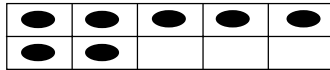




### Let's Count

Here's a sample ten-frame warm-up activity.



Display for three seconds. Then have students discuss what they saw. For example, "I know that's seven because the top row is full and that was five and then there were two more. That makes 7." or "I saw three empty boxes and 10 take away 3 is 7." etc/. Repeat often with different numbers.

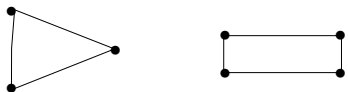
(1.01a)



### I Spy

#### Constructing Shapes

Opportunities to construct shapes help children to internalize the properties of those shapes. One easy way to construct shapes is with clay and toothpicks. Children make small balls of clay for the corners and use toothpicks for the sides. This can also be used to explore 3-D shapes.



(3.01)



### I Wonder

When you feel that your students have a good grasp of estimating small quantities, it is time to challenge their thinking by introducing larger groups of objects (10-20).

(1.01f)

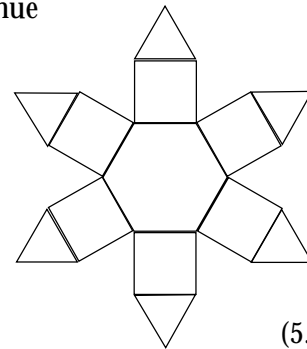


### What Do You Think?

#### "Patterns in the Round"

Model how to create a surrounding pattern using pattern blocks. Begin with a yellow hexagon. Choose another shape to encircle it. Continue outward from the center.

Describe the pattern you made.



(5.02, 3.01)



### Growing Mathematically

#### Could Be, But It's Not

Here's a game that promotes problem-solving and logical thinking that kindergarteners love to play. You need a number line visible to all students (use calendar number line), two sticky notes for markers and a place to record tally marks. Tell students you are thinking of a number between 0 and 100 (or wherever your number line has reached). Record the number on paper out of the students' sight. Students can then ask questions about the hidden number. Ex. "Is it bigger than 48?" The teacher records one tally mark on the board and answers either. "It could be and it is. It could be, but it's not or It couldn't be" (if number is out of range). The sticky note is moved to that number and eliminates the numbers above or below it. Play proceeds with students using their 10 questions based on information other students get to narrow down their choices. Question 10 is always a single number question. Right or wrong the teacher shows the hidden number at the end of the game.

(1.01d)




# Math News 4 Parents

## ***Increasing responsibility***

As children get older, they are asked to take more and more responsibility for themselves. Being a successful part of a classroom group means that children develop self-discipline and independence. We can help:

- by allowing them to make choices and then to deal with the consequences of their choices - both good and bad.
- by giving them tasks (chores) and expecting them to complete them.
- by allowing them to learn from their own mistakes without criticism.
- by focusing on things the children can do rather than the things they cannot do.

## ***Outdoor mathematics***

Spring offers wonderful opportunities for moving mathematics outdoors. Science and language skills come together with mathematics when children keep journals which record the budding of flowers or the story of the garden they plant. Let your child dictate to you and then illustrate the sentences. If you watch the same plant and record what it looks like every three or four days, you will be able to talk about the changes you observe. Do you have a place to plant a small garden? Help your child measure around the perimeter. You can help your child trace a footprint to use as the unit of measure. How long is the garden? How wide is it? How many tomato plants did you put into your garden? How much did the seeds and plants cost? Cut out magazine pictures to make a poster for example: foods that are stems, ones that are roots, ones that are leaves.

## ***Planning mathematics for summer***

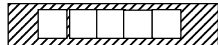
Summer sunshine does not mean that mathematics is no longer important. Ideas developed during the year continue to grow. *We must wait one hour after lunch to go swimming. It is 1 o'clock now. When can we go swimming? What will the hands on the clock look like?* Using a calendar, figure with your child the number of days of vacation. Have a family countdown until school begins again! Make a graph to show how many hours your child plays outside each day. Cut cartoons out of the newspaper and use them for your child to make up math story problems. And don't forget to estimate and then count... the number of cookies in the box, the number of steps from your house to the corner, the number of books you will read this summer. Make a collection of treasures found outdoors. Sort and resort!



## Let's Count

### "Addition Trains"

Select an appropriate number (5-10) for your group to work with and prepare a train mat for each child by cutting apart the corresponding unifix recording form ( Blackline Master Week 29). Ask children to fill in train mat using cubes of two colors. Discuss the trains they created. For example, how many cubes did you use? How many red? How many blue?

**Train mat for 5:** 

(1.01b, 2.01)



## I Wonder

Kindergarteners need to have experiences with a variety of different types of problems. Multiplication and division situations can be presented very naturally and solved concretely.

Here are some examples to use with the farm story mat: **Multiplication:** Farmer Sue is feeding her horses. She has three horses and each horse gets two apples. How many apples does she need? **Division:** Three pigs got into the cornfield. They found 12 ears of corn. How many will each pig get?

(1.02, 1.03)



## I Spy

### "Bands Art"

Promote creativity and recognizing geometric shapes by inviting students to make specific objects on their geoboards or with pattern blocks. Example, make a sailboat. Use qualifiers to extend their thinking; i.e., make a rocket with one rectangle and one triangle. Compare and contrast student creations. (3.04)



## Growing Mathematically

### Calendar Extensions

Spice up your calendar activities with these two extensions. What Day Is It? Ask your students to find a particular date on the calendar; ex., the 10th. Show students how placing their finger on the date and sliding it up the column finds the day of the week it was on. Skip around the calendar choosing dates at random.

At the end of the month, rather than remove the previous month's pieces, see if your students can generate a rule to remove as many pieces as possible. Ex., remove all numbers with 2, or take off the C's in the pattern or all numbers under 10. This makes the calendar as much fun to take down as it was to put up.

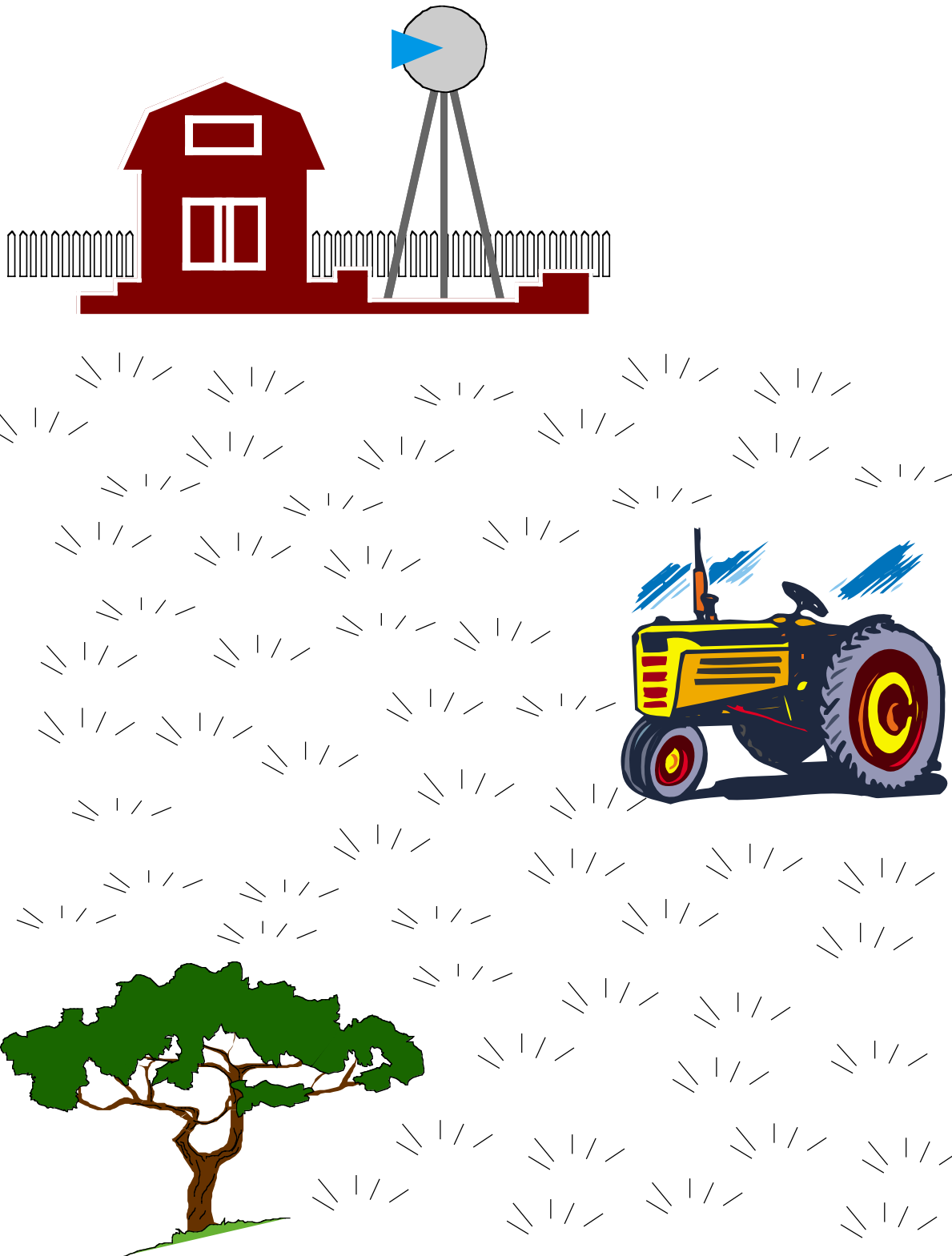


## What Do You Think?

### "Venn Again"

The Venn Diagram is a very flexible sorting graphic. It was introduced on the overhead in Week 19. To promote greater student involvement create a large diagram on the floor using hula hoops or string. Ask students to select sets to be sorted and sorting rules. You can also integrate other areas of the curriculum. For example: sort seeds or animal pictures (science), sort book jackets (reading) or sort postcards (social studies). (5.01)

# Farm Yard





## Let's Count

### "Subtraction Trains"

This is a variation of Addition Trains described in Week 29. Ask children to fill their train mats with cubes of one color. Then have them break off various numbers of cubes. Discuss how many are left. "Yes, that's it! Eight take away three is five."

(1.01b, 1.03)



## I Wonder

### "Stories and More Stories"

Use manipulatives and the story mats from Weeks 29 and 30 to create story problems that combine and separate sets. This is an activity that needs much repetition during the year for students to become proficient. Story mats should be colored and laminated for durability. Don't forget to encourage your students to share their own stories after they become familiar with the process.

(1.03)



## I Spy

### "Literature Connection"

Two great books to review the sequence of the months of the year are Sendak's Chicken Soup With Rice and Anno's Counting Book. For Anno's Counting Book, the teacher will need to make the number and month correlations. Extensions at the rice table in measuring fit perfectly with Chicken Soup. Greg/Steve's "Months of the Year" song also provides a snappy review.

(2.02)



## Growing Mathematically

### Pour It On

Sand, water, and rice tables are mainly exploratory areas the first part of the year. They allow students to improve their motor control, eye-hand coordination, discover new vocabulary and other important concepts. To give students a new focus engage them in some volume and capacity projects by adding many multi-sized containers and individually labeled cards to these areas. Students can set up their own displays of more/less or full/empty containers as they label their efforts. Include two sets of these words; full, empty, half, more than, less than, equal. (Blackline Master Week 22)

(2.01)

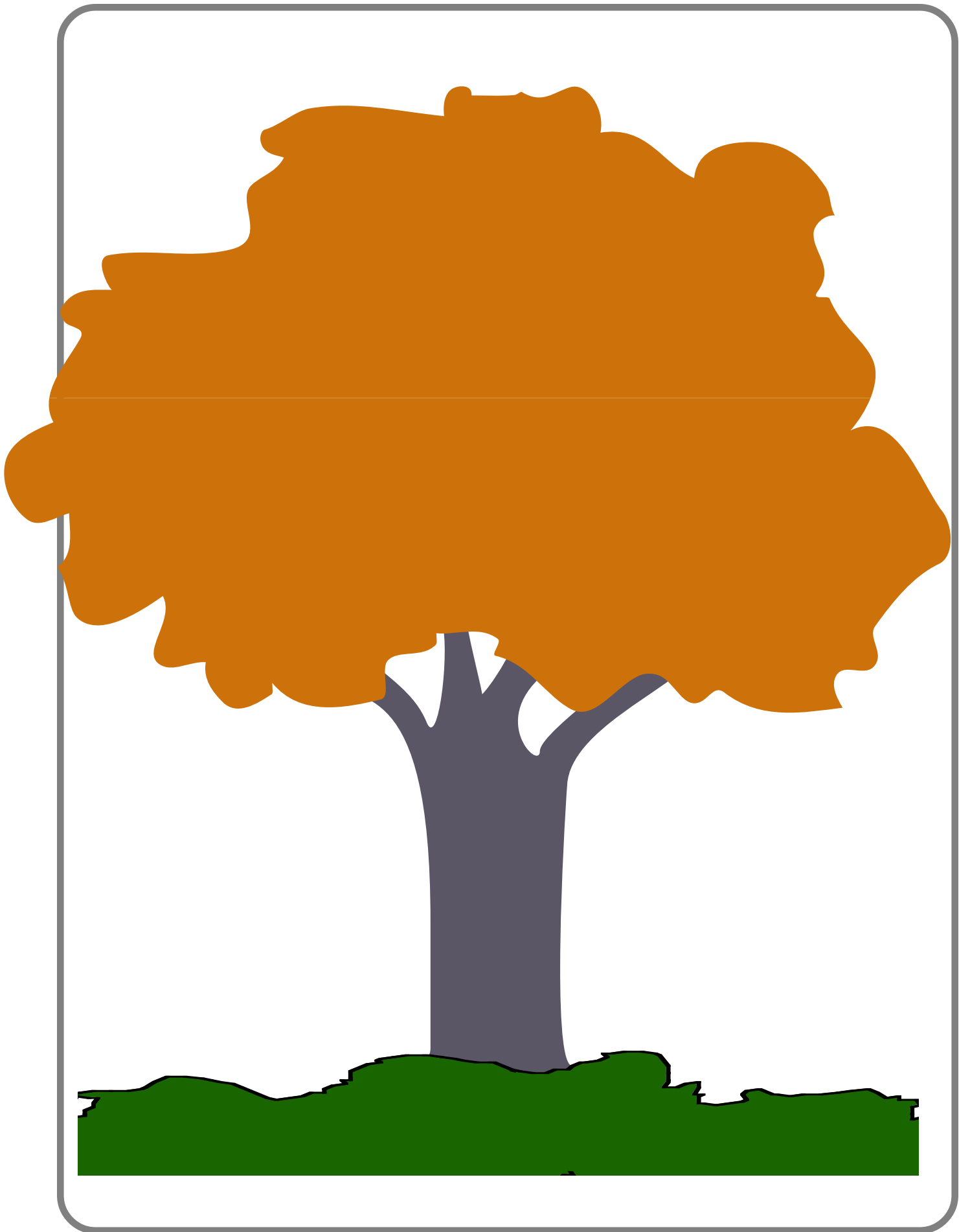


## What Do You Think?

### "The Pattern Garden"

Provide a large supply of dyed pasta shapes for students to make into flowers. Have them glue their flowers onto a card and make several more that are identical. Group children in threes and have them compare their flowers. Then ask them to make a row of flowers that form a pattern. (They may need to make more of one design to complete their pattern). When glue is dry and they have discussed their patterns, the cards can be used as a bulletin board border.

(5.02)





## Let's Count

Give each pair of children two bags containing ten counters each. Have each child build a small wall that screens their work space. The children choose some counters from their bag and arrange them behind their wall. When both are ready they remove their walls and compare amounts -- whose was more, whose less or were they equal? (walls can be built using two stacked blocks or an open manila folder).

(1.01a, d)



## I Wonder

To help develop children's sense of time ask the student to choose a familiar puzzle and remove the pieces from the frame. Give them a three-minute egg timer and ask them to predict whether they think they can reassemble the puzzle before the sand runs out. Flip the timer and complete the puzzle. When time is up call "Time." Discuss with student the results. Were they successful? If so, why? -- Why not? What other activities do they think may take about three minutes?

(3.04)



## I Spy

★Challenge Activity

### "Stretch Your Thinking"

Extend learning by having your students copy geoboard creations (like the ones made in Week 19) on dot paper. This will be very challenging for some students. Start with simple pictures and teach students to use a corner for a point of reference.

(3.04)



## Growing Mathematically

### Wrong answers can also help us learn

Accuracy will always be important, but children also learn through their mistakes. Wrong answers give us insight into children's thinking and allow us to see what the children do and do not understand. Rather than always correcting our children, we may help them more by encouraging them to explain their thinking, test their ideas, and reconsider their answers. Children do not intentionally give incorrect answers. They want to succeed. Sometimes wrong answers are due to haste or carelessness. Often when we ask for explanations, children find their own mistakes. Since we want to encourage our children to think for themselves, we must value their efforts and use responses such as:

- Tell me how you decided on that answer.
- How would this (another solution) work?
- I'm not sure that I agree. Tell me more about your idea.

*How do you know there is a mistake? What do you need to do to make the pattern correct? Can you make the same pattern using actions instead of symbols? Good questions encourage thinking and discussion. Why do you think that? How do you know? How could you find out? What could we do to find the answer?*



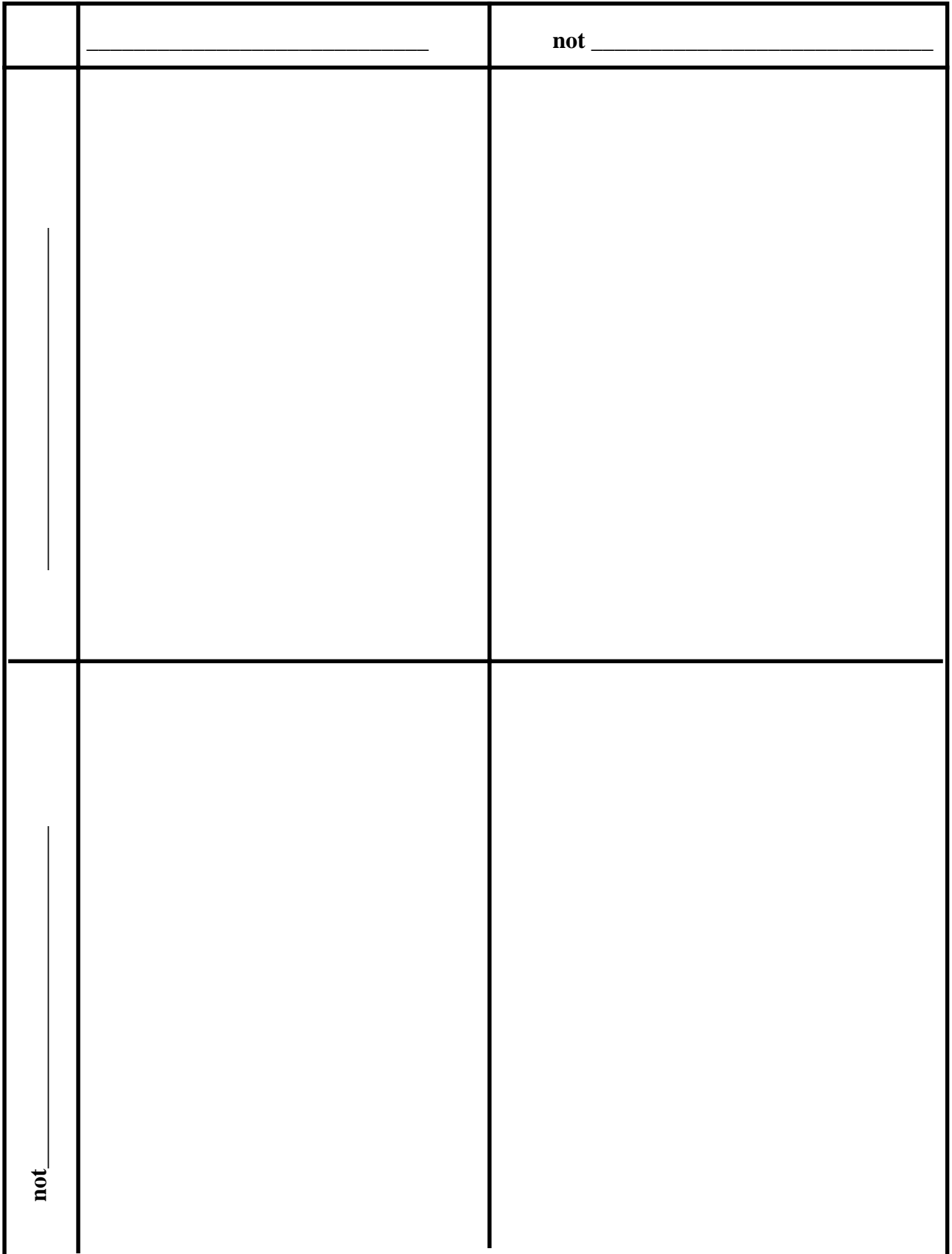
## What Do You Think?

	red	not red
square		
not square		

The Carroll Diagram is another sorting graphic. It can help children develop logical thinking. The Blackline Master can be used to make a transparency or can be enlarged to poster size. To use, choose two attributes and label the diagram. Then sort objects into each box according to labels.

(5.01)

# Carroll Diagram





### Let's Count

#### "Quicko"

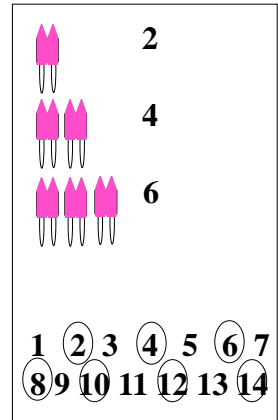
This activity will help children learn to identify small sets (1-5) without counting. Make 20 - 30 large, dot flashcards from Blackline Masters Week 22 . Flash the cards one at a time and ask the children to say the number as quickly as they can.

(1.01b, f)



### I Wonder

The following day have students glue sticks to popsicle pattern. Glue patterns to chart paper and record the number of people served to the side. Circle the numbers on a number line to find the pattern.



(5.02)



### I Spy

Pass out tangram sets to your children and pose the following questions:

- Can you make a triangle with two or more tangram pieces?
- Can you make a square with two or more tangram pieces?

(Blackline Master Week 9)

(3.01, 3.04)



### What Do You Think?

Here's a fun way to introduce a growing pattern. Bring some popsicles to class and ask how many people two popsicles will serve if each person gets one stick. After they try to work this out, break the popsicles in half and see if that helps answer the question. Continue with other numbers until the class is served. Save the sticks for "I Wonder."

(1.03)



### Growing Mathematically

#### Year End Assessment

Now is the time to begin your summative assessment of each child. Don't wait until the last week of school! Review individual assessment records (checklists, matrix, grids, portfolios, etc.) to determine which objectives need to be assessed and/or re-assessed. For children who have not demonstrated mastery (Level III proficiency) try to indicate what their particular areas of need may be. This information is especially helpful for parents and for next year's teacher.

# More Math Fun at Home!

7

Mix juice from concentrate.  
Let your child help measure the water.

## WATER

Gather an assortment of household objects. Test and sort the objects by whether they float or sink.

Count all the things in your house that use water. For example, tub, toilet, washing machine, etc.

Encourage your child to explore capacity by providing various containers and scoops (laundry detergent scoops work well). Ask your child to estimate how many scoops to fill each container and then verify.

Paint water pictures outside on pavement, sidewalk or wooden surfaces.

Play the numeral game in the car while driving. Try to find each numeral from 1-10 (or more).

## GAMES

Play hopscotch.

Play Twenty Questions.

Pick an object that you usually see when driving. Count how many times you see it. For example, four churches.

Jump rope. Count as high as you can!

Talk about your child's birth length. Cut a piece of string or yarn to that length. Have your child find other things that are about that length.

## GROWING UP

List three things that babies can do. Then list three things that big kids (5-6 year --olds) can do.

Look at baby pictures. Talk about how you are the same and how you have changed.

Talk about things that you have learned in kindergarten.

Talk about what you expect to learn in 1st grade.

Talk about a place you would like to visit.

## ON VACATION

Look at a map to see where you are going or would like to go on vacation.

Make a list of five things you would like to do during your summer vacation.

Have a picnic lunch or supper. Count the clouds in the sky.

Plan some fun math activities to do during your summer vacation.



### Let's Count

#### "Things That Come In Groups"

Looking for groups is another way to link "how many" with symbols and new words.

- What things come in twos? Can you find some pairs of things? Be sure and use other "two" words such as double and twin.
- Do you know things that come in groups of three? How many singers in a trio or corners in a triangle?

(1.01b)

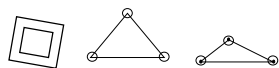


### I Spy

Provide additional opportunities for constructing shapes in your math area with these materials:

- pipe cleaners
- straws
- play dough
- connex
- Tinker Toys
- Q-tips

Stick pretzels and marshmallows make great edible shapes

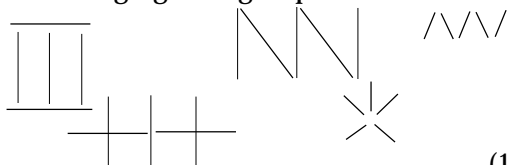


(3.01)



### What Do You Think?

A good at-home activity would be arranging objects into groups in order to count repeatedly (and eventually to do some addition). Use toothpicks or paper clips to make groups of five, arranging each group to look different.



(1.01b)



### I Wonder

#### "Counting Cups"

Provide students with several small, labeled containers, the Blackline Master, and unifix cubes. Students will make predictions about how many cubes the cup will hold and record their prediction on the left. After filling the container with cubes and counting, the child then records the symbols on the container and the number of cubes it held.

\* Containers can be labeled with colored dots, shapes or letters.

(1.0b, 1.01f)



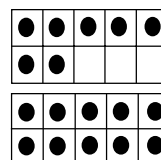
### Growing Mathematically

#### Numbers 11-30

The focus in kindergarten is on developing understanding and number sense for number 0-30.

Fluency with these numbers is an essential foundation for later work with larger numbers.

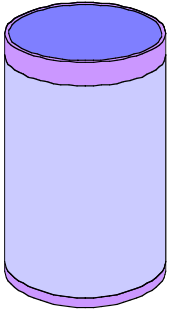
Although we do not expect kindergarteners to compute with numbers 1-30, it is helpful for them to develop visual images for these numbers. The double ten frame is an effective model for this. (See Week 28 for an explanation and Blackline Masters of the single ten frame). This model works best as illustrated below. Because of the way we say the "teen" numbers -- ones first and then the teens -- it makes sense to the children to show the ones on top of the full ten frame.



ten-frame model for 17

Name \_\_\_\_\_

# Counting Cups

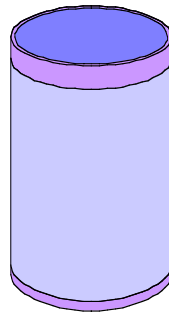


Prediction

\_\_\_\_\_

Actual

\_\_\_\_\_

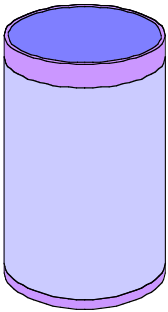


Prediction

\_\_\_\_\_

Actual

\_\_\_\_\_

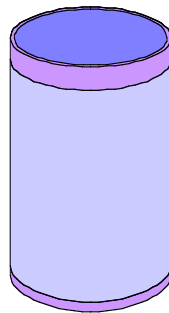


Prediction

\_\_\_\_\_

Actual

\_\_\_\_\_

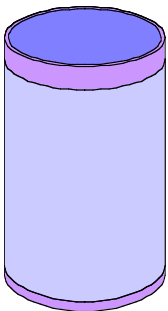


Prediction

\_\_\_\_\_

Actual

\_\_\_\_\_

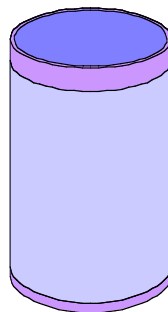


Prediction

\_\_\_\_\_

Actual

\_\_\_\_\_



Prediction

\_\_\_\_\_

Actual

\_\_\_\_\_



## Let's Count

### "What's Left"

Put an appropriate number of counters, (cubes, bears, buttons, etc.) in a paper lunch bag. Let the children count as you place the objects in the bag. Then select a student to remove some objects and tell how many were taken. The rest of the group tells how many they think are left in the bag.

(1.03)



## I Spy

### "Take A Peek"

To help build children's visual memory, ask them to look at one simple design, displayed on the overhead for 2-3 seconds. Turn off the overhead and ask the children to draw the design from memory. Do not expect perfect reproductions. After all children have completed their drawings, turn the overhead back on and let children compare their drawing to the original. Share strategies for remembering. See Blackline Master Week 34 for some sample designs.

( 1.03)



## What Do You Think?

Provide paper or plastic coins or coin stamps and strips of paper. Ask students to make a pattern using the different coins. Make sure to include the two faces of the coin as a way to vary the pattern. To help with recognition, the pattern can be read "penny, penny, dime" (5.02) instead of AAB.



## I Wonder

### "Mathematical Mixtures"

Try these recipes for creative investigations. Make primary-colored ice cubes with food coloring. Use six drops of red per cup and six drops of blue to a cup of water and 10 drops of yellow to a cup. Freeze as ice cubes. Later place ice cubes in clear glasses: one red cube with one blue cube, one yellow cube with one red cube, one yellow cube with one blue cube, and other combinations using the extra cubes. Have your children draw a picture of each glass, showing the colors of cubes, when you first begin. Check again in 30 minutes and draw new pictures. Check in one hour and make a final drawing. (This could be lemonade for a drinkable experiment!)

(1.01b)



## 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.



## ***LET'S HAVE A SCAVENGER HUNT!***

Make a scavenger hunt for your child and his or her friends by cutting out pictures from magazines and combining them with things you write or draw. Be sure to include some geometry, patterns, things to measure and things to count when making the list. Children can check off the items as they are sighted or come to you to write the location.

Here are ideas of things to include:

- a pattern with more than two parts
- something the length of your foot
- something red and yellow
- a book with less than 20 pages
- more than 12 of something
- something as tall as you are
- something that rolls
- picture of something bigger than a man
- a group of X's
- a circle
- two things that match
- today's date
- a cylinder
- something opened
- 10 rocks or seashells
- a pattern in wood or tile
- something about time
- a square
- the number eight
- a cone
- something alive
- a rectangle
- eight cents
- a triangle
- nine sticks
- a dime





## Let's Count

### Assessment Tasks

- 1.01d** Listen to each child count as high as possible. Record highest number.
- 1.01c** Write numerals 0-10 on paper plates. Have child place the appropriate number of counters on each plate.
- 1.01d** Say numbers 0-9 out of order. Children write each number as it is said.



## I Spy

### Assessment Tasks

- 3.04** Select 2 or 3 puzzles of varying difficulty. Observe each child. Complete one or more. Note strategies used, particular difficulties, etc.
- 3.03** Working with a small group or an individual child, give directions using positional language. For example, "Put the button in, under, beside, over, on top of the cup." Observe the children and note which are able to follow the directions and which have difficulty. Then ask each child to describe, using positional language, where you place the button.



## What Do You Think?

### Assessment Task

- 5.02** Give each student a strip of paper and ask them to draw a pattern. Encourage them to create more complex patterns (beyond AB). Date these and place in portfolios.



## I Wonder

### Assessment Task

- 2.01** In individual interviews ask each child to compare two objects that are different in size, two that differ in weight, and two that differ in capacity. Have the child tell which is longer/shorter, heavier/lighter, etc. Then present three or more objects and ask the child to order them from heaviest to lightest, biggest to smallest, etc.



## Growing Mathematically

The sections above contain assessment tasks that you can use to help determine each student's level of understanding of a particular objective. Be sure to make time during these last busy weeks to spend a few minutes with each child looking at his or her progress and achievement. This is also the time to edit portfolios saving only a few items that provide a clear picture of that child's accomplishment. Don't forget to consult the Kindergarten section of the K-2 Assessment Materials on the Learn NC website:

([www.learnnc.org/instrserv.nsf/Category7](http://www.learnnc.org/instrserv.nsf/Category7))

# Math News 4 Parents

## *Learning Mathematics Through Games*

When children play games, they rarely realize that they are also learning. They develop social skills such as taking turns and playing fairly. They also learn mathematics. In some games, such as *Go Fish* or *Old Maid*, they match pictures or numerals. Other games have children roll a die or draw a card to determine how many spaces they move. *Candyland* or *Chutes and Ladders* are examples of this type. Concentration games reinforce visual memory, and puzzles help to develop children's spatial sense. One traditional game that is filled with mathematics is *Dominoes*. Children match patterns and count up scores. If you have never played dominoes, just follow the rules that come with the set. *Bingo* reinforces number recognition and can be modified to review shapes or colors.

Make up your own gameboards by drawing a "path" which players follow. Make some of the spaces have special consequences: take an extra turn, go back two spaces, lose a turn, move an extra three spaces. Personalize the gameboard according to your family interests. Decide how players will move (rolling a die or drawing a number card or some other way) and make up any other necessary rules. Bottletops make good markers. Enjoy!

Don't forget about outside games. Hop scotch and jump rope use mathematics as does every kind of ball game. Take a hike; look for shapes; count the signposts; be a mathematician!



### Let's Count

Encourage responsibility and provide application of counting skills by having your students help with a year-end inventory of math manipulatives and other classroom materials. Students can put unifix cubes in stacks of 10, package counters, stack geoboards, count boxes of crayons, etc.

(1.01b)



### I Wonder

As a part of your end of year review, talk with your class about some of their favorite math activities. Create a graph based on this discussion and have each child place a marker on his or her personal favorite.

pattern necklaces	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
ice cream graph	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
whale game	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

(4.01)



### I Spy

Puzzles should be carefully checked at the end of the year. Assign each child a puzzle or puzzles to be responsible for. Have them check for missing or broken pieces. Students can also check tangram sets. Each tangram set should have two large triangles, two small triangles, a medium triangle, a square and a parallelogram.

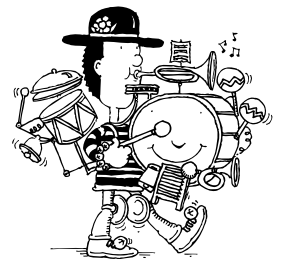
(3.04)



### Growing Mathematically

#### Celebrate Learning!

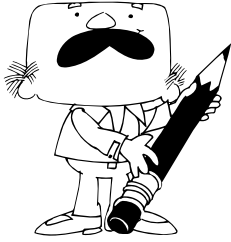
End the year on a positive note by sharing and celebrating each child's progress and accomplishments. Remind the children of where they were at the beginning of the year. Perhaps show some samples of work from the first few weeks of school. Then talk with them about all the things they have learned. Share some recent work samples and compare with earlier work. Have each child write and illustrate a page about something he or she has learned in math.



### What Do You Think?

Sorting is a part of many inventory tasks. Before packing away math manipulatives have student sort materials in each container and put them away in the appropriate place.

(5.01)



## *Weekly Summer Checklist*

- Count objects that the child can touch and move.
- Read a story and talk about the math used in the book by the characters.
- Choose a special “shape of the week” and find it in many places.
- Cut pictures from a magazine or draw pictures to tell a story, telling what happened first, next, and last.
- Put things into a surprise bag for the child to describe and sort. Can they be grouped in other ways?
- Play a card game or a strategy game such as dominoes.
- Experiment with how much different containers will hold. Group containers from least to greatest.
- Make collections of things. Store in bags of exactly 25.
- Make some kind of pattern and repeat it several times. Find a pattern in your house or outside.