## Kindergarten

## Color Math

## Samples:

Teacher's Manual: Introduction and lesson plans 1 to 10 Workbook pages: Lessons 1 to 10

McRuffy Kindergarten Color Math Curriculum ISBN 9781592691357
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## Introduction from the Teacher's Manual

## Introduction

The McRuffy Kindergarten Color Math is a highly interactive math program that emphasizes a well-balanced variety of skills. Auditory, visual, and tactile methods are used to develop concepts. The curriculum contains a detailed teacher's manual, colorful workbook, and resource pack containing card sets, games, posters, and more. The program also uses popular math manipulatives (sold separately in some packages). An inexpensive kit has been packaged especially for the curriculum.

## Curriculum contents

Teacher's Manual
Workbook
Resource Packet

## Manipulative kit (sold separately)

Pattern blocks (20)
Colored centimeter cubes (20-2 each of ten colors)
Tangram set (seven piece set)
Clock face
Counters (25)
Playing Pieces (pawns and die)
Quantities are for an individual student. Classroom quantities are available. Individual parts of the manipulative kit are also available from McRuffy Press.

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## Item numbers

Curriculum 9781592691358
Curriculum with manipulatives (single student) 9781592691401
Individual parts of the curriculum:
Teacher's Manual 9781592691364
Workbook 9781592691388
Resource Pack (standard pack) 9781592691371
Classroom Resource Pack 9781592691395
Manipulative kit (single student) 820265-00010-8

## Objectives

The objectives of the McRuffy Kindergarten Color Math are chosen to match state and national math standards. Skills are not just introduced, but revisited throughout the year to allow for the child's growth in understanding. The early part of the curriculum emphasizes counting and number writing. The later part emphasizes addition and subtraction skills. Along the way, a great variety of concepts emphasizing geometry, visual memory skills, listening skills, place value, and more round out the kindergarten program.

Counting to 100
Number Recognition to 100
Skip counting by tens and fives to 100
Skip counting by twos to twenty
Matching groups to numbers
Counting objects to 25
Counting down from 10 to 1
Moving on a number line
Recognizing and making patterns
Recognizing shapes
Making geometric designs using pattern blocks and tangrams
Visual discrimination skills using geoboard patterns
Comparing numbers using arrows to represent < and>
General concepts of time (morning, afternoon, yesterday, etc.)
Calendar activities
Writing times to the hour
Reading times to the hour
Measuring using non-standard units
Visual memory skills
Story problems
Game playing (counting skills, following directions, etc.)
Place value (tens and ones)
Number sentences
Using symbols to represent numbers
Counting coins (pennies, nickels, dimes)
Finding the missing number
Putting numbers in order
Spatial orientation
Left and right
Ordinal numbers 1st to 10th
Addition (sums to 18)
Commutative property of addition $(1+2=2+1)$
Subtraction
Addition and subtraction as inverse operations
Fractions (half)
Attributes
Odd and Even
Number words (zero to ten)
Symmetry

## Resource Pack contents

Available in two different arrangements:
Standard pack for a small group (homeschool or 4 or fewer students)
Classroom pack for 24 students
Card sets (detailed in the next section)

## Copy masters

Number Writing Sheet
Calendar
Writing Sheet
Number Trail cards
Geoboard Grid
Memory Card Recording Form
Number Line Strips
Geoboard Grid 2
Time and Money coins
Geoboard Grid 3
Games*** (laminated - some are printed two sided in the standard resource pack):
Number Raceway game board
Countdown game board
Number Trail Game Board (laminated)
Number Trail Cards (laminated)
Addition and Subtraction Pool game board
Time and Money game board
Elephant Trunk game board
The Half of It game board
Laminated pages:
Calendar
Geoboard Grid*
Geoboard Grid 2*
Geoboard Grid 3*
Posters (8.5" x 11 " paper):
Basic Shapes
Basic 3D Shapes
Pattern Block Shapes
7 Days of the Week
12 Months of the Year
Skip Counting by 10 's
Number Words
Number Line strips (laminated 2.125" x 11"):
1 to 20 (two parts hinged)*
10 to 100 by tens*
5 to 100 by fives*
2 to 20 by twos*
Odd/even*
Asterisks indicate classroom pack totals

* 24 ( 1 set per student)
*** 6 sets per classroom
No asterisk (1 per classroom)


## Card Sets

Cards are bagged in the order they are first used. Bags either contain black and white cards or color cards. The standard resource pack contains one set of all the different cards. The classroom pack is customized for 24 students.

## Black and white cards:

Number Cards feature a single number per card with the matching number word. Sets are included for numbers 1 to 10 , multiples of 10 to 100 , multiples of 5 to 100 (using 10's), 0 , and a second set of 1 to 10 for constructing math problems.*

Arrow card: a single card used to compare numbers. The card can be rotated to represent greater than and less than.*

Pattern Letter Cards: the letters ABCD are used to represent patterns. Patterns are $\mathrm{AB}, \mathrm{ABB}, \mathrm{ABC}, \mathrm{AABB}, \mathrm{ABCC}, \mathrm{ABCD}$, and AAAB. ${ }^{* *}$

Cent sign: a single card used when counting coins.*
Place Value Memory Game cards feature the numbers 15, 18, 29, 32, 34, 37, 41, 46, 47, and 50. The cards match up to color cards with pictures of rods and cubes representing tens and ones.**

Coin Memory Match cards feature numbers with cent signs 25ф, 28ф, 32ф, 33ф, 46ф, 49ф, 51申, $54 \phi, 67 \phi, 68 \notin$, and $76 \not \subset$. The cards match up with color cards showing groups of dimes and pennies**

Time Memory Match cards feature times to the hour from 1:00 to 12:00. The cards match up to color cards with clock faces.**

Sign cards are single cards with the,+- , and $=$ signs.*
Number Sentence cards are used to play the Addition and Subtraction Pool game. The cards feature addition or subtraction number sentences.***

Number Memory cards feature three numbers per card. These are used to build visual memory skills.**

Number Word Match cards feature the numbers 0 to 10 without words. A second set features only the words. Students play memory games and matching games with the cards.**

## Special Cards (color cards that require additional cutting)

Rod cards represent ten centimeter cubes and the tens place in base ten activities. The rods are cut apart on the dashed lines.*

Playing pieces are small strips of colored cards used to play cards. The Number Raceway has a set and a generic set is also available for other games. Plastic game pawns can be used in their place (not included).***

Asterisks indicate classroom pack totals

* 24 ( 1 set per student)
** 12 (1 set per two students)
*** 6 sets per classroom


## Color cards:

Pattern Cards feature ten each of blue squares, red triangles, green circles, and purple stars. The cards are used to make patterns.*

Happy Face cards are a set of cards with one to ten smiling faces.*
Number Raceway cards are using with the Number Raceway game board. The cards feature pictures of racing cars. The cars have numbers from 1 to 20 .***

Visual Memory Cards 1 to 8 feature pictures of the shapes from the pattern cards. The cards are used with the pattern cards to practice memory skills.**

Place Value Memory Game cards feature pictures of rods and cubes representing the numbers $15,18,29,32,34,37,41,46,47$, and 50 . The cards match up to black and white cards with the numbers.**

Visual Memory Cards 9 to 14 feature pictures of colored centimeter cubes. The cards are used with the centimeter cubes to practice memory skills.**

10 Blue Dots cards each feature a set of 10 dots to use for counting by tens.*
Coin Memory Match cards feature pictures of dimes and pennies representing 25ф, 28ф, $32 \phi, 33 \phi, 46 \phi, 49 \phi, 51 \phi, 54 \phi, 67 \phi, 68 \phi$, and $76 \phi$. The cards match up to black and white cards with numbers**

Picture cards feature a picture of a cat, moose, elephant, bug, mouse, truck, lawn mower, flower pot, tree, or leaf. The pictures are first used to compare objects.*

Time and Money game cards look like clock faces a large number1, 2, 3, or 4 in place of the hands. The cards are used to play the Time and Money game.***

Time Memory Match cards feature clock faces showing times to the hour from 1:00 to $12: 00$. The cards match up to black and white cards showing times.**

Elephant Trunk cards feature numbers 1, 2, 5, and 10 in four different colors, purple, blue, green, and red. ${ }^{* * *}$

Attribute cards feature a large shape (circle, square, triangle) in three colors (red, blue, green). An additional white design is on each card (+, hexagon, and star). The cards are used to find and compare attributes.*

The Half of It game cards are used to play the Half of It game. The cards should be cut in half on the dashed lines before playing the game the first time.***

Asterisks indicate classroom pack totals

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* 24 sets (1 set per student)
** 12 sets (1 set per two students)
*** 6 sets per classroom
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Black and White Cards (shown in order)
Samples of cards from each set


Number (1 to 10) 10 cards


Equals 1 card


Coin Memory Match (matches with color cards)

11 cards


Arrow
1 card


Cents
1 card


Pattern Letter
7 cards


Number (11 to 20)
10 cards


Number
( 30 to 100 by 10 's) add 10 \& 20

8 cards


Number
( 25 to 95 by 5's) combine with 10 's

8 cards


Plus 1 card



Minus
1 card
Minus
1 card
card


Number Word Match 11 cards with words


Number Memory 7 cards


Number Word Match 11 cards with numbers


Number Sentence (Addition and Subtraction Pool Game) 22 cards

## Special Cards (color cards, require additional cutting)



Color Cards (shown in order)

## Samples of cards from each set




Visual Memory ( 1 to 8) 8 cards


Coin Memory Match (matches with black and white cards) 11 cards


Elephant Trunk
(Game cards) 16 cards

## O bjectives

## Sample Lesson Plans

 (Lessons 1-10 out of 160)1. Students will write numbers.

Workbook page
2. Students will count objects.

## M aterials

## Counters

Workbook page
Number cards 1-10
Optional resource: Number Writing sheet (copy master)

## Teaching

1. Begin the lesson by asking students to count. You may ask students to count as far as they can or to a preset number (such as 20). Next, use number cards. Show students numbers in random order. Students will say the number.


Now you can write some numbers. Have students write "invisible" numbers with their fingers in the air. Next, students will look at the top of the workbook page. The students will trace the numbers on the page. First, they will trace with only a finger. Next, the students will trace the numbers with a pencil.

Underneath each number are shapes. Each number is represented by a group of shapes. Begin introducing or reviewing the names of the shapes. What shape is under the number 1? (circle) How many circles are there? (1) Repeat with the other shapes: 2-squares, 3-triangles, 4-stars, 5-rectangles. You may also ask students to identify shapes and colors using questions such as: What shape is purple? What color is the square?
2. Students will work with counters to practice counting skills and grouping. Ask students to make a group of four counters. Next, ask students to use the four counters to make two groups of two counters.

Practice with several other groupings such as making a group of eight counters. Change it into two groups of four counters. Make a group of nine counters. Change it into three groups of three counters.

Workbook page (second part): Students will make the pictures of objects into groups. One group of cats is already circled for an example. Students will circle two more groups of two cats, two groups of three chickens, two groups of four fish, and four groups of two ducks.


Number cards

Number Writing sheet (copy master)


## O bjectives

1. Students will write numbers.
2. Students will count objects.

## Materials

Counters
Workbook page
Number cards 1-10
Optional resource: Number Writing sheet (copy master)

## Teaching

1. Follow the same format as Lesson 1.

Begin the lesson by asking students to count. You may ask students to count as far as they can or to a preset number
 (such as 20).

Next, use number cards. Show students numbers in random order. Students will say the number.
Now you can write some numbers. Have students write "invisible" numbers with their fingers in the air. Next, students will look at the top of the workbook page. The students will trace the numbers on the page. First, they will trace with only a finger. Next, the students will trace the numbers with a pencil.

Underneath each number are shapes. Each number is represented by a group of shapes. Begin introducing or reviewing the names of the shapes. What shape is under the number 6? (triangle) How many triangles are there? (6) Repeat with the other shapes: 7 -rectangles, 8 -cicles, 9 -stars, 10 -squares. You may also ask students to identify shapes and colors using questions such as: What shape is blue? What color is the square?

Optional resource: You may have students practice number writing during future lessons using the Number Writing copy master.
2. Have students make random groups of counters.

Ask students to count them. If counters are various colors, place them in a box or bag. Ask students to draw out a specific number of counters, such as 5,7 , or 10 .

Ask questions that require counting, such as how many of the counters in the group are blue? How may are red? Using the second part of the workbook page, have students count the objects in each box and write the number on the line.
u fill in under the number 2? (2)
Fill in the circles under each number. The number of circles you fill in shouldmatch the number above them.
2. Make a simple pattern with the cards. Put a square, a circle, another square, and another circle in a line. Ask students what shape would come next.

Next, ask students to make a pattern like it using stars and triangles.
Repeat with various patterns such as two stars, one circle, two stars, one circle.
Finally, allow students to make their own patterns with the cards.
Workbook: students will complete the patterns on the bottom of the page by coloring the shapes.


Pattern Cards (blue squares, red triangles, purple stars, green circles)

## Daily Counting Routine (Lessons 4-30)

## For Lessons 4-20 count to 10 <br> For Lessons 21-30 count to 20

Begin each lesson with counter counting exercises. The routine can be extended past lesson 20 if needed.
Use counters and number cards.

1. Make a group of ten counters. Students should say each number name in order and point to a counter. Next match the number cards to the counters.

Ask: What was the last number that you counted? (10 or 20) So, how many counters are there? (10 or 20)

Next, have students make random numbered groups and count them.
Tell students to make a group of a specific size. Ask: What is one more? What is one less?
Make another group or have students work in pairs or groups and ask how many are in the group.

## Objectives

1. Students will write the numbers 6-10.
2. Students will recognize shapes.

## Materials

Workbook page
Basic Shapes and Basic 3-D Shapes posters
Objects shaped like the pictures on the posters such as cubes,
cans, cones, and a ball
Optional: play dough or clay
Crayons

## Teaching

1. Students will trace the numbers 6 to 10 on the workbook page. Under each number is a set of twelve squares. Students will fill
 in the amount of squares to match the number above it.
2. Review the names of basic shapes. Two posters are used to display shapes and their names. Students are not expected to read the words, but the words are included to build sight recognition of the words. Students will most likely be familiar with the names of two dimensional shape names: square, circle, triangle, rectangle, and star. Review the shapes with students.

Next, introduce the names of three dimensional shape names: cube, sphere, cone, and cylinder. Ask students what shapes from the first poster they see in the second poster. For example, students will most likely see squares in the cube, a circle in the sphere, a triangle in the cone, and circle or rectangle in the cylinder. This will become clearer when students see real objects or three dimensional shapes.

Ask students to find objects shaped like the shapes on the posters.
On the bottom of the workbook page, direct the students in an exercise that will involve using listening skills, shape recognition, color recognition, and recognizing an attribute (size). Students will use crayons: red, blue, brown, purple, yellow, green, and orange.

Give students the following instructions:

## Color the smallest circle green. Color the largest square blue. Color the middle-sized triangle orange. Color the largest rectangle yellow Color the smallest triangle red.

Continue with the other shapes: Medium square - brown, largest circle red, small rectangle - blue, medium circle yellow, small square - orange, largest triangle green, medium rectangle - purple.

Optional activity: Challenge students to make each shape on the 3-D shapes posters using play dough.

## Lesson 4



Posters (8.5" $\times 11 "$ color)

## Objectives

1. Students will write the numbers 1-10.
2. Students will put numbers in order.

## M aterials

Workbook page
Happy Face cards
Number cards 1-10
Paper, scissors, glue

## Teaching

1. Students will practice writing the numbers $1-10$ on the workbook page.
2. Ask students to count the faces on each Happy Face card.


Next, have students match a number card to a Happy Face card.
Next, students will arrange the Happy Face cards from 1 face to 10 faces.
Next, have students count backwards from 1 to 10 .
Use the bottom of the workbook page. Students will cut out the boxes (cutting on the dashed lines). Students will then glue the cars in order from 1 to 10 on another piece of paper. Depending on the size of the paper, the cars may need to be arranged in rows.
Students may want to draw a raceway scene on the paper.


Number cards (black and white)

## Objectives

1. Students will write the numbers 1-10.
2. Students will compare groups.

## M aterials

Workbook page
Happy Face cards
Counters

## Teaching

1. Students will trace the numbers 1 to 10 on the workbook page.
2. Students will compare groups of objects. Have students grab a random group of counters. Ask questions using key words to match the characteristics of the counters. Pick an attribute such
 as shape or color. Which color do you have the most of? Which color do you have the least of? How many red counters do you have? Do you have more red counters or blue counters?

Have students separate the groups of counters to make comparisons.
Make a group of four counters. Ask students to make a group of more than four counters. Ask students how many counters are in their group. Ask students to make another group that has more than four counters.

Repeat with the word, less. Have students make groups of less than four counters.
There are four boxes of objects on the bottom section of the workbook page. The first two objects in the first section are not colored. Students will fill in the object that has more of that shape in the other box.

## Objectives

1. Students will write the numbers 1-10.
2. Students will compare numbers.

## M aterials

Workbook page
Number Line Strip (1 to 20)
Counters ( 2 per student)

## Teaching

1. Students will trace the numbers 1 to 10 on the top section of the workbook page.


The Number Line strip includes numbers up to 20. Counters are used to mark places on the mat.
Introduce the concept of a number line. What do you see on the number line?
(numbers, words, boxes, an arrow) What is the first number on this number line? (1)
Put a counter on the number one space. As we move along the number line, the numbers become larger. We say the numbers are greater. The number two is greater than the number one. The number three and all the other numbers on the line are also greater than one. Can you put a counter on a number that is greater than three?

Move a counter to the number five. Is the number four greater than the number five? (no) Four is not greater than five because it comes before it. We can say that four is less than five. What other numbers on the number line are less than five?

We use the words less than and greater than to describe sets of numbers or groups of objects.
Pick numbers and ask students to place a counter on a number. Next, ask them to place a second counter on a number less than the first number. Repeat with greater than. Finally, alternate between greater than and less than.

Worksheet: Look at the rows of shapes. Inside each shape are two numbers. We'll begin with the circles. What color is the first circle? (red) What two numbers are in the first circle? (6 and 3)

Which number is greater than the other one? (6) Put an $X$ on the six to mark that it is greater. Look at the middle circle. Put an $X$ on the number that is greater than the other. Look at the last circle. Put an $X$ on the number that is greater than the other.

Now let's look at the next row. What shapes are in the middle row? (squares) In this row you will put an $X$ on the number in each square that is less than the other one. What two numbers are in the first square? (5 and 2) Which number is less? Put an $X$ on the number that is less than the other number. Do the same with the next two squares, but wait for instructions before marking the numbers in the triangles. (Allow students to finish the row with squares. Lesson continues on the next page.)

## Lesson 7

Now we'll mark numbers in the triangles. Listen for directions on which number to mark in each triangle.

In the red triangle, mark the number that is greater than the other number. In the green triangle, mark the number that is less than the other number. In the blue triangle, mark the number that is greater than the other number.

## Objectives

1. Students will write the numbers 1-10.
2. Students will indicate greater than or less than using arrows.

## M aterials

Workbook page
Counters
Arrow card (1 per student)

## Teaching

1. Students will trace the numbers 1 to 10 on the top section of the workbook page.
2. Students will compare groups using an arrow to indicate greater than or less than. The arrows are used as precursors
 to the greater than and less than signs. The curriculum will be consistent in having the arrow always point to the smaller number.

Have students make two unequal groups of counters. Start by making a group of three counters and a group of five counters.

Which group is greater in number, the group of three or the group of five? (5) Which group is less in number, the group of three or the group of five? (3)

Point the arrow to the group that is less than the other group. Show students how to arrange the groups in a horizontal row spaced apart enough to fit the arrow card between them. See the workbook page for an example.

Repeat with other groups. Remember, the arrow should always point toward the smallest group.
On the workbook page, students will compare the groups of objects in each box and draw an arrow pointing to the group that is less than the other one.


Arrow card (black and white)

## Objectives

1. Students will learn the names of pattern block shapes.
2. Students will create pictures with pattern blocks.

## Materials



Workbook page
Pattern Blocks Shapes poster
Pattern blocks

## Teaching

1. Use the poster to introduce the names of the pattern block shapes. Today we are going to be working with some shapes. The shapes are called pattern blocks. Before we begin working with pattern blocks, we need to learn the names of the different pieces. Begin by asking students to look at the poster and point out any shapes that they already know the names of. Students should recognize the square and triangle. Students are not expected to be able to read the words on the poster, but the words are included to create print awareness.

How many sides does a triangle have? (3) How many sides does a square have? (4)
The yellow shape is a hexagon. How many sides does a hexagon have? Count them with the students. (6)

The red shape is a trapezoid. How many sides does it have? (4) It has the same number of sides as a square. How is the shape of the trapezoid different from the square? (One side is longer on the trapezoid. The corners are not the same.)

There are two kinds of pattern blocks that have the same name. Point to the rhombuses on the poster. There is a blue rhombus and a tan rhombus. Sometimes people call this shape a diamond shape, but in math we call this shape a rhombus.

How is the shape of the rhombus like the square and trapezoid? (The rhombus has four sides like the others.) How are the shapes of the rhombuses different from the square? (Students may give a general description, such as they are flatter or diamond shaped.) How are the rhombuses different from the trapezoid? (All the sides are the same length in the rhombuses.)

Review the shape names again, this time by having students pick out a pattern block piece when you point to it on the poster and say its name. Finally, say the names in random order and have students respond by picking up the piece.

In the top section of the workbook page is an outline of each of the shapes. Students will write numbers on the shapes in response to your instructions.

Look at the shapes at the top of the workbook page. Find the hexagon. Write the number 1 on the hexagon. Write the number 2 on the triangle. Write the number 3 on the square. Write the number 4 on the rhombus. Write the number 5 on the trapezoid.
2. Students will use pattern block pieces to make the butterfly, rabbit, and turtle on the workbook page. After students have made the animals using the pieces indicated by the colors, ask students to try to make the animals using other pieces.

What shape was not used in any of the pictures of animals? (square)
Make an animal design using at least one square pattern block.
Allow students additional time to explore and create with pattern blocks.


Pattern Block Shapes poster $8.5 " \times 11 "$ color

## O bjectives

1. Students will write the numbers 1-10.
2. Students will put numbers and sets in order.

## Materials

Happy Face cards
Number cards 1-10
Paper, scissors, glue

## Teaching

1. Students will practice writing the numbers $1-10$ on the workbook page.
2. Ask students to count the faces on each Happy Face card.

Next, have students match a number card to a Happy Face card.


Next, students will arrange the Happy Face cards from 1 face to 10 faces.

Next, have students count backwards from 1 to 10.
Use the bottom of the workbook page. Students will cut out the ovals (cutting on the dashed lines). Students will then glue the fish in order from 1 to 10 on another piece of paper. Depending on the size of the paper, the fish may need to be arranged in rows. Students may want to draw an underwater scene on the paper.

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$\qquad$


Finish coloring the patterns.

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Cut and paste the racing cars on another piece of paper in order from 1 to 10.

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| $\square$ | $\square \square \square \triangle \triangle \square \triangle \triangle \triangle$ |
| :---: | :---: |
| $\triangle$ | $\square \triangle \triangle \square \square \triangle \triangle \square \triangle$ |
| $\circ$ | $\bigcirc \square \square O \square$ |
| $\square$ | $\bigcirc \bigcirc \square \bigcirc \bigcirc \square$ |


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Draw an arrow pointing to the group that is less than the other group.



Make these pictures using pattern blocks. Can you make them with different pieces?

## Butterfly



Turtle

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Cut and paste the fish on another piece of paper in order from 1 to 10.


