September Curriculum Planning Kindergarten

"There is a strongly held belief in the mathematics education community that mathematics is best learned when students are actively engaged in constructing their own understandings." Marian Small

The New Brunswick Mathematics Curriculum

Before teaching each outcome, it is vital to read the Mathematics Curriculum as it should be the primary source for instruction. It is divided into five main sections.

Scope and Sequence: This allows you to examine the teaching of the outcome this year and what will follow after.

Elaboration: This section describes the "big ideas" and what students should learn this year in regards to this concept.

Achievement Indicators: Describes what should be observed to determine whether students have met the specific outcome.

Planning for Instruction: This section lists general strategies to assist in teaching the outcome and possible specific activities to assist in student learning.

Assessment Strategies: The final section provides sample tasks for whole class, group, and individual assessment.

Curriculum Outcomes for September

N1: Say the number sequence by 1s starting anywhere from 1 to 10 and from 10 to 1. (Focus on numbers 1 to 5) [C, CN, V]

N2: Recognize, at a glance, and name familiar arrangements of 1 to 5 objects or dots (as students start using dice, use any teachable moments that arise to introduce this topic).
[C, CN, ME, V]

Pre-requisite to PR1 and SS2: Have students become familiar with models and manipulatives such as objects of various shapes and colours. It is important that students become familiar with the objects before engaging in patterning and sorting activities.

Mathematical Processes

Communication (C): Curiosity about mathematics is fostered when children are engaged in, and talking about, activities such as counting and comparing quantities. Concrete objects should be used when comparing sets and exploring one-to-one correspondence. Students may choose to work alone; however, working in pairs or small groups facilitates conversations and shared thinking.

Connections (CN): Number sense develops when students connect numbers to their own real-life experiences. The evolving number sense typically comes as a by product of learning rather than through direct instruction. Number sense can be developed by providing rich mathematical tasks that allow students to make connections to their own experiences and their previous learning. The five frame should be introduced then focus on building a relationship with five as an anchor to help further develop relationships for the numbers 1 to 10.

Reasoning (R): Opportunities for children to explain their thinking and reasoning through questions and discussion will strengthen their connections and deepen their sense of number concepts. "How do you know you have the right number of counters?" "How can you show 5?"

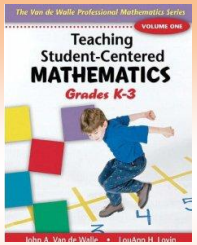
Mental Mathematics and Estimation (ME): This process will be explored when students are working on outcomes N2 and N4.

Problem Solving (PS): Learning through problem solving should be the focus of mathematics at all grade levels. When students encounter new situations and respond to questions of the type "How would you ....?", the problem-solving approach is being modelled.

Technology (T): Technology contributes to a learning environment in which the growing curiosity of students can lead to rich mathematical discoveries. The Smart Board can assist in whole class counting activities and games.

Visualization (V): Students pass through many stages when learning to visually count a set of objects at their own pace. Often students will move objects as they count them, touch the object to keep track, group the objects, count pictures or drawings of objects, recognize a known quantity, or use the "counting on" strategy to count one or more objects at a time.

Teacher's Resources

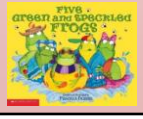


Teaching Student-Centered Mathematics K-3
by John Van deWalle and LouAnn Lovin.

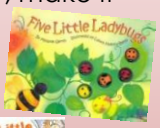
This book has over 150 practical activities and strategies for teaching students to develop a deep understanding of mathematical concepts. Check out Chapter 2 'Developing Early Number Concepts and Number Sense' to help you get started this year.

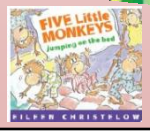
Literature Connections

Children's literature is filled with wonderful counting books. Exposing children to books in a variety of ways can help connect numbers to reality, make it personal, and provide opportunities for problem solving.



Five Green and Speckled Frogs by Martin Kelly
Five Little Monkeys by Eileen Christelow
Five Little Ladybugs by Melanie Gerth
Five Ugly Monsters by Ted Arnold.

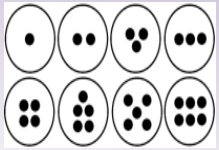


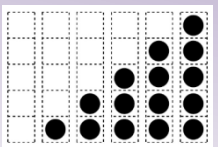


What is Subitizing?

Subitizing is a very efficient strategy to tell how many are in a group without specifically counting each item. It depends on an immediate recognition of arrangements or configurations of certain numbers of items. It is a valuable skill for success in mathematics. For example, most people immediately recognize, or subitize, the arrangements for 1 to 6 as these configurations of dots are commonly used on dice, cards, and other game materials. Kindergarten students are subitizing numbers to 5. The amount of numbers that are immediately recognizable varies with students' experiences. (N2)

Here is a link to a subitizing video: http://www.learnalberta.ca/content/mer/html/dotplate.html





Try the **Dot Plate Flash** activity below.
Also, see **What is Subitizing? Subitizing with 5** and **Subitizing with a Five Frame** on the **Portal**.

Poems and Songs

Use poems, songs, and stories that have forward and backward number sequences. Have students predict which number comes next as you read through the poem or story. Use sticky notes to cover up the numbers on each page or each section of a poem and have students identify the hidden number.

This Old Man (counting forward)
One Two, Buckle My Shoe (counting forward)
One Potato, Two Potato (counting forward)
There were Ten in the Bed (counting backward)
Five Little Monkeys (counting backward)

Game/Activity Ideas

Up and Back Counting: Line up five children and five chairs in front of the class. As the whole class counts from 1 to 5, the children sit down one at a time. When the number, 5, is reached, it is repeated; the child who sat on 5 now stands, and the count goes back to 1. As the count goes back, children stand up one at a time, and so on,"1,2,3,4,5..5,4,3,2,1.." (N1)

One-Die Match Graph: The advantage of this game is that it can be played individually or in pairs. Student rolls the die and places a counter on the game board that matches what they rolled. See **Portal**. (N2)

Dot Plate Flash: Use prepared dot arrangements for numbers 0 to 5. Hold up a dot plate for one to three seconds and then hide it. Say, "How many? How did you see it?" Students might say, "I saw 5. I saw 3 together and 2 more." See how quickly students can recognize the number of dots without counting. (N2)

Interesting Websites

http://www.topmarks.co.uk/Interactive.aspx?cat=8 **This interactive website investigates numbers from 1 to 5 through counting activities and games.**

Portal: https://portal.nbed.nb.ca/sites/district08/math8/Pages/Kindergarten.aspx