

Mental Math

The following list compiles mental math strategies as found in the Kindergarten to Grade 8 Mathematics – Manitoba Curriculum Framework of Outcomes

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7
1.N.10.	2.N.8. 2.N.10.	3.N.6. 3.N.7. 3.N.10. 3.N.11. 3.N.12.	4.N.4. 4.N.5. 4.N.6. 4.N.11.	5.N.2. 5.N.3. 5.N.4.	6.N.8.	7.N.2.

Grade	Concept	Strategy	Meaning	Example
1	Addition	Counting on	Students begin with a number and count on to get the sum. Students should begin to recognize that beginning with the larger of the two addends is generally most efficient.	for $3 + 5$ think $5 + 1 + 1 + 1$ is 8; think 5, 6, 7, 8
1	Subtraction	Counting back	Students begin with the minuend and count back to find the difference.	for $6 - 2$ think $6 - 1 - 1$ is 4; think 6, 5, 4
1, 2	Addition	Using one more	Starting from a known fact and adding one more.	for $8 + 5$ if you know $8 + 4$ is 12 and one more is 13.
1, 2	Addition	Using one less	Starting from a known fact and taking one away.	for $8 + 6$ if you know $8 + 7$ is 15 and one less is 14.
1, 2,	Addition Subtraction	Making 10	Students use combinations that add up to ten and can extend this to multiples of ten in later grades.	$4 + \underline{\quad}$ is 10 $7 + \underline{\quad}$ is 10; so $23 + \underline{\quad}$ is 30
1	Addition Subtraction	Starting from known doubles	Students need to work to know their doubles facts	$2 + 2$ is 4 and $4 - 2$ is 2

1, 2, 3	Subtraction	Using addition to subtract	This is a form of part-part-whole representation. Thinking of addition as: part + part = whole Thinking of subtraction as: whole - part = part	for $12 - 5$ think $5 + \underline{\quad} = 12$ so $12 - 5$ is 7
2	Addition Subtraction	The zero property of addition	Knowing that adding 0 to an addend does not change its value and taking 0 from a minuend does not change the value	$0 + 5 = 5$; $11 - 0 = 11$
2, 3	Addition Subtraction	Using doubles	Students learn doubles, and use this to extend facts: using doubles doubles plus one (or two) doubles minus one (or two)	for $5 + 7$ think $6 + 6$ is 12; for $5 + 7$ think $5 + 5 + 2$ is 12 for $5 + 7$ think $7 + 7 - 2$ is 12
2, 3	Addition Subtraction	Building on known doubles	Students learn doubles, and use this to extend facts.	for $7 + 8$ think $7 + 7$ is 14 so $7 + 8$ is $14 + 1$ is 15
3	Addition	Adding from left to right	Using place value understanding to add 2 digit numerals.	for $25 + 33$ think $20 + 30$ and $5 + 3$ is $50 + 8$ or 58
3	Addition Subtraction	Making 10	Students use combinations that add up to ten to calculate other math facts and can extend this to multiples of ten in later grades.	for $8 + 5$ think $8 + 2 + 3$ is $10 + 3$ or 13
3	Addition Subtraction	Compensation	Using other known math facts and compensating. For example, adding 2 to an addend and taking 2 away from the sum.	for $25 + 33$ think $25 + 35 - 2$ is $60 - 2$ or 58
3	Addition	Commutative property	Switching the order or the two numbers being added will not affect the sum.	$4 + 3$ is the same as $3 + 4$
3, 4	Addition	Compatible	Compatible numbers are friendly numbers (often	for $4 + 3$ students may

(decimals)	Subtraction	numbers	associated with compatible numbers to 5 or 10).	
3	Multiplication Division	array	Using an ordered arrangement to show multiplication or division (similar to area)	think $4 + 1$ is 5 and 2 more makes 7. for 3×4 think •••• •••• •••• for $12 \div 3$ think •••• •••• ••••
3	Multiplication	Commutative property	Switching the order or the two numbers being multiplied will not affect the product.	4×5 is the same as 5×4
3	Multiplication	skip-counting	Using the concept of multiplication as a series of equal grouping to determine a product	for 4×2 think 2, 4, 6, 8 so 4×2 is 8
4	Multiplication	Zero property of multiplication	Multiplying a factor by zero will always result in zero.	30×0 is 0 0×15 is 0
4	Multiplication Division	Multiplicative identity	Multiplying (dividing) a factor (dividend) by one will not change its value.	1×12 is 12 $21 \div 1$ is 21
4.5	Multiplication Division	Skip-counting from a known fact	Similar to the counting on strategy for addition. Using a known fact and skip counting forward or backward to determine the answer.	for 3×8 think 3×5 is 15 and skip count by threes 15, 18, 21, 24
4, 5	Multiplication Division	doubling or halving	Using known facts and doubling of halving them to determine the answer.	for 7×4 , think the double of 7×2 is 28 for $48 \div 6$, think the double of $24 \div 6$ is 8
4	Multiplication Division	using the pattern for 9s	Knowing the first digit of the answer is one less than the non-nine factor and the sum of the	for 7×9 think one less than 7 is 6 and 6 plus 3 is