

# **Pre-K and Kindergarten Lesson Plans**

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**The sun lives in the heavens  
where God placed it...  
It rejoices like a great athlete  
eager to run the race.**

**Psalm 19: 4,5 New Living Translation**

## **Counting Objects and Ordering Numbers**

Kindergarten, Math, Numeracy  
Common Core Standards:Math.K.CC.3

`<script src='https://www.teachingchannel.org/videos/counting-objects-and-ordering-numbers/embed?format=js' type='text/javascript'></script>`

## Lesson Objective

Kindergarteners count and order numbers with and without a number line

## Length

6 min

## Questions to Consider

- How is the number line used as a tool to help students understand numbers and quantities?
- How could you use manipulatives in conjunction with what is displayed on the Promethean board?
- What is the purpose of the technology used in this lesson?

## Common Core Standards

Math.K.CC.3

**Teacher:** Mrs. Heather Lopez – Fairmont Private Schools

**Lesson Title:** “1-20 Number Fun”

**Discipline—**Math

**Grade level—**“Going into Kindergarten” Summer School Age Children (4-5 years old)

**California Kindergarten Math Standards Addressed:**

**Know number names and the count sequence.**

- Count forward beginning from a given number within the known sequence (instead of having to begin at 1).
- Write numbers from 0 to 20.

**Count the number of objects.**

- Understand the relationship between numbers and quantities; connect counting to number order.
  - When counting objects, say the number names in the standard order, pairing each object
- Understand that each successive number name refers to a quantity that is one larger.

- Count to answer “how many?” questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1–20,
  - Count out that many objects.

**Compare numbers.**

- Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies.

**Approximate time**—20-30 minute lesson

**Resources/Materials**-- -

Promethean Flipchart: “Number Fun 1-20” – created by Heather Lopez

Discovery Education: “Math Dojo – Counting to 12” Interactive Game

**The Big Idea**—Students will understand numbers 1-20 and their ordinal relationship to one another along with their value.

**Objective(s)**—

- Students will numerically order a set of out of order numbers back into order (out of order numbers are displayed on a flip chart slide) by using the visual cue of the number line (displayed on the flip chart slide).
- Students will numerically order a set of out of order numbers back in to order (out of order numbers are displayed on a flip chart slide) without using the visual cue of the number line, instead by orally counting the numbers
  - The interactive component of the white board allows for numbers to be dragged and placed by the user
- Students will write-in missing numbers that are ordinally displayed within a small group of numbers. (Example: 15\_\_16, 17\_\_19)
- Students will count objects and assign the number that represents the number of objects in total

**Strategy**--Instructional strategies will vary. Some may be combined. Here are the basic strategies:

**Direct Instruction**--teacher directed—Teacher will review the fact that number order is important in a lot of ways (smaller and greater, representing an exact value, and in counting) At this time the teacher will demonstrate several ways we can show number order and number values using visuals displayed on a flip chart.

**Guided Discovery**--student discovery—students will participate in a lesson in which they will order numbers (using both the visual cue of a number line and strategies such as counting aloud), fill in missing numbers, and count objects to represent an exact amount. Small groups of students will be called up to actively participate with the interactive white board.

**Vocabulary**—number line, order, ordinal, and value

**Anticipatory Set**

- Teacher will share flipchart to pose questions as to why numbers are important
- Teacher will present vocabulary and “The Big Idea” of the lesson (see above)

**Procedures**—

- Teacher will direct a lesson on numbers
- Teacher & Students will be guided through the process and expectations together
- Students will independently solve flip chart questions without the assistance of the teacher

**Closure**—

- Students will then be reminded of the lesson’s objectives (see above) and be told that they are now experts with numbers and can take on Math Dojo.

**Assessment**—

- Students will participate in an interactive web game in which they will team up against one another and answer Math Dojo Quiz questions.
  - Math Dojo is an interactive game on Discovery Education that has many different types of skill games available. For this lesson, students will be quizzed on their ability to answer quiz questions based on ordinal numbers 1-12.

**Extension**—Students will be able to do pencil-to-paper activities that require ordinal number fill-ins, counting exercises, or ordering numbers that are out of order.

# Mingle & Count: A Game of Number Sense

Kindergarten, Math, Counting

Common Core Standards:Math.K.CC.4bMath.K.CC.5

<script src='https://www.teachingchannel.org/videos/mingle-count-a-game-of-number-sense/embed?format=js' type='text/javascript'></script>

## Lesson Objective

Practice counting by forming groups based on a given number

## Length

5 min

### Questions to Consider

- Notice how rules for the game are revisited before students begin to mingle.
- What is done with remaining students who do not make a full group?
- How does this interaction encourage students to problem-solve together?

### Common Core Standards

Math.K.CC.4b, Math.K.CC.5

**1:00:00**      **Great Lesson Ideas –**

[music]

**Sit and Mingle**

Barbara, Students

BARBARA:

One, two, three, eyes on me.

STUDENTS:

One, two, eyes on you.

Barbara (INTV)

BARBARA:

**Lesson Idea:**

Hi, my name is Barbara McCormick. I teach kindergarten at Jerabek Elementary School. The game I'm teaching the children is Mingle and Count.

**Mingle and Count**

Barbara, Students

BARBARA:

Boys and girls, we are now going to play Mingle. Are you ready to play Mingle?

STUDENTS:

Yeah.

Barbara (VO)

BARBARA:

They have to get into groups of a number that I call as they're mingling around the room. It's number sense.

Barbara

BARBARA:

Let's review the rules really quickly.

Barbara (INTV)

BARBARA:

For the game Mingle the children first have to learn the ground rules, and that's really important.

Barbara, Students

BARBARA:

Who can raise their hand, not their voice, and tell me one rule for Mingle? Zoey?

ZOEY:

Try not to say, "Go away, we don't need you." That's, let's not say that.

**01:00:48**

Barbara (INTV)

BARBARA:

The ground rules are that they have to be kind and considerate to one another.

Barbara, Students

BARBARA:

What's another rule for Mingle? Naomi?

NAOMI:

If you have a good group of the number you called out, don't leave it?

BARBARA:

Right. If you have a good group of the number that I call out, don't leave it.

Beautiful! Thank you.

Barbara (INTV)

BARBARA:

They have to make certain that they get into that number that I say, into that group.

Barbara, Students

BARBARA:

Good. JP?

JP:

And you want to say, "Look, there's

another group over there. They need someone.”

BARBARA:

Great! So, you’re solving the problem.

Yes.

Barbara (INTV)

BARBARA:

And then if someone else comes into the group, how do they behave? They have to problem solve.

Barbara, Students

BARBARA:

So I’d like everyone to have hands down. Stand up, hands behind your back, and everyone ready. Mingle. Five.

**01:01:45** Barbara (VO)

BARBARA:

If there is not a group of five then those children are the remainder.

Barbara, Students

BARBARA:

Okay, friends, do we have a good group of five here?

STUDENTS:

Yes.

BARBARA:

Do we have a good group of five here?

STUDENTS:

Yes.

BARBARA:

Do we have a good group of five here?

STUDENTS:

Yes.

BARBARA:

Do we have a good group of five here?

STUDENTS:

Yes.

BARBARA:

Very good. Do we have a good group of five right here?

STUDENTS:

No.

BARBARA:

No.

BARBARA:

If someone is a remainder, I might ask them to leap like a frog and say ribbit, or flap their wings and quack like a duck.

BARBARA:

And when I call the next number, you'll get into a group, okay? All right. Ready everyone. Mingle.

BARBARA:

Kindergartners need to move. They need to have a lot of movement. Not all children are kinesthetic learners, but many children in kindergarten are kinesthetic learners. They do love to move.

BARBARA:

Three.

BARBARA:

And if they can be moving and learning a concept at the same time, I think that that's really beneficial.

Barbara (VO)

**01:02:11** Barbara, Students

Barbara (VO)

Barbara, Students

Barbara (VO)



Barbara, Students

BARBARA:

Count with me. One, two, three, four, five six, seven. Not this group. Six, seven.

Barbara (VO)

BARBARA:

I scaffold it to set them up for success so that they can learn more and more skills as time goes on.

Barbara, Students

BARBARA:

Three times seven equals 21

Barbara (VO)

BARBARA:

Some of them will get, some of them by the end of the year they'll say, this is real math, and it's doing it in the real world, and they'll say, oh, you know, I'm in one group of five and there are four groups, and that's 5 times 4. And so certainly some children will hold on to that.

**01:03:16** Barbara, Students

BARBARA:

Do we have a good group of four right here?

STUDENTS:

Yes.

BARBARA:

Do we have a good group of four here?

STUDENTS:

Yes.

BARBARA:

Do we have a good group of four here?

STUDENTS:

Yes.

BARBARA:

Do we have a good group of four here?

STUDENTS:

Yes.

BARBARA:

All right. Boys and girls, let's count how many groups of four we have? Let's count our groups of four. So, here we go. Count with me. One, two, three, four, five. We got into groups of four, so we have 4 times 5 equals 20. And we have three left over.

Three left over. Okay, girls, you are going to flap your wings and quack like a duck.

Okay. All right. Ready, everyone mingle.

Two.

BARBARA:

It's interesting when you watch the children play Mingle and Count, you get to see who the leaders are.

BARBARA:

There you go. Solve the problem. Solve the problem. Are you in a good group of six?

BARBARA:

It's a wonderful assessment for me right away. The leaders immediately will be the ones that will call out friends' names or just say, come here, come here. And when they have their complete group, then they'll be the one to count.

**01:04:06** Barbara (VO)

Barbara, Students

Barbara (VO)

Students

STUDENT:

One, two, three, four, five, six.

BARBARA:

You already have six.

Barbara (INTV)

BARBARA:

I like to keep the games short and moving fast so that they don't have an opportunity to get real wiggly. I do five or six numbers and then we're done.

Barbara, Students

BARBARA:

All right. Everyone ready. Mingle.

Barbara (INTV)

BARBARA:

The whole game is about numbers sense, so I'm trying to teach number sense.

Barbara, Students

BARBARA:

Let's count. One, two, three, four, five.

**01:05:02** Barbara (VO)

BARBARA:

It's a great way to teach it because the children are up and moving. They think it's fun. They think it's a game, and really they're learning math.

**01:05:10** **With special thanks to Ms. McCormick and the staff and students at Jerabek Elementary School**

[music]

**CREDITS**

**Wingspan Pictures Logo**

**01:05:20** Fade to black

# Mathematics and Learning in the Early Years

Grades K-2, Math, Numeracy

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<script src='https://www.teachingchannel.org/videos/math-for-young-students/embed?format=js'  
type='text/javascript'></script>
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## Lesson Objective

Provide varied experiences to build a strong foundation in numeracy

## Length

14 min

## Questions to Consider

- What balance is provided between teacher focused and student initiated activities?
- How do varied experiences reinforce numeracy concepts at different levels?
- How does the staff use informal data to monitor progression and inform future instruction?

## Summary

This program looks at how math learning for both nursery and reception children at Great Barr Primary School, in Birmingham, is supported by careful observation and planning by practitioners.

Lower phase leader Amanda McKenna believes that math learning should be fun and part of everyday experiences. Independent, play-based experiences are at the heart of young children's mathematical

development in the Early Years foundation stage at Great Barr.

Their current focus is geared towards supporting children to become independent mathematical problem solvers, with the development of skills such as number recognition, number ordering and calculation.

Practitioners demonstrate how they assess the children through day-to-day observations, and then how these observations feed into staff meetings and consequently future planning.

The school firmly believes that if they can motivate children to enjoy math from an early age, then this will impact learning throughout the whole school.

## Early Childhood Math: Building Confident Problem Solvers

Grades K-2, Math, Problem Solving

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<script src='https://www.teachingchannel.org/videos/early-childhood-education-math/embed?format=js' type='text/javascript'></script>
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### Lesson Objective

Teachers push young students to be independent problem solvers

### Length

14 min

### Questions to Consider

- See how these very young students use math every day in and outside the classroom
- What does the staff do to build student confidence in mathematics?
- How do teachers assess progress? How do they use this information?

# All About Numbers

Grades K - 2, Math, Operations

`<script src='https://www.teachingchannel.org/videos/introducing-math-to-students/embed?format=js' type='text/javascript'></script>`

## Lesson Objective

Students add and subtract, learn fact families, and find unknowns

## Length

14 min

## Questions to Consider

- See how students compose numbers to make numbers of 20 and beyond
- Notice how Ms. Caren poses questions to students more than stating information
- What strategies were used to develop students' reasoning skills?

# Hand Gestures: Movements Make Math Memorable

Grades K-5, Math, Retention

<script src='https://www.teachingchannel.org/videos/teaching-math-hand-gestures/embed?format=js'  
type='text/javascript'></script>

## Lesson Objective

Students use gestures for math symbols to help recall math terms

## Length

4 min

## Questions to Consider

- How do hand gestures support both kinesthetic and visual learners?
- How do the gestures give students confidence when working written problems?
- How do the gestures help make student thinking more visible?

# Gestures lend a hand to learning mathematics

FEBRUARY 24, 2009

Gesturing helps students develop new ways of understanding mathematics, according to research at the University of Chicago.

Scholars have known for a long time that movements help retrieve information about an event or physical activity associated with action. A report published in the current issue of the journal *Psychological Science*, however, is the first to show that gestures not only help recover old ideas, they also help create new ones. The information could be helpful to teachers, scholars said.

"This study highlights the importance of motor learning even in nonmotor tasks, and suggests that we may be able to lay the foundation for new knowledge just by telling learners how to move their hands," writes lead author and psychologist Susan Goldin-Meadow in the article "[Gesturing Gives Children New Ideas About Math](#)".

Goldin, Meadow, the Beardsley Ruml Distinguished Service Professor in Psychology, was joined by Susan Wagner Cook, now Assistant Professor of Psychology at the University of Iowa and University of Chicago research assistant Zachary Mitchell, in writing the article and doing the research.

For the study, 128 fourth-grade students were given problems of the type  $3+2+8= \_+8$ . None of the students had been successful in solving that type of problem in a pre-test. The students were randomly divided into three instruction groups.

One group was taught the words, "I want to make one side equal to the other side." Another group was taught the same words along with gestures instantiating a grouping problem-solving strategy--a V-shaped hand indicating  $3+2$ , followed by a point at the blank (group and add 3 and 2 and put the sum in the blank). A third group was taught the words along with gestures instantiating the grouping strategy but focusing attention on the wrong numbers--a V-shaped hand indicating  $2+8$ , followed by a point at blank. The experimenter demonstrating the gesture did not explain the movement or comment about it.

All of the students were then given the same mathematics lesson. On each problem during the lesson, they were told to repeat the words or words/gestures they had been taught.

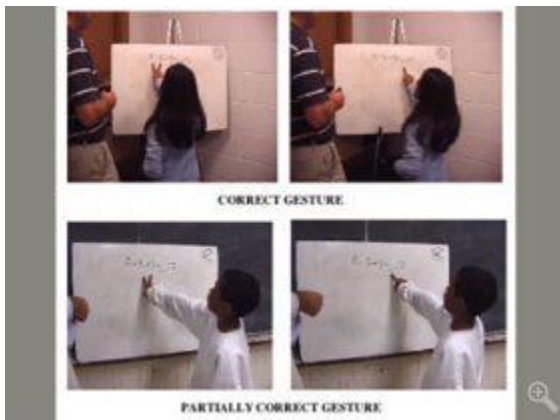
## Place Value and Everything in its Place

After the lesson, students were given a test in which they solved new problems of this type and explained how they reached their answers. Students who repeated the correct gesture during the lesson solved more problems correctly than students who repeated the partially correct gesture, who, in turn, solved more problems correctly than students who repeated only the words.

The number of problems children solved correctly could be explained by whether they added the grouping strategy to their spoken repertoires after the lesson, Goldin-Meadow said. Because the experimenter never expressed the grouping strategy in speech during the lesson, and students picked it up on their own as a new idea, the study demonstrates that gesture can help create new concepts in learning.

"The grouping information students incorporated into their post-lesson speech must have come from their own gestures," Goldin-Meadow said.

"Children were thus able to extract information from their own hand movements. This process may be the mechanism by which gesturing influences learning," she said.



Students who use gestures to solve mathematics problems learn to solve math problems more successfully, even if they use only partially correct gestures.



## Media Contact

William Harms

Associate News Director

University of Chicago News Office

[wharms@uchicago.edu](mailto:wharms@uchicago.edu)

(773) 702-8356

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5801 South Ellis Avenue



