4-group Math™

by Kuske Math™

Preschool Program Teacher's Manual

by

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Welcome to 4-group Math™

Mission statement: *Creating a new generation of kids who love math.*

4-group Math in preschool is play with a purpose and a smile!

Never again does a child need to be intimidated by math…ever!

If you are or are not a 'math person', you will enjoy learning why 4-group Math works.

With 4-group Math the early ideas and skills of math are fun, engaging, developmentally appropriate, and most of all…learned through PLAY!
We lay a strong foundation in children that prepares them for the math they will meet in kindergarten and beyond.

Historically, mathematics has been viewed by many early-childhood educators as developmentally inappropriate for young children. If *math* means the "drill and kill" of facts, then this viewpoint is valid. At 4-group Math, we want to change the perception of math for young children.

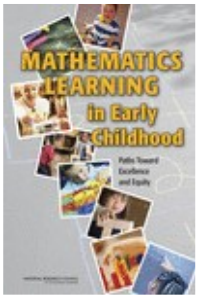
The latest research on mathematics indicates that young children can learn the ideas and skills that support later, more complex mathematics understanding. Evidence shows that early success in math is linked to later success in both math and reading. Therefore, we must teach foundational math ideas and skills to young children as emphatically as we teach reading.

The National Council of Teachers of Mathematics says that the most important foundation for math is ***number sense***; a conceptualization of the quantity of numbers and how they go together and break apart. 4-group Math is the first and only visual/tactile math program that teaches number sense to children using the *Original 4-group Method™.*

The Original 4-group Method is a visual/tactile model, based on the brain research of *subitizing,* which enables children to accurately and confidently conceptualize the quantity of numbers within our base-ten number system. *Subitizing* is the brain's rapid, accurate and confident judgment of the quantity of a set of objects without counting. Children can subitize four objects shown in a square pattern.

The Original 4-group Method uses this ability as an anchor to represent the quantity of numbers, so that every child receives the best foundation in number sense; their key to future math success.

The Original 4-group Method is a summative model wherein the 4-group Number Patterns™ go together and break apart like a puzzle in a way that makes sense to children's brains. This enables all children to learn their basic math facts in a simple, fun and engaging way.



From a National Research Council (2009) report[1] sponsored in part by the Office of Head Start, the U.S. Department of Health and Human Services, and the National Institute of Child Health and Human Development, emerging research indicates that learning experiences in which mathematics is the primary goal are most effective for promoting math learning. Therefore, we recommend that you have an intentional math time for 10-15 minutes a day.

This NRC report recommends two major content areas that mathematics instruction should concentrate on in early childhood settings:

- The first area -- and the one to which the most time should be devoted -- is the concept of "number," used by mathematics educators to encompass counting, determining relative quantities (less and more), and basic computational operations such as simple addition and subtraction.
- The second area is the study of shapes and space (geometry), spatial thinking, and measurement (size).

The 4-group Math Preschool Program and its materials encompass both of these areas in a way that will have preschool teachers and children smiling when they hear, "It's time for math!"

The progression in the 4-group Math Preschool Program is to move through the eight steps at a pace that matches the abilities of your children.

Each step identifies the objectives and the child outcomes. We provide Lesson Ideas to accomplish these; however, with creativity and the knowledge of your children, you will develop many of your own ideas and activities. (We would love to hear about your ideas!)

Message from the Founder – Lynn Kuske

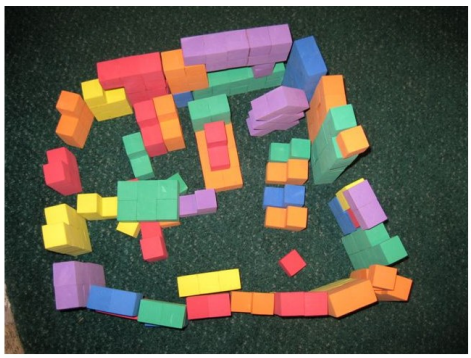
There is a belief in our country that some people are inherently bad at math; they have a "math disability." I believe that success in math is determined by *what and how* you are taught. Sixty-five percent of us are visual-kinesthetic learners, therefore 4-group Math presents math to children in a visual format that makes sense to their brains. Everyone can be successful with 4-group Math!

[1]National Research Council (2009). *Mathematics Learning in Early Childhood: Paths Toward Excellence and Equity.* Committee on Early Childhood Mathematics, Christopher T. Cross, Taniesha A. Woods, and Heidi Schweingruber, Editors. Center for Education, Division of Behavioral and Social Sciences and Education. Washington, DC: The National Academies Press.
ISBN: 0-309-12807-2, 448 pages, 6 x 9, (2009)
This PDF is available from the National Academies Press at: http://www.nap.edu/catalog/12519.html

Overview of Materials for a 4-group Math Preschool Classroom

4-group Number Blocks

The 4-group Number Blocks are a multi-dimensional manipulative that develops number sense as well as spatial/geometry skills.
Children will benefit from just playing with these simple building blocks. They won't even know they are learning math!

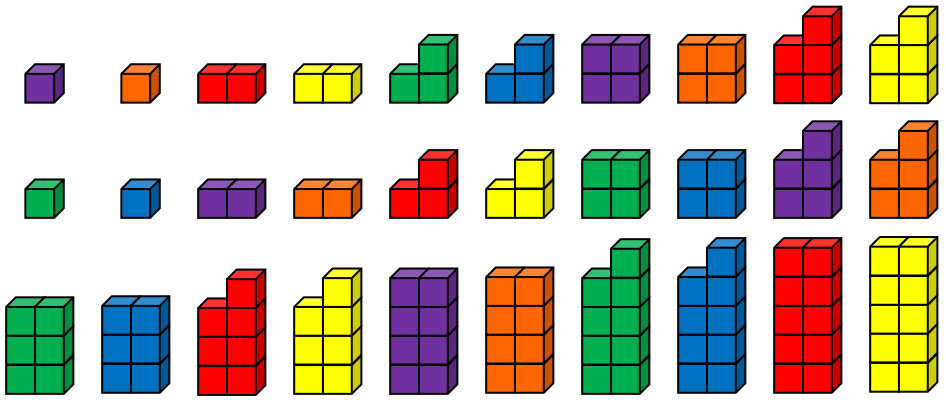


IMPORTANT: Many children today have little experience with building blocks. From the first day of school, put the blocks out for children to explore. You may need to model and encourage them as they build.
We have found that if at first we don't put 'props' out with the blocks, such as little cars or little animals, the children get very creative using the blocks to make cars and animals.

Listen to the math talk that goes on while the children 'play.'

You can enhance children's math learning with the following:

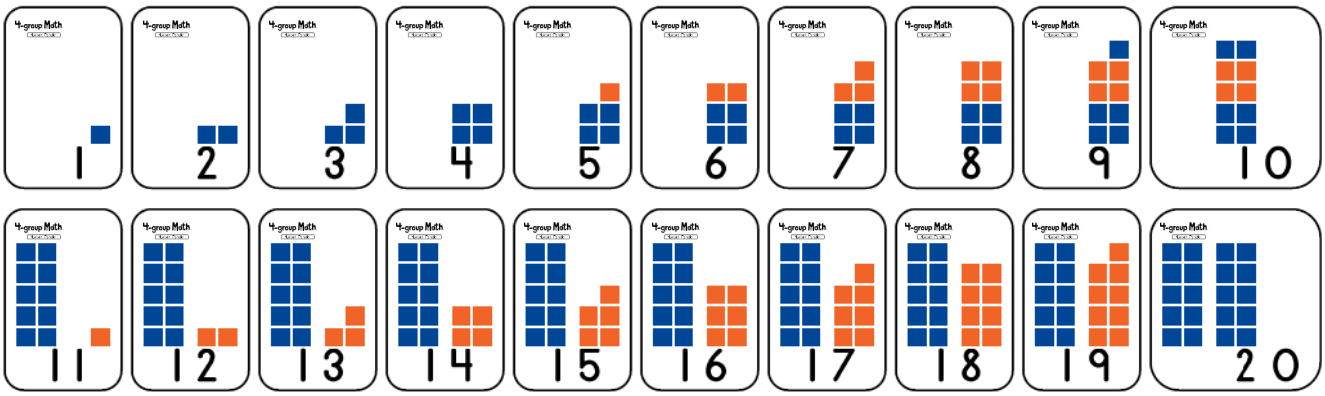
- Use number words as you talk to the children about what they are building.
  Children learn to connect the number pattern to the number name.
  Here is a two. Do you need a three? I see you used a four on top of your castle.
  What number did you put on top of your house?
- Ask for blocks by their number name. *May I please have a two?*
- Use spatial words as you talk with the children.
  I see you put a red block above/below, over/under, beside/next to, behind/in front of, in between, on top of your blue blocks.



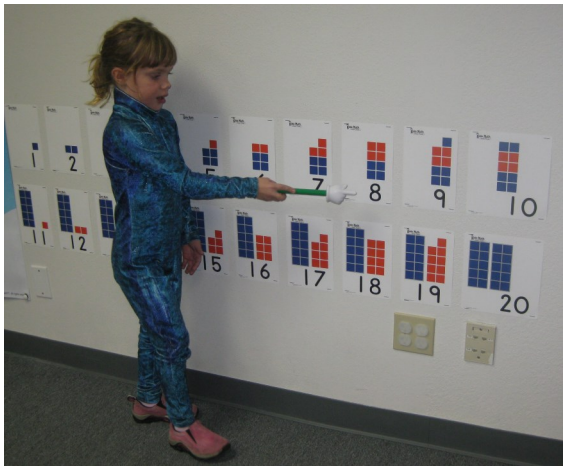
One set contains 30 blocks, in the primary and secondary colors.
Each number comes in various colors.

IMPORTANT: Store the blocks where children can readily access them for play throughout the day whenever you have centers or free choice time. The blocks can be used in the water table or sand table. They can be washed in chlorine water or in the gentle cycle of a front load washing machine set on cold wash and cold rinse. Do not put them in the dryer!

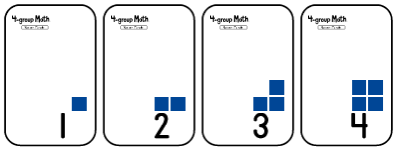
4-group Number Parade 1-20



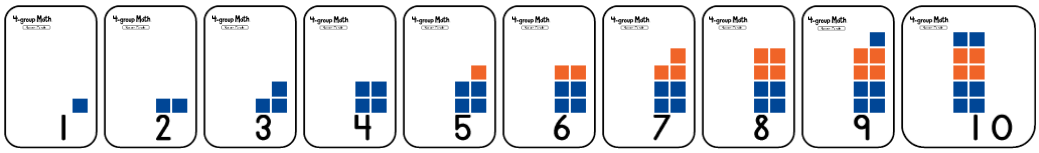
IMPORTANT: Post the Number Parade at eye level in a location where children will see it often.
The squares on the Number Parade are sized to match the 4-group Number Blocks.

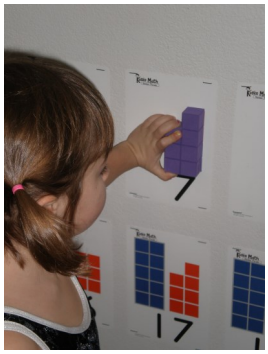


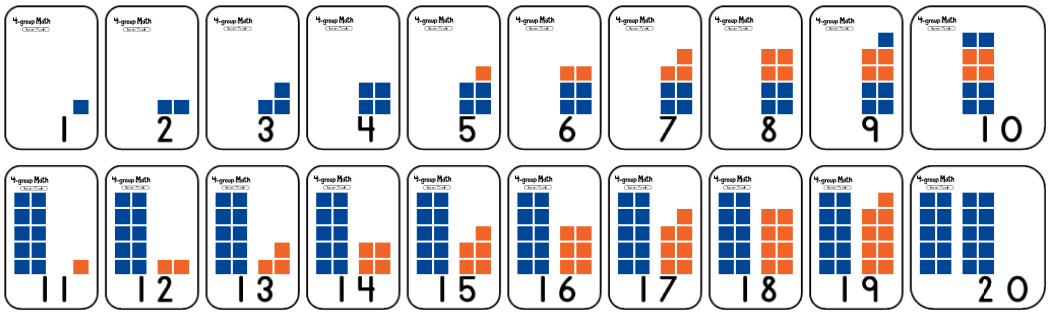
The ideal way to post the Number Parade to match the activities in this program is as follows:
Post the numbers 1-4 for Step 1 and Step 2.



Add the numbers 5-10 for Step 3.



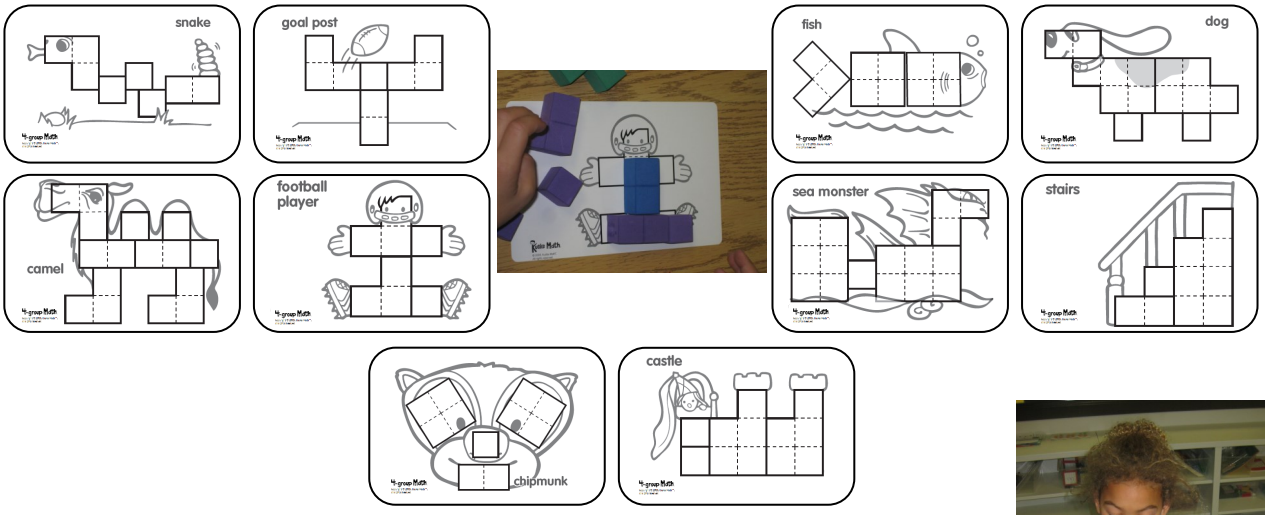




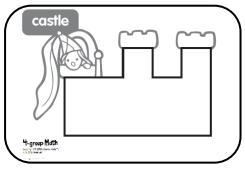
Post 11-20 under 1-10 after children are comfortable with counting 1-10.
Posting 11-20 under 1-10 (as shown above) allows children to see the 'same' and 'different' aspects between the ones and teen numbers such as:

- Teen numbers have the same pattern in the ones place as the number above.
- Teen numbers have a 10-pattern in front of the ones pattern.
- Teen numbers have a 1 (meaning one group of ten) in front of the ones number.

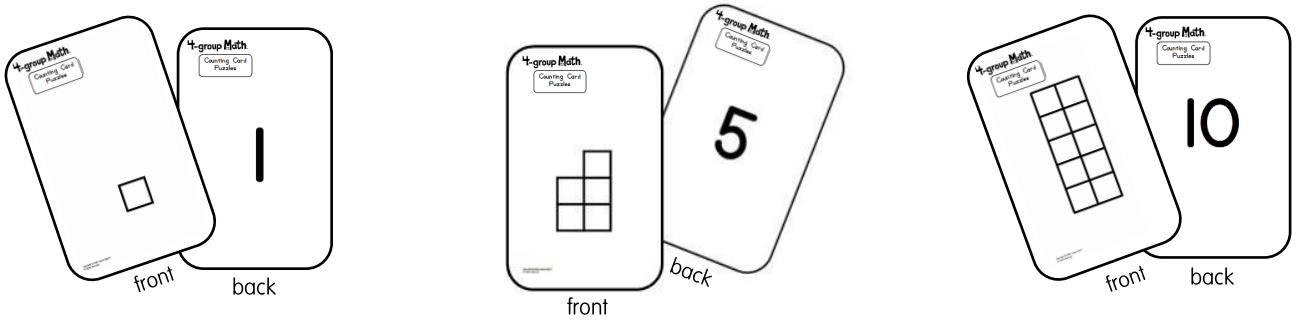
4-group Puzzles



These double-sided puzzles are designed for use with the 4-group Number Blocks. The easier side has interior lines showing the blocks that can be used to complete the puzzle.
The more advanced side, without interior lines, helps children learn that many different block combinations can fill the puzzle.

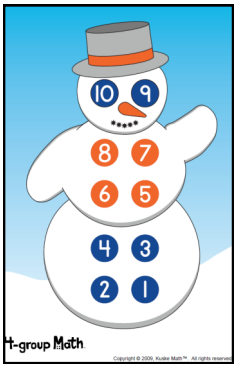


4-group Counting Cards 1-10



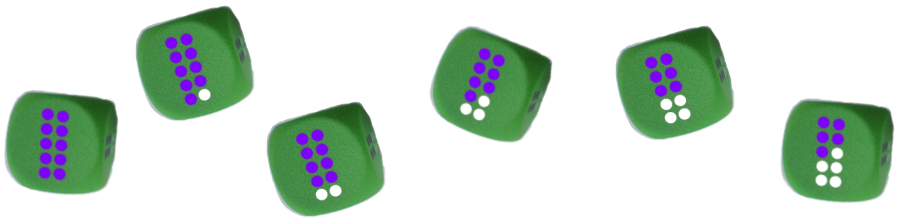
The squares on the Counting Cards are sized to match the 4-group Number Blocks.

Ten-man™ Card



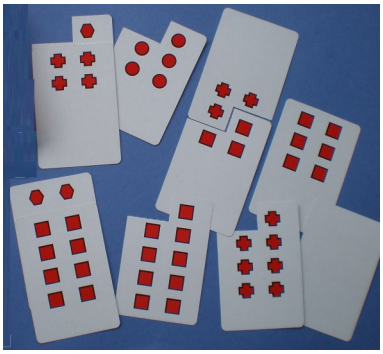
Ten-man is the 4-group Math visual image to help children conceptualize the quantity of ten.
He also shows the unique 4-group Counting Order which starts at the bottom and proceeds right-left-right-left up to ten.
(For an explanation of the 4-group Counting Order, see Step #4, page 31).

4-group Dice



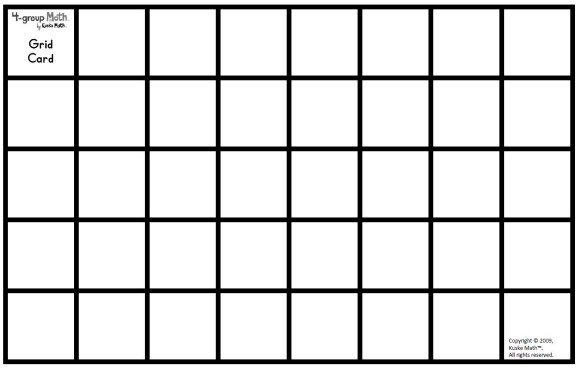
The 4-group Dice can replace traditional dice for many math activities and games.
The white circles show the 4-group Number Patterns 0-5. The purple circles show the 4-group Number Patterns 5-10. Each side shows a number combination that makes ten.

4-group Playing Cards



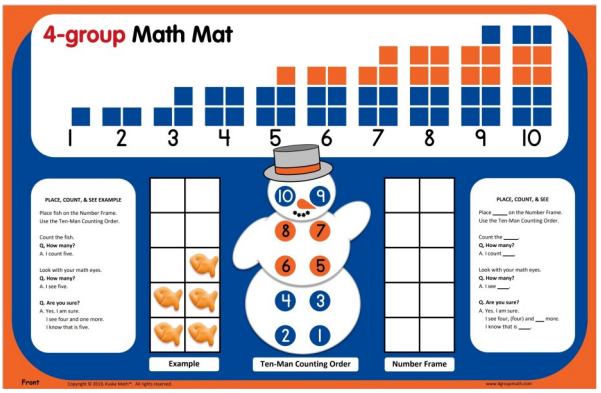
These playing cards show the 4-group Number Patterns 0-10. There are 44 cards in a deck. The *suits* are squares, circles, pluses, and hexagons. The four blank cards are the zeros. (Don't throw them away!) The odd number cards are notched so they can combine to show the pattern for their sum, up to ten. The 4-group Playing Cards can replace traditional playing cards for many math activities and games.

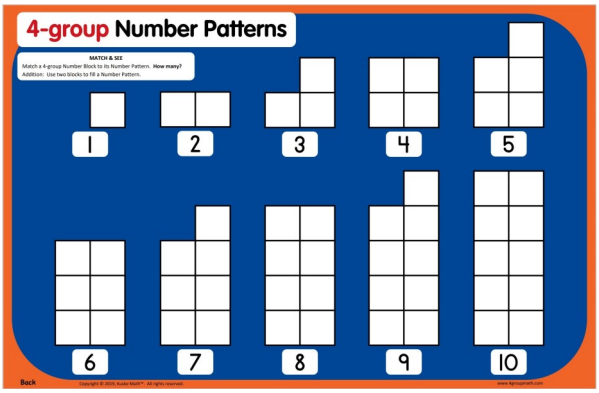
4-group Grid Cards



The squares on the 4-group Grid Cards are sized to match the 4-group Number Blocks.
Children develop their spatial skills by trying to cover the grid with different combinations of blocks.

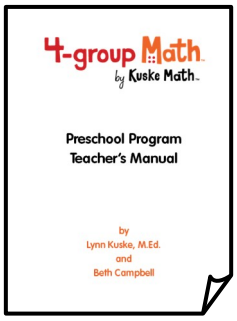
4-group Mathmat





The front of the laminated mathmat shows Ten-man and the subitizable component parts that make up the 4-group Number patterns. The ten-frames on the front and the 4-group Number Patterns on the back are sized to the 4-group Number Blocks.

4-group Math Preschool Program Teacher's Manual & Black-line Masters



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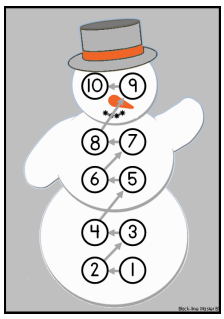

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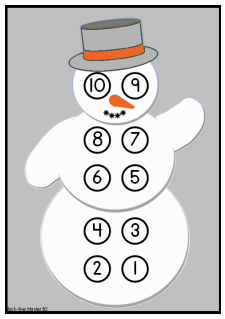

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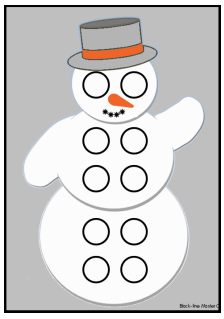

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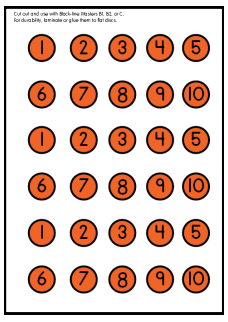

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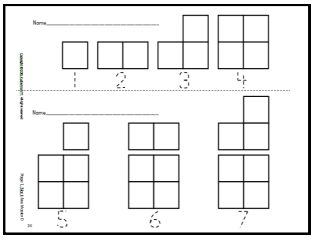

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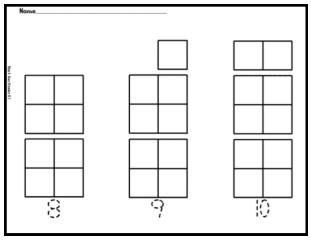

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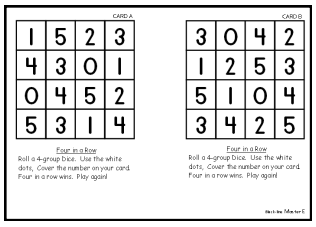

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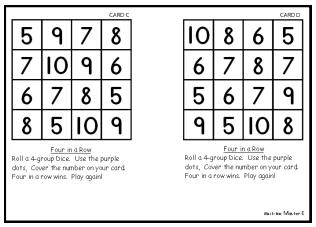

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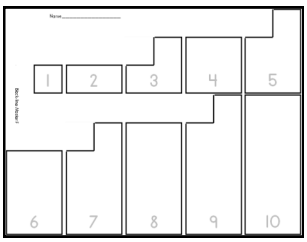

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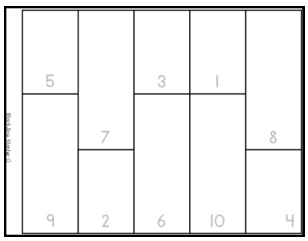

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4-Group Math does not believe in a lot of worksheet practice for young children.
You will find many creative ways to do the same activities in a large muscle format.

The 8 Steps in the 4-group Math Preschool Program

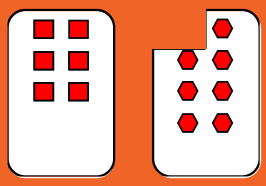
At a Glance*

STEP #8
Combine & Separate the 4-group Number Patterns

STEP #7
Construct the 4-group Number Patterns

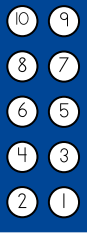
*4-group Math uses a unique Counting Order that goes right to left, beginning at the bottom. See Step #4, page 31 for the rational.

STEP #6
Recognize the 4-group Number Patterns



STEP #5
See the 4-group(s) in each 4-group Number Pattern

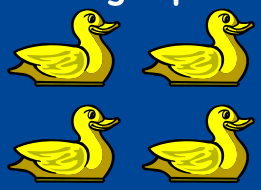
STEP #4
Learn the 4-group Counting Order



STEP #3
Count 1-10 (11-20) on the Number Parade

STEP #2
Ten-man

STEP #1
The Power of the 4-group



Objectives and Child Outcomes at a Glance

STEP #1 The Power of the 4-group

OBJECTIVES:

To experience the power of four objects in a square pattern.
To count 1-4 objects into a square pattern with one-to-one correspondence.
To develop count-cardinality* for the 4-group Number Patterns 1-4.

*Count-cardinality – The child understands that the last number name said tells the number of objects counted.

CHILD OUTCOMES:

The child will see four objects in a square pattern and say *four* with confidence without counting.
The child will take four objects and put them into a square pattern, counting 1-4 with one-to-one correspondence.
The child will see one, two, three, or four objects in the corresponding 4-group Number Pattern and correctly answer, "How many?" with confidence. (They may count.)

STEP #2 Ten-man

OBJECTIVE:

To mentally visualize the quantity of ten.

CHILD OUTCOMES:

The child will describe Ten-man as having four dots on the bottom snowball, four dots on the middle snowball and two dots (eyes) on the top snowball (head).
When asked, the child will make their own Ten-man by placing ten objects into a 4-pattern, 4-pattern, and 2-pattern.
The child will say, "Four, four, and two more make ten."

STEP #3 Count 1-10 (11-20) on the Number Parade

OBJECTIVE:

Learn the counting word sequence 1-20; starting with 1-10.

CHILD OUTCOME:

The child will point to the numbers 1-10 in order on the Number Parade and say the counting word for each number while pointing to that number.

STEP #4 Learn the 4-group Counting Order

OBJECTIVE:

Learn to build and count right to left and from the bottom up when making the 4-group Number Patterns.

CHILD OUTCOME:

The child will count ten objects into a 4-group 10-pattern using the 4-group Counting Order with one-to-one correspondence.

STEP #5 See the 4-group in each 4-group Number Pattern

OBJECTIVE:

Recognize and identify the 4-group Number Patterns 5-10 as a four (or two fours) and some more.

CHILD OUTCOMES:

When asked to show a number from 5-10 the child will place objects into a 4-pattern (or two 4-patterns) and the appropriate "more" 4-group Number Pattern, for the given number.

When asked, the child will say, "Five is four and one more," "Six is four and two more," "Seven is four and three more," "Eight is four and four," "Nine is four, four, and one more," and "Ten is four, four, and two more."

STEP #6 Recognize the 4-group Number Patterns

OBJECTIVE:

Identify the 4-group Number Patterns 1-10 as whole numbers.

CHILD OUTCOME:

The child will look at a 4-group Number Pattern 1-10, represented in any medium, and correctly say how many without counting.

STEP #7 Construct the 4-group Number Patterns

OBJECTIVE:

Represent the numbers 1-10 in the 4-group Number Patterns.

CHILD OUTCOME:

When requested, by hearing the number word or seeing the numeral, the child will build the 4-group Number Pattern for the given number 1-10 using the 4-group Counting Order.

STEP #8 Combine & Separate the 4-group Number Patterns

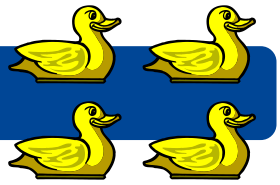
OBJECTIVE:

To model and express simple addition and subtraction situations up to five.

CHILD OUTCOME:

The child will correctly solve addition and subtraction problems, given to them orally, by either modeling with objects in the 4-group Number Patterns or by 'seeing' the 4-group Number Patterns in their minds.

STEP #1 The Power of the 4-group



OBJECTIVES:

To experience the power of four objects in a square pattern.
To count 1-4 objects into a square pattern with one-to-one correspondence.
To develop count-cardinality for the 4-group Number Patterns 1-4.

CHILD OUTCOMES:

The child will see four objects in a square pattern and say *four* with confidence without counting.
The child will be able to take four objects and put them into a square pattern, counting 1-4 with one-to-one correspondence.
The child will see one, two, three, or four objects in the corresponding 4-group Number Pattern and correctly answer, "How many?" with confidence. (They may count.)

MATERIALS NEEDED:

Sets of four similar objects such as stuffed animals, bean bags, or paper plates; cardboard egg cartons.

Subitize

The science behind 4-group Math is called *subitizing* (pronounced *sue-bi-tie-zing*). Subitizing is generally defined as the rapid, accurate, and confident judgment of the quantity of a set of objects, without counting.*

Young children can accurately and confidently judge the quantity of a set of four objects when those objects are arranged in a square pattern.

Draw four objects in a square pattern:

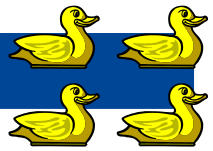
Young children cannot accurately and confidently judge the quantity of a set of objects in a line greater than three.[1]
Draw three objects in a line. Then draw one more. Now draw one more. Keep going to ten.

Are you sure you have ten? How do you know?
When objects are placed in a line or spread out randomly, children must count and recount to tell how many. They do not have a way to be confident of the accuracy of their count. If they miscount they are incorrect, without even knowing. This negatively affects their accuracy and confidence in mathematics.

***A Note About Counting** – The 4-group Math Preschool Program encourages lots of counting to learn the counting word sequence and to learn one-to-one correspondence. We count objects into the 4-group Number Patterns using the 4-group Counting Order (see Step #4, Page 31) to give children a method in which they can be accurate and confident in their counting. When children finish counting they can check their accuracy with their 'math eyes' and know with confidence that they are correct!

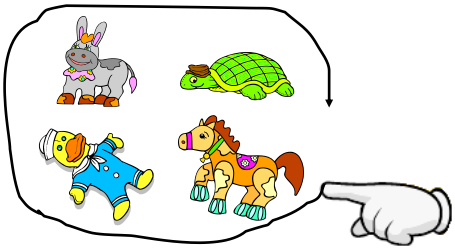
[1]Fischer, J. -P. (1992). Subitizing: The Discontinuity After Three. In J. Bideaud, C. Meljac and J. P. Fischer (Eds.), Pathways to Number (pp. 191-208). Hillsdale, NJ: Lawrence Erlbaum Associates.

STEP #1 Lesson Ideas

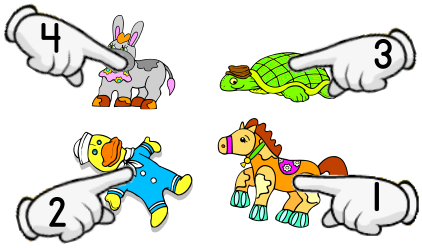


Teacher's words are in italics. [Children's responses are in brackets]

Step #1 - Lesson 1

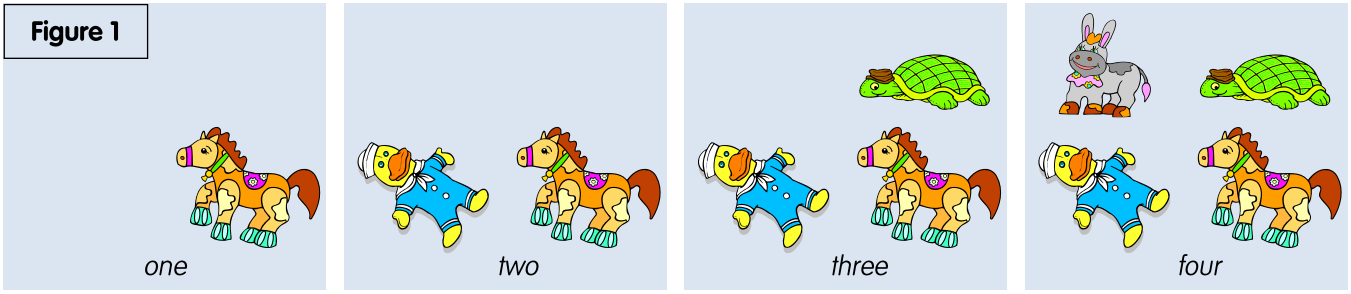


Show children four objects in a square pattern. This can be done on the chalkboard with dots or smiley faces, on a felt board with ducks, on the table with crackers, on the floor with toys, or any other creative way you will surely find.
Point to your group of four items circling around the entire 4-pattern with your finger.
How many? [Four.]
Let's count to check.
When you count the objects that are laid out in the 4-pattern, touch each object as you count in the 4-group Counting Order. (See Step #4, page 31, for an explanation of the 4-group Counting Order.)

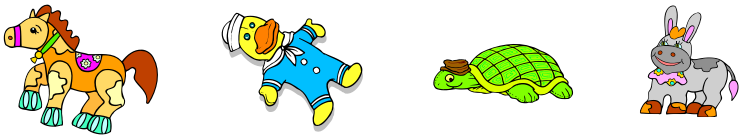


If children are too young to have learned to count four objects then begin by modeling as shown in Figure 1.

Figure 1

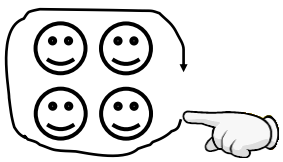


Show children four objects in a line using the same creative way you showed the 4-group.

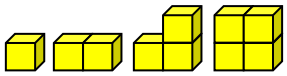


How many? [Four.]
Let's count to check.
Touch each object as you count left to right in a line.
Place the four objects back into the square pattern.
Discuss which is easier to '*see with our math eyes.*' (Some children will say the four in a line is easier. This is okay. As they work with bigger numbers they will experience the power of the 4-group.)
This is why our math program uses this 4-group.
Seeing the four in a square pattern is how our brains work best.

Repeat the lesson with different objects.



Step #1 - Lesson 2



You will need one each of the 4-group Number Blocks 1, 2, 3, 4 all the same color.

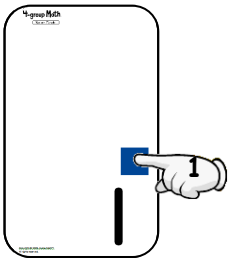
Children will sit in front of the Number Parade posted on the wall at their eye level.
They will count a 4-group Number Block 1, 2, 3, or 4 and match it to the Number Parade.

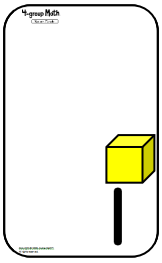
Hold up a 1-block. *How many is this?* [One.]
Are you sure? Let's count to check. Point to the block as you all count. [One.]

Do you notice anything above the numbers on our Number Parade? [Squares.]
Yes, there are little squares.
Why do you think the squares are there? [Yes, to show us how many.]
Does this 1-block match any of the squares?
After children comment, demonstrate for them how to match the block to the Number Parade.
Let's see if they match.
Point to your block and count *one*.

Point to the Number Parade 1 square and count *one*.

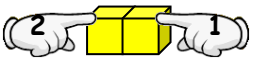
Hold the block such that it covers up the one square.
Yes, they match! They are both one.





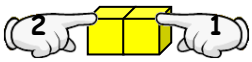
Repeat as above for the number two:

Hold up a 2-block. *How many is this?* [Two.]
Are you sure? Let's count to check. Point to the blocks as you all count in the 4-group Counting Order. [One, two.]



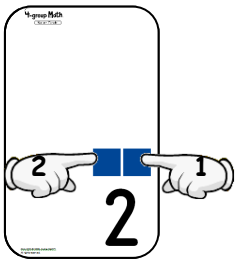
(See Step #4, Page 31 for an explanation of the 4-group Counting Order.)
Look at our Number Parade. Does this 2-block match any of the squares?
After children comment, demonstrate for them how to match the block to the Number Parade.
Let's see if they match.

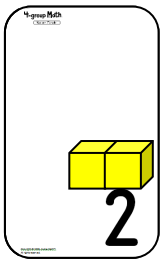
1. Point to your block and count *one, two* in the 4-group Counting Order.



2. Point to the Number Parade 2 squares and count *one, two* in the 4-group Counting Order.

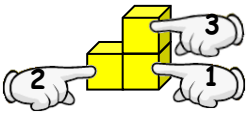
3. Hold the block so that it covers up the two squares.
Yes, they match! They are both two.





Repeat as above for the number three:

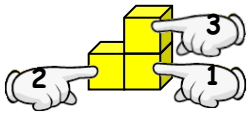
Hold up a 3-block. *How many is this?* [Three.]
Are you sure? Let's count to check. Point to the blocks as you all count in the 4-group Counting Order. [One, two, three.]

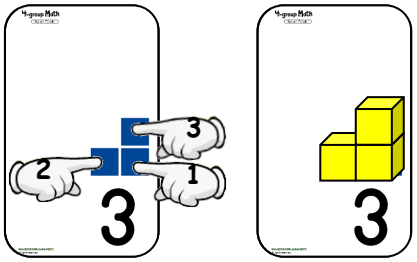


Look at our Number Parade. Does this 3-block match any of the squares?

After children comment, demonstrate for them how to match the block to the Number Parade.
Let's see if they match.

1. Point to your block and count *one, two, three* in the 4-group Counting Order.

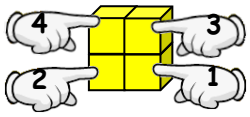




2. Point to the Number Parade 3 squares and count *one, two, three* in the 4-group Counting Order.

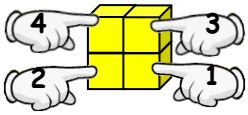
3. Hold the block so that it covers up the three squares on the Number Parade. *Yes, they match! They are both three.*

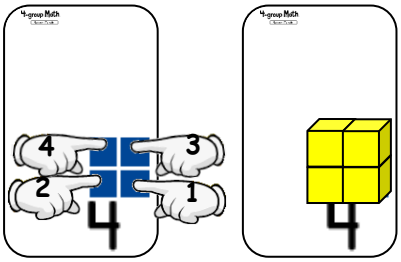
Repeat as above for the number four:
Hold up a 4-block. *How many is this?* [Four.]
Are you sure? Let's count to check. Point to the blocks as you all count in the 4-group Counting Order. [One, two, three, four.]



Look at our Number Parade. Does this 4-block match any of the squares?
After children comment, demonstrate for them how to match the block to the Number Parade.
Let's see if they match.

1. Point to your block and count one, two, three, four in the 4-group Counting Order.





2. Point to the Number Parade 4 squares and count one, two, three, four in the 4-group Counting Order.

3. Hold the block so that it covers up the four squares on the Number Parade. Yes, they match! They are both four.

When children are comfortable with this routine, let them do the counting and matching.
In random order, hold up a 1-block, 2-block, 3-block or 4-block and ask,
How many squares?
Are you sure there are ___? How do you know?
Ask a child to come up and

1. Count the block. Help them count in the 4-group Counting Order. See **Note** below.
2. Count the matching squares on the Number Parade in the 4-group Counting Order. See **Note** below.
3. Match the block to the Number Parade.

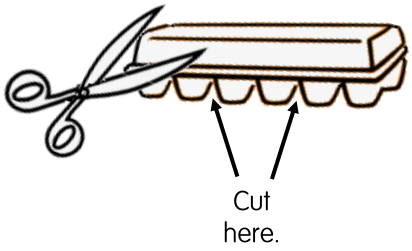
Repeat for all numbers 1-4.
This activity is a good routine to do every day. In Step #5 you will add the numbers 5-10 to this activity.

A note on Counting in the 4-group Counting Order - Doing this correctly takes time and practice for both the children and the teacher. In Step 1, model counting in the 4-group Counting Order for the children. Don't worry if you forget. Step 4 covers the 4-group Counting Order in detail.

Step #1 - Lesson 3

You will need one cardboard dozen size egg carton for every three children.

4-group Egg Cartons - Cut the whole top off of each egg carton. Cut across the egg carton in the locations shown to form three 4-group Egg Carton 4-patterns.
Make a 4-pattern for each child.



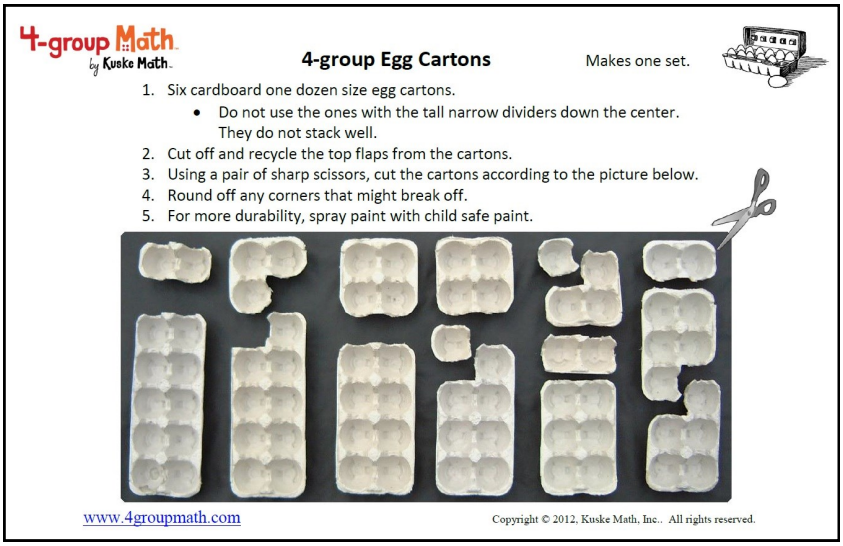
Serve snack in the cardboard egg cartons.
Give each child one cracker. Model for them to put the cracker in the one spot of the 4-group Counting Order of their egg carton. Count 'one.'

Give each child a second cracker. Model for them to put the cracker in the two spot of the 4-group Counting Order of their egg carton. Count 'two.'

Continue for three and four.

Ask the children to dump out their crackers and try it on their own. Eat the crackers!

Directions (shown here) to make a complete set of 4-group Number Patterns out of egg cartons are available for FREE on our website: www.4groupmath.com.



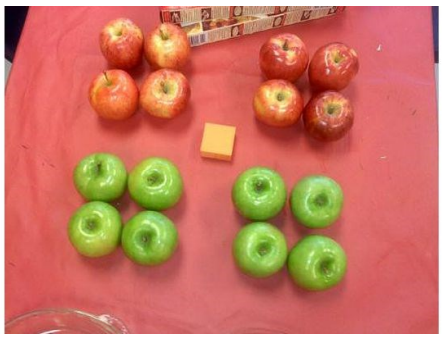
4-group Math by Kuske Math

4-group Egg Cartons Makes one set.

1. Six cardboard one dozen size egg cartons.
   - Do not use the ones with the tall narrow dividers down the center. They do not stack well.
2. Cut off and recycle the top flaps from the cartons.
3. Using a pair of sharp scissors, cut the cartons according to the picture below.
4. Round off any corners that might break off.
5. For more durability, spray paint with child safe paint.

www.4groupmath.com

Use opportunities during the day to show 4-groups.



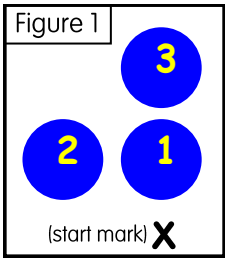
Step #1 - Lesson 4

You will need three bean bags, (you will eventually need five bean bags. For more advanced work you will need 6-10 bean bags). Make Figure 1 on the floor using *Poly Spots* 1-3, numbered foam tiles 1-3, or draw numbered circles with chalk. This is a nice activity to have out during choice time. You can even draw it on your playground.

Poly spots 1-10

Foam tiles 1-10. These come 0-9 so you have to tape a 1 in front of the 0 to make it a 10.

Children will count three bean bags. They toss a bean bag onto each number in the 4-group Counting Order one, two, three as shown in Figure 1. They pick up the bean bags. They then jump with two feet onto each number in the 4-group Counting Order 1-3. **Note:** We first do this activity only to three because the diagonal jump from two to three must be learned before the four is placed or children will jump from two to four.



Children sit or stand where they can see Figure 1 and watch you demonstrate the bean bag and jumping activities.
Elicit the math that children see: *What do you see here?* Expand on children's statements as needed.
Show children the three bean bags.
How many bean bags do I have? [Three] *Yes, I have three bean bags; one, two, three. Count with me.* [One, two, three.]
I'm going to toss my bean bags onto the numbers and count.
I will say each number before I toss the bean bag.
We find it easier to say the number before the toss so children only need to focus on one thing at a time; say, then toss. However, if children are able to combine the actions correctly they may do so.

Say *one,* and then toss a bean bag onto 1.
Say *two,* and then toss the second bean bag onto 2.
Say *three,* and then toss the third bean bag onto 3.
Pick up the bean bags.

Now I am going to jump onto the numbers and count.
I will count each circle as I jump.

With your feet on the start mark, pretend to glue your feet together.
Say *one* as you jump two footed onto 1**.**
Say *two,* as you jump to the left two footed onto 2.
Say *three* as you jump diagonally up to the right, two footed, onto 3. (The jump to 3 is tricky, but children love the challenge!)

Repeat the bean bag toss and jumping 1-3 demonstrations.
Children may want to jump on one foot. Encourage jumping with two feet first because the difficulty of jumping on one foot can get in the way of their math thinking. When jumping on two feet is easy, children may jump on one foot.

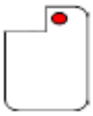
Later, when children are comfortable with the diagonal jump to 3, add the 4 and repeat this lesson.

Step #1 - Lesson 5

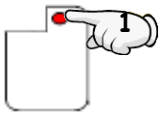
Two or three decks of 4-group Playing Cards with the cards 5-10 removed. You will only use the cards 0-4.

COUNT WITH THE CARDS

We have some special cards to help us with our math.
Show children a few of the cards. *What do you see here?* Elicit what the children see.

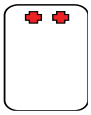
Hold up one of the cards with the 1-pattern. 

*How many shapes do you **see** with your math eyes?*  [One.]
Let's count to check.
Teacher points to the shape and counts. *One.*
Let's all say the number one. [One.]

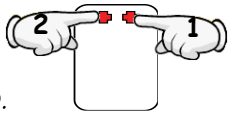


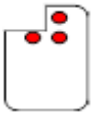
Hold up one of the cards with the 0-pattern. 

*How many shapes do you **see** with your math eyes?*  [Zero, none.]
That's right. None. Zero means there are no shapes.

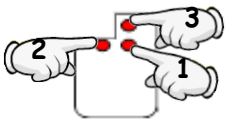
Hold up one of the cards with the 2-pattern. 

*How many shapes do you **see** with your math eyes?*  [Two.]
Let's count to check.
Teacher points to each shape and counts in the 4-group Counting Order. *One, two.*
Let's all say the number two. [Two.]



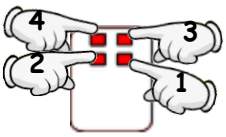
Hold up one of the cards with the 3-pattern. 

*How many shapes do you **see** with your math eyes?*  [Three.]
Let's count to check.
Teacher points to each shape and counts in the 4-group Counting Order. *One, two, three.*
Let's all say the number three. [Three.]



Hold up one of the cards with the 4-pattern. 

*How many shapes do you **see** with your math eyes?*  [Four.]
Let's count to check.
Teacher points to each shape and counts in the 4-group Counting Order. *One, two, three, four.*
Let's all say the number four. [Four.]



*Now it's your turn to **see** with your math eyes and count to check.*
Give each child a 4-group Playing Card 0-4 to count and check.
Now you try. Look at your card.
*How many do you **see** with your math eyes?*
Count to check. (Do not worry if the children do not use the 4-group Counting Order. They will learn it later. Continue to model it in your counting.)

When they finish ask children to trade cards with a friend and repeat. Do several times.

PLAY, "DO YOU HAVE MY NUMBER?"
Decks of 4-group Playing Cards with the 5-10 cards removed.
Use about one deck for every two children.

Now we will play a game with our 4-group Playing Cards.

Place one card face down in front of you.
This is my mystery card. We do not know what number it is.

I will give each of you a card. Look at it with your math eyes. Tell us what number you have.
(Some children will count the objects on their card. This is okay.)

Now let's see what number I have.
Turn your card over. Say, *I see with my math eyes that I have a (zero, one, two, three, four).*
Who has the same number as my card?

If you have the same number, place your card on top of my card.
Set this pile of cards aside.

Place another card face down in front of you.
Give new cards to the children whose cards matched yours. The other children keep their same card.

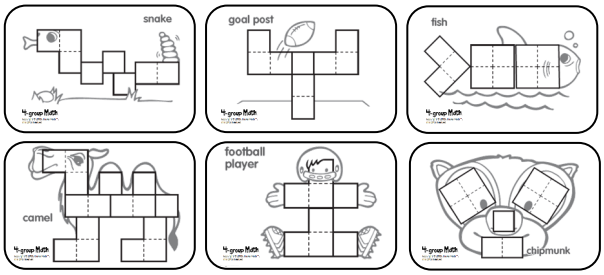
Look at your card with your math eyes. What number do you have?
Now let's see what number I have. (It helps to be dramatic here like it is a real surprise what number your card might be.)
Turn your card over. Say, *I have a (zero, one, two, three, four)!*

Who has the same number as my card?
If you have the same number, place your card on top of my card.

Continue to play until all the cards are used.
If children need more focus, they love to be the one to hold and turn over the mystery card.

Play this game when you are working on the concepts of more and less.
Instead of saying, *If you have the same number, place your card on top of my card* say, *If your number is less* (or *more*) *than my number, place your card on top of my card.*

Step #1 - Lesson 6

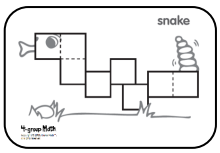


You will need the six 4-group Puzzles shown. These puzzles use the 4-group Number Blocks 1-4.
Separate out, into a basket, all the 4-group Number Blocks 1-4.

Children will learn to use the 4-group Number Blocks 1-4 to fill in puzzles.

Have a basket of 4-group Number Blocks 1s, 2s, 3s and 4s next to you.
You have been playing with our 4-group Number Blocks. Today I brought some puzzles that you can make using the blocks. These puzzles use the blocks 1, 2, 3 and 4.

Show children the snake 4-group Puzzle with the side up that shows the dotted interior lines.

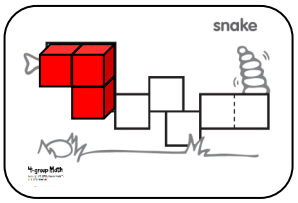


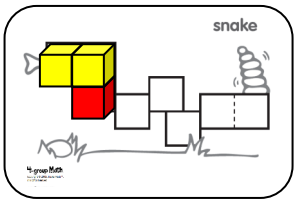
Elicit the math that children see here:
What do you see here? Expand on children's statements as needed. Be sure that they notice that the snake is made of squares.

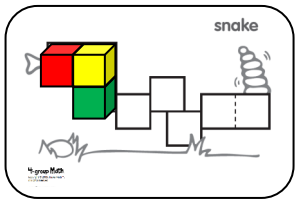
I want to make the snake's head with our number blocks.
What blocks can I use? [3; 2 & 1; three 1s.]

Place in the puzzle the number blocks suggested by the children.

If children only suggest using a three for the head ask them,
What can I do if there are no more 3's or I don't want to use a 3? [2 & 1; three 1's.]

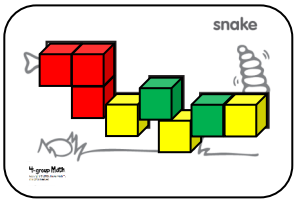


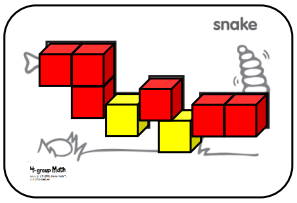




I want to make the snake's body with our number blocks.
What blocks can I use? [Five 1s; a 2 and three 1s.]

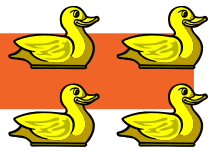
Place in the puzzle the number blocks suggested by the children.





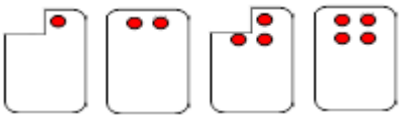
Repeat this process with the camel puzzle.
Then have each pair of children work on a puzzle.
Elicit language from them as they fill in their puzzle.
Some children will want to try the side of the puzzles without the interior lines. Help if needed.
Switch puzzles.

STEP #1 Assessment



Continue working with the 4-group until the children can count four objects into a square pattern with one-to-one correspondence and can say four when they see four objects in a square pattern. They may not always use the 4-group Counting Order, but continue to model it yourself.

You will need four 4-group Playing Cards. One for each of the numbers 1, 2, 3, and 4. Use four cards that have the same shape such as the four cards with circles.



Follow the procedure below in the same order for all children.

Show the 2-card to the child.
1. Ask, *How many shapes?* Write the child's answer: _____
Observe the child's eyes and body language to perceive how the child figures out the answer.
Check below which you perceive.
_____Child counts.
_____Child subitizes (knows by looking without counting).

Show the 4-card to the child.
1. Ask, *How many shapes?* Write the child's answer: _____
Observe the child's eyes and body language to perceive how the child figures out the answer.
Check below which you perceive.
_____Child counts.
_____Child subitizes (knows by looking without counting).

Show the 1-card to the child.
2. Ask, *How many shapes?* Write the child's answer: _____
Observe the child's eyes and body language to perceive how the child figures out the answer.
Check below which you perceive.
_____Child counts.
_____Child subitizes (knows by looking without counting).

Show the 3-card to the child.
2. Ask, *How many shapes?* Write the child's answer: _____
Observe the child's eyes and body language to perceive how the child figures out the answer.
Check below which you perceive.
_____Child counts.
_____Child subitizes (knows by looking without counting).

STEP #2 Ten-man

OBJECTIVE:

To mentally visualize the quantity of ten.

CHILD OUTCOMES:

The child will describe Ten-man as having four dots on the bottom snowball, four dots on the middle snowball and two eyes on the head.

When asked, the child will make their own Ten-man by placing ten objects into a 4-pattern, 4-pattern, and 2-pattern.

The child will say, "Four, four, and two more make ten."

MATERIALS NEEDED:

Ten-man card posted on the wall; Ten-Man story; art supplies.

In the 4-group Number Patterns the visual & subitizable patterns of four, four, and two more make ten. We use the mental image of a snowman to solidify this concept in children's *math minds*.

STEP #2 Lesson Ideas

Teachers' words are in italics. [Children's responses are in brackets]

Step #2 - Lesson 1

Tell the story of our snowman (Ten-man) with puppets, drawings, felt boards, child actors, or some other creative way you think up.

The story and colored pictures are included in Appendix A, Page 70.

A FREE video telling the story, Step #2: Meet Ten-man, is on our website: www.4groupmath.com.

How Ten-man Got His Name

Here are some questions you can ask children about this story that will help them solidify their mental image of ten.

Who brought the pinecones? [Raccoons.]

How many pinecones did they bring? [Four.]

How many squirrels came? [Four.]

How many nuts did they bring? [Four.]

Who brought the berries? [Birds.]

How many berries did they bring? [Two.]

How many dots are on Ten-man's bottom snowball? [Four.]

How many dots are on Ten-man's middle snowball" [Four.]

How many dots are on Ten-man's top snowball? [Two.]

How many dots in all? [Ten.]

Let's count to check. Count the dots in the 4-group Counting Order 1-10.

Say, *Four, four and two more make ten*! Children repeat. [Four, four and two more make ten.]

Ask, *Can you close your eyes and see a Ten-man in your 'math mind'?*

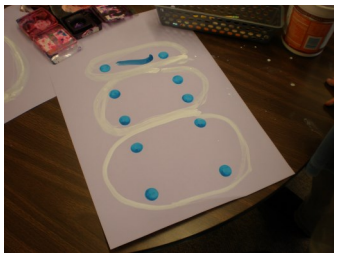
Some more advanced questions would be:

How many dots do you see if Ten-man is winking? One eye is closed. [Nine.]

How many if Ten-man is sleeping? Two eyes are closed. [Eight.]

How many fours do you see in eight? [Two.]

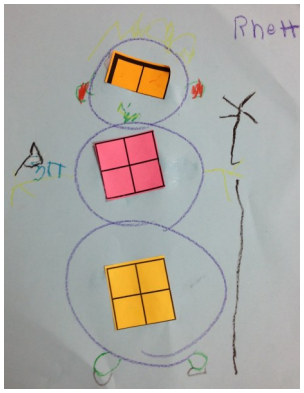
Step #2 - Lesson 2



Model and encourage children to use the 4-group Counting Order when building Ten-man but do not insist. They will learn the 4-group Counting Order in Step #4.

Children love to make their own Ten-man. Do this lesson more than once using the different ideas below:

- Children paint ten dots on a snowman the teacher has drawn on large paper.
- Children make a snowman with three precut circles they glue onto paper. Then they use stickers, dot paint, stamps, foam shapes, or pom-poms to put ten dots on their snowman to make a Ten-man!
- Children color ten dots on a Ten-man using Black-line Master A, Page 27.



Ask these questions when children finish their Ten-man:

How many dots are on Ten-man's bottom snowball? [Four.]
How do you know? [I counted, I can see, I know.]
How many dots are on Ten-man's middle snowball? [Four.]
How do you know? [I counted, I can see, I know.]
How many dots are on Ten-man's top snowball? [Two.]
How do you know? [I counted, I can see, I know, they are his eyes.]
How many dots in all? [Ten.]
How do you know? [I counted, I can see, I know four, four, and two more make ten.]
Let's count to check. Count the dots in the 4-group Counting Order 1-10.

Say, *Four, four and two more make ten*! Children repeat. [Four, four and two more make ten.]

Ask, *Can you close your eyes and see a Ten-man in your 'math mind'?*

Step #2 - Lesson 3

For large muscle activity.
Make a large snowman out of felt and have children place ten felt dots to make a Ten-man.
One child starts by placing four dots on the bottom snowball.
How many dots are on Ten-man's bottom snowball? [Four.]
How do you know? [I counted, I can see, I know.]
Another child next places four dots on the middle snowball.
How many dots are on Ten-man's middle snowball? [Four.]
How do you know? [I counted, I can see, I know.]
Another child next places two dots on the top snowball.
How many dots are on Ten-man's top snowball? [Two.]
How do you know? [I counted, I can see, I know, they are his eyes.]
How many dots in all? [Ten.]
How do you know? [I counted, I can see, I know four, four, and two more make ten.]
Let's count to check. Count the dots in the 4-group Counting Order 1-10.

Repeat this activity with other children taking turns to place the felt dots. Mix up the order of placing the dots on the snowballs. I.e. start with the middle snowball or start with the head. Be sure to complete all two or four dots in each snowball before going to the next snowball. Ask the same questions as above.

Step #2 - Lesson 4

Outline a large Ten-man on the floor. This can be done with yarn, rope, chalk or tape. Ten children become the dots and sit or stand inside the snowman to make a Ten-man.
Questions could be:

How many children are in Ten-man's bottom snowball? [Four.]
How do you know?
How many children are in Ten-man's middle snowball? [Four.]
How do you know?
How many children are in Ten-man's top snowball? [Two.]
How do you know?
How many children in all? [Ten.]
How do you know?
How can we check? Count the children by pointing to each child, having them stand up as you count, or having them count off.

Step #2 - Lesson 5

Paint three circles for a snowman on your playground. You or the children can make up games to make Ten-man.

Find ten rocks to put in the snowman.
Make ten piles of sand to make Ten-man.

Ask one child to stand in one of the three circles.
Ask, *How many friends do you need to join you in your circle to help make Ten-man?*
Ask a second child to stand in another of the circles.
Ask, *How many friends do you need to join you in your circle to help make Ten-man?*
Ask a third child to stand in the last circle.
Ask, *How many friends do you need to join you in your circle to help make Ten-man?*
How many children do we have in all? [Ten.]

Blackline Master A

STEP #2 Assessment

You will need 12 small identical objects such as 12 red blocks, 12 pennies, 12 pom-poms.

Place the 12 objects in a pile in front of the child.
Use this same language for every child:
Please show me ten blocks.

Wait for the child to count out or arrange the blocks.

_____Record how many blocks the child shows.

Ask, *Are you sure there are ten?*

Mark how the child responds:

_____Child says yes.
_____Child counts again.

How do you know there are ten blocks?

Mark how the child responds:

_____Four, four, and two more make ten.
_____I made Ten-man.
_____I just know.
_____I counted.
_____Other_____

STEP #3 Count 1-10 (11-20) on the 4-group Number Parade

OBJECTIVE:

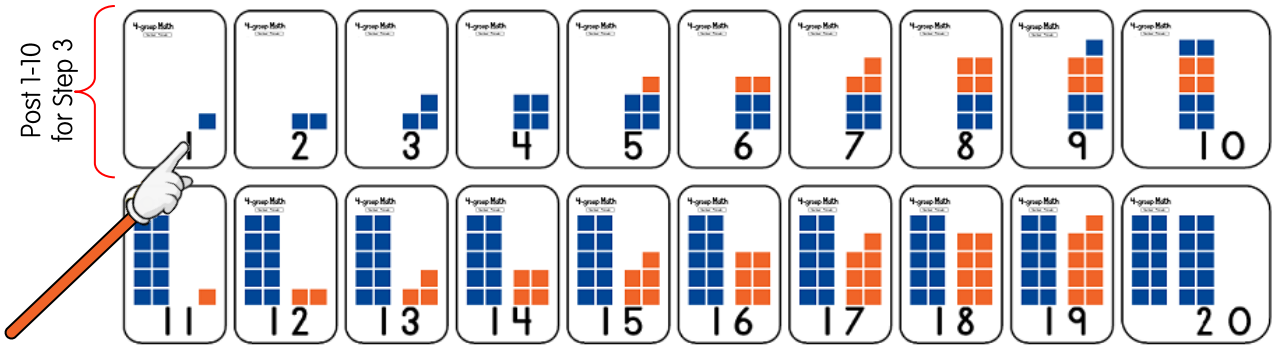
Learn the counting word sequence 1-20; starting with 1-10.

CHILD OUTCOME:

The child will point to the numbers 1-10 in order on the Number Parade and say the counting word for each number while pointing to that number.

MATERIALS NEEDED:

Number Parade 1-10 ; Pointers



- Use a pointer and point to each numeral as you model for children the counting word sequence one to ten.
- When children are ready, let them be the leader, pointing to each numeral as they count.
  - ◊ Ask them to stand to the side so their friends can see and count with them.
  - ◊ Watch that they point to the correct number as they say it. Some children count faster than they point!

- Move on to Step #4 when children are comfortable with the counting word sequence to ten.

- Continue to practice, continuing to twenty when children are ready.
  - ◊ If you display the Number Parade 11-20 as shown above, you can ask children what they notice is the same about the numbers 1-10 and the numbers 11-19.
    - They will see that the numbers 11-19 include the same number pattern as the number above.
    - They will see that the numerals 11-19 include the same black numeral as the numeral above.
  - ◊ You can ask children what is different about the numbers 1-10 and the numbers 11-19.
    - They will see that the numbers 11-19 all include a ten pattern.
    - They will see that the numerals 11-19 all have a 1 in front. Help children to understand that this 1 means one group of ten.

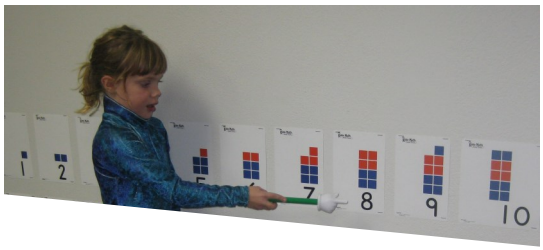
STEP #3 Lesson Ideas

Daily Activity

There are no Lesson Ideas for this Step. Instead, we recommend that you use this activity *Count on the 4-group Number Parade* as a daily activity.

Count on the 4-group Number Parade.

Children will practice counting in a linear manner – left to right.
They see the numerals and hear the number words 1-10 with their corresponding 4-group Number Pattern.
When children are ready include the numbers 11-20.



Look up here at our Number Parade. What do you see here? Expand on children's statements.
Our Number Parade shows the numbers 1 to 10 marching in a row like a parade.
Point to the 1 on the Number Parade and say, *We start here and count like this.*
Count 1-10 pointing to the numerals on the Number Parade.
Let's count as I point to each number. (Use your pointer to point to the numerals as you count.)
Stay with me as I point. Count 1-10. Count again.

If children count ahead of where you are pointing, stop and wait for them to return to say the number you are pointing at. It is important that children associate the number word they say and hear with the numeral and number pattern that they see.

- When your children can count 1-5: Point to a number 1-5 out of order, *What number is this?*
  - ◊ Your children learn to say the numbers 1-5.
- Say a number 1-5 and ask a child to point to that number on the Number Parade.
  - ◊ Your children learn to hear the number and recognize its written form 1-5.
- When your children can count 1-10: Point to a number 1-10 out of order, *What number is this*
  - ◊ Your children learn to say the numbers 1-10.
- Say a number 1-10 and ask a child to point to that number on the Number Parade.
  - ◊ Your children learn to hear the number and recognize its written form 1-10.

Let the children be the "teacher" and ask their friends the questions above.
95% of what we teach, we learn!
During other times of the day you can practice the rote counting word list 1-10 such as while standing in line or in a song.

STEP #3 Assessment

You will need the 4-group Number Parade and a pointer.
Ask children one at a time to count 1-10 pointing on the Number Parade.
Please count for me as you point to each number.
Notice that the child says the correct word for each number he points to and is not just reciting the number word sequence while randomly pointing.

STEP #4 Learn the 4-group Counting Order

OBJECTIVE:

Learn to build and count right to left and from the bottom up when making the 4-group Number Patterns.

CHILD OUTCOME:

The child will count ten objects into a 4-group 10-pattern using the 4-group Counting Order with one-to-one correspondence.

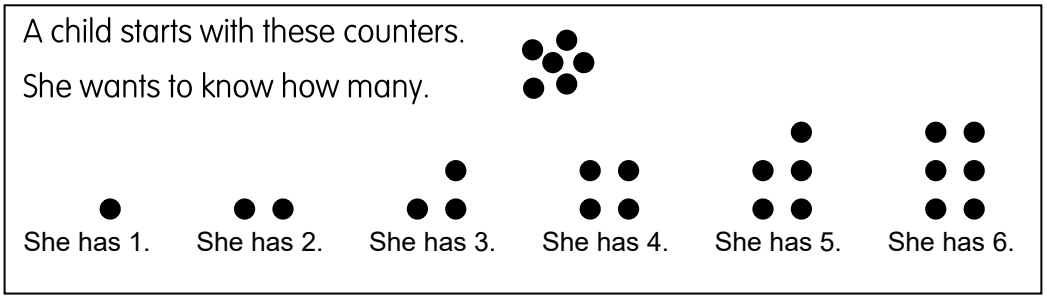
MATERIALS NEEDED:

Number Parade; Ten-man card posted on the wall (next to the Number Parade is convenient); chalk; small Post-It notes; ten small identical objects.

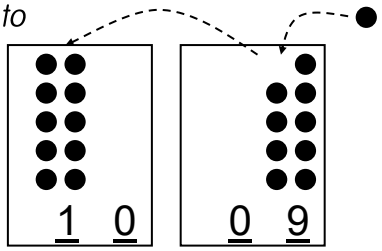
4-group Math uses a counting order that is counter-intuitive to adults but is not a problem for children. Because this program was developed to enhance children's mathematical thinking, we adults need to adjust to building numbers in the 4-group Counting Order. This takes us much longer than the children!

It has been our experience that children who use the 4-group Counting Order make fewer mistakes in their counting. We now refer to the 4-group Counting Order as, *counting Like Ten-man*. Doing this correctly takes time and practice for both the children and the teacher. Refer yourself and the children to the Ten-man Poster as a reminder. Model *counting like Ten-man* as well as you can. Soon you will have children correct you! It is not "wrong" to count another way. There will be times when you will let the child's incorrect counting order go uncorrected. This is fine. We want to encourage and teach *counting like Ten-man* because of the aid it is to children's mathematical thinking. There are three reasons we *count like Ten-man*.

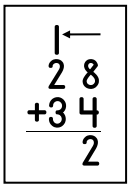
1. By giving children a set order for building their numbers and by starting at the bottom and building up they can stop at any time and see the 4-group Number Pattern for the quantity.



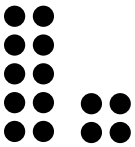
2. We build right to left because numbers get bigger as the digits *move to the left*. For example, when 9 becomes a 10, the ones *move to the left* into the tens place to become one ten. There cannot be ten ones in the ones place.



3. When we add we regroup to the *left*.



As in reading, the 4-group Number Patterns are still read left to right.

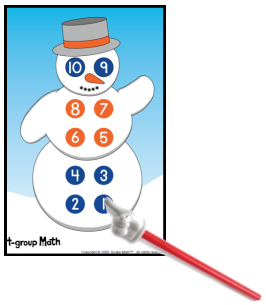
This number is read fourteen. 14	This pattern is read fourteen. 

STEP #4 Lesson Ideas

Step #4 - Lesson 1

Post the Ten-man Poster on the wall at children's eye level in such a way that he can be removed and laid on the floor (or use Black-line Master B2, Page 35 for this part of the lesson); pointer; small Post-It notes; ten small identical objects.
Today's lesson teaches "counting like Ten-man."
The teacher points to the numerals 1-10 on the Ten-man Poster as children count with her 1-10.

Count like Ten-man on the Ten-man Poster
Point to the Ten-man Poster.
Elicit the math that children see here.
What do you see here? Children may notice the numbers inside the dots on Ten-man.
Expand on children's statements as needed.
Who is this special snowman? [Ten-man]
Why do you think he is called Ten-man? [He has ten circles on him.]
Ten-man LOVES to count.
Ten-man counts in a special way. He counts right to left and he goes up.
Watch me count like Ten-man.
Slowly, use your pointer to point to each circle as you count 1-10.
Let's try it. We will count as I point to each number on Ten-man.
Stay with me as I point. Count 1-10 on Ten-man. Count again.
Include this activity in your daily routines.



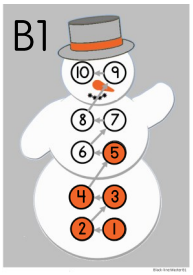
Counting like Ten-man helps our brain to count correctly.
We put objects in this order when we are counting them.

Show children the Post-It notes.
I want to count ten sticky notes. I will put one on each number of Ten-man as I count.
Stick a note to the number one as you count, *one.*
Stick a note to the number two as you count, *two.*
Continue to ten.
Ask children to help you repeat this activity.

Take the Ten-man Poster off the wall and lay it on the floor.
Show children your ten objects.
How many buttons do you think I have?
How can we check?
Let's lay them on Ten-man as we count.
Place a button on top of the number one as you count *one.*
Continue to ten.
Ask children to help you repeat this activity.

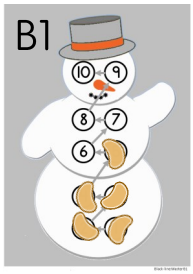
Step #4 - Lesson 2

Laminate Black-line Master B1, Page 34 to make a game board for children, glue the picture to an old game board and cover it with contact paper for more durability, or place in a sheet protector. The arrows show the counting order 1-10 and help children as they learn which number comes next.



Cut out the numbered circles on Page 37.
For durability, laminate or glue them to flat discs.

Children take turns matching a numbered circle to Ten-man starting with one and continuing to ten.



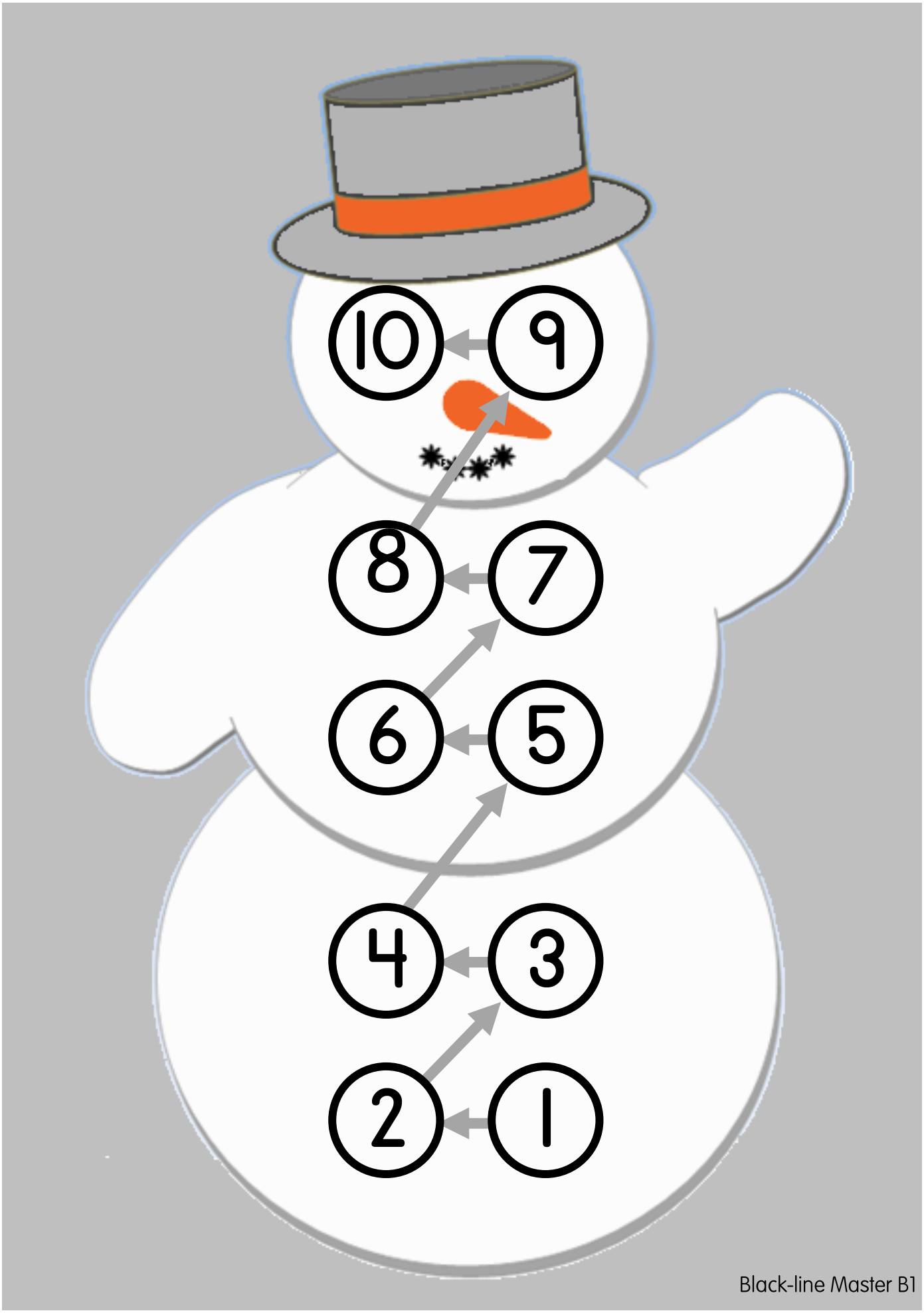
Children place objects such as beans or buttons on the numbers 1-10 *counting like Ten-man* on Black-line Master B1.

A more advanced activity is to repeat as above using Black-line Master B2, Page 35 which has no arrows.

As children advance you can stop them every so often and ask, *How many do you have now? Can you tell with your 'math eyes' without counting?*

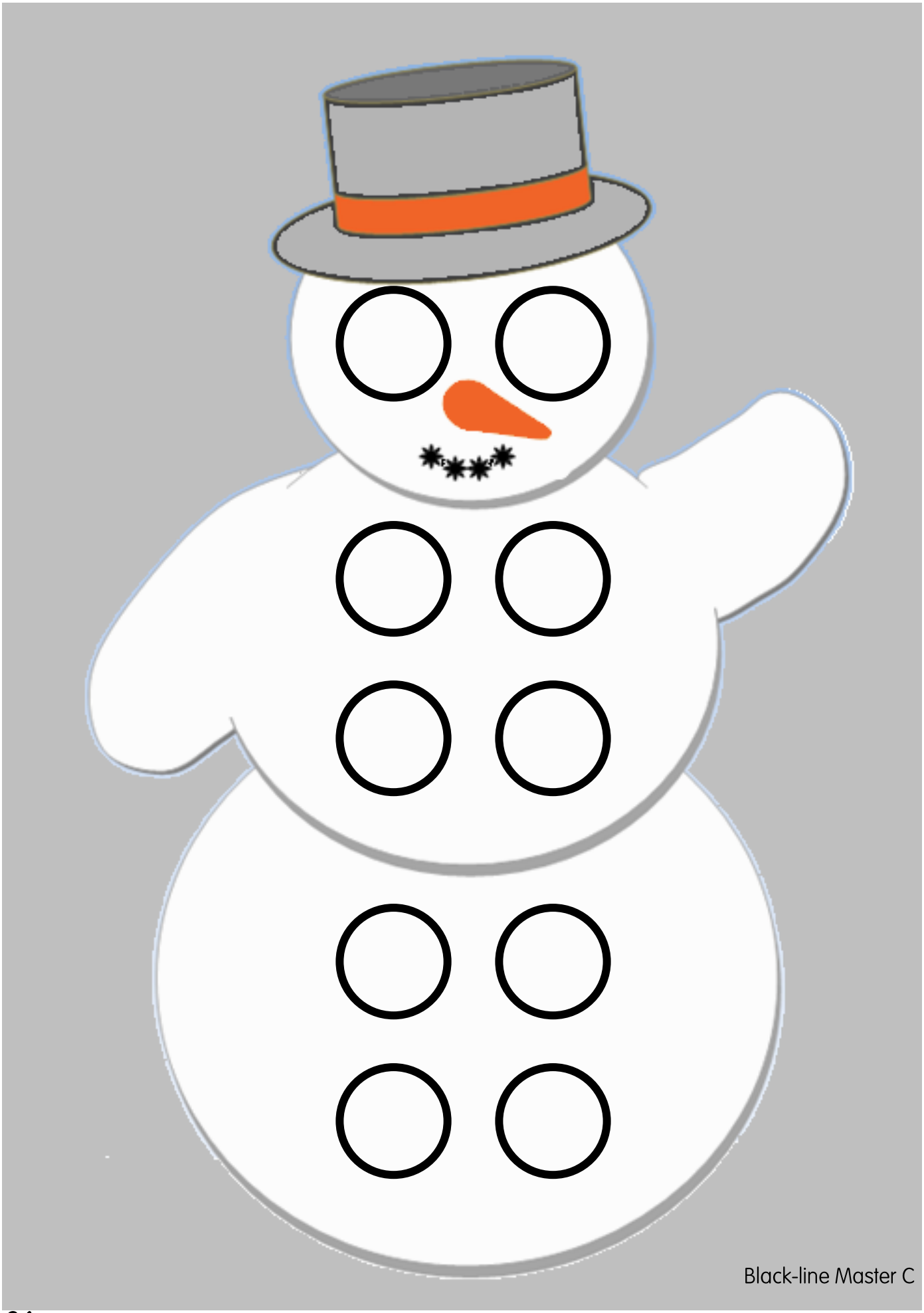
Black-line Master C, Page 36 may be used for those times that you want to write the numbers 1-10 in the 4-group Counting Order.
Place in a sheet protector and use erasable markers to write the numbers.

*Black-line masters can be enlarged on a copy machine.



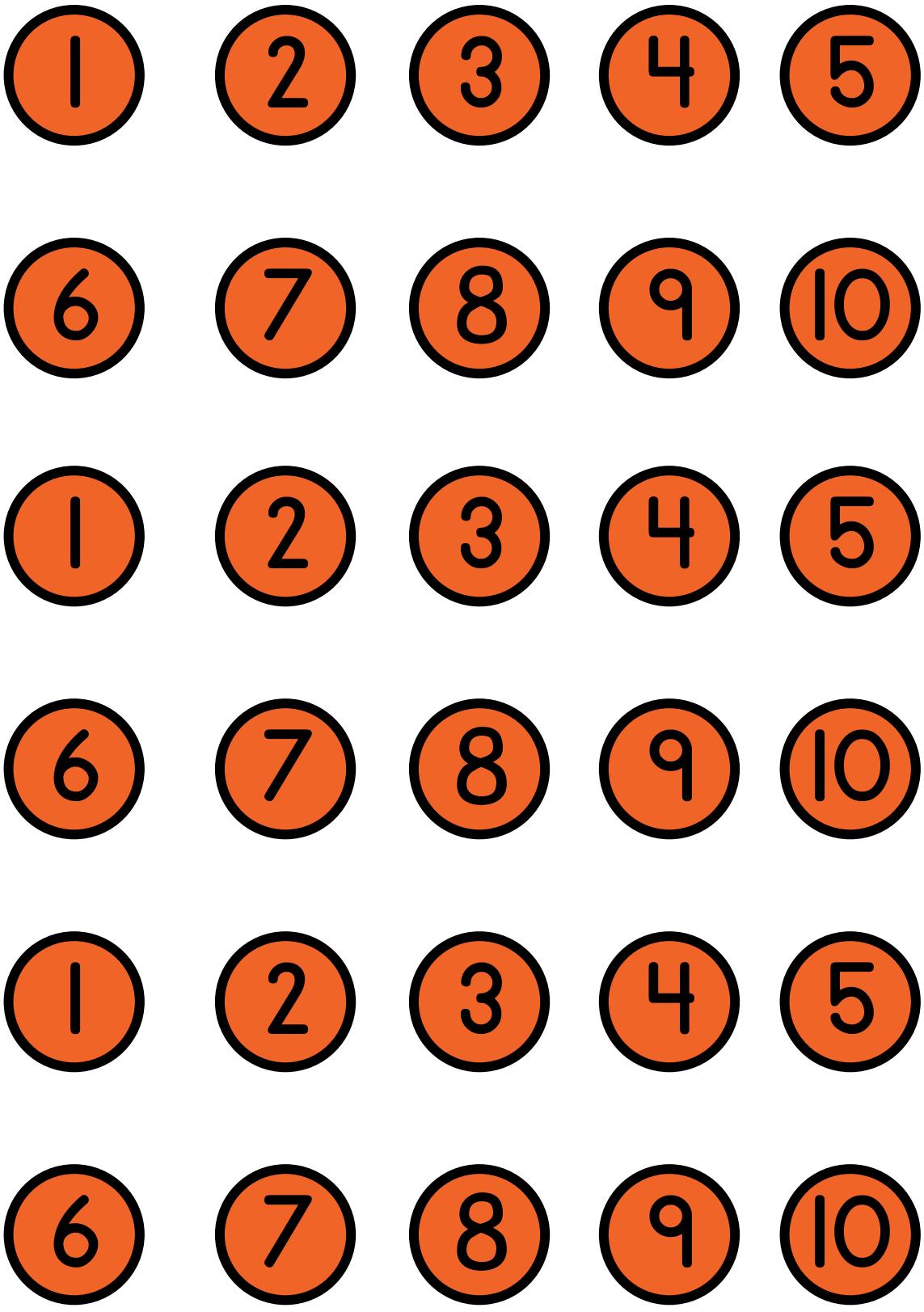
Black-line Master B1

Black-line Master B2

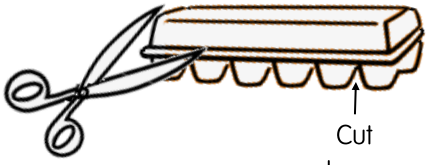


Black-line Master C

Cut out and use with Black-line Masters B1, B2, or C.
For durability, laminate or glue them to flat discs.

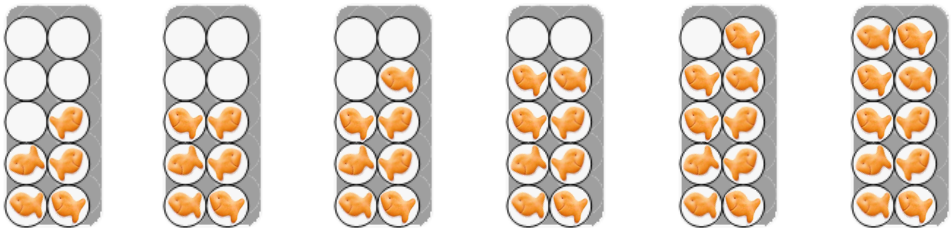


Step #4 - Lesson 3 Similar to Step #1 - Lesson 3; with a 10-pattern carton instead of a 4-pattern.
You will need one cardboard dozen size egg carton for each child.
4-group Egg Cartons - Cut the whole top off of each egg carton. Cut across the egg carton in the location shown to form one 4-group 10-pattern. *Make a 10-pattern for each child.*



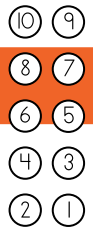
Serve snack in the cardboard egg cartons.
Show children the new 10-pattern cartons. Elicit what the children see.
Do these cartons look like the 4-pattern cartons we have been using? [No, they are bigger. They are 10!]
How do you know they are ten? How can we check? [Look with our math eyes to see four, four, and two more. Count.]
Review this activity from Lesson 3, Step #1. If your children can place and count 1-4 items you can start the children with four crackers. After the children have placed their four crackers, follow the steps here to ten.

1. Give each child another cracker. *Where should we put this number five cracker?* Model for them to put the cracker in the five spot of the 4-group Counting Order of their egg carton. Count 'five.'
2. Give each child a sixth cracker. *Where do you think we will put this number six cracker? Yes, that is how we count like Ten-man. We build right left, right left and from the bottom up.* Model for them to put the cracker in the six spot of the 4-group Counting Order of their egg carton. Count 'six.'
3. Continue for seven, eight, nine and ten.
4. Ask the children to dump out their crackers and repeat the counting.
5. Eat the crackers!



The idea is for children to practice building and counting fluently in the 4-group Counting Order (*like Ten-man*). This takes time and practice but is so helpful to their mathematical thinking. It also facilitates later work with bigger numbers. Practice this activity at other times with small manipulative objects such as buttons or pom-poms. It is best if each child uses ten identical items. Otherwise they get distracted playing with the materials. As children advance you can stop them every so often and ask, *How many do you have now? Can you tell with your 'math eyes' without counting?*

STEP #4 Assessment



You will need ten small identical objects and a 10-pattern egg carton.
Place the objects and 10-pattern carton in front of the child.
Ask the child to count ten objects into the 10-pattern egg carton.
Please count these ten buttons into the egg carton. I want you to count like Ten-man.
Child places the objects correctly using the 4-group Counting Order.
Record – Yes No
Child says the correct number name for each object as it is placed in the carton.
Record – Yes No
For more information record the numbers the child says incorrectly. Target these with the child.

STEP #5 See the 4-group(s) in each 4-group Number Pattern

8

OBJECTIVE:

Recognize and identify the 4-group Number Patterns 5-10 as four (or four, four) and some more.

CHILD OUTCOMES:

When asked to show a number from 5-10 the child will place objects into a 4-pattern (or two 4-patterns) and the appropriate "more" 4-group Number Pattern, for the given number.

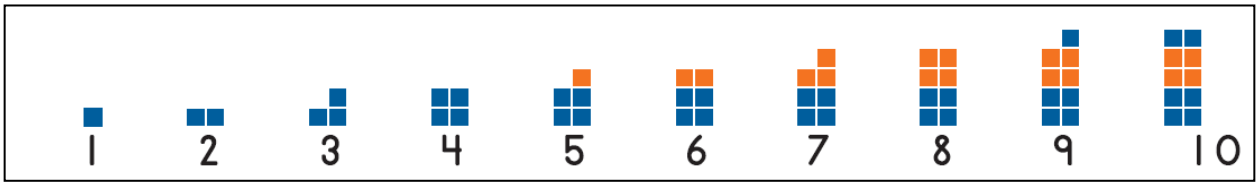
When asked, the child will say, "Five is four and one more," "Six is four and two more," "Seven is four and three more," "Eight is four and four," "Nine is four, four, and one more," and "Ten is four, four, and two more."

MATERIALS NEEDED:

Number Parade; 4-group Number Blocks; Ten-man card posted on the wall; 4-group Puzzles.

The 4-group Number Patterns build children's number sense by leveraging the power of four objects in a square pattern and children's innate ability to accurately and confidently know how many in this pattern, without counting (See *subitize* in Step #1).
That is why we are;

The Original 4-group Method™



The number patterns 1-4 are easy to see.
These patterns are attached to the 4-pattern to create the values 5, 6, 7 and 8.

Two 4-patterns make 8.
The 1- and 2- patterns are attached to the 8-pattern to create 9 and 10.

The Original 4-group Method is a visual/tactile model, based on the brain research of *subitizing,* which enables children to accurately and confidently conceptualize the quantity of numbers within our base-ten number system. *Subitizing* is the brain's rapid, accurate and confident judgment of the quantity of a set of objects without counting. Children can subitize four objects shown in a square pattern. *The Original 4-group Method* uses this ability as an anchor to represent the quantity of numbers, so that every child receives the best foundation in number sense; their key to future math success.

STEP #5 Lesson Ideas

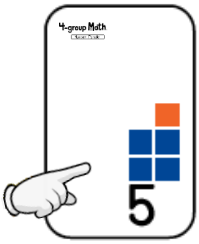
The lessons in Step #5 are in two parts: Part One for 5-7, Part Two for 8-10.

Step #5 Part One 5-7

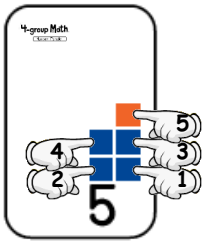
Step #5 - Lesson 1 for 5-7

Children sit in front of the Number Parade. Have a pile of 5, 6, and 7 Number Blocks next to you. In Step #1, Lesson 2, children counted a 4-group Number Block 1, 2, 3, or 4 and matched it to the Number Parade. Now they will count a 4-group Number Block 5, 6, or 7 and match it to the Number Parade.

Point to the 5-pattern on the Number Parade. *How many squares?* [Five.]



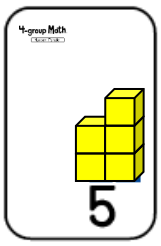
Let's count to check.
Count the squares in the 4-group Counting Order.



How many 4-groups do you see in five? [One.]
Teacher circles the 4-group with her finger.
How many extra on top? [One.]
So, five is four and one more. Let's all say that. [Five is four and one more.]
As you say this, circle the 4-group with your finger and then point to the one more.
Hold up a 5-block. *How many is this?* [Five.]
Circle the 4-group on the block and point to the one more as you say:
Yes, it is five. I see one 4-group and one more.
So, five is four and one more. Let's all say that. [Five is four and one more.]

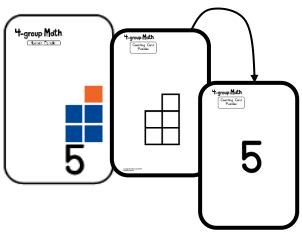
Hold the 5-block up to the Number Parade so it covers the 5-pattern.
Look, they are the same. They match. They are both five.
Ask a child to find a 5-block from your pile.

a. *Justin, please find a 5-block in my pile. Five is one 4-group and one more.*
b. *Can you find it with your math eyes?*
c. *Justin, are you sure that is a <u>five</u>? How do you know?*
d. Help Justin circle the 4-group and point to the one more as he says, 'five is four and one more.'
e. *Justin, does your 5-block match the 5-pattern on our Number Parade?*

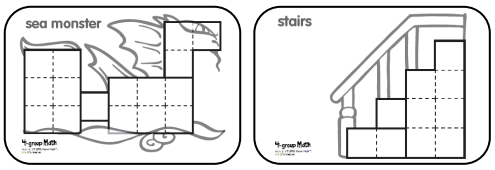


Repeat the activity for 6 and 7. *Six is four and two more. Seven is four and three more.*
After counting, point to one of the numbers 5, 6, or 7 and ask;
How do we make a 5-pattern? [Five is four and one more.]
How do we make a 6-pattern? [Six is four and two more.]
How do we make a 7-pattern? [Seven is four and three more.]
Add this activity to the routine on the Number Parade taught in Step #1, Lesson 2.

This is a fun activity with the Counting Cards. Lay out the cards for 5, 6, and 7 with the number pattern side face up. Children choose a Counting Card from the pile. *What number did you choose? How do you know that is a five?* [I see four and one more.] Child matches the number pattern side to the squares on the Number Parade.
Turn the card over and see if the numerals match!



Step #5 - Lesson 2 for 5-7

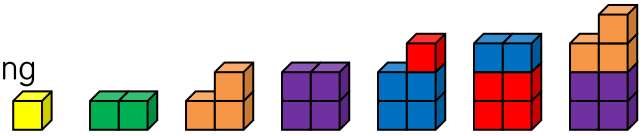


You will need to add the two 4-group Puzzles shown here to the other six puzzles from Step #1, Lesson 6. These two additional puzzles use the 4-group Number Blocks 1-7.

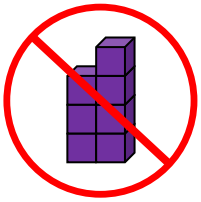
Children work these eight 4-group Puzzles with the 4-group Number Blocks 1-7.

Model and encourage children to call the blocks by their number name and to identify 5, 6, and 7 by seeing the four and ___ more with their math eyes.

Step #5 - Lesson 3 for 5-7

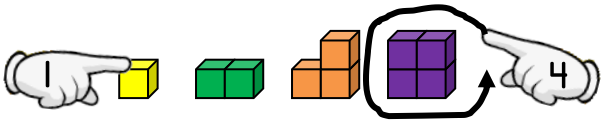


Children will build their own Number Parade 1-7 using the 4-group Number Blocks.
There will not be enough blocks for all the fours to be the same color as on the Number Parade poster.

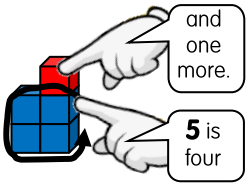


However ask children to build so the fours are different colors from the extras and thus visible to their math eyes.

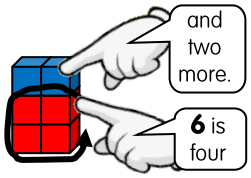
Demonstrate for children how to tell you the number patterns when they finish.



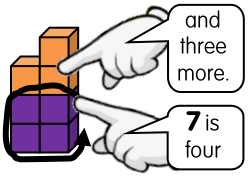
Point to the 1-pattern and say, *one*. (Shown)
Point to the 2-pattern and say, *two*.
Point to the 3-pattern and say, *three*.
Circle your finger around the whole 4-pattern and say, *four*. (Shown)



Point to the 5-pattern and say, *five is four* (circle your finger around 5's 4-pattern) *and one more* (point to 5's 1-pattern.) (Shown)

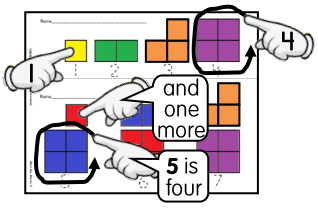


Point to the 6-pattern and say, *six is four* (circle your finger around 6's 4-pattern) *and two more* (point to 6's 2-pattern.)



Point to the 7-pattern and say, *seven is four* (circle your finger around 7's 4-pattern) *and three more* (point to 7's 3-pattern.)

After you demonstrate, ask each child to tell you or a friend the number patterns of their blocks.



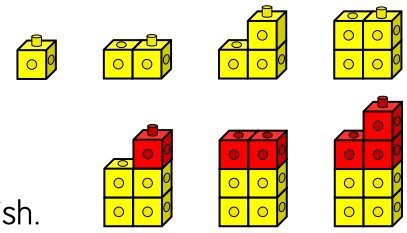
Black-line Master D1, page 47 matches the size of the 4-group Number Blocks so children can color Black-line Master D1 with crayons to match their work.
Ask children to tell you or a friend their number patterns when they finish the activity.

Step #5 - Lesson 4 for 5-7

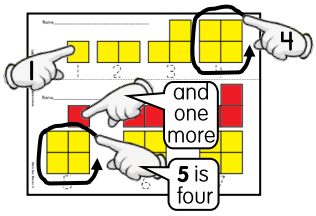
Children build their own Number Parade using Multilink cubes*.
They will need two colors of cubes, Color #1 and Color #2.

1. Build 1-4 out of Color #1.
2. Use this same color to build the four in 5, 6, and 7.
3. Use Color #2 for the extras on top of 5, 6, and 7.

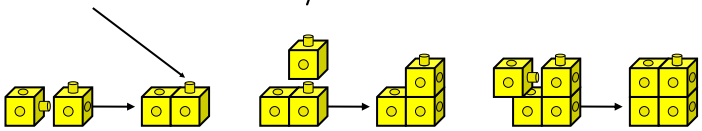
Ask children to tell you or a friend their number patterns when they finish.



Children can complete Black-line Master D1, page 47, with crayons to match their work and colors.
Ask children to tell you or a friend their number patterns when they finish.



*We have found that when we teach children to build for math time with **"chimney up, chimney sideways"** the cubes are easier to take apart and later to combine for addition.
The *knob* is the "chimney."

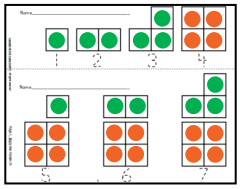


Step #5 - Lesson 5 for 5-7

Children use Black-line Master D1 to show the numbers 1-7 as a four and some more.

They use stickers, stamps, crayons, paint or other material to make all the 4-patterns the same.
The 1-, 2-, and 3-patterns and the 'some more' in 5, 6, and 7 are all the same sticker or stamp.

Here is an example with dot stickers:



Give children a choice of two color stickers, two stamps, two colors of crayon, etc.
Ask, *what color/stickers do you want to use to make your fours?*
What other color/sticker do you want for one, two, and three?

Ask children to tell you or a friend their number patterns when they finish.

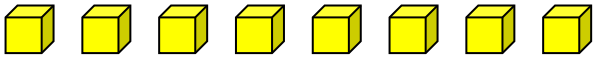
Step #5 - Throughout the day

- Ask children, "How do we make a 4-group 5 (6, 7)?" Encourage children to answer, "Five is four and one more. (Six is four and two more. Seven is four and three more.)"
- Find opportunities to represent the numbers 5, 6 and 7 as four and some more. For example, tell the children you will give them 5 (6 or 7) crackers at snack time. Give them four crackers in the 4-pattern and ask, "How many more do you need to make 5 (6 or 7)?"

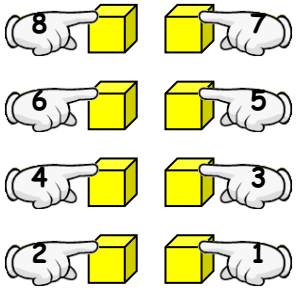
Step #5 Part Two 8-10

When children know 5-7 as a four and some more, repeat the Step #5 Lessons 1-5 for the numbers 8-10. These Lessons 1-5 for the numbers 8-10 follow here with any new materials or directions you need:

Begin with this activity.
Show children eight objects in the 4-group 8-pattern.
How many 4-groups do you see in this pattern? [Two.]
How many blocks in all? [Eight.] *Let's count to check.*
Touch each object as you count in the 4-group Counting Order.
Show children the eight objects in a line.



How many? [Eight.] *Let's count to check.*
Touch each object as you count left to right in a line.
Place the eight objects back into the 8-pattern.
Discuss which is easier to 'see with our math eyes.'
This is why our math program uses the 4-group.
Seeing the eight as four and four is how our brains work best.



Step #5 - Lesson 1 for 8-10

Have a pile of 8, 9, and 10 Number Blocks next to you.
Point to the 8-pattern on the Number Parade. *How many squares?* [Eight.]
Let's count to check.
Count the squares in the 4-group Counting Order.

How many 4-groups do you see in eight? [Two.]
Teacher circles each 4-group with her finger.
So, eight is four and four. Let's all say that. [Eight is four and four.]
As you say this, circle each 4-group with your finger.
Hold up an 8-block. *How many is this?* [Eight.]
Circle each 4-group on the block as you say: *Yes, it is eight. I see two 4-groups.*
So, eight is four and four. Let's all say that. [Eight is four and four.]
Hold the 8-block up to the Number Parade so it covers the 8-pattern.
Look, they are the same. They match. They are both eight.
Ask a child to find an 8-block from your pile.

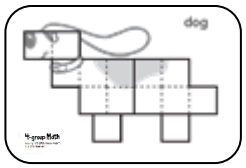
a. *Ashlee, please find an 8-block in my pile. Eight is four and four.*
b. *Can you find it with your math eyes?*
c. *Ashlee, are you sure that is an eight? How do you know?*
d. Help Ashlee circle each 4-group as he says, 'Eight is four and four.'
e. *Ashlee, does your 8-block match the 8-pattern on our Number Parade?*

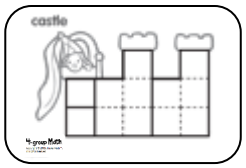
Repeat the activity for 9 and 10. *Nine is four, four and one more. Ten is four, four and two more.*
After counting, point to one of the numbers 8, 9, or 10 and ask;
How do we make an 8-pattern? [Eight is four and four.]
How do we make a 9-pattern? [Nine is four, four, and one more.]
How do we make a 10-pattern? [Ten is four, four, and two more.]
Add 8, 9, and 10 to the routine on the Number Parade taught in Step #1, Lesson 2.

Counting Cards - Lay out the cards for 8, 9, and 10 with the number pattern side face up. Children choose a Counting Card from the pile. *What number did you choose? How do you know that is a nine?* [I see four, four, and one more.] Child matches the number pattern side to the squares on the Number Parade. Turn the card over and see if the numerals match!

Step #5 - Lesson 2 for 8-10

Add the two 4-group Puzzles shown here to the other eight puzzles. These two additional puzzles use the 4-group Number Blocks 1-10.



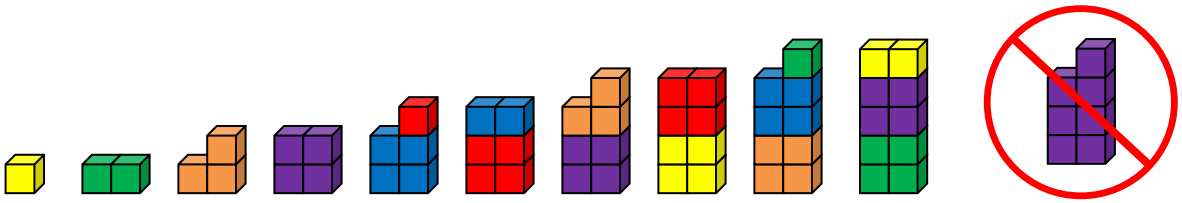


Children will work the ten 4-group Puzzles with the 4-group Number Blocks 1-10.

Model and encourage children to call the blocks by their number name.
Model and encourage children to identify 8, 9, and 10 by seeing the four, four and ___ more with their math eyes.

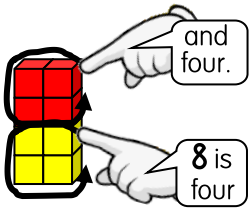
Step #5 - Lesson 3 for 8-10

Children build their own Number Parade 1-10 using the 4-group Number Blocks.

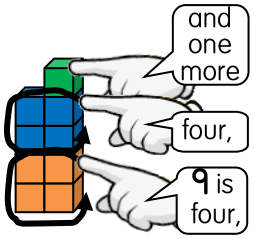


Demonstrate for children how to tell you the number patterns for 8-10 when they finish.

Point to the 8-pattern and say, *eight is four* (circle your finger around 8's bottom 4-pattern) *and four* (circle your finger around 8's top 4-pattern.) (Shown)

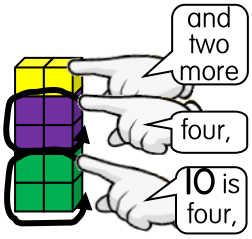


Point to the 9-pattern and say, *nine is four* (circle your finger around 9's bottom 4-pattern), *four,* (circle your finger around 9's top 4-pattern) *and one more* (point to 9's 1-pattern on top.)

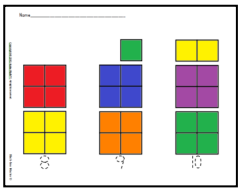


Point to the 10-pattern and say, *ten is four* (circle your finger around 10's bottom 4-pattern), *four,* (circle your finger around 10's top 4-pattern) *and two more* (point to 10's 2-pattern on top.)

After you demonstrate, ask each child to tell you or a friend the number patterns of their blocks.

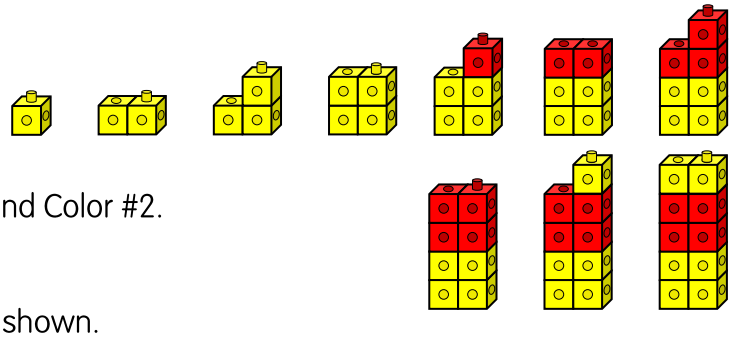


Black-line Master D2, page 48, matches the size of the 4-group Number Blocks so children can color Black-line Master D2 with crayons to match their work.
Ask children to tell you or a friend their number patterns when they finish.



Step #5 - Lesson 4 for 8-10

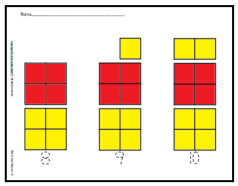
Children will build their own Number Parade using Multilink cubes.



They will need two colors of cubes, Color #1 and Color #2.

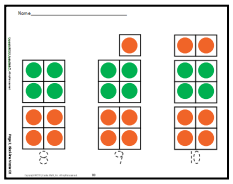
1. Build 1-7 as in Part One, Lesson 4.
2. Continue for the number patterns 8-10 as shown.

Ask children to tell you or a friend their number patterns when they finish.



Children can complete Black-line Master D2, page 48, with crayons to match their work.
Again, ask children to tell you or a friend their number patterns when they finish.

Step #5 - Lesson 5 for 8-10



Children use Black-line Master D2 to show the numbers 8-10 as a four, four, and some more. Here is an example with dot stickers. Ask children to tell you or a friend their number patterns when they finish.

Step #5 - Throughout the day

- Ask children, "How do we make a 4-group 8 (9, 10)?" Encourage children to answer, "Eight is four and four. (Nine is four, four and one more. Ten is four, four and two more.)"

- Find opportunities to represent the numbers 8, 9 and 10 as four, four and some more. For example, tell the children you will give them 8 (9 or 10) crackers at snack time. Give them four crackers in the 4-pattern and ask, "How many more do you need to make 8 (9 or 10)?" Encourage children to respond, "I need four more to make 8," "I need four and one more to make 9," and "I need four and two more to make 10."

STEP #5 Assessment

This assessment is done in two parts 5-7 and then 8-10. The two parts can be done on different days.

Part 1: You will need three 4-blocks all the same color and a 1-block, 2-block and 3-block of a second color.
Children build the 4-group Number Patterns for 5, 6, and 7 using the 4-group Number Blocks.
They tell how they know each pattern.
Place all the blocks in front of the child.
For consistency and fairness in your assessment use the same order of questioning for every child.

Assessment continues on next page. . . . .

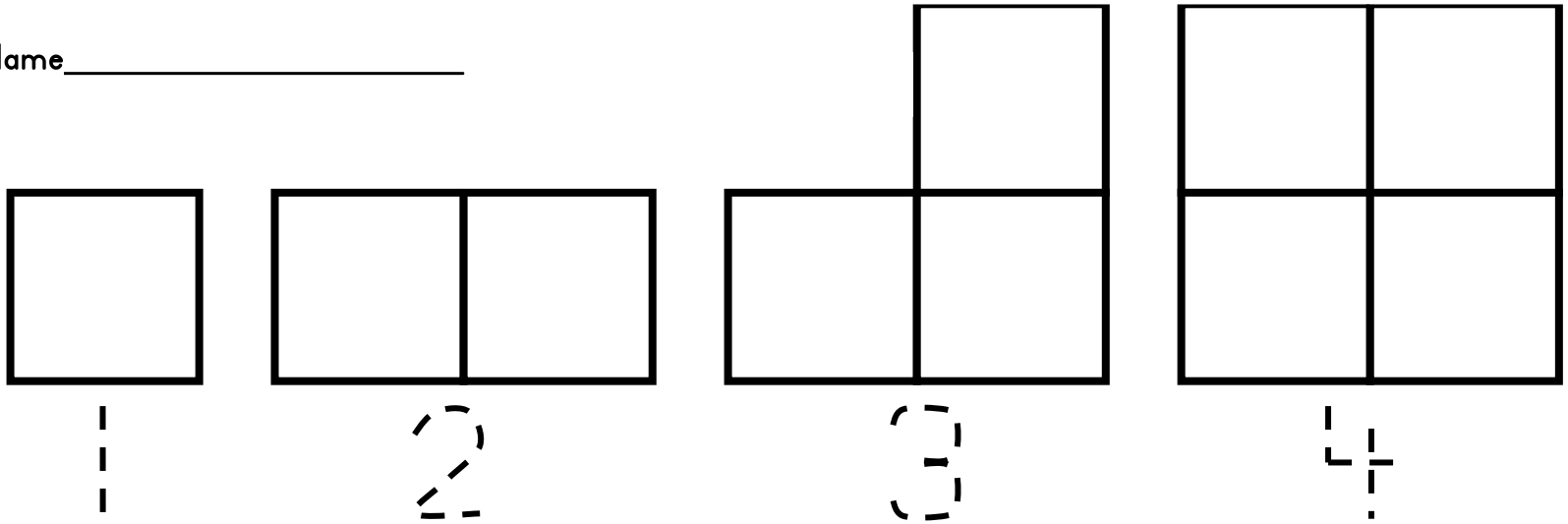
Say, *I would like you to build me a five, a six, and a seven with these blocks.*
Check which number patterns the child builds correctly: 5_____ 6_____ 7_____

Point to the **6**-pattern.
What number is this? Child answers _____.
It is six. How do you know it is six?
Mark how the child responds: _____Four and two more is six _____I counted
_____I just know _____It is the 6-pattern
_____Other_____
Point to the **5**-pattern.
What number is this? Child answers _____.
It is five. How do you know it is five?
Mark how the child responds: _____Four and one more is five _____I counted
_____I just know _____It is the 5-pattern
_____Other_____
Point to the **7**-pattern.
What number is this? Child answers _____.
It is seven. How do you know it is seven?
Mark how the child responds: _____Four and three more is seven _____I counted
_____I just know _____It is the 7-pattern
_____Other_____

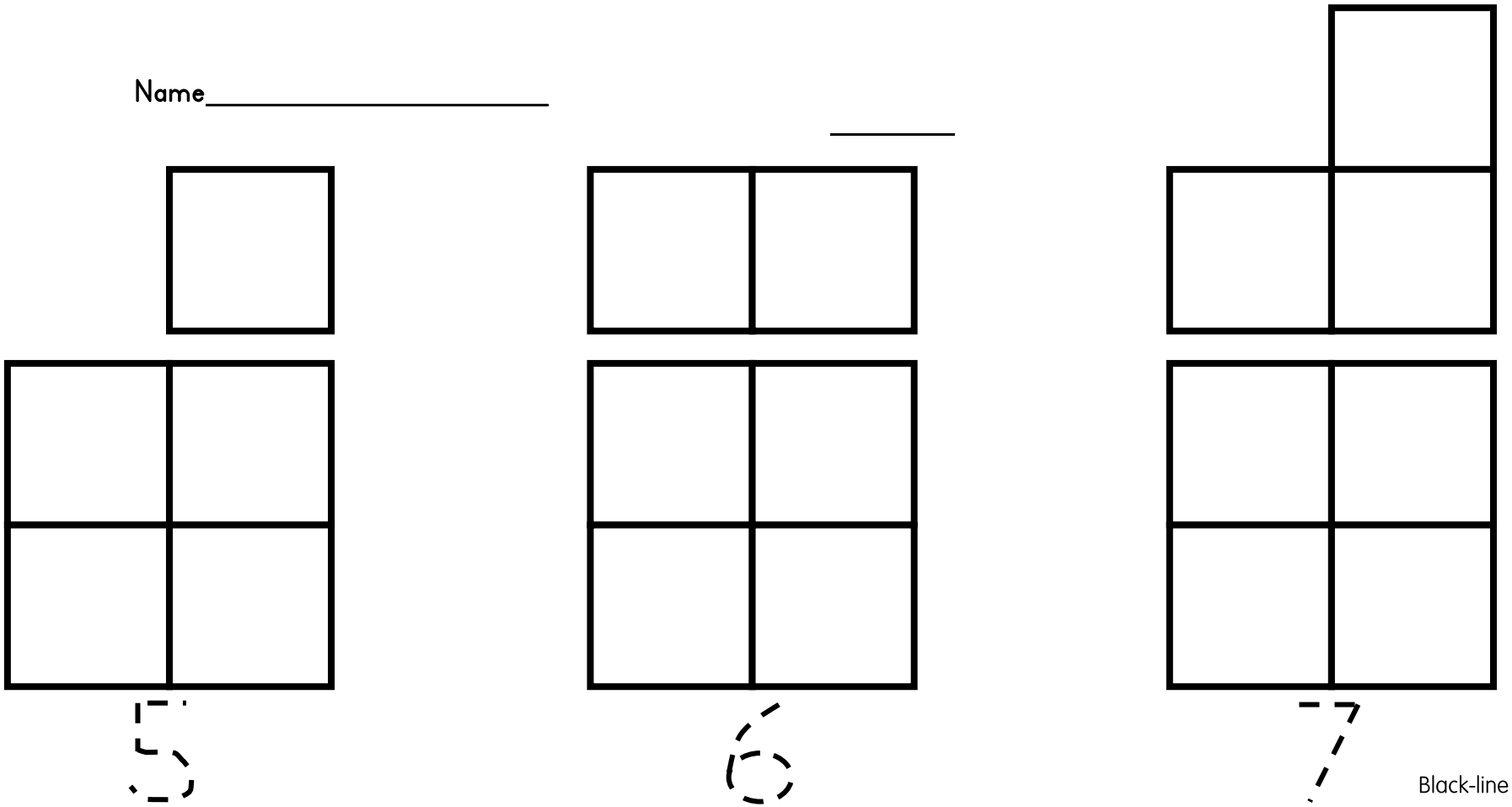
Part 2: You will need three 4-blocks all the same color, three 4-blocks of a second color and a third color 1-block and 2-block.
Children build the 4-group Number Patterns for 8, 9, and 10 using the 4-group Number Blocks.
They tell how they know each pattern.
Place all the blocks in front of the child.
Say, *I would like for you to build me an eight, a nine, and a ten with these blocks.*
Check which number patterns the child builds correctly: 8_____ 9_____ 10_____

Point to the **9**-pattern.
What number is this? Child answers _____.
It is nine. How do you know it is nine?
Mark how the child responds: _____Four, four and one more is nine _____I counted
_____I just know _____It is the 9-pattern
_____Other_____
Point to the **8**-pattern.
What number is this? Child answers _____.
It is eight. How do you know it is eight?
Mark how the child responds: _____Four and four is eight _____I counted
_____I just know _____It is the 8-pattern
_____Other_____
Point to the **10**-pattern.
What number is this? Child answers _____.
It is ten. How do you know it is ten?
Mark how the child responds: _____Four, four and two more is ten _____I counted
_____I just know _____It is the 10-pattern
_____I see Ten-man _____Other_____

Name_____



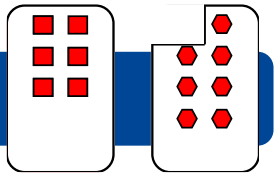
Name_____



Black-line Master D1

Name _____

STEP #6 Recognize the 4-group Number Patterns



OBJECTIVE:

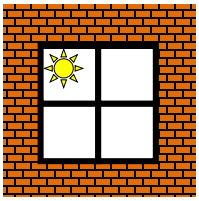
Identify the 4-group Number Patterns 1-10 as whole numbers.

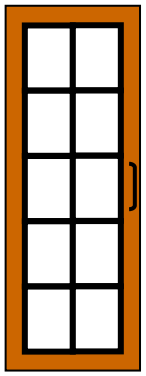
CHILD OUTCOME:

The child will look at a 4-group Number Pattern 1-10, represented in any medium, and correctly say how many without counting.

MATERIALS NEEDED:

4-Group Puzzles; 4-group Dice; Grid Cards; 4-group Number Blocks; Counting Cards; 4-group Playing Cards; Four-in-a-Row Game Cards





Four simple activities for Step #6:

1. Look for the 4-group Number Patterns in your environment.
   Eyes in the 2-pattern. Window panes in the 4-pattern.
   Door panels in the 10-pattern.

2. During the day when children play with the 4-group Puzzles or the 4-group Number Blocks, use the number names for the number patterns as you talk to children about the Number Blocks they are using.

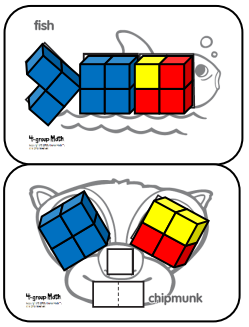
Here is a six. Do you need a three?
What number did you use for the legs?

Ask for blocks by their number name.

May I please have a seven?

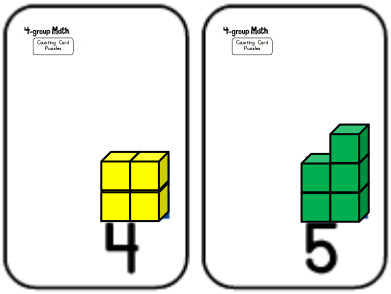
When a particular Number Block is used up, suggest two smaller blocks to make the same number.
For example a child wants to use a four and there are no more fours. Suggest a one and a three or a two and a two.

There are no more fours but I can make you a four with one and three. (Addition!)

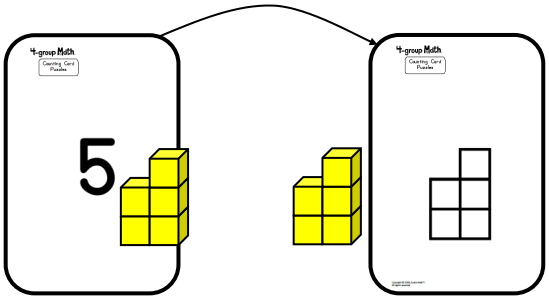


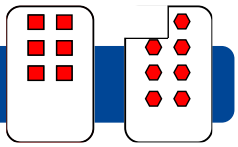
Use simple language such as ___ and ___ make ___.
For example, *One and three make four*.

3. Place the 4-group Number Blocks near the Number Parade.
   Ask a child to pick any block and match it to the Number Parade.
   Ask the child to tell you what number she is matching.



4. Place a Counting Card numeral side up and ask a child to find the Number Block that goes with that numeral.
   Turn the Counting Card over to see if your Number Block matches the squares!





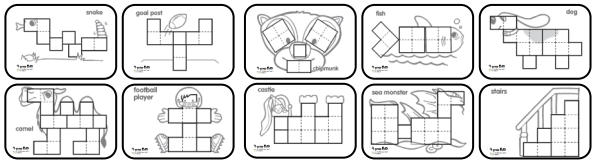
6 7

Step #6 - Lesson 1 - *What's in the Sack?*

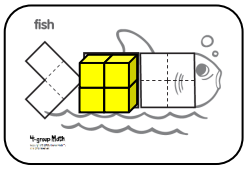
Version One- this version is easier because children can feel all the blocks in the bag and choose one that they believe they will be successful in naming.
Hide one each of the 4-group Number Blocks 1-10 in a mystery (non see-through) bag.
Ask a child to reach inside. *Pick a block put don't take it out.*
Feel the block. Try to guess the number before you peek.
What number do you feel? How do you know it is a ___?
The child describes the number pattern in her own words.
Now you can look at the block. What do you see with your math eyes?
Show the block to your friends. Do they agree you solved the mystery?
Ask all the children to close their eyes and see the number pattern in their head.
What do you see in your math mind? Can you see the number (the number the child picked out)*?*

Version Two- this version is harder because children must feel the block in the bag and name it.
Hide one of the 4-group Number Blocks 1-10 in a mystery (non see-through) bag.
Ask a child to reach inside. *Feel the block, but don't take it out.*
Try to guess the number before you peek.
What number do you feel? How do you know it is a ___?
The child describes the number pattern in her own words.
Now you can look at the block. What do you see with your math eyes?
Show the block to your friends. Do they agree you solved the mystery?
Ask all the children to close their eyes and see the number pattern in their head.
What do you see in your math mind? Can you see the number (the number that was in the bag)*?*

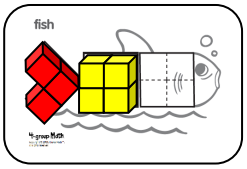
Step #6 - Lesson 2



You need all ten of the 4-group Puzzles.
Children will take turns rolling a 4-group Dice and placing a 4-group Number Block in a 4-group Puzzle.
When children first play this game, they may count the dots on the dice or count the squares on the 4-group blocks. This is okay. Soon they will recognize the number patterns without counting.
Teach children how to play this as a game or they can play it as a solitaire.
Children agree on one of the ten puzzles to work on together or they each pick their own puzzle.
Each child has their own 4-group Dice or they can share.



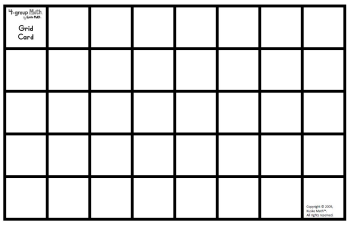
Player One rolls the 4-group Dice and chooses either the white or the purple dots for the number rolled.
He takes a 4-group Number Block for the number rolled and places it in the puzzle.



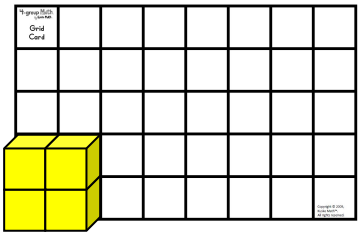
Player Two rolls the 4-group Dice and chooses either the white or the purple dots for the number rolled.
He takes a 4-group Number Block for the number rolled and places it in the puzzle or places it in his own puzzle.

Play until the puzzle is full. The last player to place a block wins.
Or, when each player has his own puzzle, the first player to fill his puzzle wins.
This game can be played cooperatively where the goal is to fill the puzzle together.

Step #6 - Lesson 3



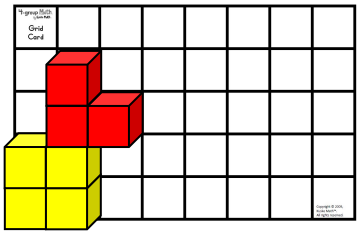
Play with the 4-group Grid Cards.
The squares on these Grid Cards are sized to the 4-Group Number Blocks.
Children develop their spatial skills by trying to cover the grid with different combinations of blocks.
Building 3-dimensionally on the Grid Cards is another challenge for children to develop spatial skills.



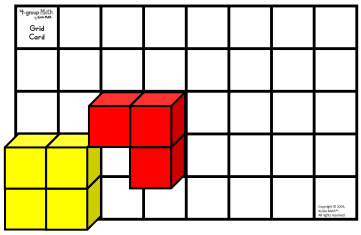
Put the Grid Cards out with the 4-group Number Blocks.
Demonstrate with the children.
I want to cover this grid with blocks so no white paper is showing.
I will take a four block and place it on the grid.

Who can help me fill the grid?
Ask a child to pick another of the 4-group Number Blocks and place it on the grid.
One rule we have is that the next block has to touch <u>one</u> of the <u>sides</u> of my block.

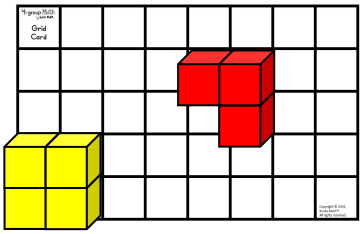
Like this.



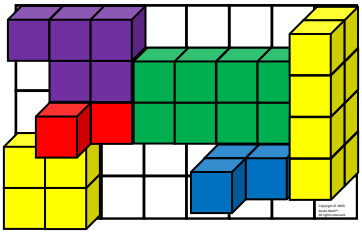
Not like this.



Not like this.



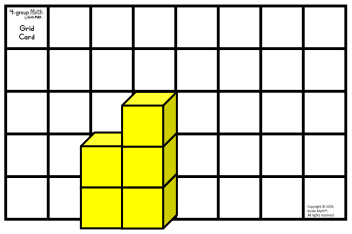
Use number words as you talk to children about the 4-Group Number Blocks they are using to fill the grid.



It is fun to place some of the blocks so they stand up on the grid.

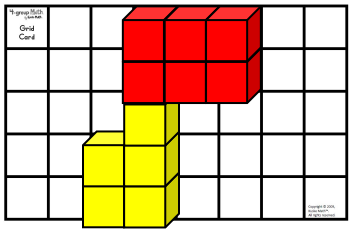
Step #6 - Lesson 3

Play **<u>Fill the Grid Game</u>** (This can be taught as a separate Lesson.)



Player One rolls a 4-group Dice .
Player One takes a Number Block of either the purple or the white number rolled and sets it anywhere in the grid.

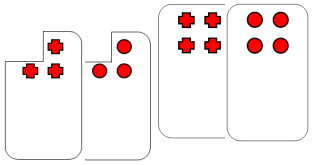
For an advanced 3-dimensional game, any side up is okay; meaning some blocks may stand on their side or end.



Player Two rolls a 4-group Dice .
Player Two takes a Number Block of either the purple or the white number rolled and sets it in the grid with the rule that it must touch one side of **Player One's** block.

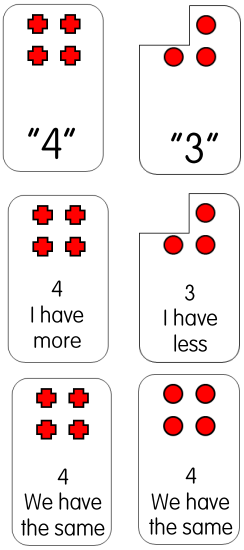
The player to place the last piece in the grid is the winner.
If the last number is not rolled by either player on their last turn, it is a tie game.
For a cooperative game, children can work together to fill the grid.

Step #6 - Lesson 4



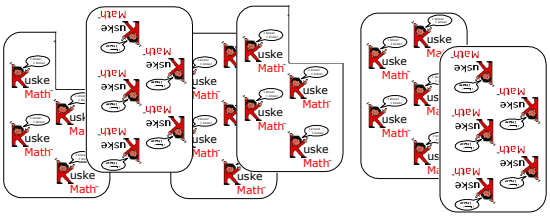
Lay out the 4-group Playing Cards 0-4 face up on the table.
Have children put cards with matching number patterns together.
Using more than one deck makes the activity more challenging and more children can participate.
When children are comfortable with the activity, include the cards with the 5-pattern.
When children are comfortable with 0-5, include the cards with the 6-pattern.
Continue in this manner until you are using all the cards up to ten.

Step #6 - Lesson 5



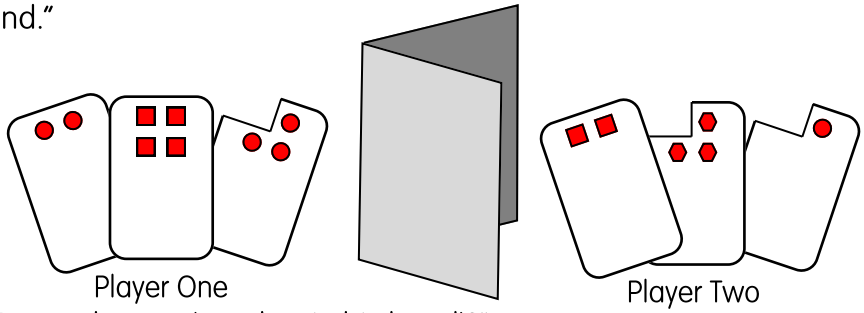
Play **More, Less, Same** with 4-group Playing Cards. 2 players
You can start this game with the cards 1-4 and add 5-10 as children are ready.
Ask a child to demonstrate the game with you. Then give every two children a set of 4-group Playing Cards for the numbers you are using and let them play together.
Place the cards face down in a pile.
Player One picks up the top card, places it face up on the table, and says the number. [Four] It is o.k. if children count at first, but encourage them to see the four(s) in each card to recognize the number.
Player Two picks up the top card, places it face up on the table, and says the number. [Three]
The player who has the highest number, says, "I have more."
The player with the smaller number, says, "I have less."
If both numbers are the same, both players say, "We have the same!"
It's important to say the number and not just look at who has more. Each player then places his card in the discard pile.
When all cards have been played, play again!

Step #6 - Lesson 6

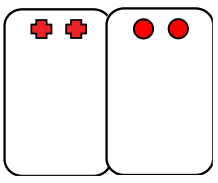


Play **Go Fish Matching** with 4-group Playing Cards. 2-3 players (Children will learn **Go Fish to a Sum** in Step #8.)
Start this game with the cards 1-4 and add 5-10 as children are ready. Ask a child to demonstrate the game with you. Then give every two children a deck of 4-group Playing Cards and let them play together. Place the cards face down on the table and spread them out in a "fishing pond."

Players take three cards to form a hand. (For hands too small to hold the cards use a barrier between the players (i.e books on end) and put the hand face up on the table.)



Player One asks the other players, "Do you have a (number in his hand)?" [i.e. Two] If another player has a two, he gives it to **Player One**.
If more than one player has the requested card, anyone can give it to the asking player. **Player One** places the matching cards face up in his "bucket" on the table in front of him.



If the other players do not have a matching card, they say, "No. Go fish!"
Player One draws a card from the "fishing pond" and it is the next player's turn.
Play until the "fishing pond" is empty and all cards are matched. If a player runs out of cards in his hand, he draws two more cards from the "fishing pond."

Step #6 - Lesson 7

To start, make copies of the Four in a Row game cards on page 54. (The cards on page 55 are more advanced.)
Play **Four in a Row** with the 4-group Dice and Four in a Row Game Cards. 2 players

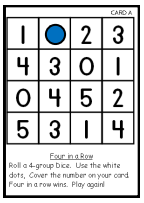
Four in a Row Cards A & B, page 54, use only the white dots on the 4-group Dice and involve the numbers 0-5.

Four in a Row Cards C & D, page 55, a more advance game, use only the purple dots on the 4-group Dice and involve the numbers 5-10.

It is okay if children count the dots on the 4-group Dice at first, but encourage them to see the four(s) in each pattern to recognize the number on the 4-group Dice .

Player One rolls the 4-group Dice and covers (or colors) the number on her card.


Five white dots.



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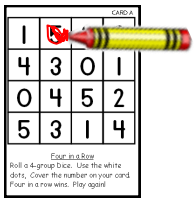
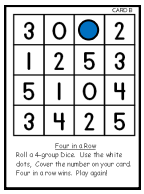


Player Two rolls the 4-group Dice and covers (or colors) the number on his card.


Four white dots.



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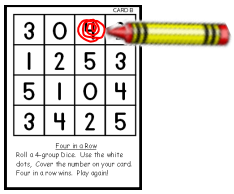
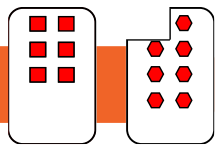


The first player to cover (or color) four squares in a row; wins.
Or, play as a team, use one card and work together to get four in a row.
Then play again!
Some children like to play until the entire card is covered.

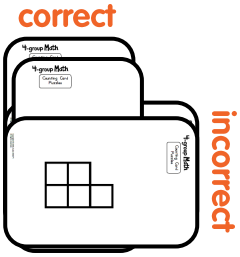
STEP #6 Assessment


6 7

You will need the 4-group Counting Cards 1-10.
With the pattern side facing up, place the cards in a stack with the numbers in this order:
4 on top, followed by **1, 5, 8, 3, 7, 10, 6, 9, 2** in this order.
For consistency and fairness in your assessment use this same order for every child.

Hold up the Counting Cards one at a time with the pattern side to the child.
(You can see the correct answer facing you!)
Ask, *What number is this?*

Record any numbers that the child misses. These will be target numbers to practice with this child.
One way to record is to put down the correct and incorrect cards differently on the table then record the numbers after the child is finished.



CARD A

1	5	2	3
4	3	0	1
0	4	5	2
5	3	1	4

Four in a Row

Roll a 4-group Dice. Use the white dots, Cover the number on your card. Four in a row wins. Play again!

CARD B

3	0	4	2
1	2	5	3
5	1	0	4
3	4	2	5

Four in a Row

Roll a 4-group Dice. Use the white dots, Cover the number on your card. Four in a row wins. Play again!

CARD C

5	9	7	8
7	10	9	6
6	7	8	5
8	5	10	9

Four in a Row

Roll a 4-group Dice. Use the purple dots, Cover the number on your card. Four in a row wins. Play again!

CARD D

10	8	6	5
6	7	8	7
5	6	7	9
9	5	10	8

Four in a Row

Roll a 4-group Dice. Use the purple dots, Cover the number on your card. Four in a row wins. Play again!

STEP #7 Construct the 4-group Number Patterns

OBJECTIVE:

Represent the numbers 1-10 in the 4-group Number Patterns.

CHILD OUTCOME:

When requested, by hearing the number word or seeing the numeral, the child will build the 4-group Number Pattern for the given number 1-10 using the 4-group Counting Order.

MATERIALS NEEDED:

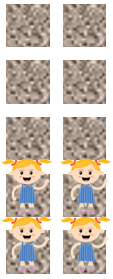
4-group Egg Carton 10-patterns if desired; multilink cubes; Stamps, Dot Art, Stickers, Crayons; 4-group Dice.

During the day, whenever numbers are represented, children and adults use the 4-group Number Patterns.

STEP #7 Lesson Ideas

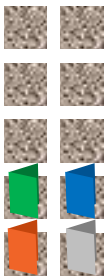
Step #7 - Lesson 1

Children will build 4-group Number Patterns with their bodies.
Draw circles on the ground with chalk, use carpet squares or use *Poly Spots* to make the 10-pattern.
Ask one child to sit in the 1-spot. Make up a story.
We have one child in our boat (or on our plane, in our house).
Ask another child to sit, pointing to the 2-spot.
Now how many children are in our boat? [Two.]
Yes, there are two children in our boat. I can see two with my math eyes.
Ask two more children to sit, pointing to the 3- and 4-spots.
Now how many children are in our boat? [Four.]
How do you know there are four? Elicit children's responses.
Ask two more children to sit, pointing to the 5- and 6-spots.
Now how many children are in our boat? [Six.]
Some children may need to count to make sure there are six. This is okay.
How do you know there are six? Elicit children's responses.
Ask the child in the 6-spot to leave the boat.
Now how many children are in our boat? [Five.]
How do you know there are five? Elicit children's responses.
Continue in this manner adding or subtracting children to form the different 4-group Number Patterns 1-10 in mixed up order.



Step #7 - Lesson 2

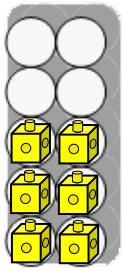
This lesson is similar to Lesson 1.
Children will build 4-group Number Patterns with objects in the classroom.
Use the same 10-pattern you made above for Lesson 1.
Give each child a book, or paper cup, or stuffed animal, or other similar object.
Ask one child to place her book in the 1-spot. Make up a story.
We have one book in our library.
Ask another child to place his book, pointing to the 2-spot.
Now how many books are in our library? [Two.]
Yes, there are two books in our library. I can see two with my math eyes.



Ask two more children to place their books, pointing to the 3- and 4-spots.
Now how many books are in our library? [Four.]
How do you know there are four? Elicit children's responses.
Ask two more children to place their books, pointing to the 5- and 6-spots.
Now how many books are in our library? [Six.]
Some children may need to count to make sure there are six. This is okay.
How do you know there are six? Elicit children's responses.
Pick up the book in the 6-spot. *This book gets checked out of the library.*
Now how many books are in our library? [Five.]
How do you know there are five? Elicit children's responses.
Continue in this manner adding or subtracting books to form the different 4-group Number Patterns 1-10 in mixed up order.

.

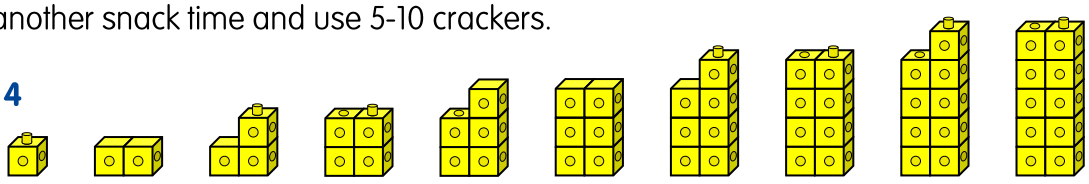
Step #7 - Lesson 3



Give each child a 4-group Egg Carton 10-pattern from Step 4, Lesson 3, page 38.
They take a handful of small objects (a size such that they cannot take more than ten).
Place the objects in the egg carton 'counting like Ten-man.'
How many do you have? How do you know?
Trade objects with a friend.
Place them in your carton. Do you see the same number?

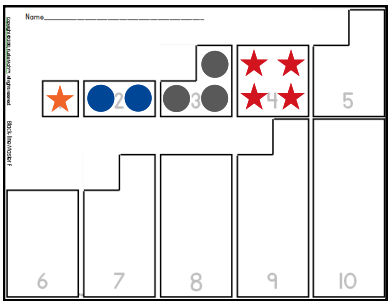
At snack time give children a different number of crackers from 5-8 with at least one child receiving eight crackers.
Place your crackers in a 4-group Number Pattern.
Ask each child, *How many crackers do you see with your math eyes?*
Who has the most crackers? [Sara has the most. She has eight.]
Ask each child how many more crackers they need to have the same number as Sara.
How many more crackers do you need to have eight like Sara?
Give that many crackers to the child.
Make eight.
When everyone has eight crackers, eat the crackers!
Do this activity at another snack time and use 5-10 crackers.

Step #7 - Lesson 4



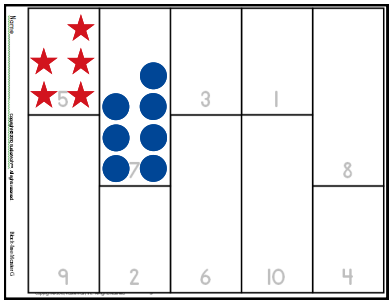
Children will build 4-group Number Patterns with multilink cubes. Each child uses only one color of cubes.
The teacher calls out a number 1-10 and writes the number on the board.
Make four. Write 4 on the board.
When most children have finished, call out another number.
Make seven. Write 7 on the board.
Continue until all numbers 1-10 have been called.
Children then line up their Number Patterns like the Number Parade and tell their numbers to a friend.

Step #7 - Lesson 5



You will need art supplies such as stamps, Dot Art, stickers, or crayons.
Use Black-line Master F, page 59, which shows 1-10 in numerical order. Children make the number pattern for each number shown.
Model and encourage children to 'build like Ten-man' in the 4-group Counting Order as they make their number patterns.

Step #7 - Lesson 6



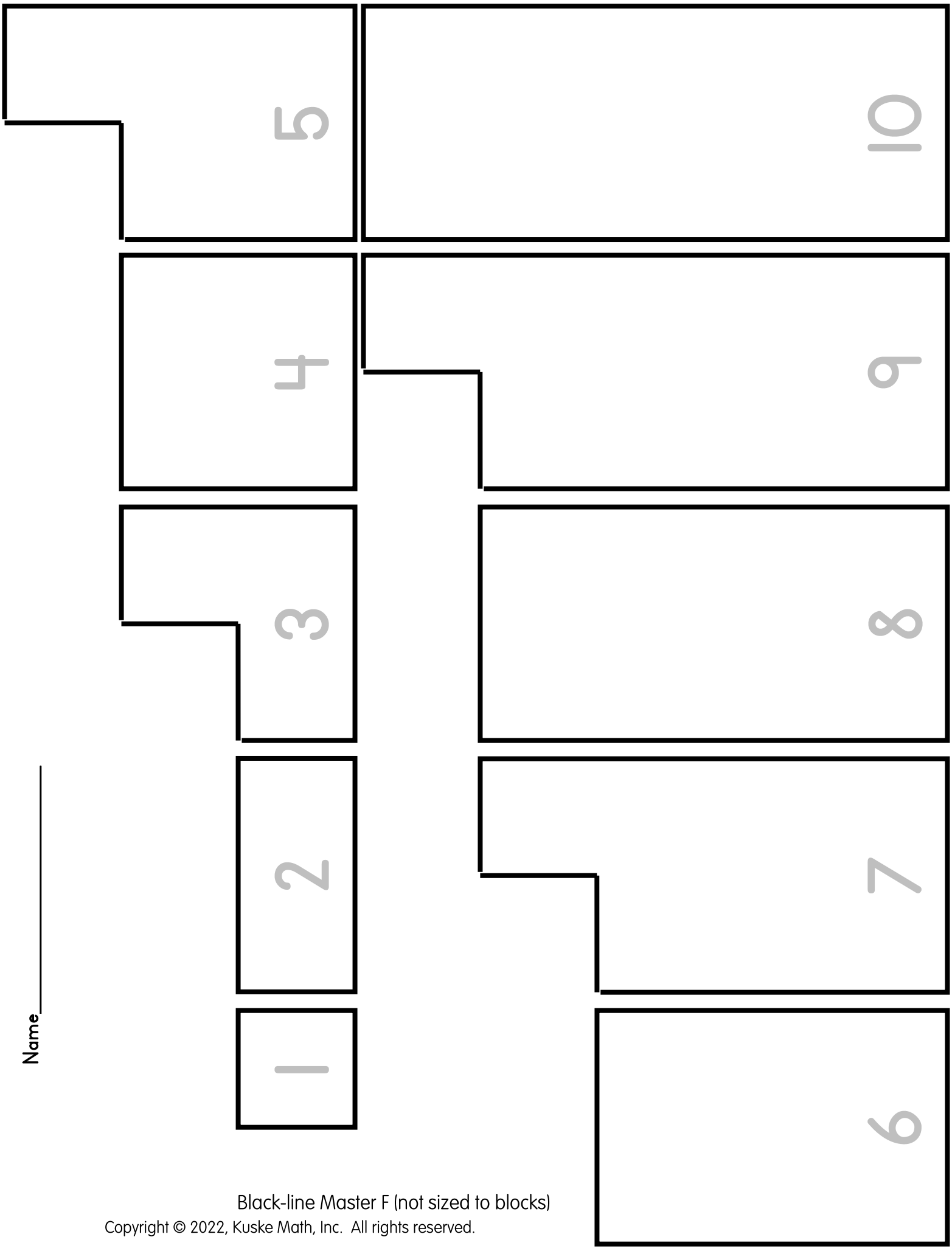
You will need art supplies such as stamps, Dot Art, stickers, or crayons.
Use Black-line Master G, page 60, which shows 1-10 in random order. Children make the number pattern for each number shown.
Model and encourage children to 'build like Ten-man' in the 4-group Counting Order as they make their number patterns.

Step #7 - Lesson 7

You will need art supplies such as stamps, Dot Art, stickers, or crayons.
On plain paper, children make 4-group Number Patterns to match a given number called out by the teacher or a partner (or numbers rolled on a 4-group Dice).
The teacher also writes the number on the board.
Model and encourage children to 'build like Ten-man' in the 4-group Counting Order as they make their number patterns.
When children finish each pattern or at the end, the child or the teacher may want to write the number under each pattern.

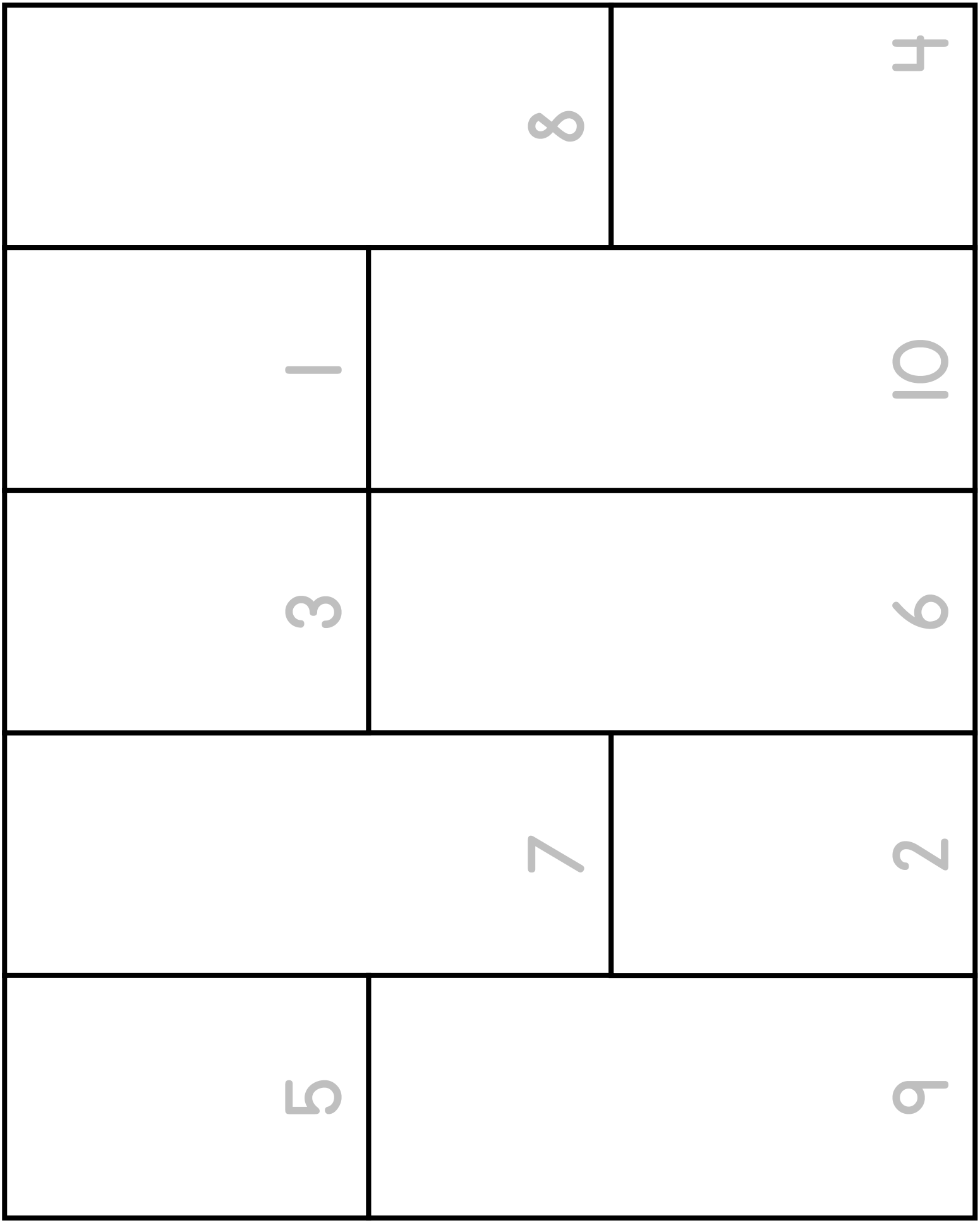
STEP #7 Assessment

You will need 12 cubes of the same color and shape. Place the cubes in front of the child.
Say, *Please show me **4** cubes.*
Child shows ____ cubes. Uses 4-pattern YES NO (circle one)
*Please show me **1** cube.*
Child shows ____ cubes.
*Please show me **5** cubes.*
Child shows ____ cubes. Uses 5-pattern YES NO (circle one)
*Please show me **8** cubes.*
Child shows ____ cubes. Uses 8-pattern YES NO (circle one)
*Please show me **3** cubes.*
Child shows ____ cubes. Uses 3-pattern YES NO (circle one)
*Please show me **7** cubes.*
Child shows ____ cubes. Uses 7-pattern YES NO (circle one)
*Please show me **10** cubes.*
Child shows ____ cubes. Uses 10-pattern YES NO (circle one)
*Please show me **6** cubes.*
Child shows ____ cubes. Uses 6-pattern YES NO (circle one)
*Please show me **9** cubes.*
Child shows ____ cubes. Uses 9-pattern YES NO (circle one)
*Please show me **2** cubes.*
Child shows ____ cubes. Uses 2-pattern YES NO (circle one)



Name_____

Black-line Master F (not sized to blocks)



Name_____

Black-line Master G (not sized to blocks)

STEP #8 Combine & Separate the 4-group Number Patterns

OBJECTIVE:

To model and express simple addition and subtraction situations up to five.

CHILD OUTCOME:

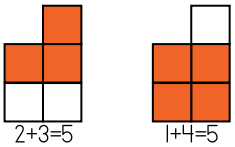
The child will correctly solve addition and subtraction problems, given to them orally, by either modeling with objects in the 4-group Number Patterns or by 'seeing' the 4-group Number Patterns in their minds.

MATERIALS NEEDED:

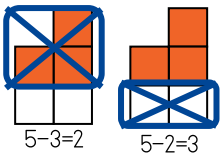
4-group Number Blocks; Number Parade; 4-group Dice; 4-group Playing Cards.

To be successful in future mathematics and to find mathematics *easy and fun*, children must have rapid recall and know with accuracy and confidence their basic addition and subtraction facts.

The 4-group Number Patterns are unique in that they are summative. They fit together to form the 4-group Number Pattern for their sum. For example a 3-pattern and a 2-pattern combine to make the 5-pattern while the 4-pattern and 1-pattern combine to make the same 5-pattern.

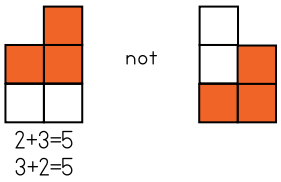


The 4-group Number Patterns are also unique in that subtraction is modeled as the exact opposite of addition.

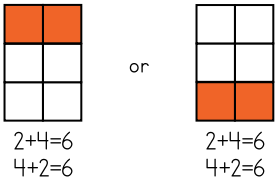


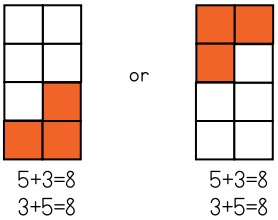
The chart shows how the number patterns fit together up to 10.

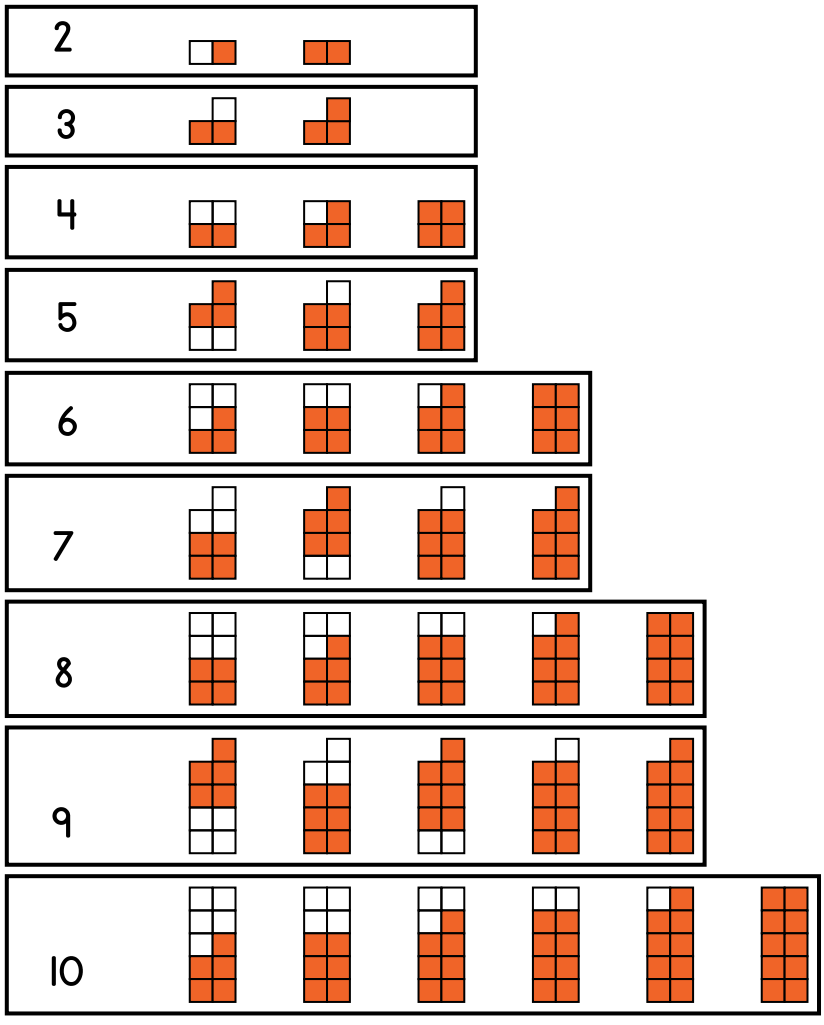
Note that when an odd and even 4-group Number Pattern combine, the even pattern goes on the bottom to maintain its integrity.



When two even or two odd number patterns combine, either can be on top.



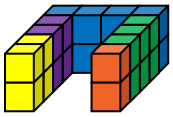




STEP #8 Lesson Ideas

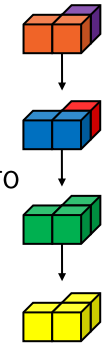
Do all the Lessons in Step 8 for the number three. Then repeat them for the number four. Then repeat them for five.

Step #8 - Lesson 1 for 3



Children will experience combinations for the numbers to ten as they play with the 4-group Number Blocks. They may be building a barn and find there are no more 8-blocks to match the walls so they have to use a 4 and a 4 or a 6 and a 2, etc.

Children love to build ***Number Towers***.
You will need a pile of 4-group Number Blocks 1s, 2s and 3s, a few of each number.
Place a 3-block on the floor.
I want to make a 3-tower. Can you help me?
Can anyone find more threes to go on top?



Let the children find the threes. See if anyone suggests making a three from a two and a one when they can't find a whole three.
Children may make the threes out of any number of blocks but mathematically we want to encourage them to use <u>two blocks</u> as these are the combinations we want them to eventually master.
As children make their threes, model the language for them.

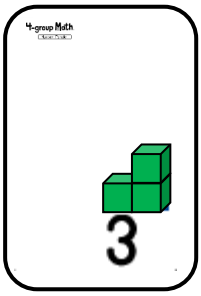
I see you made your three with a two and a one.
Yes, one and two make three.

To model subtraction, take the tower down by taking away one block from each combination.

I am taking one from this three. That leaves two.
I took two away, one is left.

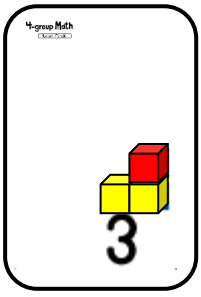
Step #8 - Lesson 2 for 3

Children love to take two blocks and see if they can make and match one of the numbers on the Number Parade. (The squares of the Number Parade and the squares of the blocks are sized the same.)
Place a few of the Number Blocks 1, 2, and 3 in front of the Number Parade.
Here are some of our number blocks.
We want to match them to the 3-pattern on our Number Parade.
Point to the 3-pattern.
Can anyone match them to our 3-pattern?



See if anyone takes two blocks to make the three. If not, model for them how to do this then let them try.
As children make the three, model combining language for them.

I see you made a three with two and one.
Wow, one and two make three!
Three and zero make three.

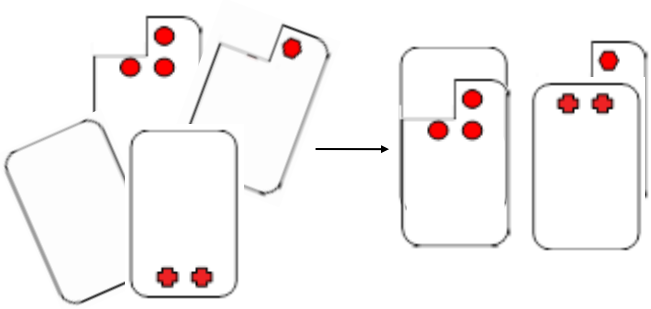


To model separating, show children how to take away one block from each combination.

I am taking away one from this three. That leaves two.
I took two away, one is left.
I took three away, now zero are left.

Step #8 - Lesson 3 for 3

Lay out the cards 0-3 from some of the decks of 4-group Playing Cards.
Children take turns to find pairs of cards that they can put together to form the 3-pattern.



As children make three, model combining and separating language for them.

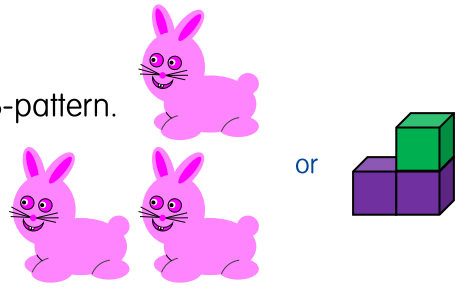
One and two make three!
Three take away one leaves two.

Step #8 - Lesson 4 for 3

Act out simple story problems with the 4-group Number Blocks representing the characters in the story or with actual objects.

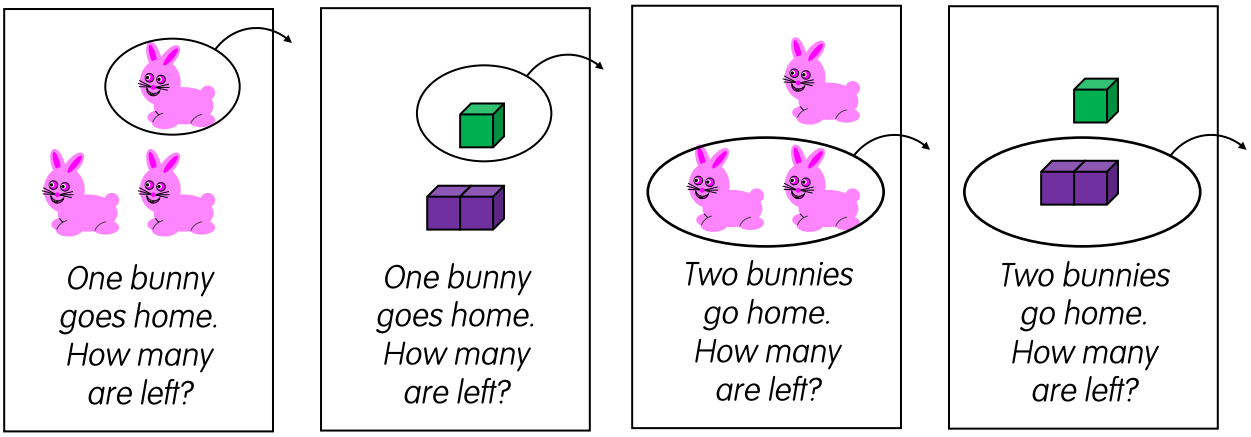
Place two bunnies on the floor in the 4-group Number 2-pattern.
Two bunnies are having a picnic.

One more bunny comes to the picnic.
Place this bunny with the first two to form the 4-group Number 3-pattern.
How many bunnies are at the picnic now? [Three]



Model combining and separating language:
Two bunnies and one bunny make three bunnies!
Three bunnies take away one bunny leaves two bunnies.

For separating take away the 1-pattern or the 2-pattern from the picnic.



Step #8 - Lesson 5 for 3

Play *Target Number - 3*

You will need decks of 4-group Playing Cards with only the 0-3 cards.

Place the target number 3-card on the table face up. (Figure 1)

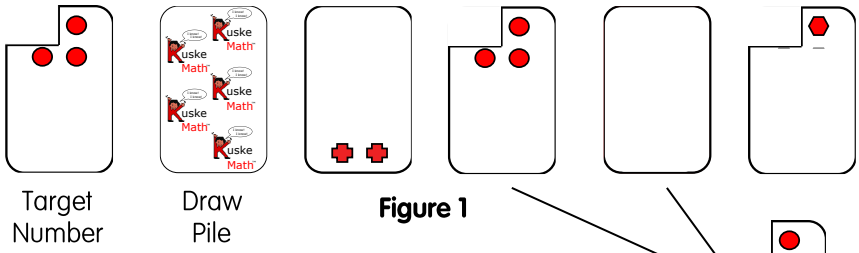


Figure 1

Stack the rest of the cards face-down next to the target number. This is the draw pile.

To start, turn over four cards from the draw pile and place them in a row. (Figure 1)

Player One picks two of the four cards to make the target number three.

If **Player One** is successful, he takes the cards, says the combining language [three and zero make three] and replaces the cards with new cards from the draw pile. (Figure 2)

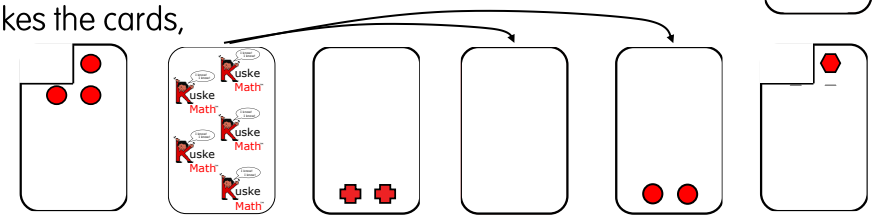
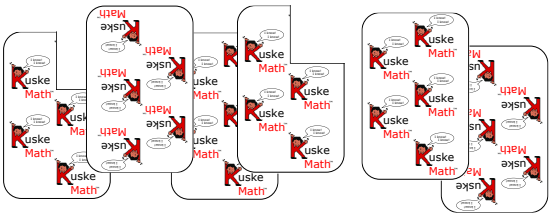


Figure 2

If **Player One** cannot make the target number three, he takes a card from the draw pile and places it face-up at the end of the row. It is now **Player Two's** turn.

Play ends when no more combinations will make the target number three. The player with the most cards wins. For a cooperative game, see how many combinations you can make as a team!



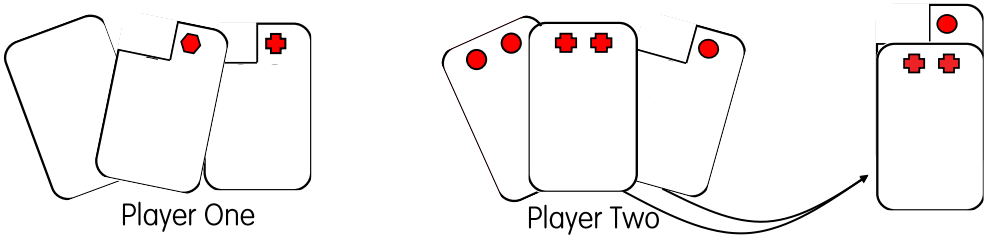
Step #8 - Lesson 6 for 3

Play Go Fish to 3

Set aside the cards higher than three.

Place the rest of the cards face-down on the table and spread them out in a "fishing pond."

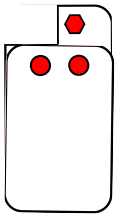
Players take 3 cards to form a hand. If a player has two cards that make 3, he can put them down face up to form the 3-pattern.



Player One asks for a card that makes three when added to a card in her hand. For example, she has a 1 so she would ask for a 2.

Player Two gives her his two. In this example **Player Two** now has no cards so he draws three more cards from the "fishing pond" for his hand.

Player One lays down her two cards face-up to form the 3-pattern.

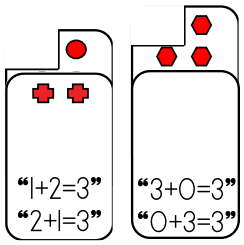


If the other player does not have the requested card, he says, "No. Go fish!"

Player One then draws a card from the "fishing pond" and it is the next player's turn.

Play until the "fishing pond" is empty and all cards are played.

At the end of the game read your "equations" to your partner.

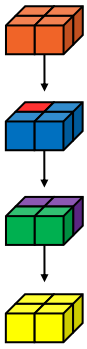


Step #8 Lessons for 4

Repeat Step #8 Lessons 1-6 for the number 4. These Lessons for 4 follow here with any new materials or directions you need:

Step #8 - Lesson 1 for 4

Number Towers.



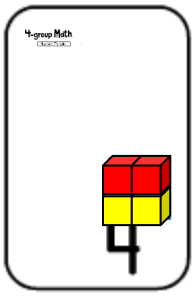
You will need a pile of 4-group Number Blocks 1s, 2s, 3s, and 4s, a few of each number.
Place a 4-block on the floor.
I want to make a 4-tower. Can you help me?
Can anyone find more fours to go on top?
Let the children find the fours. See if anyone suggests making a four from a two and a two or a three and a one when they can't find a whole four.
Children may make the fours out of any number of blocks but mathematically we want to encourage them to use <u>two blocks</u> as these are the combinations we want them to eventually master.
As children make their fours, model the language for them.

I see you made your four with a two and a two.
Yes, one and three make four.

To model subtraction, take the tower down by taking away one block from each combination.

I am taking one from this four. That leaves three.
I took two blocks away, two blocks are left.

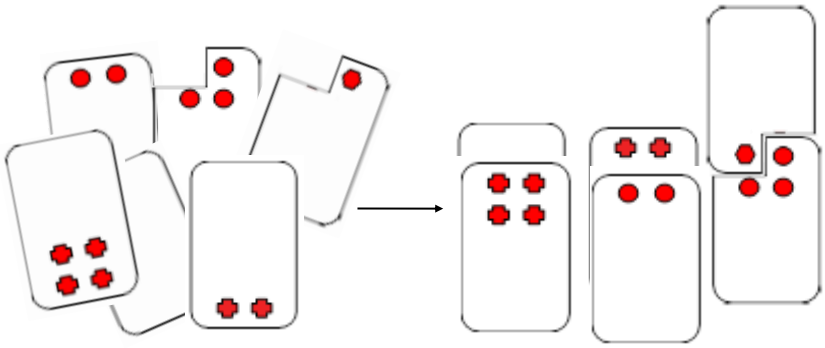
Step #8 - Lesson 2 for 4



Place a few of the Number Blocks 1, 2, 3 and 4 in front of the Number Parade.
Here are some of our number blocks.
We want to match them to the 4-pattern on our Number Parade.
Point to the 4-pattern.
Can anyone match them to our 4-pattern?
See if anyone takes two blocks to make four. If not, model for them how to do this then let them try.
As children make four model combining and separating language for them.

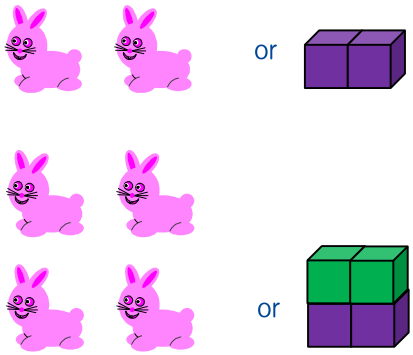
Step #8 - Lesson 3 for 4

Lay out the cards 0-4 from some of the decks of 4-group Playing Cards .
Children take turns to find pairs of cards that they can put together to form the 4-pattern.
As children make four, model combining and separating language for them.

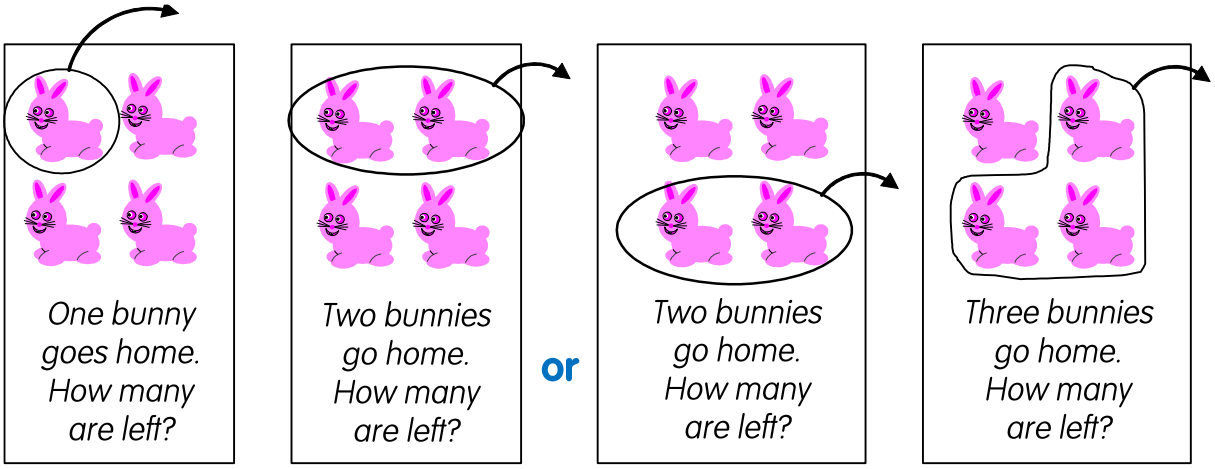


Step #8 - Lesson 4 for 4

Act out simple story problems with the 4-group Number Blocks representing the characters in the story or with actual objects.
Place two bunnies on the floor in the 4-group Number 2-pattern.
Two bunnies are having a picnic.

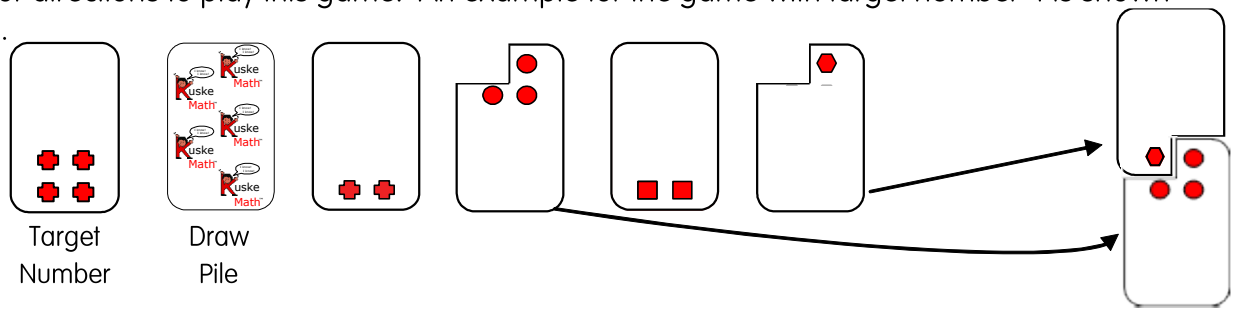


Two more bunnies come to the picnic.
Place these bunnies with the first two to form the 4-group Number 4-pattern.
How many bunnies are at the picnic now? [Four]
Model combining and separating language.
For separating take away the 1-pattern, 2-pattern or 3-pattern from the picnic.



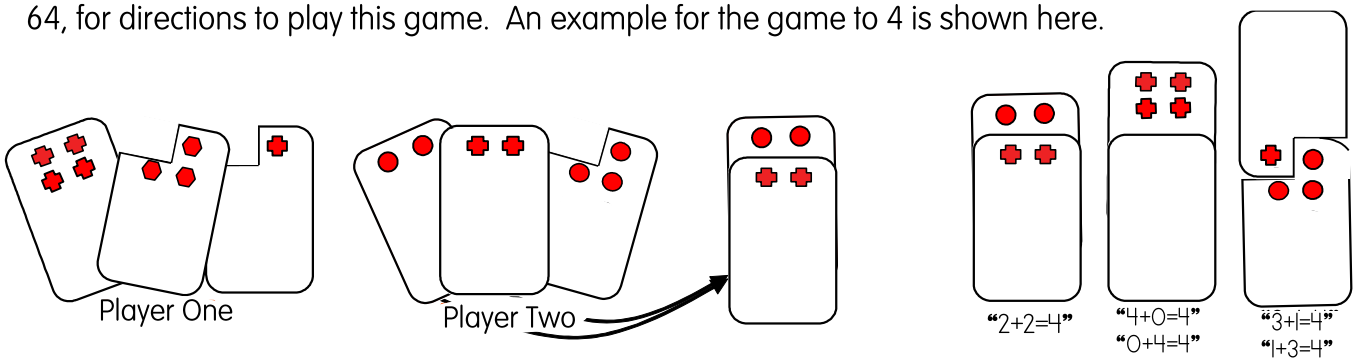
Step #8 - Lesson 5 for 4 Play *Target Number - 4*

You will need decks of 4-group Playing Cards with only the 0-4 cards. See **Lesson 5 for 3**, page 64, for directions to play this game. An example for the game with target number 4 is shown here.



Step #8 - Lesson 6 for 4 Play Go Fish to 4

You will need decks of 4-group Playing Cards with only the 0-4 cards. See **Lesson 6 for 3**, page 64, for directions to play this game. An example for the game to 4 is shown here.



Step #8 Lessons for 5

Repeat Step #8 Lessons 1-6 for the number 5. These Lessons for 5 are the same but now include the 4-group Playing Cards 5-Cards and the 4-group Number 5-Blocks.

Step #8 Last Lesson - Combining and Separating 0-5.

This lesson gives children the opportunity to practice all the additions and subtractions for 3-5. This game was created by one of our 4-group Math students, using the 4-group Number Blocks and the 4-group Dice.

Combination Towers by Sydney

Play with the white numbers on the dice.

Player One rolls the dice.
She finds the Number Block for the number rolled and places it flat on the table.

Player Two rolls the dice.
He finds the Number Block for the number rolled and places it flat on the table.

Player One rolls the dice again.
If she rolls a different number she finds the Number Block for the number rolled.
If the number is smaller than her first roll, she places the block to the left of her first block (as if building a Number Parade).
If the number is larger, she places the block to the right of her first block.

If she rolls a number she already has, she uses two different colored blocks and builds a combination on TOP of that number, as if building a tower.
She says the addition language as she places the blocks. [Two and two make four.]

Take turns until someone has a tower three "stories" tall.
A more advanced finish is to play until someone has all the combinations of one number.
To play cooperatively, build towers together until one tower is ten "stories" tall.

Take the towers down by saying the subtraction language as you remove the blocks.
[Four take away two leaves two.]

STEP #8 Assessment

You will need one of each 4-group Playing Card 0, 1, 2, 3, 4, 5, with the same shape, such as all circles.
For consistency and fairness in your assessment use the following order of questioning and the same wording for every child.
Lay the cards out in a scattered pile with the number pattern side facing up. The cards are available to use if the child chooses.
Record the child's answers and your perception as to how they figured out the answer.

I am going to ask you some questions. Please tell me the answer.
You can use these 4-group Playing Cards to help you if you need to.

Ask, *How much is 2 and 2?* Child answers_____.
_____Child knows.
_____Child uses 4-group Playing Cards to see answer.
_____Child uses 4-group Playing Cards to count answer.
_____Child counts on fingers.
_____Child does not know.

Ask, *How much is 1 and 4?* Child answers_____.
_____Child knows.
_____Child uses 4-group Playing Cards to see answer.
_____Child uses 4-group Playing Cards to count answer.
_____Child counts on fingers.
_____Child does not know.

Ask, *How much is 3 and 1?* Child answers_____.
_____Child knows.
_____Child uses 4-group Playing Cards to see answer.
_____Child uses 4-group Playing Cards to count answer.
_____Child counts on fingers.
_____Child does not know.

Ask, *How much is 2 and 3?* Child answers_____.
_____Child knows.
_____Child uses 4-group Playing Cards to see answer.
_____Child uses 4-group Playing Cards to count answer.
_____Child counts on fingers.
_____Child does not know.

Ask, *How much is 4 and 0?* Child answers_____.
_____Child knows.
_____Child uses 4-group Playing Cards to see answer.
_____Child uses 4-group Playing Cards to count answer.
_____Child counts on fingers.
_____Child does not know.

Appendix A

How Ten-man Got His Name

"It snowed last night," squealed Jen.

"Let's build a snowman," said her brother Brad. "Let's get started."

Brad rolled a big snowball. [*Show the children Picture 1*]

Jen rolled a medium size snowball.

"Let's build our snowman here, by the side of the woods," said Jen.

Together she and Brad picked up her snowball and placed it on top of Brad's.

[*Show the children Picture 2*]

"Hmm, what else does he need?"

He needs a head!"

"I'll make it," said Jen.

She rolled a small snowball and placed it on top. [*Show the children Picture 3*]

"I'm hungry," said Brad, "let's go eat. We can finish him later. Goodbye Mr. Snowman. We'll be back soon."

While the children were inside, the animals of the woods sniffed and stared at the new snowy friend.

Four raccoons brought some pine cones and poked them onto the bottom snowball.

[*Show the children Picture 4*]

Four squirrels scampered up and put nuts on the snowman's middle snowball.

[*Show the children Picture 5*]

"Where are his eyes?" chirped two birds.

They flew with bright red berries in their beaks and pushed the berries into the snow.

[*Show the children Picture 6*]

With so much love, the snowman grinned and came to life. [*Show the children Picture 7*]

Just then, Brad and Jen ran out the door toward Mr. Snowman.

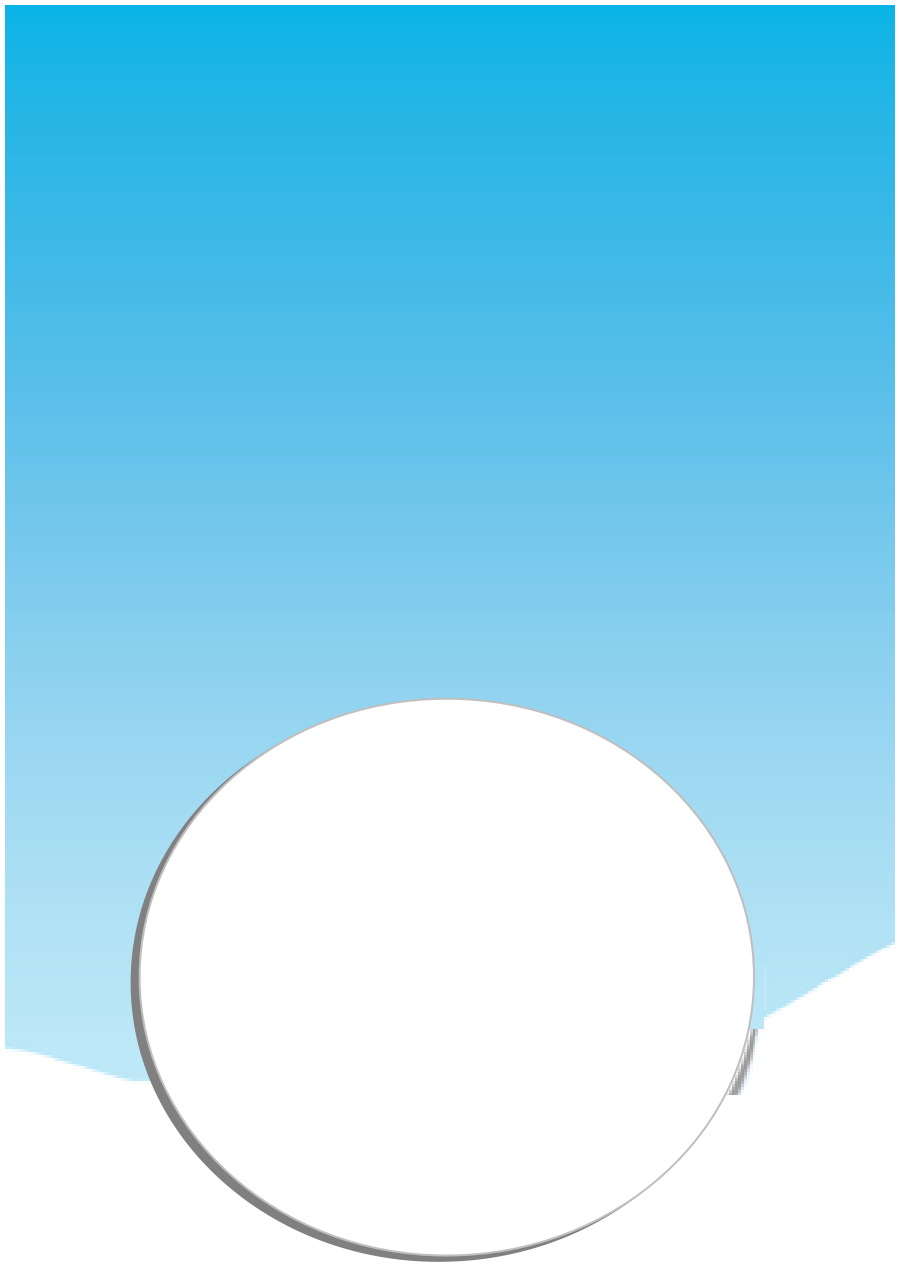
The animals scurried back into the woods and watched.

"Who did this? What a special snowman. He has four on the bottom, four on the middle, and two on the top." [*Point to each snowball as you say this.*]

"Hey," said Jen, "four, four and two more make ten! Let's call him Ten-man!"

The animals in the woods smiled. And that's how Ten-man got his name.

[*Show the children Picture 8*]



4-group Math

1

4-group Math

2

4-group Math

4-group Math

4-group Math

4-group Math

4-group Math

7

4-group Math

8

Appendix B

Assessment Recording Sheets

Use the following pages to record the results of your assessments, or create your own recording method.

4-group Math™

STEP #1 Assessment Date: _____

You will need four 4-group Playing Cards. One for each of the numbers 1, 2, 3, and 4.
Use four cards that have the same shape such as the four cards with circles.

Follow the procedure below in the same order for all children.
Show the card to the child.
Ask, *How many shapes?*
Record the child's answer. Note if the child subitizes (S) or counts (C) to get their answer.

Child	2		4		1		3	
	Answer	S or C	Answer	S or C	Answer	S or C	Answer	S or C

4-group Math™

STEP #2 Assessment Date: _____

You will need 12 small identical objects such as 12 red blocks, 12 pennies, 12 pom-poms. Place the 12 objects in a pile in front of the child. Use this same language for every child:			
Child	***"Please show me 10 blocks."*** Record how many blocks the child shows.	***"Are you sure there are ten?"*** Y = Yes C = Counts again	***"How do you know there are ten blocks?"*** 4,4 & 2 more make 10 I made Ten-man I just know I counted Other

4-group Math™

STEP #3 Assessment Date: ____________

You will need the 4-group Number Parade and a pointer.
Ask the child to count 1-10 pointing on the Number Parade.
Say, *"Please count for me as you point to each number."*
Mark off any numbers the child says incorrectly.
This informs your instruction to target any missed numbers with that child.

Child	***"Please count for me as you point to each number."*** Note that the child says the correct word for each number he points to and is not just reciting the number sequence while randomly pointing.									
	1	2	3	4	5	6	7	8	9	10
	1	2	3	4	5	6	7	8	9	10
	1	2	3	4	5	6	7	8	9	10
	1	2	3	4	5	6	7	8	9	10
	1	2	3	4	5	6	7	8	9	10
	1	2	3	4	5	6	7	8	9	10
	1	2	3	4	5	6	7	8	9	10
	1	2	3	4	5	6	7	8	9	10
	1	2	3	4	5	6	7	8	9	10
	1	2	3	4	5	6	7	8	9	10

4-group Math™

STEP #4 Assessment Date: _____

You will need ten small identical objects and a 10-pattern egg carton. Place the objects and 10-pattern carton in front of the child. Ask the child to count the ten objects into the 10-pattern egg carton. Say, *"Please count these ten buttons into the egg carton. I want you to count like Ten-man."*			
Child	***"Please count these 10 buttons into the egg carton. I want you to count like Ten-man."***		
	Child places the objects correctly using the 4-group Counting Order. **Y/N**	Child says the correct number name for each object as it is placed in the carton. **Y/N**	Incorrect numbers to target.

4-group Math™

STEP #5, Part 1   Assessment   Date: ____________

(Copy this page twice for ten students)

You will need three 4-blocks all the same color and a 1-block, 2-block and 3-block of a second color.
Children build the 4-group Number Patterns for 5, 6, and 7 using the 4-group Number Blocks.
They tell how they know each pattern.
Place all the blocks in front of the child.
For consistency and fairness in your assessment use the same order of questioning for every child.
Say, ***"I would like you to build me a five, a six, and a seven with these blocks."***
Check which number patterns the child builds correctly.

Child	Child builds correctly			**Point to the number pattern. Ask, *"What number is this?"* (Note answer); Ask, *"How do you know it is a ____?"* (Check response)**		
	5	6	7	**6**	**5**	**7**
				Answer____ ___4 & 2 more make 6 ___I counted ___I just know ___It is the 6-pattern ___Other	Answer____ ___4 & 2 more make 6 ___I counted ___I just know ___It is the 6-pattern ___Other	Answer____ ___4 & 2 more make 6 ___I counted ___I just know ___It is the 6-pattern ___Other
				Answer____ ___4 & 2 more make 6 ___I counted ___I just know ___It is the 6-pattern ___Other	Answer____ ___4 & 2 more make 6 ___I counted ___I just know ___It is the 6-pattern ___Other	Answer____ ___4 & 2 more make 6 ___I counted ___I just know ___It is the 6-pattern ___Other
				Answer____ ___4 & 2 more make 6 ___I counted ___I just know ___It is the 6-pattern ___Other	Answer____ ___4 & 2 more make 6 ___I counted ___I just know ___It is the 6-pattern ___Other	Answer____ ___4 & 2 more make 6 ___I counted ___I just know ___It is the 6-pattern ___Other
				Answer____ ___4 & 2 more make 6 ___I counted ___I just know ___It is the 6-pattern ___Other	Answer____ ___4 & 2 more make 6 ___I counted ___I just know ___It is the 6-pattern ___Other	Answer____ ___4 & 2 more make 6 ___I counted ___I just know ___It is the 6-pattern ___Other
				Answer____ ___4 & 2 more make 6 ___I counted ___I just know ___It is the 6-pattern ___Other	Answer____ ___4 & 2 more make 6 ___I counted ___I just know ___It is the 6-pattern ___Other	Answer____ ___4 & 2 more make 6 ___I counted ___I just know ___It is the 6-pattern ___Other

4-group Math™

STEP #5, Part 2 Assessment Date: ___________

(Copy this page twice for ten students)

You will need three 4-blocks <u>all the same color</u>, three 4-blocks of <u>a second color</u>, and <u>a third color</u> 1-block and 2-block. Children build the 4-group Number Patterns for 8, 9, and 10 using the 4-group Number Blocks. They tell how they know each pattern. For consistency and fairness in your assessment use the same order of questioning for every child. Place all the blocks in front of the child. Say, ***"I would like you to build me an eight, a nine, and a ten with these blocks."*** Check which number patterns the child builds correctly.						
	Child builds correctly			**Point to the number pattern. Ask, *"What number is this?"* (Note answer); Ask, *"How do you know it is a ____?"* (Check response)**		
Child	8	9	10	**9**	**8**	**10**
				Answer____ ___4,4&1 more make 9 ___I counted ___I just know ___It is the 9-pattern ___Other	Answer____ ___4 & 4 more make 8 ___I counted ___I just know ___It is the 8-pattern ___Other	Answer____ ___4,4&2 more make 10 ___I counted ___I just know ___It is the 10-pattern ___Other
				Answer____ ___4,4&1 more make 9 ___I counted ___I just know ___It is the 9-pattern ___Other	Answer____ ___4 & 4 more make 8 ___I counted ___I just know ___It is the 8-pattern ___Other	Answer____ ___4,4&2 more make 10 ___I counted ___I just know ___It is the 10-pattern ___Other
				Answer____ ___4,4&1 more make 9 ___I counted ___I just know ___It is the 9-pattern ___Other	Answer____ ___4 & 4 more make 8 ___I counted ___I just know ___It is the 8-pattern ___Other	Answer____ ___4,4&2 more make 10 ___I counted ___I just know ___It is the 10-pattern ___Other
				Answer____ ___4,4&1 more make 9 ___I counted ___I just know ___It is the 9-pattern ___Other	Answer____ ___4 & 4 more make 8 ___I counted ___I just know ___It is the 8-pattern ___Other	Answer____ ___4,4&2 more make 10 ___I counted ___I just know ___It is the 10-pattern ___Other
				Answer____ ___4,4&1 more make 9 ___I counted ___I just know ___It is the 9-pattern ___Other	Answer____ ___4 & 4 more make 8 ___I counted ___I just know ___It is the 8-pattern ___Other	Answer____ ___4,4&2 more make 10 ___I counted ___I just know ___It is the 10-pattern ___Other

4-group Math™

STEP #6 Assessment Date: _____

You will need the 4-group Counting Cards 1-10.
With the pattern side facing up, place the cards in a stack with the numbers in this order:
4 on top, followed by **1, 5, 8, 3, 7, 10, 6, 9, 2**.
For consistency and fairness in your assessment use this same order for every child.
Hold up the Counting Cards one at a time with the pattern side to the child.
(You can see the correct answer facing you!) Ask, ***"What number is this?"***
Record any numbers that the child misses. These will be target numbers to practice with this child.
One way to record is to put down the correct and incorrect cards differently on the table then record the numbers after the child is finished.

Child	Record any numbers the child misses. These will be target numbers to practice with the child									
	4	**1**	**5**	**8**	**3**	**7**	**10**	**6**	**9**	**2**

4-group Math™

STEP #7 Assessment Date: ____________

You will need 12 cubes all the same color and shape.
Place twelve cubes in front of the child.

Child	**Say, *"Please show me ___ cubes."*** Mark the numeral if the child shows the correct number of cubes. Mark yes (Y) or no (N) if the child does/does not use the 4-group pattern.																			
	4		**1**		**5**		**8**		**3**		**7**		**10**		**6**		**9**		**2**	
	Y	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**
	4		**1**		**5**		**8**		**3**		**7**		**10**		**6**		**9**		**2**	
	Y	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**
	4		**1**		**5**		**8**		**3**		**7**		**10**		**6**		**9**		**2**	
	Y	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**
	4		**1**		**5**		**8**		**3**		**7**		**10**		**6**		**9**		**2**	
	Y	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**
	4		**1**		**5**		**8**		**3**		**7**		**10**		**6**		**9**		**2**	
	Y	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**
	4		**1**		**5**		**8**		**3**		**7**		**10**		**6**		**9**		**2**	
	Y	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**
	4		**1**		**5**		**8**		**3**		**7**		**10**		**6**		**9**		**2**	
	Y	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**
	4		**1**		**5**		**8**		**3**		**7**		**10**		**6**		**9**		**2**	
	Y	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**
	4		**1**		**5**		**8**		**3**		**7**		**10**		**6**		**9**		**2**	
	Y	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**
	4		**1**		**5**		**8**		**3**		**7**		**10**		**6**		**9**		**2**	
	Y	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**

4-group Math™

STEP #8 Assessment, page 1 Date: _____

You will need 4-group Playing Cards; 0, 1, 2, 3, 4, 5, with the same shape, such as all circles.
Lay the cards out in a scattered pile with the number pattern side facing up. The cards are available to use if the child chooses.
For consistency and fairness in your assessment use the following order of questioning and the same wording for every child.
Record the child's answers and your perception as to how they figured out the answer.
Say, ***"I am going to ask you some questions. Please tell me the answer. You may use these 4-group Playing Cards to help you if you need to."***

Child										

How much is 2 and 2?

Child's answer										
Child knows										
Uses cards to "see" answer										
Uses cards to "count" answer										
Child counts on fingers										
Child does not know										

How much is 1 and 4?

Child's answer										
Child knows										
Uses cards to "see" answer										
Uses cards to "count" answer										
Child counts on fingers										
Child does not know										

Child										

How much is 3 and 1?

Child's answer										
Child knows										
Uses cards to "see" answer										
Uses cards to "count" answer										
Child counts on fingers										
Child does not know										

How much is 2 and 3?

Child's answer										
Child knows										
Uses cards to "see" answer										
Uses cards to "count" answer										
Child counts on fingers										
Child does not know										

How much is 4 and 0?

Child's answer										
Child knows										
Uses cards to "see" answer										
Uses cards to "count" answer										
Child counts on fingers										
Child does not know										

Appendix C

4-group Math™

List of videos included on CD

- Each Step in the 4-group Math Preschool Program has one or more corresponding videos.
- These videos and an *Introductory Video* are provided on a CD with the 4-group Math Preschool Kit.
- For best performance, save the videos from the CD onto the computers at your site.
- The videos are also FREE to watch on our website – www.4groupmath.com
- The Step videos are short and are designed for students to watch as well as for teacher support.
- The teacher may decide when to use the video during each Step of the program.

4-group Math *Introductory video*

Step #1: The Power of the 4-group

Step #2: Meet Ten-man

Step #3: Count 1-10 on the Number Parade

Step #4: Learn the 4-group Counting Order

Step #5, Part 1: 4-group Number Pattern 5, 6, & 7

Step #5, Part 2: 4-groups in Number Patterns 8, 9, & 10

Step #6, Part 1: Recognize the 4-group Number Patterns 1, 2, 3, & 4

Step #6, Part 2: Recognize the 4-group Number Patterns 5, 6 & 7

Step #6, Part 3: Recognize the 4-group Number Patterns 8, 9 & 10

Step #6, Part 4: Subitize the 4-group Number Patterns 1-10

Step #7, Part 1: Construct the 4-group Number Patterns 1, 2, 3 & 4

Step #7, Part 2: Construct the 4-group Number Patterns 5, 6, & 7

Step #7, Part 3: Construct the 4-group Number Patterns 8, 9, &10

Step #8, Part 1: Combine & Separate the 4-group Number Patterns 3

Step #8, Part 2: Combine & Separate the 4-group Number Patterns 4

Step #8, Part 3: Combine & Separate the 4-group Number Patterns 5