

## Grade 3

### Mental Math Strategies

#### SCO : N1 : Skip Counting

Say the number sequence forward and backward from 0 to 1000 by:

- 5's, 10's and 100's using any starting point
- 3's using starting points that are multiples of 3
- 4's using starting points that are multiples of 4
- 25's using starting points that are multiples of 25

Also see Mental Math in the Primary Grades :Lessons 19 & 20

#### SCO : N4 : Estimate quantities less than 1000 using referents

Students use reasoning skills to estimate a total using a visual referent. A referent can be created for any known quantity to help determine an unknown quantity that is larger or smaller. Students must build on prior strategies developed in earlier grades involving ten, to include a sense of one hundred. Using their knowledge of one hundred, students can then estimate larger quantities.

Ex: A bag of one hundred pennies may be used to determine how many pennies are in a larger pile, by estimating how many groups of one hundred are in the pile.

#### SCO : N6 : Addition

Describe and apply mental math strategies for adding two 2-digit numerals such as:

- **Adding from left to right**  
To determine the sum of  $23 + 46$ , think " $20 + 40$  and  $3 + 6$ "
- **Taking one addend to the nearest multiple of ten and then compensating**  
To determine the sum of  $28 + 47$ , think " $30 + 47 - 2$ " or " $50 + 28 - 3$ "
- **Using doubles**  
To determine the sum of  $24 + 26$ , think " $25 + 25$ "  
To determine the sum of  $25 + 26$ , think " $25 + 25 + 1$ "

Also see Mental Math in the Primary Grades :Lesson 32 and Power Builder #16 page 104  
Mental Math in the Middle Grades : Lesson 10 page 51

## **SCO : N7 : Subtraction**

Describe and apply mental math strategies for subtracting two 2-digit numerals, such as:

- **Taking the subtrahend to the nearest multiple of 10 and then compensating**

To determine the difference of  $48 - 19$ , think " $48 - 20 + 1$ ".

- **Thinking of addition**

To determine the difference of  $62 - 45$ , a student might think  $45 + 5$ , then  $50 + 12$ , and then  $5 + 12$  gives the difference of 17. An open number line is helpful with this strategy.

- **Using doubles**

To determine the difference of  $24 - 12$ , think " $12 + 12$ ".

Also see Mental Math in the Primary Grades : Lesson 35 and Power Builder # 19 on p.107

## **SCO: N8: Apply estimation strategies to predict sums and differences of two 2-digit numerals in a problem solving context.**

Ensure students recognize that estimation should be used daily. Whenever they are required to solve a problem, make predictions, or check answers.

## **SCO: N9: Demonstrate an understanding of addition and subtraction of numbers with answers to 1000. (limited to 1, 2, and 3-digit numerals)**

- Using personal strategies for adding and subtracting with and without the support of manipulatives. Frequent use of the horizontal form encourages the use of a variety of strategies instead of just the traditional algorithm.

Students should be able to explain their strategy and whether their solution makes sense.

**SCO: N10: Apply mental mathematics strategies and number properties, such as:**

➤ **Using doubles**

Doubles: For  $6 + 8$ , think  $7 + 7$ .

Doubles plus one: For  $6 + 7$ , think  $6 + 6 + 1$ .

Doubles take away one: For  $6 + 7$ , think  $7 + 7 - 1$ .

Doubles plus two: For  $6 + 8$ , think  $6 + 6 + 2$ .

Doubles take away two: For  $6 + 8$ , think  $8 + 8 - 2$ .

➤ **Making 10**

For  $6 + 8$ , think  $6 + 4 + 4$  or  $8 + 2 + 4$ .

For  $13 - 7$ , think  $13 - 3 = 10$ ,  $10 - 4 = 6$ .

➤ **Using the commutative property**

For  $3 + 9$ , think  $9 + 3$ .

➤ **Using the property of zero**

Provide a rule for determining answers for adding and subtracting zero.

➤ **Thinking addition for subtraction (facts to 18)**

For  $13 - 7$ , think  $7 + ? = 13$ .

Also see *Mental Math in the Primary Grades* Lessons 3, 4, 5, 6, 7, 8, 15, and 16 with Power Builder #2 p.90, #3 p.91, #4 p.92, #5 p.93, #8 p.96, #9 p.97, #10 p.98, and #11 p.99

**SCO: N11: Demonstrate an understanding of multiplication to  $5 \times 5$  and related division facts.**

It is recommended that teachers "combine multiplication and division soon after multiplication has been introduced in order to help students see how they are related" (Van de Walle & Lovin, vol.2, 2006, p.60)