



October Curriculum Planning Kindergarten



“If students have already been given ways to solve the problem, it is not a problem, but practice” Curriculum Document

Numeral Writing

Numeral writing should not be taught in isolation but in relation with the quantities they represent. Numeral symbols have meaning for children only when they are introduced as labels for quantities. Learning to write symbols is a separate task from learning to associate numerals with specific quantities. Therefore, because students have learned to write the numerals we must be very careful not to assume that the students are learning anything about the quantities they represent. Students learn to write numerals as they gain a deeper understanding of numbers. Opportunities should begin with focusing on counting and recording numbers to 10. The recording of numbers should take place in meaningful contexts rather than through the repetitive printing of numerals themselves.



Curriculum Outcomes for October

N1 (cont'd): Say the number sequence by 1s starting anywhere from 1 to 10 and from 10 to 1. [C, CN, V]

N2 (cont'd): Recognize, at a glance, and name familiar arrangements of 1 to 5 objects or dots (introduce).

[C, CN, ME, V]

N3: Relate a numeral, 1 to 10, to its respective quantity. (Focus on counting properties to 5 and numeral writing in context).

[CN, R, V]

PR1: Demonstrate an understanding of repeating patterns (two or three elements) by identifying, reproducing, extending and creating patterns using manipulatives, sounds and actions.

[C, CN, PS, V]

Mathematical Processes

Communication (C): Curiosity about mathematics is fostered when children are engaged in, and talking about, such activities as comparing quantities, searching for patterns, sorting objects, ordering objects, creating designs and building with blocks. During activities exploring patterns ask questions such as: What comes next/before/after? How do you know? Can you finish the pattern? What part of the pattern repeats? Opportunities to explain their thinking and reasoning through questions and discussion will strengthen their connections and deepen their sense of number concepts.

Connections (CN): Working with patterns enables students to make connections within mathematics and their environment. Identifying patterns found in their daily lives (ie: nursery rhymes/songs/days of the week) and describing these patterns verbally helps students to interpret patterns they see and hear and solidifies their understanding of the concept.

Reasoning (R): Mathematics is about recognizing, describing and working with numerical and non-numerical patterns. Students must learn to recognize, extend, create and use mathematical patterns. Patterns allow students to make predictions and justify their reasoning when solving problems.

Mental Mathematics and Estimation (ME): This process will be explored when students are working on outcomes N2 and N4.

Problem Solving (PS): Students are exposed to a wide variety of problems in all areas of mathematics. They explore a variety of methods for solving and verifying problems. For example, when students are identifying and reproducing elements in a repeating pattern, they are challenged to find multiple solutions.

Technology (T): Van de Walle and Lovin suggest having students use a calculator to count forward (p.40). SMART software is also valuable for teaching students how to tag one-to-one by dragging icons and numbers.

Visualization (V): Visual images and visual reasoning are important aspects of understanding numbers. Number visualization occurs when students create mental representations of numbers. Visualization is fostered through the use of concrete materials, technology and a variety of visual representations. These may include: dice, ten-frames, dot cards, rekenrek.

Counting Principles

Stable Order: Words used in counting must be the same sequence of words used from one count to the next.

Order Relevance: The order in which objects are counted does not matter. Counting things in a different order still gives the same count.

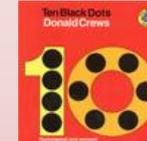
Conservation: The count for a set of objects stays the same whether the objects are spread out or close together. The only way the count can change is when objects are added to the set or removed from the set.

Abstraction: Different things can be counted and still give the same count. Things that are the same, different, or imaginary (ideas) can be counted.

Literature Connections

Ten Black Dots by Donald Crews.

A suggested activity may be for students to create their own books using bingo dabbers, stamps or stickers.



Chicka Chicka Boom Boom by Bill Martin, Jr. and John Archambault

After reading this book, have students look for repetitive language patterns.

Investigation Ideas

Mystery Bags: Create a collection of paper bags with different numbers of objects in each bag (e.g., math materials, keys, buttons, small toys, erasers, pencils, etc.) Context: Someone left a box in our classroom. The box is full of bags. The bags have different objects in them. I would like your help putting the number of objects on the outside of each bag. Have students work in pairs. Provide each pair with two or three bags. The number of objects in each bag should be within (or just outside of) their counting range. Direct them to count the number of objects and then write the number on the bag. Have students share their findings with the class. (N1, N3)

Is it a pattern? Show students a set of repeating patterns and non-repeating sequences on paper strips. Students sort them into two groups—Patterns and Non-Patterns—and give reasons for their placement. (PR1) See **Portal**.

Activity Ideas

Secret Patterns: Teacher can ask students to line up in a specific order and then ask students “What is the pattern of our line?” (Could be gender, clothing, hair colour using ABAB, ABBA, ABC, etc). (PR1)

Human Number Line: Have the students form a human number line from 1 to 10. Give each student a number card or dot card and ask them to arrange themselves in order starting with 1. Then remove a number card or two and ask them to arrange themselves again. Encourage them to leave spaces for missing numbers. (N1)

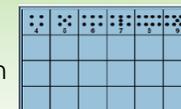


Number Puzzles: Prepare number puzzles for the numeral 6 and cut apart into 6 pieces. Students put the puzzle together to form the numeral 6 and glue the puzzle on a piece of construction paper. Using items such as lima beans, buttons, students create a set of 6 and glue it on their number puzzle. (N1, N3)

Make a Face: Have students select 10 items such as buttons, pasta, beads, or stickers. Give each student a paper plate and ask them to use the items to make a face. Extension activity: Students can record the number of each item on a piece of paper. (N3)

Game Ideas

Match the Cards: Prepare a set of dot and numeral cards (1-5 or 1-10 depending on skill level) for each pair of students. Lay the cards face down. Player one turns over 2 cards and keeps the pair if they match. If there is no match, turn the cards back over. Player two takes a turn. Continue playing until all pairs have been found. (N3)



Build a Tower: Working in pairs, each student needs snap cubes, Build a Tower game board, and one number cube (4 - 9). Partner one rolls the number cube and builds a tower made of that number of cubes. He or She then places the tower on the game board in the column that corresponds with the number. Partner two rolls the die and play continues. Students continue to take turns rolling the number cube and building towers until an entire column is filled. (N1, N3). See **Portal**.

Move-It Action Cards: Give pairs of students action cards (such as clap, stomp, wiggle, shake, hop, kick) and have them create a simple repeating pattern using these movements. Students can present their move-it patterns to the class. (PR1) See **Portal** for action cards.

First One to Get 6: Students work in pairs using a die (dot or numeral) and a handful of counters. Taking turns, partners roll the die. Each time a 6 is rolled the student who rolls the 6 takes a counter. The first student who gets 6 counters is the winner. (N1, N2, N3)

Interesting Websites

<http://illuminations.nctm.org/ActivityDetail.aspx?ID=73>
 Math Frog <http://cemc2.math.uwaterloo.ca/mathfrog/main.shtml>