math center is a very integral step in classroom management. It's important that the materials available reflect the children's development. Materials that are not challenging or that have lost their appeal should be replaced with more difficult ones. Rotating materials makes room for new equipment, promotes organizational skills and cleaning up and continues to make the math area an inviting place!

# Math News Two For Parents

## *Building your child's mathematical confidence*

We give our children many gifts, but none are more important than feelings of confidence. This is especially critical in a society that traditionally has had many people expressing “math anxiety” and declaring that they were never very good in math. *All children are capable of learning mathematics.* We must believe this and communicate our confidence to our children. Parents have an important role in encouraging “math superstars:”

- Respect your child's opinions and value your child's ideas even if they are incomplete by adult standards.
- Encourage your child to find several ways to solve problems and to look for alternative solutions. Talk about the “why” and the “how” in finding answers.
- Provide time and resources for mathematics - give your child a calculator and materials for building; have paper, scissors, crayons, and glue for projects.

## *Helping your child at home with mathematics*

You may remember mathematics in school as page after page of computing. Today, learning number facts and how to compute accurately are still important, but mathematics for the 21st century is much, much more. There is a focus on understanding the concepts, knowing when and measurement skills even in early grades. At home you can help your child's growth in mathematics by:

- Talking about what happened in school.
- Displaying the papers your child brings home.
- Counting, comparing, sorting, making patterns, looking for shapes, and reading together.
- Choosing math-related books at the library.
- Putting things in order - shortest to tallest, lightest to heaviest, smallest to largest.
- Finding things that go together as well as things that are opposites.

## *Goals for all Children*

The National Council of Teachers of Mathematics has published goals for all students, kindergarten through high school. These goals are reflected in this school's math program:

1. Learn to value mathematics.
2. Become confident in one's own ability.
3. Become a mathematical problem-solver.
4. Learn to communicate mathematically.
5. Learn to reason mathematically.

We want our students to become mathematically powerful. We want them to be prepared for a technological future and for handling challenges we may not yet even imagine. We want each child to develop the skills and abilities that will help children become concerned citizens and successful workers.



## Let's Count

Read the book, The Button Box by Margarete Reid before placing a small jar of buttons in your estimating center. Remember to count as a group at the end of the week.

(1.01b, 1.01f)



## I Wonder

Using the graphing grid on the next page have students graph their bags of buttons by the number of holes. Students should use buttons to create a concrete graph. Those that are ready may draw buttons or color in their graph.

(4.02)



## I Spy

Have your students make a pattern using the buttons in "What do you think?" Encourage patterns besides color, such as big/little or two holes/four holes.

(5.02)



## Growing Mathematically

As teachers, we are well aware that all children are different. Individualizing instruction to meet the range of abilities can be very challenging. One way of doing this is by using open-ended or expandable tasks, which can be simplified for slower students and extended for those who need a challenge. Many tasks can be simplified by using smaller numbers, limiting symbolic recording or by encouraging children to work together. Extension strategies include using larger numbers, encouraging symbolic recording and asking children to find more than one solution or to use multiple strategies. Students who are ready should be expected to sort objects by a variety of attributes, continue and create more complex patterns (beyond AB), begin to collect and display data independently, and solve more complex puzzles.

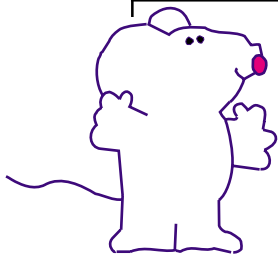
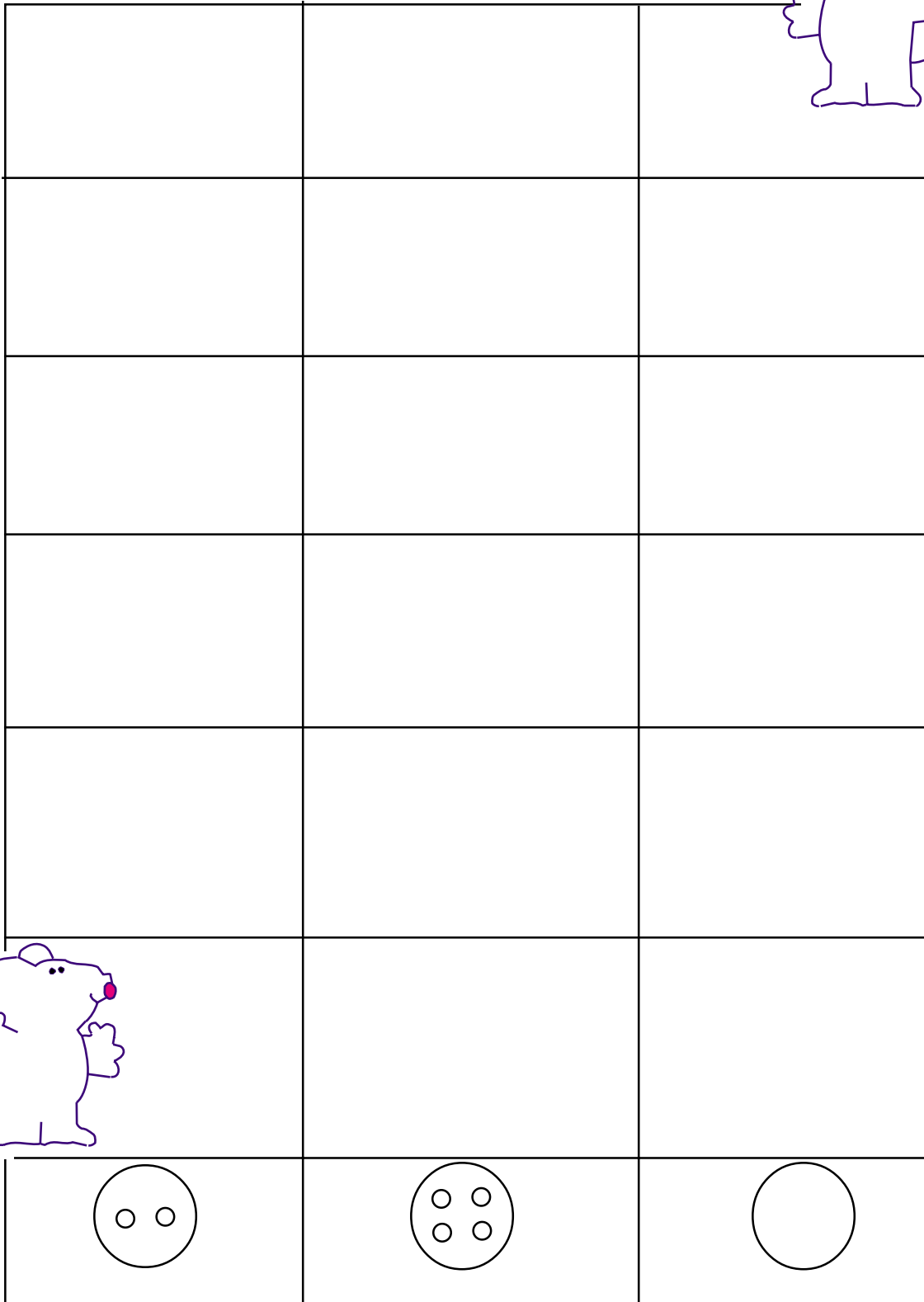
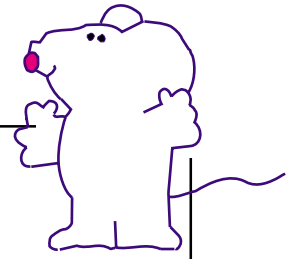


## What Do You Think?

After reviewing or rereading, The Button Box by Margarete Reid provide individual bags or containers of buttons for your students to sort. Encourage them to re-sort the same set by different attributes.

(5.01)

# *Beautiful Buttons Graph*





### Let's Count

After children have completed the puzzle in "I Spy," discuss the following questions:

How many blocks did you use?

How many triangles?

How many squares?

What is the least number of blocks, that could be used?

What is the greatest number? (1.01b, 3.01)



### I Spy

Show children the pattern block puzzles (Blackline Master Week 12). Challenge the class to find many different ways to cover the puzzle. When each child has a solution, discuss some of the ways. Use questions from "Let's Count."

(3.01)



### What Do You Think?

Teaching specific strategies helps children become confident problem solvers. One strategy that is very natural to young children is drawing a picture. Have your students solve the problem below by drawing a picture. A worm came out of his hole. He saw ten legs. Some were horses and some were chickens. How many horses and chickens were there?

(1.03)



### I Wonder

Have children look at all the solutions for the puzzle above. Ask them to predict which pattern block was used most. Then have each child remove the blocks from their puzzle and use them to create a concrete graph. When all children have finished their graphs, ask each to tell which block he or she used most. Keep a tally to get a class total.

(1.01d, 4.02)



### Growing Mathematically

Kindergartners enjoy solving problems and benefit from plenty of problem-solving experiences. We can help them to be confident and successful problem-solvers by modeling persistence and some simple problem solving strategies. Strategies which are appropriate and useful for kindergartens include: draw a picture, act it out, use logical reasoning and use objects. See Week 13 for some sample problems.

# More Math Fun at Home!

3

## IN THE KITCHEN

Let your child help put away the dishes. This is a natural sorting task.

Let your child stand on a stool or chair at the sink. Provide various size containers for pouring and comparing amounts of water. Talk about empty, full, more and less.

Make sandwiches together. Cut in half in different ways.

When you are cooking, invite your child to help measure. Compare sizes of various measuring tools (cups and spoons).

Ask your child to help you sort groceries as you put them away. Count the cans and/or boxes.

## SHOES

Put several pairs of shoes in a pile. Encourage your child to sort them in a variety of ways; i.e., laces/no laces, high heel/flat, kids/adults.

Have your child count each family member's shoes.

Help your child trace around his/her shoe. Find things around the house that are about the same length as the shoe print.

Pick two different shoes. Talk about how they are alike and different.

Create a pattern with shoes. For example: lace-up, lace-up, buckle, lace-up, lace-up, buckle.

## ANIMALS

Count the animals in your house both living and stuffed. Which do you have more of?

Pick two different animals. Talk about how they are alike and different.

Sing "5 Little Ducks" for someone in your family.

Talk about some animals that are big and some that are small.

Draw an animal with spots. How many spots are on your animal?

## IN THE CLOSET

Do you have more shirts or shoes in your closet? Check by counting.

Look for patterns in your family's clothing.

Count all the closets in your house. Are there more closets or people?

Pick two items out of your closet. Talk about how they are alike or different.

Look in your closet for items that zip, button, snap tie and velcro. Can you open and close all these fasteners?



## Let's Count

### Counting On

Put 2 sets of individual number cards in a bucket. Seat the class in a circle around the bucket and have one child draw a number card out of the bucket. The child names the number and then alone or with the class counts on to 10. (Use Number cards 0-9 in the Blackline Masters Week 13.)

(1.01a, 1.01b, 1.01c)



## I Wonder

### "Read My Mind"

Invite students to observe the teacher sorting a group of objects (junk, attribute blocks, etc.). Don't tell your sorting rule. When you have finished sorting, ask the children to "read your mind" by guessing your sorting rule. After the teacher models the activity, students can play with a partner -- taking turns being the sorter and the guesser.

(5.01)



## I Spy

### Shape Posters

Have children work with partner to create a poster for each shape. Each pair will need old magazines, scissors, glue and a piece of construction paper for each poster. Have the children label each poster, then cut and glue examples of the shapes on each poster.

(3.01)



## Growing Mathematically

Research has shown that children who are good problem-solvers have had lots of experience in solving problems. We need to be sure that we are giving our students plenty of opportunities to become good problem-solvers. Another important factor in developing fluency is the ability to generalize from examples. The best way to help students do this is take time to discuss children's solutions and strategies. The teacher needs to be accepting of unusual solutions and to focus on process over product. Children can learn a lot from each other and being asked to explain/verify a solution helps children clarify their own thinking.



## What Do You Think?

Have students create shape patterns using pattern blocks or attribute blocks. Be sure to have them name each shape when discussing their patterns.

(3.01, 5.02)

## *How To Choose or Create Good Problems for Children*

Good problems should:

- involve significant mathematics
  - be interesting to children
  - allow more than one solution and/or recording technique
  - be easy to represent with physical materials and drawings
  - be adaptable
- 

### *Some Problems To Solve*

These may be copied, cut and pasted to create overhead problem masters or individual recording sheets.

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Paul had apples and bananas in his basket. He had seven items in all. What did Paul have in his basket?

---

There were three squirrels. They found nine acorns. If they share fairly, how many acorns will each squirrel get?

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Four children each painted two pictures.  
How many paintings in all?

---

There were five girls and two boys on the playground. How many more girls than boys?



## Let's Count

Finger play - "5 Little Ducks Went Swimming"  
Create your own hand motions.

See Blackline Masters Week 14 for words.



(1.01b)



## I Wonder

Children work in pairs to compare the quantity of each color in two handfuls of cubes. Each pair of children need a container with

30-40 unifix cubes in two colors. Each child takes a handful of cubes and places them in a pile on the table. The children then predict which color there are more or less of. To check their prediction, they sort the cubes, stack into towers to see which is taller.

(1.01d, 2.01)



## I Spy

Have children make various shapes on geoboards. Give directions to help them explore. For example: "Make a large triangle and a small triangle."

"Make a small square inside a large square."

"Make three rectangles -- all different."

"Can you find a way to make a circle?"

(3.02)



## Growing Mathematically

The ability to recognize the underlying patterns in our number system is essential if our students are to be successful in math. We need to offer many opportunities for our students to pattern using objects, reproduce sample patterns, analyze the different elements in a pattern and create and extend patterns of their own. Patterning is a cumulative skill and must be taught throughout the year. After a period of free exploration, introducing patterning on the overhead in a whole class lesson is a great way to start! For many great patterning ideas, see [Math Their Way](#) Chapter 2 or [Hands On Math](#) Chapter 5.



## What Do You Think?

With the whole class or in small groups, compare two shapes (attribute blocks or relationship shapes work well). Hold the shapes so that all the children can see. Have the children tell how the shapes are alike and different. Be sure to sometimes use two different forms of the same shape, i.e., two different types of triangles.



(3.02)





## Let's Count

### Sidewalk Math

Have fun on a pretty day and reinforce that tactile/kinesthetic learner by inviting your students to practice their written number knowledge with brightly colored chalk on the side walk. Make sure it's in an area easily hosed off or leave the learning for someone else to enjoy.

(1.01c)



## I Wonder

### "Spin To Win"

Children play with a partner. Each child needs 10 cubes. They place their stack of cubes behind their backs and break off some. At the same time, both children show their broken- off stack and then state either "I have more" or "I have less." Then they spin the more/less spinner (see Blackline Master Week 15). If the spinner lands on more, the child with more takes both stacks. If the spinner lands on less, the one with less takes both. Repeat until one child has all the cubes. Then spin the spinner, one last time to determine whether more or less wins the game.

(1.01d)



## I Spy

After reading Tana Hobans, Circles Triangles and Squares, take your class on a "shape walk" around your school. Discuss the different shapes you find in the environment. Have the students record one of the shapes they saw in their Math Log when they return to the room.

(3.01)



## What Do You Think?

### "String Along"

Provide beginning experiences in patterning by offering beads to string. If it's an introductory experience, limit to two colors. Model an AB pattern in small groups. Leave the pattern cards in the center for students to repeat the activity independently. Continue to add more difficult patterns during the year.

(See Blackline Master Week 14).

(5.01)



## Growing Mathematically

When assessing students there are 2 concepts foremost in the mind of good teachers -- knowing the curriculum and knowing their students as learners. Frequent observations, informal and formal records are necessary for planning and to provide correct instruction and appropriate feedback and activities for students. Anecdotal notes, checklists, group observation sheets, as well as formal records your school system may require, show the progress your students are making. See Blackline Masters Week 3 for blank recording forms.

# *Manipulative Connection*

## *Marvelous Macaroni*

Colored pasta is an inexpensive and versatile manipulative. It can be made in the classroom with the children.

### *Materials Needed*

Pasta in a variety of shapes (elbow, rotini, shell, wagon wheel, bow tie, rigatoni, etc.)

Rubbing alcohol

Gallon size zipper bags

Food coloring

**Directions:** Mix pasta shapes and divide into 4 bags. Add approximately one teaspoon of alcohol and 10-20 drops of food coloring to each bag. Close bag and shake until all pasta is well coated. Add more food coloring for a darker shade. Spread pasta on newspaper to dry.

### **Sorting**

Colored pasta is a great sorting material because it has many different attributes. Encourage the children to find many different ways to sort it.

### **Patterning**

Create pasta pattern cards for children to use in extending patterns by drawing pasta shapes on posterboard. Be sure to show two full repeats of the pattern. Children can also make pattern necklaces!

### **Graphing**

Give pairs of children small containers of pasta. Have them sort and then graph the pasta. See Blackline Master Week 15 for blank graphing grid.

### **Counting/Number**

Have children count out sets of pasta onto plates, cups, napkins, etc. Let them choose one set to glue down.

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**Literature Link:** *Strega Nona* by Tomie DePaula

(1.01a, 4.01, 5.01, 5.02)



### Let's Count

Use sidewalk chalk to write the numerals 0-9 on the ground in mixed order. Children take turns jumping or stepping on the numerals in the correct counting order.

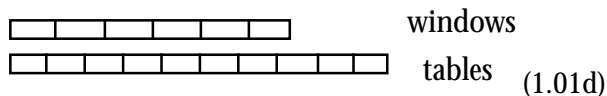
2	1	7	8
3	4	5	9
0	6		

(1.01b)



### I Wonder

Together with your students, select any two groups of objects in your room to compare quantity. If possible place the items in one-to-one correspondence. For example, to decide whether there are more scissors or bottles of glue, place the items side by side. For large objects, such as windows and tables, use a unifix cube to stand for each and line these up side by side.



### I Spy

The Blackline Masters Week 16 provide situations for students to order and sort using physical attributes. Students can cut pictures from magazines and create their own attribute books.

(3.03)



### Growing Mathematically

Canadian educator John Del Grande, author of the K-6 Addenda booklet on Spatial Sense, describes seven spatial abilities that seem to have the significant relationships to the development of ideas of geometry.

1. **Eye-motor coordination** is the ability to synchronize vision and body movements. This coordination is important in drawing, arranging figures and manipulating materials such as geoboards.
2. **Figure ground perception** is the ability to recognize a specific figure in embedded backgrounds. It is involved when children work with overlapping or "hidden figures."
3. **Perceptual constancy** is the ability to recognize invariant properties such as size and shape regardless of position.
4. **Position-in-space** perception concerns the relationship of one object to another and to the observer. It includes the ability to recognize shapes after rotations, reversals, and reflections.
5. **Perception of spatial relationships** involves seeing two or more objects in relation to other objects or the observer and to identify transformations such as slides and flips.
6. **Visual discrimination** involves noting similarities and differences between objects and figures.
7. **Visual memory** involves recalling objects or designs no longer in view.



### What Do You Think?

#### "Patterning - Beyond AB"

Help your students work with more complex patterns by providing models. These models can be pattern cards with harder patterns for children to extend or you can use complex patterns that other students have created. Take time to talk about and label these patterns.

(5.02)

# More Math Fun at Home!

4

As you travel call out the names of all the numbers you see around you.

**IN THE CAR**

See how many patterns you can find around you.

Name as many shapes as you can see around you.

Find three things bigger than your car and three things smaller.

Name three things on the right and three things on the left of the road.

Count the different foods you have for dinner.

**FOOD**

Pour out one-half cup of a cereal that you can sort. What was your rule?

Open the refrigerator. Can you find a pattern anywhere?

Choose two foods at dinner and tell how they are alike and how they are different.

When dinner is over is your cup full, half full or empty?

Time to pick up your dirty clothes. Count them as you put them in the basket.

**CHORES**

Count to ten while you brush your teeth.

Do a chore at your house. Which takes longer -- the chore or writing your name?

Lay out your clothes for tomorrow. Do you see any patterns?

Talk about why you have chores and why it's important to put things away.

Draw a picture of your friends. Count them and write the number on your paper.

**FRIENDS**

Do you have more friends that are boys or girls? ( or are they equal?)

Are your friends taller or shorter or the same as you?

Think of a friend. Name two ways you and your friend are the same and two ways you are different.

Name a friend. Are you older, younger or the same age as your friend?



## Let's Count

After sorting the food items in the activity below have students count the different items and determine which was more and which was less. Students who are ready can record their numbers.

(1.01d)



## I Wonder

Sing the "Numeral Formation Song" to help children learn to form their numerals correctly. Refer to Blackline Master Week 17 for the words. In Week 18 there are more ideas for helping children learn to write the numerals.

(1.01c)



## I Spy

Gather your students in a circle. Pass around a bag of attribute blocks and have each child draw out one. Take turns standing up and telling two things you know about your shape (i.e., it's blue, mine is a circle, it's fat, etc.

(3.02)



## Growing Mathematically

### The Concept of Number

In teaching numeration skills to young children teachers must always keep the stages of number development foremost in their minds. The ability to count with understanding involves very separate, sequentially related skills.

- (1) Rote-counting is counting by memorizing a sequence of words.
- (2) Rational counting, or 1 to 1 correspondence, matches the number names to the objects in a set.
- (3) Conservation of number involves the understanding that changing the arrangement does not change the quantity.

Add to this the skills of recognizing and writing numerals and matching the number symbol to the set and we see why there is more to learning numbers than just counting!



## What Do You Think?

Ask your students to draw four large circles on a piece of paper. Provide a small cup of mixed food items to be sorted (raisins, cereal, M&M's, etc.). Students can choose their rule to sort by color, type, size etc. and record the number. Of course the most fun is eating the results!

(5.01)

## *Writing the Numerals: An Early Childhood Skill*

### **A. Necessary Pre-Writing Abilities:**

- Small-muscle control
- Ability to copy simple models
- Eye-hand coordination
- Sense of left-to-right progression

### **B. Pre-Writing Activities**

- Lacing
- Finger painting
- Pouring water
- Tracing
- Stringing beads
- Clipping clothespins
- Connecting dots
- Playing with clay
- Catching balls
- Playing finger games

### **C. Writing Practice:**

- Writing in the air
- Writing on a friend's back
- Drawing at the easel
- Using felt-tip markers on newsprint
- Molding pipe cleaners
- Tracing in sand or corn meal
- Tracing in chocolate pudding or shaving cream
- Making numerals with the nose or elbow in the air
- Molding cookie dough or play dough
- Writing with roll-on cologne on a friend's arm
- Using a magic slate or chalkboard.



### Let's Count

Using large number cards and a pocket chart or the floor have students take turns finding the number that comes “after 7,” before 1 or between 3 and 5.

(1.01d)



### I Wonder

As a class, build a block structure large enough to enclose all the bears the students brought on Bear Day. This could be done as a class or by teams in the block area during center times.



(2.01)



### I Spy

Find multiple ways to sort the bears brought for the activities below i.e., color, size, bows, etc. Discuss the results.

(5.01)



### Growing Mathematically

#### Teaching Numeral Formation

Here are some important points to remember when teaching written numerals:

Start with very clear, very strong models.

Focus on one number at a time.

Provide maximum guidance at first.

Be accepting of initial efforts.

Gently reduce the amount of guidance.

Reward correct performance.

Review previously-learned material at regular intervals.

Please remember that fine-motor skills are not fully developed and our expectations should match the child's current abilities. On the next page is a game to help children practice written numbers. Each child is given 9 two-sided counters (or beans). The teacher decides the color to be counted before the game begins. Children shake their counters, dump them out and count only the red (or whatever color was previously determined.) They trace one of the corresponding dotted numbers on their game board and continue to play. The game ends when one column is filled.



### What Do You Think?

After reading Corduroy by Freeman or Ira Sleeps Over, by Waber invite your students to bring their bears to school. Clear a large area and sequence your bears from the smallest to the tallest and talk about the results.

(5.01, 5.02, 2.01)

**Beans**

Name: \_\_\_\_\_

0	0	0	0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9	9	9	9