



March Curriculum Planning Grade 1



“Solving questions mentally helps to force a student to focus on the relationship between the numbers and the effect of number operations, as opposed to simply memorizing rules.” Marian Small

“A problem . . . must begin where the students are . . . good investigations should permit every student in the class . . . to demonstrate some knowledge, skill, or understanding.” (Van de Walle and Lovin)

“As students work together to explore ideas and solve problems, they reveal their growing understanding of mathematics and display the skills they are acquiring. Observing children who are engaged in these tasks yields valid, meaningful assessment information.” (Pearson)

Curriculum Outcomes for March

N9 (cont'd): Demonstrate an understanding of addition of numbers with answers to 20 and their corresponding subtraction facts, concretely, pictorially and symbolically by:

- using familiar and mathematical language to describe additive and subtractive actions from their experience
- creating and solving problems in context that involve addition and subtraction
- modeling addition and subtraction using a variety of concrete and visual representations, and recording the process symbolically. [C, CN, ME, PS, R, V]

N10: Describe and use mental mathematics strategies (memorization not intended), such as:

- counting on and counting back
- making 1
- doubles
- using addition to subtract

to determine the basic addition facts to 18 and related subtraction facts.

[C, CN, ME, PS, R, V]

Revisit N1: Say the number sequence, 0 to 100, by: 1s forward and backward between any two given numbers; 2s to 20, forward starting at 0; 5s and 10s to 100, forward starting at 0. [C, CN, V, ME]

Revisit N3: Demonstrate an understanding of counting by: indicating the last number said identifies “how many”; showing that any set has only one count; using the counting on strategy; using parts or equal groups to count sets. [C, CN, ME, R, V]

Revisit N5: Compare sets containing up to 20 elements to solve problems using referents; one-to-one correspondence. [C, CN, R, ME, PS, V]

Revisit N6: Estimate quantities to 20 by using referents. [C, ME, PS, R, V]

Mental Math (N10)

Doubles & Near Doubles

Doubles are relatively easy to learn and can form a powerful anchor for the near-doubles and other facts. They are one of the earliest sets of facts students work on.

A key scaffold is a **visual reference** to the various **double facts**. For example, $4 + 4$ is called the Spider Double. Spiders have 4 legs on each side, and 8 in total, so it illustrates $4 + 4 = 8$. These visual representations must satisfy two properties. First, the total must be evident to the student, such as a spider has eight legs. Secondly, the representation must be innately composed of the two equal parts.



A spider has 4 legs on each side, that's just how they are.

A set of two tricycles doesn't meet this second condition – $4 + 4$ while the total is 6, tricycles don't naturally come in groups of two.

The near double builds on student proficiency with the doubles facts, along with an understanding of near numbers (+1 facts). When faced with a fact like $6 + 7$, students can think *double 6, plus one more*. This is one strategy where the use of concrete and visual scaffolds is sometimes overlooked. Students who have known a double fact but can't extrapolate to near doubles can use concrete materials to build the double fact first.

$$\begin{array}{r} 4 \\ + 3 \\ \hline \end{array}$$



If $3 + 3 = 6$, then $3 + 4$ must equal one more!

Many games can be played to help encourage students to use near doubles, such as Chutes and Ladders. When students spin to take their turn, they must double it and add one to know how jumps to make. This can be extended for many games that are played in the classroom and instead of doubling and adding one, the students can double and subtract one.

Seasonal Math Activities

Leprechaun's Pot O' Gold Lesson for the SmartBoard - see **Portal** (N4)

Skip-counting with a leprechaun: <http://www.youtube.com/watch?v=ztEUNvPFBRg>

St. Patrick's Day math ideas:

<http://makinglearningfun.com/themepages/StPatricksDayMathIdeas.htm>

Various St. Patrick's Day math activities: <http://prekandksharing.blogspot.ca/2012/03/montessori-inspired-st-patricks-day.html>



Literature Connections

How Many Snails? : A Counting Book

by Paul Giganti Jr.

Counting items by attributes; provides opportunities to explore part-whole relationships.



Double the Ducks by Stuart Murphy

Provides an opportunity to practice the doubling strategy.

Investigation Ideas

Classroom Plants: Math Makes Sense, Unit 7
Teacher's Guide, p. 41



Students investigate a wide variety of number concepts while planting seeds to grow classroom plants. (N1, N5, N6, N9, PR1, PR2, PR3, SS1*)

*This will be a good introduction to measurement which will be next month's focus.

Count, Count, Count: Have students count the numbers of eyes in their classroom by 2s (pointing out double facts), the number of fingers by 5s and the number of toes by 10s. Students share their findings. (N1, N10)

Button Jar Investigation: Display small jars containing an unknown number of different buttons (up to 20). Ask pairs of students to estimate how many buttons are in their jar. Discuss if there is a strategy they could use to make a better estimate. Students can then count their buttons to assess their estimates.



Next, have students decide on a sorting rule for their button jar and sort the buttons.

Once sorted, students can state and record addition and subtraction sentences for the resulting sets of buttons. Students can then begin again with a new sorting rule for their buttons, making addition and subtraction sentences for these sets of buttons. Students can continue the investigation with their own jar or trade their jar with another pair of students to continue the investigation. (N3, N6, N7, N9, N10, SS2)

Journal Ideas

How are the numbers 10 and 15 alike? How are they different? (N5, N7)

Count by twos until you land on twenty. What other numbers can you count by and still land on twenty? (N1)

A number is about 10, but it is not 10. What is the most it might be? What is the least it might be? (N5)

When have you heard someone estimating? (N6)

What coin combinations could you use to show 18¢? (N1, N10)

Write a story about two pennies and a dime. (N9)

How will knowing $4 + 4$ help you to solve $4 + 5$? (N10)

Interesting Websites

http://harcourtschool.com/activity/numberline1_5_04/
(Addition to 10 on number line)

http://www.mathplayground.com/math_lines10.html
(addition to 10)

<http://www.funbrain.com/> (addition and subtraction)

http://harcourtschool.com/activity/connect_by_5/
(Count by 5s and 10s)

Game/Activity Ideas

Gift Bag Grab: Place various items in gift bags; a bag of marbles, a bag of pattern blocks, etc. Students will estimate the number of objects in a handful and record their estimate. See Math Makes Sense, Unit 2, Teacher's Guide, p. 49 (N6)

Cover Up: Prepare a variety of 3 X 3 cards with the numbers 0 to 20. Call out subtraction facts where students use their mental strategies to solve. E.g.

- 10 take away 4
- 6 and 6 and 2 less
- 2 less than 9

6	9	15
12	18	1
2	5	10

Students cover the difference with a counter. The first player to cover all of the numbers on their card is the winner. Have students use concrete materials to verify their answer. (N10)

Folded Doubles: Fold small rectangular pieces of paper in half. Use a hole punch to punch a small number of holes. Ask students to predict what they will see when the paper is unfolded. Unfold the paper and have students describe what they see. Have students make their own doubles cards. (N10)

Counter Spill: Put up to 20 two-sided counters in a cup. Spill them on the table. Separate the red and yellow counters.

Write the modeled subtraction sentence, such as $18 - 6 = 12$. Ask students to join the groups together and write the related addition sentence. (N9)

