

January Curriculum Planning



"Teachers often overlook counting back, which is an important skill to prepare student for later in subtraction." Marion Small

Counting Strategies

Students who are counting need to develop a sense of confidence in their counting. For example, if they count out some objects and say that there are 6 of them, they need to realize immediately that if you rearrange the objects and ask for a new count, they do not have to re-count, because the count is still 6. This is often referred to as **conservation of number**.

A very efficient strategy to tell how many is **subitizing**. Subitizing is a method of determining 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.

Students also have to learn physical techniques for counting. For example, children who are good counters usually have strategies for keeping track of what they've counted, such as touching each object and moving it away once it has been counted. Later, they learn to use visual or kinesthetic motions,



like nodding, to keep track of what has been counted. Students normally learn these techniques by copying others who are efficient counters.

Once students make the connection between rote counting and **cardinality** (or how many), they become more flexible in dealing with larger quantities as they can count in groups rather than counting by ones.

Curriculum Outcomes for January

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

N2 (cont'd): Recognize, at a glance, and name familiar arrangements of 1 to 5 objects or dots. [C, CN, ME, V]

N3 (cont'd): Relate a numeral, 1 to 10, to its respective quantity. $[\text{CN},\,\text{R},\,\text{V}]$

N4- Represent and describe numbers 2 to 10 concretely and pictorially. (Focus on numbers to 5). [C, CN, ME, R, V]

Mathematical Processes

Communication (C): Talking and discussing are important aspects in refining a student's personal strategy to solving problems. As students talk about their thinking, they are able to organize their thoughts, but also hear how others are making sense of the task. This sharing of ideas helps to solidify understanding for some students, and for others, helps them to think about the problem in a new way.

Connections (CN): Children need to view mathematics as sensible, useful and worthwhile, and view themselves as capable of thinking mathematically. Ask students to investigate how the family uses math at home.

Reasoning (R): Reasoning can be nurtured at a very early age by asking students to explain and justify their observations with questions such as "Why do you think that is true?", "Tell me what you were thinking when you did that.", "Why or how does that work?", "What would happen if...?", "How does that make sense to you?"

Mental Mathematics and Estimation (ME): When subitizing, objects in a line are easiest, then rectangular arrangements (pairs of objects in rows) and "dice" or "domino" arrangements, then scrambled arrangements.



Problem Solving (PS): In Kindergarten students are provided with problems that may involve addition and subtraction, but often without using any formal addition or subtraction language. These problems may seem like counting problems to the students, not addition or subtraction, since they tend to solve them by counting. Young students will naturally, then, develop their own strategies for solving these types of problems. In this way, they build a foundation for understanding operations of numbers. Suitable contexts may arise through student-initiated activities, teachercreated stories and real-world situations.

Technology (T): Including technology as a part of classroom activities can motivate students and allow them to learn and share their understanding in a variety of ways. SMART lessons, such as "Feed the Bears" and "Subitizing with a Five Frame" can be found on the portal.

Visualization (V): To help students create visual images of number, ask questions, such as "When I say 5?"



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Guidelines for Conceptual Subitizing

Conceptual subitizing helps children develop abstract number and arithmetic strategies. Follow these guidelines when creating your own subitizing materials:

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Use simple forms such as homogenous groups of circles or squares for the units.

• Emphasize regular arrangements (most including symmetry, with linear arrangements for younger children and rectangular arrangements for older students being easiest)

Provide good contrast between the background and the units



Embed subitizing groups within pictures

Use pictures of animals or mixtures of any shapes

Don't

Subitizing video:

http://www.learnalberta.ca/content/mer/html/dotplate.html

Van de Walle black line masters 3, (6) and 7: http://www.ablongman.com/vandewalleseries/volume 1.html

Investigation Ideas

Number Poster: Model a poster for a selected number, and then ask students to choose a number between 1 and 10 to create a similar poster of their own, showing the number in many ways. (N3)



Fish Bowls: The twins, Mary and Paul, got 5 fish on their birthday. They both want fish in their bedrooms. How many different ways can they share the fish? Use goldfish crackers as a manipulative. (N4)

Interesting Websites

http://www.abc.net.au/countusin/ (N1,N2,N3,N4) http://www.crickweb.co.uk/ks1numeracy.html# (N1) http://pbskids.org/curiousgeorge/games/juggling_ge orge/juggling_george.html (N3)

Journal Ideas

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Draw buttons on a snowman. Tell how many buttons. (N3)

Show a number to tell how many people might be in a family. (N3)

Using 2 colours of links, have students create a chain of 8. Have students draw and record their chain and how many of each colour is in it. (N4)

My favourite number is ____. It can look like... (N4)

You and a friend made 5 snow angels. Draw the snow angels you made in red and your friend's snow angels in blue. (N4)

Think of a number between 5 and 10. Show how you could count backwards from this number. (N1)

Literature Connections A Frog in the Bog by Karma Wilson, Joan Rankin (N1, N4) Every Buddy Counts by Stuart Murphy

A Frog in the Bog

(N1)



Game/Acvtivity Ideas

Counting Jars - Students select a jar to count,

empty the contents, and count. They then record the number of items for the jar on their recording sheet. Jars should be labelled. (N3) See **portal** for game board.



Ready, Set, Roll! - Students roll the die, read the

number rolled, and move their "race car" to represent the number rolled. The blue car races against the red car to



the finish line! (N2) See **portal** for game boara.

Snowman Concentration - Students take turns

flipping over snowman cards to try and match a card to its corresponding numeral. (N3) See **portal** for cards.



Snap It! – Students make a train using snap cubes of the same colour. Sitting in a circle, students put their trains behind their back. Counting "1, 2, 3, Snap It!" students break apart their train. Each student shows the two parts of their train, describing the number. (N4)