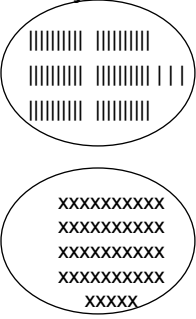
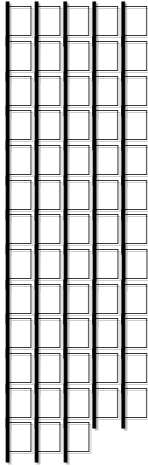
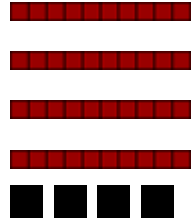


# GUIDELINES

## Readiness Concepts – Level 2

SKILL	OBJECTIVE	VOCABULARY	EXAMPLE	PROBLEM SOLVING EXAMPLE	CONNECTIONS, INTEGRATION	STANDARDS	PROGRAM CORRELATION
<p><b>NUMBER SENSE</b></p>	<p>The students will recognize number concepts through 100.</p> <p>The students will identify number symbols through 100.</p> <p>The students will be able to associate number with the corresponding amount of objects.</p>	<p>number words through one hundred</p>	<p>Tell how many:</p> 	<p>Tom has sixty-three balls. Show how many this is.</p> 	<p><i>Other content areas:</i></p> <p>Discuss with children things that come in tens—ten fingers, ten toes, ten beads on each decade of the rosary, ten commandments, ten pennies in a dime, ten dimes in a dollar, etc.</p> <p>Use benchmarks.</p> <p><i>Real life skills:</i> Reading addresses, phone numbers, book pages, room numbers.</p>	<p>K-2, N, 78 K-2, Co, 128 K-2, R, 136</p> <p>2.1.3.A 2.1.3.G 2.1.3.H</p>	

## Readiness Concepts – Level 2

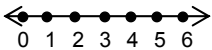
SKILL	OBJECTIVE	VOCABULARY	EXAMPLE	PROBLEM SOLVING EXAMPLE	CONNECTIONS, INTEGRATION	STANDARDS	PROGRAM CORRELATION
<b>READING NUMBERS</b> <b>WRITING NUMERALS</b>	<p>The students will read the symbols for the numbers through one hundred</p> <p>The students will write the numerals through 100.</p>	<p>Numerals through 100</p> <p><b>IMPORTANT: Stress the correct formation of numerals.</b></p> <p>Refer to handwriting guide for correctness.</p>	<p>Review the symbols for each number.</p> <p>Give practice identifying the numerals with base ten blocks:</p>  <p>44</p>	<p>(Connect to reading skills as students read and write numbers in word problems.)</p>	<p><i>Handwriting:</i> Teach the correct formation of numerals.</p> <p><i>Music:</i> Counting songs such as “This Old Man.”</p> <p><i>Literature:</i> There are many suitable books which focus on counting at the primary level.</p> <p>Number dominoes (see <i>Monday Morning Madness</i> by Bob Bernstein (Good Apple Publications).</p>	<p>K-2, N, 78 K-2, P, 116</p> <p>2.1. 3.C 2.8. 3.E</p>	

Handwriting song to the tune of “Mulberry Bush:”

- 1–From the top make one stroke down (3x) to make the numeral 1.
- 2–Curve around and out again.
- 3–Half around and half around.
- 4–Down, over, and down again.
- 5–Down, around, and over the top.

- 6–All the way down and around again.
- 7–Dot, over, and down again.
- 8–All the way ‘round and all the way ‘round.
- 9–All the way around and down again.
- 0–From the top go all the way around.

## Readiness Concepts – Level 2

SKILL	OBJECTIVE	VOCABULARY	EXAMPLE	PROBLEM SOLVING EXAMPLE	CONNECTIONS, INTEGRATION	STANDARDS	PROGRAM CORRELATION
<b>COMPARING AND ORDERING SETS AND NUMBERS</b>	<p>The students will compare sets of numbers.</p> <p>The students will order numbers.</p> <p>The students will understand and read statements of equality; they will distinguish between equivalent and non-equivalent groups..</p> <p>The students will use the number line to compare numbers through one hundred.</p>	<p>Same</p> <p>different</p> <p>alike</p> <p>equivalent</p> <p>non-equivalent</p> <p>more</p> <p>most</p> <p>greater</p> <p>greatest</p> <p>less</p> <p>least</p> <p>fewer</p> <p>fewest</p> <p>number line</p>	<p>Use concrete objects to demonstrate concepts of more, less, etc.</p> $23 \begin{array}{r} > \\ \hline 16 \end{array}$ $18 \begin{array}{r} < \\ \hline 81 \end{array}$ <p>Have students use number lines to identify the position of designated numbers.</p>  <p>Twenty-three is greater than ___ but less than ___.</p>	<p>Mrs. Brown's class has 35 students.</p> <p>Mrs. Green's class has 33 students.</p> <p>Mrs. White's class has 37 students.</p> <p>Which class has the most students?</p> <p>Which has the fewest?</p> <p>Which classes have more than Mrs. Green?</p> <p>There are fewer students in _____ class than in _____ class.</p>	<p><i>Mathematics:</i> Computation, estimation, problem-solving strategies.</p> <p><i>Real life skills:</i> Give examples of real-life number lines: yardstick. Make a real-life number line with the students.</p> <p><i>Real life:</i> Have the children organize boxes of items in the classroom— puzzle pieces, buttons, etc. Tell if the amount is greater, less, or equal.</p> <p><i>Literature: The Hungry Caterpillar.</i></p>	<p>K-2, N, 78</p> <p>K-2, P, 116</p> <p>2.1.3.C</p>	

## Readiness Concepts – Level 2

SKILL	OBJECTIVE	VOCABULARY	EXAMPLE	PROBLEM SOLVING EXAMPLE	CONNECTIONS, INTEGRATION	STANDARDS	PROGRAM CORRELATION
			<p>Use the numbers in the box to answer the questions.</p> <div data-bbox="835 496 1035 615" style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <p>23 18 2 14 9 + 9 81 32 45</p> </div> <p>Which is the greatest number? Which is the least? Which are equal? Which numbers are greater than 17?</p>		<p><i>Vocabulary:</i> Synonyms less–fewer more–greater least–fewest most–greatest</p>		

## Readiness Concepts – Level 2

SKILL	OBJECTIVE	VOCABULARY	EXAMPLE	PROBLEM SOLVING EXAMPLE	CONNECTIONS, INTEGRATION	STANDARDS	PROGRAM CORRELATION
<b>COUNTING</b>	<p>The students will be able to count orally by ones through 100.</p> <p>The students will count on/back by ones and tens to 100.</p> <p>The students will use a number line to count.</p> <p>The students will be able to identify the number or numbers that come before, after, or between the number or numbers given.</p>	<p>count numbers 1-100</p> <p>number line</p> <p>before</p> <p>after</p> <p>between</p>	<p>Oral counting or numbers 1, 2, 3, ... 99, 100.</p> <p>100, 90, 80, ... 10, 0.</p> <p>Before    After</p> <p>    45   </p> <p>    13   </p> <p>Between</p> <p>35 _____ 37</p> <p>21 _____ 23</p>	<p>Begin at different numbers. Count forward and backward.</p> <p>Identify missing numbers:</p> <p>7, 8, ____, 10, 11, ____, ____, 14</p> <p>Write the number that comes just before 15.</p> <p>Write the number that comes between three and five.</p>	<p><i>Mathematics:</i> Calendar dates, pennies, counting rods.</p> <p><i>Physical education:</i> Counting games and exercises.</p> <p><i>Literature:</i> Nursery rhymes such as <i>One, two buckle my shoe</i>.</p> <p>Following sequences in dot-to-dot coloring books.</p>	<p>K-2, N, 78</p> <p>K-2, P, 116</p> <p>K-2, CO, 128</p> <p>2.1. 3.C</p> <p>2.1. 3.H</p> <p>2.2. 3.C</p> <p>2.11. 3.D</p>	

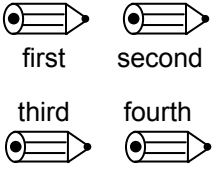
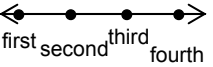
## Readiness Concepts – Level 2

SKILL	OBJECTIVE	VOCABULARY	EXAMPLE	PROBLEM SOLVING EXAMPLE	CONNECTIONS, INTEGRATION	STANDARDS	PROGRAM CORRELATION
<p><b>FINDING AND EXTENDING PATTERNS</b></p>	<p>The students will recognize simple number patterns of two, three, four, five, and ten.</p> <p>The students will use concrete objects to model patterns.</p> <p>The students will use a number line to identify patterns.</p>	<p>patterns twos threes fours fives tens</p>	<p>Using concrete objects such as blocks, linking cubes or blocks, have the students create patterns; develop in terms of numbers.</p> <p>1,2,1,2,1,___ 2,3,3,2,3,___</p> <p>use a number line to illustrate patterns of skip counting.</p>	<p>Using 1” graph paper, have the students use stickers, crayons, etc. to make a pattern.</p> <p>Make patterns using rubber stamps. Make up a story about your pattern.</p>	<p><i>Real life:</i> Observe different necklaces to see the pattern of bead colors and shapes.</p> <p>Make bracelets of pony beads, macaroni, etc. Allow students to choose their own pattern.</p> <p>Talks about patterns students have seen at home—wall-paper, floor tiles, etc.</p> <p>NCTM Addenda Series, <i>PATTERNS</i>. A good source containing many ideas for developing patterns.</p>	<p>K-2, N, 78 K-2, A, 90 K-2, RP, 122 2.1. 3.A 2.1. 3.F 2.1. 3.C</p>	

## Readiness Concepts – Level 2

SKILL	OBJECTIVE	VOCABULARY	EXAMPLE	PROBLEM SOLVING EXAMPLE	CONNECTIONS, INTEGRATION	STANDARDS	PROGRAM CORRELATION
<p><b>NUMBER WORDS</b></p>	<p>The students will review the reading and writing of the numerals and number words through ten.</p> <p>The students will read and write the decade words through ninety and the word hundred.</p>	<p>one two three four five six seven eight nine ten twenty thirty forty fifty sixty seventy eighty ninety</p> <p>(Note correct pronunciation of words.)</p>	<p>Have the students identify sets of objects by using number word instead of numeral.</p> <p>***** ***** ***** ***** ***** ***** ***** ***** *****</p> <p>fifty</p>	<p>Teach number vocabulary. Have students practice reading word problems in which number words are used.</p> <p>Miss Clayton had twenty books. Miss Ford gave her ten more. How many books did Miss Clayton have then?</p> <p>Extend: Suppose she bought six more books...</p>	<p><i>Language arts:</i> Vocabulary, writing, number books.</p> <p><i>Cooperative learning:</i> Have students do a “Scavenger Hunt” for number words in newspapers, magazines, etc. As a group, make a chart of words found.</p> <p>Number word puzzles.</p>	<p>K-2, N, 78 K-2, CO, 128</p>	

## Readiness Concepts – Level 2

SKILL	OBJECTIVE	VOCABULARY	EXAMPLE	PROBLEM SOLVING EXAMPLE	CONNECTIONS, INTEGRATION	STANDARDS	PROGRAM CORRELATION
<p><b>ORDINAL NUMBERS</b></p>	<p>The students will identify ordinal numbers through twentieth.</p> <p>The students will be able to associate the ordinal with the position of related numbers on the number line.</p> <p>The students will understand that directionality will affect position of ordinal concept.</p>	<p>first second third fourth fifth sixth seventh eighth ninth tenth . . . thirty-first</p>	  <p>Use calendar numbers.</p>	<p>Using concrete objects, have the students act out the problem.</p> <p>Examples: The second person in each row stand.</p> <p>Move the fourth desk to the right.</p>	<p><i>Language arts, reading:</i> Sequences, ordering events.</p> <p><i>Physical education:</i> Use physical movement to identify positional relationships.</p> <p><i>Real life skills:</i> Telling position in line, marching in parade, identify winners of a race, read calendar.</p> <p><i>Social studies:</i> Following directions.</p> <p><i>Science:</i> Watching and marking the growth of a plant from first to tenth stage.</p>	<p>K-2, N, 78 K-2, A, 90 K-2, CO, 128 K-2, R, 136</p> <p>2.1.3.G 2.1.3.H</p>	

## Readiness Concepts – Level 2

SKILL	OBJECTIVE	VOCABULARY	EXAMPLE	PROBLEM SOLVING EXAMPLE	CONNECTIONS, INTEGRATION	STANDARDS	PROGRAM CORRELATION
<b>UNDERSTAND AND USE SYMBOLS</b>	Refer to Reading Numbers and Writing Numerals. Students should understand that a numeral is a written symbol for a number.  Students should also understand the following symbols: +, -, =, <, >						

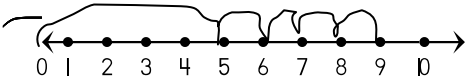
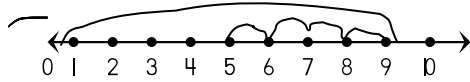
## Algebra Concepts – Level 2

SKILL	OBJECTIVE	VOCABULARY	EXAMPLE	PROBLEM SOLVING EXAMPLE	CONNECTIONS, INTEGRATION	STANDARDS	PROGRAM CORRELATION
<b>RATIONAL COUNTING</b>	<p>Using manipulatives, the students will count from 0 through 19 and sequence objects to that order.</p> <p>The students will sequence and describe numbers through 100 using ordinal and comparison words.</p> <p>The students will count quantities through 100.</p> <p>The students will compare numbers of items that they have counted.</p> <p>The students will use coins to count on and compare money values.</p>	<p>numbers 0-100</p> <p>order compare</p> <p>fewest fewer</p> <p>least less</p> <p>most more</p> <p>greater greatest</p> <p>coins</p> <p>dime</p> <p>penny</p> <p>nickel</p> <p>quarter</p> <p>half dollar</p> <p>dollar</p>	<p>User counters to count out the number specified.</p> <p>Use familiar objects/items in the classroom to demonstrate counting and ordering.</p> <p>Use coins to show: 14 cents 23 cents 25 cents thirty-four cents</p>	<p>Count the objects. Put the groups in order from fewest to most.</p> <p>+++++++ +++++++ ++ _____</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p> <p>_____</p> <p>***** ***** ***** ***** ***</p> <p>_____</p> <p>Joseph has 24¢. Matt has 42¢. Who has more?</p>	<p><i>Oral communication skills:</i> Follow oral steps to come to a finish line or to completion of an independent project.</p> <p><i>Social studies:</i> Make a simple map of the neighborhood. Have the students count the number of blocks from one street to another. Model and count the number of houses on each block.</p> <p><i>Science:</i> Count and compare the number of leaves on different branches.</p>	<p>K-2, N, 78 K-2, CO, 128 K-2, R, 156 K-2, A, 90</p> <p>2.1. 3.A 2.1. 3.G 2.5. 3.C 2.113..C</p>	

## Algebra Concepts – Level 2

SKILL	OBJECTIVE	VOCABULARY	EXAMPLE	PROBLEM SOLVING EXAMPLE	CONNECTIONS, INTEGRATION	STANDARDS	PROGRAM CORRELATION
<b>SKIP COUNTING BY 2s, 3s, 4s, 5s and 10s.</b>	<p>The students will be able to count orally by twos to 100.</p> <p>The students will be able to count orally by threes through 30.</p> <p>The students will be able to count orally by fives to 100.</p> <p>The students will be able to count orally by tens to 100.</p> <p>The students will be able to read and write to 100 by ones, twos, fives, and tens.</p>	<p>twos threes fours fives tens</p>	<p>Count by 2. Tell the missing numbers. 2, 4, 6, 8, __, __.</p> <p>Model groups of threes (fours, fives, etc.) using counters.</p> <p>Show skip counting on a number line.</p> <p>Arrange pennies in groups of five. Replace each group with a nickel. Practice counting.</p>	<p>Count by 10. Tell how many in all.</p> <p>Make bead necklaces grouping colors in twos, fives, or tens.</p> <p>Sheila has three nickels. How much money does she have? If she had three dimes, how much money would she have?</p>	<p><i>Real-life connections:</i> Pairs of shoes, socks, etc.; money—nickels, dimes. Addresses on odd and even sides of the street.</p> <p><i>Mathematics:</i> Show counting patterns on a hundreds' chart. Measurement patterns: 3 feet in a yard.</p> <p>Benchmarks: two eyes two hands two feet three sides of a triangle five pennies = one nickel five nickels = one quarter</p>	<p>K-2, N, 78 K-2, CO, 128 K-2, R, 136 K-2, A, 90</p> <p>2.1. 3.A 2.1. 3.G 2.1. 3.H 2.11.3.D</p>	
<b>NUMBER PROPERTIES IN ADDITION</b>	<p>The students will use the Commutative and Associative properties of addition. These are developed in the OPERATIONS section of these guidelines.</p>					<p>K-2, A, 90 2.1. 3.C</p>	

## Algebra Concepts – Level 2

SKILL	OBJECTIVE	VOCABULARY	EXAMPLE	PROBLEM SOLVING EXAMPLE	CONNECTIONS, INTEGRATION	STANDARDS	PROGRAM CORRELATION
<b>ZERO PROPERTY OF ADDITION</b>	<p>The students will understand that adding 0 to a number or adding a number to zero does not change the number.</p> <p>The students will understand that when zero is subtracted from a number, the number is not changed.</p>	zero change	$14 + 0 = 14$ $0 + 14 = 14$ $16 - 0 = 16$ $13 - 0 = 13$	<p>When the game started, there were 14 members of the team present. No one else came. How many were there on the team for the game?</p>	<p><i>Language arts:</i> Nursery rhymes—Old Mother Hubbard, Jack Sprat</p>	K-2, N, 78 K-2, A, 90 K-2, CO, 128 2.1. 3.C	
<b>OPERATIONS ON NUMBER LINE</b>	<p>Use the number line as an aid in developing operations on numbers. The students should use it as a reference point when presented with problems in this area</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p><math>5 + 4 = 9</math></p> </div> <div style="text-align: center;">  <p><math>9 - 4 = 5</math></p> </div> </div>					K-2, A, 90	

## Algebra Concepts – Level 2

SKILL	OBJECTIVE	VOCABULARY	EXAMPLE	PROBLEM SOLVING EXAMPLE	CONNECTIONS, INTEGRATION	STANDARDS	PROGRAM CORRELATION
<b>SEQUENCES</b>	The students will identify patterns and sequences.	<p>pattern sequence</p> <p>NOTE: A geometric pattern is a pattern that occurs in multiples of the same number.</p> <p>An arithmetic pattern uses addition and subtraction or a combination of operations.</p>	<p>2, 5, 8, 11, _____</p> <p>20, 16, 12, 8 _____</p> <p>1, 1, 2, 1, 1, 3, 1, 1, _____</p> <p>0, 2, 10, 12, 20, 22, _____</p>	<p>Using pattern blocks or tiles:</p> <ol style="list-style-type: none"> <li>1. Have the students arrange the tiles in patterns according to their attributes. 3 YELLOW 3 BLUE</li> <li>2. Have the students find out how many different ways they can arrange the same number of tiles.</li> </ol>	<p><i>Real life:</i> Patterns on wallpaper.</p> <p><i>Problem solving:</i> Act out patterns; draw pictures of patterns.</p>	<p>K-2, G, 96</p> <p>2.9. 3.B 2.9. 3.D</p>	
<b>NUMBER PROPERTIES IN MULTIPLICATION</b>	The students will use the Commutative and Associative Properties of multiplication. These are developed in the OPERATIONS section of these guidelines.					<p>K-2, A, 90</p> <p><del>K-2, A, 90</del></p> <p>3.2.1.C</p>	

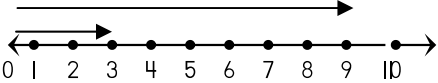
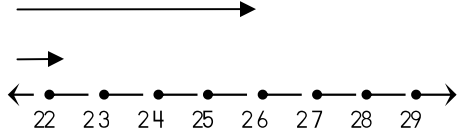
## Algebra Concepts – Level 2

SKILL	OBJECTIVE	VOCABULARY	EXAMPLE	PROBLEM SOLVING EXAMPLE	CONNECTIONS, INTEGRATION	STANDARDS	PROGRAM CORRELATION
<b>ZERO IN MULTIPLICATION</b>	The students will understand that any number multiplied by 0 results in a product of zero.	Zero  Product  Factor	$3 \times 0 = 0$ $0 \times 3 = 0$	Mrs. Jones had three boxes for candy. When she opened them there wasn't any candy in the boxes. Write a number sentence to show how much candy was in the boxes.	<i>Problem Solving Skills:</i> Logical Reasoning	K-2, A, 90	

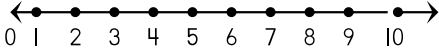
## Whole Number Concepts, Number Relations – Level 2

SKILL	OBJECTIVE	VOCABULARY	EXAMPLE	PROBLEM SOLVING EXAMPLE	CONNECTIONS, INTEGRATION	STANDARDS	PROGRAM CORRELATION												
PLACE VALUE	<p>The students will model two-digit and three-digit numbers on a place value chart.</p> <p>Using manipulatives, the students will demonstrate three-digit numbers.</p> <p>The students will compare and order three-digit numbers.</p>	<p>place value chart</p> <p>hundreds</p> <p>tens</p> <p>units/ones</p>	<p>Have students group base ten manipulatives into groups of hundreds, tens, and ones. Identify the hundreds numeral, the decade numeral, and the units numeral for each group.</p> <p>Use a place value chart to name hundreds, tens, and units.</p> <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="padding: 0 10px;">Hundreds</td> <td style="padding: 0 10px;">Tens</td> <td style="padding: 0 10px;">Ones</td> </tr> <tr> <td style="text-align: center;">4</td> <td style="text-align: center;">0</td> <td style="text-align: center;">2</td> </tr> <tr> <td style="text-align: center;">7</td> <td style="text-align: center;">1</td> <td style="text-align: center;">6</td> </tr> <tr> <td style="text-align: center;">8</td> <td style="text-align: center;">2</td> <td style="text-align: center;">9</td> </tr> </table> <p>Write the numeral:            3 hundreds 2 tens 7 ones            5 hundreds 1 ten 2 ones            6 hundreds 0 tens 5 ones</p>	Hundreds	Tens	Ones	4	0	2	7	1	6	8	2	9		<p><i>Religion:</i>            Show the students the groups of ten beads on a rosary.</p> <p><i>Mathematics:</i>            Connections—number of pennies to equal a dime and a dollar, number of one-dollar bills to equal a ten-dollar bill, etc.</p> <p><i>Literature: The 500 Hats of Bartholomew Cubbins.</i></p>	<p>K-2, N, 78            K-2, P, 116            K-2, CO, 128</p> <p>2.1. 3.A            2.1. 3.I</p>	
Hundreds	Tens	Ones																	
4	0	2																	
7	1	6																	
8	2	9																	
PLACE VALUE WITH MONEY	<p>The students will relate concepts of place value to money.</p>	<p>Dime</p> <p>Penny</p> <p>Dollar</p>	<p>Relate dollars to hundreds place dimes to tens place and pennies to units place.</p> <p>Two dollars = 200 pennies</p> <p>Two dimes = 20 pennies</p> <p>37¢ = 3 dimes and 7 pennies</p>		<p><i>Mathematics:</i>            Money</p>	<p>K-2, N, 78</p>													



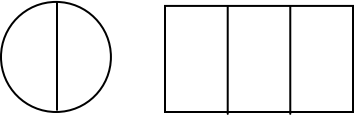
## Whole Number Concepts, Number Relations – Level 2

SKILL	OBJECTIVE	VOCABULARY	EXAMPLE	PROBLEM SOLVING EXAMPLE	CONNECTIONS, INTEGRATION	STANDARDS	PROGRAM CORRELATION
<b>COMPARING NUMBERS</b> <b>ORDERING NUMBERS</b>  <b>USE SYMBOLS TO SHOW NUMBER RELATIONS</b>	<p>The students will compare numbers greater than 0 and less than 100.</p> <p>The students will use the &gt; and &lt; symbols to compare numbers.</p>	<p>&lt; less than &gt; greater than = equal to</p> <p>more most fewer fewest</p>	<p><math>73 &lt; 79</math>  <math>20 &lt; 50</math>  <math>87 &gt; 74</math>  <math>32 &gt; 18</math></p> <p>Put these numbers in order from greatest to least: 36, 29, 42, 54, 18, 32</p>	<p>Fred's class brought 17 cans of food for the food drive. Ethel's class brought 45 cans. Whose class brought the most?</p>	<p><i>Real life:</i> Compare objects in the classroom—books, numbers of desks in various classrooms.</p> <p><i>Literature:</i> Counting books. Point out the concept of “one more than.”</p>	<p>K-2, N, 78            K-2, P, 116            K-2, CO, 128            K-2, C, 132</p> <p>2.1. 3.G</p>	
	<p>The students will compare numbers using a number line.</p>	<p>Which is greater: 9 or 3?</p>  <p>Nine is farther away from zero on the number line, so</p> <p style="text-align: center;"><math>9 &gt; 3</math></p> <p>Show which number is fewer: 22 or 26.</p> <p>22 is closer to 0, so 22 is fewer.</p> 					

## Whole Number Concepts, Number Relations – Level 2

SKILL	OBJECTIVE	VOCABULARY	EXAMPLE	PROBLEM SOLVING EXAMPLE	CONNECTIONS, INTEGRATION	STANDARDS	PROGRAM CORRELATION
<b>USING A NUMBER LINE TO ESTIMATE</b>	The students will use a number line to estimate number concepts.	Estimate Number line Greater than Less than	<p>Tyler needs ten stickers to get an award. He has two. He thinks he needs about 4 more. Use the number line to show if Tyler's estimate is correct.</p> <p style="text-align: center;">X <span style="margin-left: 200px;">X</span></p>  <p style="text-align: center;">←••••••••••→ 0 1 2 3 4 5 6 7 8 9 10</p> <p>Mark each point on the number line. Visualize to see if estimate is correct.</p>		<i>Mathematics:</i> Estimation	K-2, N, 78 K-2, P, 116  3.2.1.C 3.2.1.G	
<b>EXPANDED NOTATION</b>	<p>The students will match a two-digit numeral to a model or picture.</p> <p>The students will group objects in tens and count leftover ones.</p> <p>The students will recognize two-digit numbers as sums of tens and ones.</p>	two-digit number tens ones	<p>Use base ten blocks to model two- and three-digit numbers. Have the students use straws, coffee stirrers, etc., to model numbers.</p> <p>23 = _____ tens + _____ 50 = _____ tens + _____</p> <p>4 tens + 6 = _____ 7 tens + 5 = _____</p>		<i>Mathematics:</i> Relate to dimes and pennies.	K-2, N, 78 K-2, P, 116 K-2, CO, 128  3.2.1.A 3.2.1.I	





## Whole Number Concepts, Number Relations – Level 2

SKILL	OBJECTIVE	VOCABULARY	EXAMPLE	PROBLEM SOLVING EXAMPLE	CONNECTIONS, INTEGRATION	STANDARDS	PROGRAM CORRELATION
<b>ODD-EVEN NUMBERS</b>	The students will use concrete models to determine if numbers are odd or even.	odd numbers even numbers	Use number tiles. Have students grab a handful of square tiles from the container and arrange them in two rows. If the rows form a rectangle, the number of tiles is even. If not, the number is odd.  even  odd		<i>Real life:</i> Discuss uses of odd and even numbers: addresses. <i>Mathematics:</i> Skip counting, operations, problem solving.	K-2, N, 78 K-2, P, 116 K-2, CO, 128 K-2, C, 132  2.1. 3.F 2.11.3.D	
<b>FRACTIONS</b>  <b>FRACTIONAL PARTS OF GEOMETRIC SHAPES</b>	The students will understand the fraction concepts of $\frac{1}{2}$ , $\frac{1}{3}$ , and $\frac{1}{4}$ .  The students will identify fractional parts of a region	one-half one-third one-fourth	Fold and cut geometric shapes into equal parts. Show one-half. Show one-third. 		<i>Arts:</i> Color one-half of a figure to show symmetry	K-2, G, 96 K-2, M 2.1. 3.D	

## Whole Number Concepts, Number Relations – Level 2

SKILL	OBJECTIVE	VOCABULARY	EXAMPLE	PROBLEM SOLVING EXAMPLE	CONNECTIONS, INTEGRATION	STANDARDS	PROGRAM CORRELATION
<b>ROMAN NUMERALS</b>	The students will understand and use Roman Numerals through thirty-nine.	<p>Roman Numeral</p> <p>I = 1</p> <p>V = 5</p> <p>X = 9</p> <p>Important note for teacher: Do not let students draw lines to connect Roman Numerals at top or bottom. This changes the value of the numeral.</p>	<p>Note: Students should understand that a numeral equal to or lower placed after a numeral indicates addition.</p> <p>XX means 10 + 10 or 20</p> <p>XXVI means 10 + 10 + 5 + 1 or 16.</p> <p>A lower numeral placed before a higher one indicates subtraction.</p> <p>IV means 5-1 or 4</p> <p>IX means 10 – 1 or 9</p> <p>XIX means 10 + 10 – 1 or 19</p> <p>XXIV means 10+10+5 – 1 or 24</p>		<p><i>Mathematics:</i> Clocks with Roman Numerals.</p> <p><i>Literature:</i> Some books paginate Introductory matter with Roman Numerals.</p> <p>Other uses of Roman Numerals: Dates on buildings, dates in movie scripts, outlines</p>	K-2, N, 78	

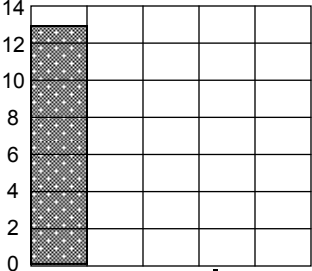
## Problem Solving – Level 2

SKILL	OBJECTIVE	VOCABULARY	EXAMPLE	PROBLEM SOLVING EXAMPLE	CONNECTIONS, INTEGRATION	STANDARDS	PROGRAM CORRELATION
<p>Instruction in problem solving should be extensive and on going. It is a key element of every mathematics lesson. It should be the springboard from which all concepts are developed. Continued development and reinforcement of problem-solving skills should be a part of every mathematics lesson.</p> <p>Suggested times in teacher’s guides indicate a carefully planned integration of problem-solving skills with other math concepts.</p>							
<p><b>USE A PLAN FOR PROBLEM-SOLVING</b></p> <p><b>Understand the question</b></p>	<p>The students will read and identify the facts given and questions asked in the problem.</p>	<p>read identify problem facts question</p>	<p>Mary had 13  . She got 1 more. How many flowers in all?</p> <p><b>1</b></p> <p>F <input type="checkbox"/> 13 </p> <p>F <input type="checkbox"/> 1 </p> <p>Q <input type="checkbox"/> How many  in all?</p>	<p>Problem-solving can be applied to all areas—real life as well as other content areas of the curriculum.</p>	<p>K-2, N, 78 K-2, M, 102 K-2, D, 108 K-2, P, 116 K-2, CO, 128 K-2, C, 132 2.2.3.B 2.5.3.A 2.8. 3.B 2.1. 3.E</p>		

## Problem Solving – Level 2

SKILL	OBJECTIVE	VOCABULARY	EXAMPLE	PROBLEM SOLVING EXAMPLE	CONNECTIONS, INTEGRATION	STANDARDS	PROGRAM CORRELATION
<b>Plan: Choose a correct strategy</b>	Students will select an appropriate strategy	“math shorthand” F □ facts ? □ questions  number sentence  operation plus minus sum difference greater fewer	<b>2</b> After strategies are taught, children might choose from the following:  Write and solve a number sentence Draw a picture Make a model Guess and test  All would be considered appropriate strategies.  Be careful not to give the impression that every problem can be solved by writing an equation or using an operation. This is only one of many strategies for problem-solving.		It is important to teach the students good order in setting up problems as this will help them to avoid careless mistakes as they develop problem-solving skills.		
<b>Do: Solve</b>	The students will apply the chosen strategy to the problem.	number sentence  equation  model  picture	<b>3</b>  $13 + 1 = 14$  * * * * * * * * * * *  * * * * * * * * * *		There are many rich sources for problem solving in children’s literature.		

## Problem Solving – Level 2

SKILL	OBJECTIVE	VOCABULARY	EXAMPLE	PROBLEM SOLVING EXAMPLE	CONNECTIONS, INTEGRATION	STANDARDS	PROGRAM CORRELATION
Check	<p>The students will formulate another method for doing the problem in order to confirm their answer.</p> <p>The students will check for reasonableness of their answer.</p>	<p>equation</p> <p>model</p> <p>drawing graph</p> <p>option</p>	<p><b>4</b></p>  <p style="text-align: center;">* □ * <input type="checkbox"/> X</p>	<p>Students might also choose to check by using manipulatives, etc.</p>		<p>K-2, N, 78</p> <p>K-2, M, 102</p> <p>K-2, D, 108</p> <p>K-2, P, 116</p> <p>K-2, CO, 128</p> <p>K-2, C, 132</p> <p>2.2.3.B</p> <p>2.5.3.A</p> <p>2.8. 3.B</p> <p>2.1. 3.E</p>	
Answer statement	<p>The students will write a short, complete sentence to answer the problem's question.</p>	<p>words included in the problem</p> <p>asking sentence</p> <p>telling sentence</p>	<p>Once they have identified the question, have the students formulate a fill-in-the-blank answer statement.</p> <p>There are <u>14</u> flowers in all.</p> <p><b><i>It is important that you require the students to answer using a sentence. Do not accept numerical answers only. Using an answer statement will help the students to make sense of the problem and will help them to avoid many mistakes later on.</i></b></p>	<p><i>Language arts:</i> Explain that every problem's question is like an asking sentence that needs a telling sentence for its answer.</p>			
DEBONE A PROBLEM	<p>The students will become familiar with the process of deboning a problem.</p>	<p>Have the students underline/circle key words and numbers in the problem.</p> <p>Have them place a box around the question.</p>				<p>K-2, CO, 128</p>	

## Problem Solving – Level 2

SKILL	OBJECTIVE	VOCABULARY	EXAMPLE	PROBLEM SOLVING EXAMPLE	CONNECTIONS, INTEGRATION	STANDARDS	PROGRAM CORRELATION
<b>USE VOCABULARY AS A CLUE</b>	The students will use vocabulary as an aid in solving problems.		Discuss key vocabulary and its meaning. Identify words and phrases that give meaning to the problem.  <i>How many altogether?</i> <i>How much farther did he go?</i> <i>How long did it take her to finish?</i>		<i>Language arts:</i> Using context clues in Reading.	K-2, CO, 128  2.1. 3.G 2.5. 3.A	
<b>USE PICTURES AND MAPS AS CLUES</b>	The students will use pictures and maps as aids in problem solving.	map	Make use of picture books/ stories from children’s reading materials to pose problems. Discuss how picture clues can help in solving problems.  Have the students construct a neighborhood map with juice cartons, etc. Create original problems based on the map.		<i>Social studies:</i> Maps  <i>Language arts:</i> Use picture clues and graphic aids in reading.  <i>Oral and written language skills:</i> Create original problems based on pictures, maps.	K-2, N, 78 K-2, P, 116 K-2, CO, 128  2.1.3.A 2.5.3.A 2.1.3.D	

## Problem Solving – Level 2

SKILL	OBJECTIVE	VOCABULARY	EXAMPLE	PROBLEM SOLVING EXAMPLE	CONNECTIONS, INTEGRATION	STANDARDS	PROGRAM CORRELATION
<p><b>Model for Problem-Solving Chart</b></p> <p style="text-align: center;"><b>STEPS FOR PROBLEM-SOLVING</b></p> <ol style="list-style-type: none"><li>1. <b>READ</b> the problem.</li><li>2. <b>Make a PLAN.</b></li><li>3. <b>DO</b> your work.</li><li>4. <b>CHECK</b> your plan.</li><li>5. <b>Write an ANSWER STATEMENT.</b></li></ol> <p style="text-align: right;">NOTE: A Problem-Solving Chart should be used in the classroom as a visual reminder and study aid.</p> <p style="text-align: right;">Posters modeling problem-solving strategies are also an effective aid to use in the classroom.</p>							

## Problem Solving – Level 2

SKILL	OBJECTIVE	VOCABULARY	EXAMPLE	PROBLEM SOLVING EXAMPLE	CONNECTIONS, INTEGRATION	STANDARDS	PROGRAM CORRELATION
<b>USE CONCRETE OBJECTS TO MODEL A PROBLEM</b>	The students will be able to use patterns to solve problems. They will be able to formulate their own patterns and recognize those given.	patterns  order	<p><b>What will come next?</b></p> <p>†† ††† †††† †††††</p> <p>** ** * * * ** ** * * *</p> <p>2, 3, 2, 4, 2, 5, 2, _____</p> <p>Have students arrange concrete objects according to patterns of: size, color, physical attributes, shape, etc.</p>		<p><i>Real life:</i> Have the students think about patterns they have experienced in everyday life.</p> <p><i>Music:</i> Rhythmic patterns such as clapping hands, finger snapping.</p> <p><i>Physical education:</i> Have the students recognize patterns in exercises.</p> <p><i>Art:</i> Patterns in design.</p>	<p>K-2, N, 78</p> <p>K-2, M, 102</p> <p>K-2, D, 108</p> <p>K-2, P, 116</p> <p>K-2, CO, 128</p> <p>K-2, C, 132</p> <p>2.2.3.B</p> <p>2.5.3.A</p> <p>2.8. 3.B</p> <p>2.1. 3.E</p>	
<b>ACT OUT THE PROBLEM</b>	The students will be able to solve a problem by acting it out.		<p>There are 12 cows and 13 chickens on the farm. How many animals in all?</p> <p>This problem can be solved by modeling the situation using different colors of counters.</p>		<p><i>Mathematics:</i> This strategy is very useful in solving process-type problems.</p>	<p>2.1. 3.E</p> <p>2.5. 3.A</p> <p>2.5. 3.B</p>	

## Problem Solving – Level 2

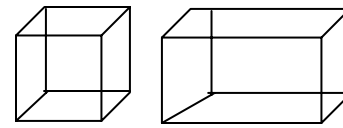
SKILL	OBJECTIVE	VOCABULARY	EXAMPLE	PROBLEM SOLVING EXAMPLE	CONNECTIONS, INTEGRATION	STANDARDS	PROGRAM CORRELATION
<p><b>USE PROBLEM-SOLVING STRATEGIES</b></p> <p><b>Draw a picture</b></p>	<p>The students will be able to draw a picture or use objects to depict the word problem.</p>	<p>divide put together show</p>	<p>Shawn earned 15 stars in October and 22 stars in November. When did he earn the most? How many more was this.</p> <p>*****</p> <p>*****</p>		<p><i>Mathematics:</i> Using the “Draw a Picture” strategy in problem solving is an aid in developing math skills at the semi-concrete level.</p> <p><i>Literature:</i> There are many children’s books that clearly illustrate this concept.</p>	<p>K-2, P, 116 K-2, RP, 122 K-2, CO, 128 K-2, R, 136</p> <p>2.1. 3.C 2.5. 3.A 2.5. 3.B 2.1. 3.E</p>	

## Problem Solving – Level 2

SKILL	OBJECTIVE	VOCABULARY	EXAMPLE	PROBLEM SOLVING EXAMPLE	CONNECTIONS, INTEGRATION	STANDARDS	PROGRAM CORRELATION
<p><b>Guess and check</b></p>	<p>The students will be able to use manipulatives to show or prove an estimated answer.</p>	<p>ruler calculator shapes</p>	<p>Estimate the lengths of different objects/pieces of string using the length of a ruler as standard.</p> <p>How many rulers long is the desk?</p> <p>Use a ruler to measure and check the answer.</p> <p>Apply the concept to other areas of mathematics as well: Operations, Geometry, Number Sense, etc. Check each by using a variety of problem-solving strategies.</p>		<p><i>Mathematics:</i> Apply to all areas.</p> <p><i>Technology:</i> Use a calculator to check estimates.</p>		

## Problem Solving – Level 2

SKILL	OBJECTIVE	VOCABULARY	EXAMPLE	PROBLEM SOLVING EXAMPLE	CONNECTIONS, INTEGRATION	STANDARDS	PROGRAM CORRELATION
<p><b>USE LOGICAL REASONING</b></p>	<p>The students will be able to solve problems using logical reasoning.</p> <p>The students will identify solid shapes.</p> <p>The students will solve problems using elapsed time.</p>		<p>If Carl bought 2 pieces of candy, what do you know? (He had money, he was hungry, and he liked candy.)</p> <p>Show students various solid shapes. Identify the names of the objects given. Compare/contrast the properties of the objects.</p>	<p>If Carl bought 2 pieces of candy, what do you know? (He had money, he was hungry, and he liked candy.)</p>	<p><i>Reading:</i> Use compare/contrast skills, sequencing skills, critical thinking skills.</p> <p><i>Real life:</i> Have the students name their favorite TV shows. Ask questions about the time of the show.</p> <p><i>Literature:</i> Ask questions about stories to compare/contrast.</p> <p><i>Science:</i> Discuss clothing and activities during each of the seasons.</p>	<p>K-2, P, 116 K-2, RP, 122 K-2, CO, 128 K-2, C, 133</p> <p>2.5. 3.A 2.5. 3.B</p>	



## Problem Solving – Level 2

SKILL	OBJECTIVE	VOCABULARY	EXAMPLE	PROBLEM SOLVING EXAMPLE	CONNECTIONS, INTEGRATION	STANDARDS	PROGRAM CORRELATION
<b>SELECT AN OPERATION</b>	The students will be able to decide which operation to use by listening to story problems.	add subtract multiply problem clue words	One day 25 children were playing in the schoolyard. Three more children ran over to join them. How many children were there playing in the park then?  There were 32 books on the shelf. Sixteen students took books to read. How many were left on the shelf?		<i>Manipulatives:</i> Give the students base ten counters. Use them to act out the story problems as you say them.	K-2, P, 116  2.1. 3.C 2.5. 3.A 2.5. 3.B 2.5. 3.L 2.8. 3.F	
<b>SOLVE PROBLEMS WITH MORE THAN ONE QUESTION/ ANSWER</b>	The students will solve problems with more than one question and answer.	hidden question	Seventeen people were waiting for the bus. Four more came from the third grade and six came from the fifth grade. How many more came? How many were waiting for the bus then?		<i>Real life:</i> Many real-life problems involve more than one question.	K-2, P, 116 K-2, RP, 122 K-2, A, 90  2.2. 3.A 2.5. 3.A 2.5. 3.B	
<b>SOLVE PROCESS PROBLEMS</b>	The students will solve problems that cannot be solved by using an equation.		Tom has more books than Sue. Bill has more books than Tom. Al has more books than either Sue or Tom but not as many as Bill. Who has the most books? Who has the fewest?		Use a variety of problem-solving strategies to solve these problems.  Relate to real-life skills.	K-2, P, 116 K-2, CO, 128 K-2, R, 136  2.2. 3.A	

## Problem Solving – Level 2

SKILL	OBJECTIVE	VOCABULARY	EXAMPLE	PROBLEM SOLVING EXAMPLE	CONNECTIONS, INTEGRATION	STANDARDS	PROGRAM CORRELATION
<b>FORMULATE ORIGINAL WORD PROBLEMS</b>	The students will formulate original word problems.	word problem	<p>Give students a number sentence such as <math>9 + 9 = ?</math>. Have them write a story problem showing this concept.</p> <p><i>Nine people make up a baseball team. There are two teams. How many players are there?</i></p> <p>Give the students a pictograph. Have them create original problems based on the data.</p> <p>Apply to all concepts learned.</p>		<p><i>Language arts:</i> Relate to writing skills.</p> <p><i>Reading:</i> Relate to sequencing of events.</p>	<p>K-2, P, 102 K-2, CO, 128 K-2, C, 132 K-2, R, 136</p> <p>2.3. 3.D 2.5. 3.A</p>	

## Operations – Level 2

### Whole Number Operations

SKILL	OBJECTIVE	VOCABULARY	EXAMPLE	PROBLEM SOLVING EXAMPLE	CONNECTIONS, INTEGRATION	STANDARDS	PROGRAM CORRELATION
<p><b>USE CONCRETE OBJECTS TO MODEL OPERATIONS</b></p> <p><b>OPERATIONS INTRODUCED AND DEVELOPED IN PROBLEM-SOLVING/ REAL LIFE CONTEXT</b></p> <p><b>USE SYMBOLS FOR OPERATIONS</b></p>	<p>The students will make and interpret models for addition and subtraction.</p> <p>The students will develop understanding of concepts through a problem-solving context.</p> <p>The students will understand the meaning of and will use symbols for the operations of addition and subtraction.</p> <p>The students will use both horizontal and vertical notation to write number sentences.</p>	<p>add addition operation plus plus sign + sum addend</p> <p>subtract minus minuend subtrahend difference equals “other names”</p> <p>+ – =</p> <p>horizontal vertical</p>	<p>Use concrete objects to model addition and subtraction sentences. Give practice in development of related vocabulary.</p> <p>Addition sentences  <math>12 + 1 = 13</math>  <math>22 + 2 = 24</math></p> <p>Subtraction sentences  <math>18 - 5 = 13</math>  <math>12 - 8 = 4</math></p> $\begin{array}{r} 12 \\ + 1 \\ \hline 13 \end{array}$ $\begin{array}{r} 25 \\ - 10 \\ \hline 15 \end{array}$	<p>Ricky asked Lucy to make cookies. She made two trays. One had 12 cookies on it. The other had 15 cookies on it. How many cookies did Lucy make?</p> <p>After Lucy made the cookies, Ricky and Fred ate seven of the cookies. How many were left?</p>	<p><i>Literature:</i> Counting books.</p> <p><i>Manipulatives:</i> Dominoes, beans, straws.</p> <p><i>Computer:</i> National Library of Virtual Manipulatives.</p> <p><i>Journals:</i> Write a story or explain your number sentences to a partner.</p>	<p>K-2, N, 78 K-2, A, 90 K-2, P, 116 K-2, CO, 128 K-2, R, 136</p> <p>2.1. 3.A 2.1. 3.G 2.1. 3.H 2.1. 3.D 2.5. 3.A 2.5. 3.B</p>	

**Operations – Level 2**  
**Whole Number Operations**

SKILL	OBJECTIVE	VOCABULARY	EXAMPLE	PROBLEM SOLVING EXAMPLE	CONNECTIONS, INTEGRATION	STANDARDS	PROGRAM CORRELATION
<b>PATTERNS IN ADDITION AND SUBTRACTION</b>	The students will look for patterns as an aid in addition and subtraction	Doubles Doubles plus/minus one nines	$4+4 = 8$ $6+6 = 12$  $4+ 5 = 9$ $6+5 = 11$ Since 9 is one less than 10, $6+9$ is the same as $6+10$ minus 1.	Tim had two bags of cookies with four cookies in each bag. How many cookies did Tim have?  The Phillys won the game in the sixth inning of overtime. How many innings did they play?	<i>Mathematics:</i> Two times table.  <i>Real Life:</i> Arranging seats at a table when an extra guest arrives.	K-2, N, 78 K-2, A, 90 K-2, R, 136	



**Operations – Level 2**  
**Whole Number Operations**

SKILL	OBJECTIVE	VOCABULARY	EXAMPLE	PROBLEM SOLVING EXAMPLE	CONNECTIONS, INTEGRATION	STANDARDS	PROGRAM CORRELATION
<p><b>SUBTRACT SINGLE-DIGIT NUMBERS</b></p>	<p>The students will subtract single digit numbers.</p> <p>The students will solve problems using the various types of subtraction</p>	<p>Minuend</p> <p>Subtrahend</p> <p>Difference</p> <p>3 Three  <u>- 2 minus two</u>            equals            1 one</p>	<p>Facts of 3:  <math>3 - 2 = 1</math>  <math>3 - 1 = 2</math></p> <p>(Develop through facts of ten.)</p> <p>Use concrete materials to model.</p> <p>Give practice translating addition sentences from horizontal to vertical notation.</p>	<p><b>Take away</b></p> <p>Bob had six books. He gave 4 to Sam. How many did he have left?</p> <p><b>Missing addend</b></p> <p>Bob had four books. Sam gave him more books. He then had six. How many books did Sam give him?</p> <p><b>Subset</b></p> <p>Bob had six books. Four of them are sports books. How many are not sports books?</p> <p><b>Comparison</b></p> <p>Bob had six books. Sam had four books. How many more books did Bob have?</p>	<p>Explore real life situations that use each type of subtraction.</p>	<p>K-2, N, 78</p> <p>2.2. 3.A            2.5. 3.C</p>	

**Operations – Level 2**  
**Whole Number Operations**

SKILL	OBJECTIVE	VOCABULARY	EXAMPLE	PROBLEM SOLVING EXAMPLE	CONNECTIONS, INTEGRATION	STANDARDS	PROGRAM CORRELATION
<b>ADD MULTI-DIGIT NUMBERS—NO RE-GROUPING</b>	The students will add two-digit numbers without regrouping.	units place  tens place	$\begin{array}{r} \text{Tens} \quad \text{Units} \\ 3 \quad 2 \\ + 2 \quad 3 \\ \hline 5 \quad 5 \end{array}$	There are 11 boys and 13 girls in the second grade. How many are there in all?	<i>Physical education:</i> Instead of telling the students to do a certain number of an exercise, ask them to do it in terms of an addition sentence: "Do 25+10 jumping jacks."	K-2, N, 78 K-2, P, 116 K-2, CO, 128  2.2. 3.A 2.5. 3.C	
<b>ADD MULTI-DIGIT NUMBERS—REGROUPING</b>	The students will add multi-digit numbers with regrouping.		$\begin{array}{r} 2 \quad 5 \\ + 3 \quad 6 \\ \hline 6 \quad 1 \end{array}$	Ball-mart sold 24 footballs and 36 basketballs one day. How many balls in all were sold that day?			

**Operations – Level 2**  
**Whole Number Operations**

SKILL	OBJECTIVE	VOCABULARY	EXAMPLE	PROBLEM SOLVING EXAMPLE	CONNECTIONS, INTEGRATION	STANDARDS	PROGRAM CORRELATION
<b>ADDITION OF THREE OR MORE ADDENDS</b>  <b>ASSOCIATIVE PROPERTY OF ADDITION</b>	<p>The students will understand that we can only add two numbers at one time.</p> <p>The students will learn that when there are more than two addends, two of them must be grouped together.</p> <p>NOTE: Teach concepts, not terms, at this level.</p>	<p>addend</p> <p>group</p>	$(13+1) + 12 = 14 + 12 = 26$  $\begin{array}{r} 3 \\ 11 \\ + 15 \\ \hline 29 \end{array}$	<p>Theresa read seven pages of her book on Monday, eight pages on Tuesday, and 10 pages on Wednesday. How many pages did she read in all?</p>	<p><i>Real life:</i> Use real life situations to formulate problems.</p> <p><i>Mathematics:</i> Apply problem-solving steps to word problems. Avoid giving the impression that if a problem has more than two numbers, addition should be used.</p>	<p>K-2, N, 78            K-2, A, 90            K-2, P, 116            K-2, CO, 128</p> <p>2.5.3.A</p>	
<b>COMMUTATIVE PROPERTY OF ADDITION</b>	<p>The students will explore the order property of addition.</p> <p>The students will use a number line to add numbers. They will understand that to add you move to the right on the number line.</p>	<p>order</p> <p>number line right</p>	$13 + 1 = 14$ $1 + 13 = 14$  Use dominoes to show order property.  Use number lines to illustrate commutative property.	<p>Ask students to give examples in real life where the result of placing things together is the same regardless of the order in which it is done.</p>	<p><i>Real life:</i> Group cookies, candies, etc., together.</p> <p><i>Writing:</i> Have the students write original word problems using order property.</p>	<p>K-2, N, 78            K-2, A, 90            K-2, CO, 128</p> <p>2.1. 3.C</p>	



**Operations – Level 2**  
**Whole Number Operations**

SKILL	OBJECTIVE	VOCABULARY	EXAMPLE	PROBLEM SOLVING EXAMPLE	CONNECTIONS, INTEGRATION	STANDARDS	PROGRAM CORRELATION
<p><b>UNDERSTAND MULTIPLICATION AS REPEATED ADDITION</b></p> <p><b>MULTIPLICATION OF 1-DIGIT NUMBERS</b></p> <p><b>BASIC MULTIPLICATION FACTS</b></p>	<p>The students will understand multiplication as repeated addition.</p> <p>The students will multiply single-digit numbers by two, five, and ten.</p> <p>The students will study and practice the basic multiplication facts for the two, three, five, and ten times tables.</p>	<p>multiplication</p> <p>repeated addition</p> <p>multiply</p> <p>times tables</p>	<p><math>2 + 2 + 2 = 6</math> (3 twos)</p> <p><math>3 \times 2 = 6</math></p> <p>5 5 (4 fives) 5 <u>+ 5</u> 20</p> <p><math>4 \times 5 = 20</math></p>	<p>Jed had 4 triangles. How many sides were there? (12)</p>	<p><i>Real life:</i> Identify benchmarks for the multiplication tables:</p> <p>Things that come in twos: hands, feet, eyes.</p> <p>Threes: holes in a pretzel, wheels on a tricycle, points on a triangle.</p> <p>Identify additional benchmarks for fives, tens, etc.</p>	<p>K-2, N, 78 K-2, P, 116 K-2, CO, 128 K-2, R, 136</p> <p>2.1.3.G 2.2.3.C</p>	

## Operations – Level 2

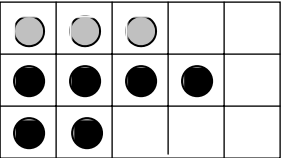
### Whole Number Operations

SKILL	OBJECTIVE	VOCABULARY	EXAMPLE	PROBLEM SOLVING EXAMPLE	CONNECTIONS, INTEGRATION	STANDARDS	PROGRAM CORRELATION
VOCABULARY OF OPERATIONS	The students will use manipulatives to show that addition is putting together, subtracting is taking apart or comparing. They will develop vocabulary in their oral explanations of operations.	<p>add plus equals sum addend addition subtract minus minuend subtrahend difference</p> <p><b>Teacher Alert:</b> <i>Be careful to have the students speak in correct terms when reading number sentences</i></p> <p><i>In vertical notation, be sure they begin with the top number first.</i></p> $\begin{array}{r} 17 \\ - 4 \\ \hline 13 \end{array}$ <p><i>should read "Seventeen minus four equals thirteen."</i></p>	<p>Have the students practice addition sentences and subtraction sentences using manipulatives. Ask them to explain each sentence to those in their group. Occasionally have them write the number sentences in words:</p> <p><i>Ten plus two equals twelve.</i></p> <p><i>Seventeen minus two equals fifteen.</i></p> <p>aloud.</p>	<p>Introduce the concept of "deboning" a word problem by having the students circle key words/terms in the problem.</p> <p>Tom read two books last week. This week he read three more. How many books did Tom read in all?</p>	<p><i>Language arts:</i> Writing original word problems.</p> <p>Phonics—short vowel sounds in add, plus, sum.</p> <p>Oral language—using vocabulary in responding to exercises in the <i>Twenty-four Game, Primary Edition.</i></p>	<p>K-2, N, 78 K-2, P, 116 K-2, CO, 128</p> <p>2.1. 3.K 2.8. 3.B</p>	

**Operations – Level 2**  
**Whole Number Operations**

SKILL	OBJECTIVE	VOCABULARY	EXAMPLE	PROBLEM SOLVING EXAMPLE	CONNECTIONS, INTEGRATION	STANDARDS	PROGRAM CORRELATION
<b>BASIC FACTS OF ADDITION AND SUBTRACTION THROUGH EIGHTEEN</b>	<p>The students will review and recall the basic addition and subtraction facts through sums of 9+9.</p> <p>The students will use part/whole models to relate subtraction to addition.</p>	<p>Addition subtraction basic facts +, -, =</p> <p><b>Teacher Alert:</b> Be sure to provide ample practice in all types of subtraction: take-away, missing addend, comparison, and subset.</p>	<p><math>7 + 9 = 16</math>  <math>9 + 7 = 16</math>  <math>16 - 9 = 7</math>  <math>16 - 7 = 9</math></p> <p>Need 16. Have 9. How many more?</p>	<p>11 players are needed for a football team. Six are here. How many more must come?</p>	<p><i>Mathematics:</i> Operations, problem solving.</p> <p><i>Real life skills:</i> Apply to real-life contexts.</p>	<p>K-2, N, 78 K-2, P, 116 K-2, CO, 128</p> <p>2.5. 3.A</p>	

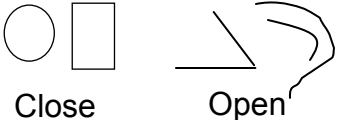
## Data, Statistics – Level 2

SKILL	OBJECTIVE	VOCABULARY	EXAMPLE	PROBLEM SOLVING EXAMPLE	CONNECTIONS, INTEGRATION	STANDARDS	PROGRAM CORRELATION
<b>PICTOGRAPHS</b> <b>BAR GRAPHS</b>	The students will be able to interpret a bar graph and a pictograph; they will construct a graph to determine amounts	bar graph  box  square	Students talk about their favorite colors. Have them complete a class graph using pictures of objects in their favorite colors.  Distribute a packet of “Smarties” (or M&Ms) to each child. Have the students sort the Smarties by color and then arrange them on a piece of graph paper keeping the same color in each row. As they eat each Smartie, they should color in the square with the color of the candy. The result will be a bar graph.		<i>Real life:</i> Have the students make real-life graphs in the classroom or school yard using a variety of categories —color of coat, favorite food, favorite TV show, etc. Use sidewalk chalk in the schoolyard to illustrate graph.  Search through newspapers and magazines to find simple graphs and practice reading the graph.	K-2, M, 102 K-2, P, 116 K-2, CO, 128 K-2, D, 108  2.5. 3.A 2.6. 3.A 2.6. 3.B 2.8. 3.G	

## Data, Statistics – Level 2

SKILL	OBJECTIVE	VOCABULARY	EXAMPLE	PROBLEM SOLVING EXAMPLE	CONNECTIONS, INTEGRATION	STANDARDS	PROGRAM CORRELATION						
<b>USING TABLES</b>	The students will be able to make tally marks in a table to show how many.	table tally marks	Show students a picture with a lot of details. Have them make a tally mark on a table for each item of a certain shape.	<table border="1" data-bbox="835 444 1218 641"> <tbody> <tr> <td data-bbox="835 444 963 508">○</td> <td data-bbox="963 444 1218 508">     </td> </tr> <tr> <td data-bbox="835 508 963 571">□</td> <td data-bbox="963 508 1218 571">     </td> </tr> <tr> <td data-bbox="835 571 963 641">△</td> <td data-bbox="963 571 1218 641"> </td> </tr> </tbody> </table>	○		□		△		Take a survey to see who would choose hamburgers, hot dogs, or pizza for lunch. Make a tally sheet.	K-2, D, 108	
○													
□													
△													

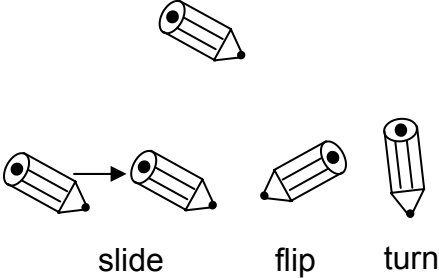
## Geometry – Level 2

SKILL	OBJECTIVE	VOCABULARY	EXAMPLE	PROBLEM SOLVING EXAMPLE	CONNECTIONS, INTEGRATION	STANDARDS	PROGRAM CORRELATION
<b>PLANE FIGURES</b>  <b>Recognition by Name</b>  <b>Identify in Environment</b>  <b>Compare</b>  <b>Draw</b>	The students will be able to identify and construct plane figures.	circle triangle rectangle square	<p>Use pictures containing items of given shapes. Have students identify.</p> <p>Have students identify objects in the classroom of given shapes.</p> <p>Using geometric shapes, have students trace each figure.</p> <p>Compare size, shape, attributes (straight lines, corners, roundness, etc.).</p>		<i>Science,</i> <i>Social studies:</i> Go on a “Geometry Safari.” Have the students search for object of designated shapes.	K-2, G, 96 K-2, P, 116 K-2, C, 132  2.9. 3.A 2.9. 3.C 2.9. 3.D	
<b>SYMMETRY</b>	Using a mirror, the students will identify shapes that have symmetry.	symmetry shapes mirror-image	<p>Use a mirror to demonstrate the concept of symmetry.</p> <p>Fold a piece of paper in half. Show that all edges match on both sides and so have symmetry.</p> <p>Have students identify letters and numbers with symmetry.</p>		<i>Language arts:</i> Letters of the alphabet that show symmetry.	K-2, G, 96  2.9. 3.B 2.9. 3.D	
<b>CLOSED/ OPEN FIGURES</b>	The students will be able to identify open and closed figures.	figure open closed			<i>Art:</i> Use string/yarn to make open and closed figures on construction paper.	K-2, G, 96 K-2, RP, 122  2.9. 3.A 2.9. 3.C 2.9. 3.D	

## Geometry – Level 2

SKILL	OBJECTIVE	VOCABULARY	EXAMPLE	PROBLEM SOLVING EXAMPLE	CONNECTIONS, INTEGRATION	STANDARDS	PROGRAM CORRELATION
<b>POSITION DIRECTIONALITY</b>	The students will review position; they will understand directions given and state the requested information.	above below left right over under between before after	Show pictures. Ask students to identify given locations and label them.  <i>Teacher Alert: It is important to note that directionality affects position. For example, a student who is last in line becomes first if the line reverses its direction.</i>		<i>Physical education:</i> Exercises requiring the students to move in specified directions  <i>Music:</i> Use songs that give directions to follow.  <i>Language arts:</i> Antonyms.	K-2, G, 96 K-2, RP, 122 K-2, C, 132  3.2.9.A 3.2.9.C 3.2.9.D	
<b>GEOMETRIC PATTERNS GEOMETRIC SEQUENCES</b>	The students will identify geometric patterns and sequences.	pattern	Using pattern blocks or tiles:  1. Have the students arrange the tiles in patterns according to their attributes. 3 YELLOW    3 GREEN 3 BLUE        3 RED  2. Have the students find out how many different ways they can arrange the same number of tiles.  NOTE: A geometric pattern is a pattern that occurs in multiples of the same number.		<i>Real life:</i> Patterns on wallpaper.  <i>Problem-solving:</i> Act out patterns; draw pictures of patterns.	K-2, G, 96  2.9.3.B 2.9.3.D	

## Geometry – Level 2

SKILL	OBJECTIVE	VOCABULARY	EXAMPLE	PROBLEM SOLVING EXAMPLE	CONNECTIONS, INTEGRATION	STANDARDS	PROGRAM CORRELATION
<b>SLIDES, FLIPS, TURNS</b>	The students will demonstrate slides, flips, and turns with concrete objects.	slide flip turn	 <p style="text-align: center;">slide          flip          turn</p>		<i>Real life:</i> Practice slides, flips, and turns with concrete objects so students can visualize concepts.	K-2, G, 96 2.9. 3.A 2.9. 3.B	
<b>CONGRUENCY</b>	The students will model congruency with concrete objects.	congruent same size same shape	Have triangles, square, rectangles, and circles cut out of construction paper. Have the students match congruent pairs.		<i>Real life:</i> Practice putting cards of different sizes in envelopes.	2.9. 3.A 2.9. 3.C	
<b>LINES, SEGMENTS, POINTS, RAYS</b>	The students will use lines, line segments, points, and rays to construct other figures.	line segment point ray	<p>Introduce each concept. Use a number line to demonstrate.</p> <p>Line—the whole number line.</p> <p>Segment—A part of the line between any two numbers.</p> <p>Point—The place on a number line where a number is.</p> <p>Ray—A part of the number line that begins at any number and goes to the end in either direction.</p>		<i>Mathematics:</i> Number line, position directionality.	K-2, G, 96 2.4. 3.A 2.6. 3.A	

## Geometry – Level 2

SKILL	OBJECTIVE	VOCABULARY	EXAMPLE	PROBLEM SOLVING EXAMPLE	CONNECTIONS, INTEGRATION	STANDARDS	PROGRAM CORRELATION
<b>ATTRIBUTES OF PLANE FIGURES</b>	<p>The students will recognize the concept of covering a surface and filling an area.</p> <p>The students will recognize and describe two-dimensional shapes.</p> <p>The students will count square units on a grid.</p>	<p>surface area</p> <p>two-dimensional</p> <p>square</p> <p>rectangle</p> <p>circle</p> <p>triangle</p>	<p>Identify and describe the characteristics of plane figures.</p> <p>Use pattern blocks or shapes cut from construction paper. Tell which have straight edges, round edges, corners, etc.</p> <p>Count the number of small squares within a figure drawn on a centimeter grid.</p> <p>Use a geoboard to demonstrate and to have the students model figures.</p>		<p><i>Mathematics:</i> Problem solving (act it out, make a model).</p> <p><i>Real life:</i> Have the students identify plane shapes in pictures or on the surfaces of solid figures.</p>	<p>K-2, G, 96</p> <p>2.9. 3.A</p> <p>2.9. 3.C</p> <p>2.9. 3.D</p>	
<b>ATTRIBUTES OF SOLID FIGURES</b>  <b>Recognition</b>  <b>Comparison</b>	<p>The students will recognize and compare the attributes of the cube, sphere, cylinder, and cone.</p>	<p>cube</p> <p>sphere</p> <p>cylinder</p> <p>cone</p>	<p>Have students recognize and identify the geometric shapes in the following items:</p> <p>Ice cream cone</p> <p>basketball</p> <p>toy blocks</p> <p>can of soup</p> <p>Identify which are round, flat, have edges, etc.</p>		<p><i>Real life:</i> Identify shapes in household items.</p> <p><i>Literature:</i> <i>The Wing on a Flea: A Book About Shapes</i> by Ed Emberly</p> <p>The poem “Shapes” from <i>A Light in the Attic</i> by Shel Silverstein.</p>	<p>2.4. 3.A</p> <p>2.6. 3.A</p>	

## Measurement – Level 2

SKILL	OBJECTIVE	VOCABULARY	EXAMPLE	PROBLEM SOLVING EXAMPLE	CONNECTIONS, INTEGRATION	STANDARDS	PROGRAM CORRELATION
MEASURE- MENT SENSE  NON- STANDARD UNITS	The students will use non-standard units to measure. Refer to suggestions listed in Estimation section of Guidelines for scope and examples.						
CUSTOMARY UNITS  METRIC UNITS	<p>Students will measure, estimate, and compare lengths of objects in standard and non-standard units.</p> <p>The students will estimate, compare, and measure weights of objects.</p> <p>The students will estimate, compare, and measure the capacity of containers.</p>	centimeter decimeter meter  inch foot yard  cup pint quart  liter kilograms pounds dozen	<p>Measure given lines and objects.</p> <p>Display food containers for capacity and dozen. Have students practice filling.</p> <p>Use program illustrations for practice in identifying.</p> <p><b>It is important that the different systems of measure be presented at different times so that students are not confused.</b></p>		<i>Real life skills:</i> The children should identify the following measurement tools:  Ruler, yard stick, meter stick  Scale  Balance scale  Cup, pint, quart, gallon, liter containers.	K-2, M, 102 2.3. 3.A, E, H 2.4. 3.B 2.5. 3.A, B	
ESTIMATE	Estimation should be applied to all areas of measurement.						

## Measurement – Level 2

SKILL	OBJECTIVE	VOCABULARY	EXAMPLE	PROBLEM SOLVING EXAMPLE	CONNECTIONS, INTEGRATION	STANDARDS	PROGRAM CORRELATION
<b>TIME</b> <b>Calendar</b> <b>Analog and Digital Clocks</b>	<p>The students will read and use a monthly calendar.</p> <p>The students will read time to the hour, half-hour, and quarter hour.</p> <p>The students will explore time duration.</p> <p>The students will use Roman Numerals to read numbers on the clock.</p>	<p>calendar days weeks months seasons</p> <p>clock face hands hour half-hour half-past quarter to quarter after</p> <p>A.M. P.M.</p> <p>Roman Numerals I-XII</p>	<p>Given one month from the 12-month calendar, locate and label specific information.</p> <ol style="list-style-type: none"> <li>1. Explain difference between analog clocks and digital clocks.</li> <li>2. Have students identify the parts of the clock.</li> <li>3. Practice telling time to the hour, half-hour, and quarter hour using each type of clock.</li> <li>4. Explore the duration of hours, minutes, and seconds.</li> <li>5. Make a time line to show sequence.</li> <li>6. Have students practice reading clocks that use Roman Numerals.</li> </ol>		<p><i>Real life:</i> Use actual calendars, clocks.</p> <p><i>Literature:</i> Stories about time.</p> <p><i>Reading:</i> Sequence activities by the time required to do them.</p>	<p>K-2, M, 102 K-2, P, 116</p> <p>2.1. 3.A 2.1. 3.C</p>	


## Measurement – Level 2

SKILL	OBJECTIVE	VOCABULARY	EXAMPLE	PROBLEM SOLVING EXAMPLE	CONNECTIONS, INTEGRATION	STANDARDS	PROGRAM CORRELATION
<b>MONEY</b>	The students will learn the value of the penny, nickel, dime, and quarter. They will count money using coins and make change.	penny nickel dime quarter dollar	Give the values of different groups of coins using the penny, nickel, dime, and quarter.  Read and write money amounts using dollar-and-cent notation.  Model money amounts through \$9.99.  Practice “making change.”		<i>Real life:</i> Play money, real coins, cash register.  <i>Literature: The Kids’ Money Book</i> (Scholastic) contains many interesting facts about money.	K-2, M, 102  2.1. 3.C, E 2.5. 3.A, B	


## Estimation – Level 2

SKILL	OBJECTIVE	VOCABULARY	EXAMPLE	PROBLEM SOLVING EXAMPLE	CONNECTIONS, INTEGRATION	STANDARDS	PROGRAM CORRELATION
<b>ESTIMATE SUMS AND DIFFERENCES</b>	The students will estimate sums and differences by grouping numbers mentally and rounding to tens and ones place.	estimation sum difference	$43 + 24 = \underline{\quad}$ Think: The answer must be at least 60 since 4 tens + 2 tens = 6 tens. $74 - 32 = \underline{\quad}$ Think: The answer must be about 40 because 7 tens minus 3 tens is 4 tens.	Mrs. Jones has 60 lollipops. She gives 33 away. About how many does she have left? Circle: About 30 About 10	<i>Real life:</i> Apply to real-life problems. Have students apply this skill to all problem solving which involves computation. Use estimation to check to see if answers are reasonable.	K-2, N, 78 K-2, P, 116 2.1. 3.J 2.1. 3.L 2.2. 3.E 2.2. 3.F	
<b>ROUNDING</b>	The students will estimate sums and differences of two-digit numbers by rounding. *Teacher Alert: Make sure students are rounding addends, not just sums.	estimate rounding reasonable about guess sum difference	$\begin{array}{r} 54 \square 50 \\ + 21 \square 20 \\ \hline 70 \end{array}$ (70 is a reasonable sum/) $\begin{array}{r} 78 \square 80 \\ - 12 \square 10 \\ \hline 70 \end{array}$ (70 is a reasonable difference.)	Use either a regular number line or a walk-on number line to “act out” where numbers are and what they are closer to.	<i>Literature:</i> Use the poem, “General Store” by Rachel Field to spark discussion about what item might cost. Set up a store and have the children make reasonable estimates.	K-2, N, 78 K-2, CO, 128 K-2, C, 132 2.1. 3.J 2.1. 3.L 2.2. 3.E 2.2. 3.F	

## Estimation – Level 2

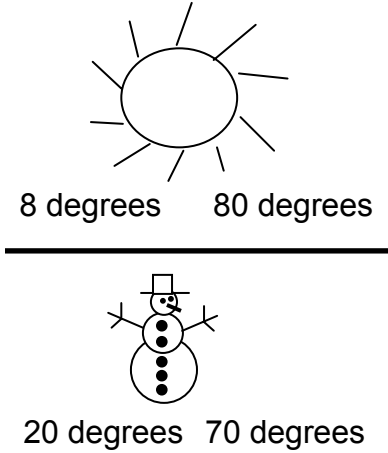
SKILL	OBJECTIVE	VOCABULARY	EXAMPLE	PROBLEM SOLVING EXAMPLE	CONNECTIONS, INTEGRATION	STANDARDS	PROGRAM CORRELATION
<b>USE A REFERENCE POINT OR BENCHMARK</b>	The students will use an object of known size to compare another object to.	benchmark measure length width	Use a 3 x 3 index card as a benchmark.  About how many inches long is your desktop?  Do the same with a paper clip or other familiar object.	Why isn't a rubber band a good benchmark for measuring?	<i>Mathematics:</i> Measurement, problem solving  <i>Social studies:</i> Explain how highway signs and street lights are benchmarks, how people use landmarks when giving directions, etc.	K-2, N, 78 K-2, M, 102  3.2.3.A 3.2.3.E 3.2.3.G 3.2.4.G 3.2.4.B	
<b>ESTIMATE VISUALLY</b>	The students will give a reasonable estimate by visually comparing objects.	estimate reasonable compare guess	Visually estimate how many marbles are in a jar.    This jar has 66 marbles. Estimate how many in this jar.  Circle the best estimate: 90    15    30		<i>Real life:</i> Discuss times when you would use an estimate.  Have boxes of small items—paper clips, buttons, etc. Guess how many items in each. Check your answer.	K-2, N, 78 K-2, RP, 122  2.1. 3.C 2.1. 3.G 2.11. 3.A	
<b>ESTIMATE LENGTH</b>	The students will visually estimate the length and width of an object.	length width centimeter meter inches feet	See “Using a Benchmark” for examples of estimating lengths.		<i>Problem solving:</i> Guess and Test strategy.  Use a two-liter	K-2, M, 128 K-2, N, 78 K-2, R, 136 K-2, C, 132  2.3. 3.A	

## Estimation – Level 2

SKILL	OBJECTIVE	VOCABULARY	EXAMPLE	PROBLEM SOLVING EXAMPLE	CONNECTIONS, INTEGRATION	STANDARDS	PROGRAM CORRELATION
<b>ESTIMATE WEIGHT</b>	The students will compare the differences in weight of a given set of items.	pound ounce heavier lighter	Circle items less than a pound: a ruler a box crayons a dictionary  Make a chart. Cut out pictures from magazines to fill in.  > Kilogram    < Kilogram		bottle of soda to estimate how many Dixie cups can be filled.  How many cups of soil will be needed to pot a plant (demonstrate size)?  Which items would weigh more than a kilogram? Less?	2.3. 3.E 2.3. 3.G 2.4. 3.A 2.4. 3.B	
<b>ESTIMATE CAPACITY</b>	The students will estimate whether the amount of liquid in a container is a cup, pint, quart, or gallon.	cup pint quart gallon liter capacity	Estimate how many.   bucket  cups _____ pints _____ quarts _____ gallons _____				

These lessons should be introduced only after the students have a clear understanding of each of the terms and concepts used (e.g., they cannot estimate length until they understand what length is.)

## Estimation – Level 2

SKILL	OBJECTIVE	VOCABULARY	EXAMPLE	PROBLEM SOLVING EXAMPLE	CONNECTIONS, INTEGRATION	STANDARDS	PROGRAM CORRELATION
<b>ESTIMATE TEMPERATURE</b>	The students will give a reasonable estimate of temperature.	temperature degree hot warm cool cold freezing thermometer			<p><i>Science:</i> Use pictures reflecting various seasons. Discuss clues to temperature—clothing worn, activity, etc.</p> <p>Make a thermometer from cardboard and red elastic to demonstrate temperature.</p>	K-2, M, 102 K-2, CO, 128  2.3. 3.A 2.3. 3.B 2.3. 3.H 2.4. 3.B	
<b>ESTIMATE FRACTIONS</b>	The students will give a reasonable estimate of halves, thirds and fourths.	half third fourth	Help students to realize that there is no such thing as a “bigger half” or a “smaller third” while exploring estimates of these concepts.		<i>Apply to all real life situations that use fractions.</i>		

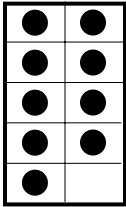
## Estimation – Level 2

SKILL	OBJECTIVE	VOCABULARY	EXAMPLE	PROBLEM SOLVING EXAMPLE	CONNECTIONS, INTEGRATION	STANDARDS	PROGRAM CORRELATION
<b>ESTIMATE TIME</b>	The students will estimate the amount of time it takes to complete a given task.	hour half-hour o'clock half-past minutes seconds earlier later	Estimate the amount of time it takes to: walk around the block eat dinner play a game go to the shore  How many times can you count to 25 in a minute?  In a half hour?  In an hour?		<i>Real life:</i> Make a chart to show how many times you can hop in a minute.  <i>Science:</i> Estimate how long it would take toast to pop up on various settings.		
<b>USE A REFERENCE POINT OR BENCHMARK</b>	The students will use an object of known size to compare another object to.	benchmark measure length width	Use a 3 x 3 index card as a benchmark.  About how many inches long is your desktop?  Do the same with a paper clip or other familiar object.	Why isn't a rubber band a good benchmark for measuring?	<i>Mathematics:</i> Measurement, problem solving  <i>Social studies:</i> Explain how highway signs and street lights are benchmarks, how people use landmarks when giving directions, etc.	K-2, N, 78 K-2, M, 102  2.3. 3.A 2.3. 3.E 2.3. 3.G 2.4. 3.G 2.4. 3.B	
<b>PROBLEM SOLVING</b>	Apply estimation skills to all areas of problem solving.						

## Mental Mathematics – Level 2

SKILL	OBJECTIVE	VOCABULARY	EXAMPLE	PROBLEM SOLVING EXAMPLE	CONNECTIONS, INTEGRATION	STANDARDS	PROGRAM CORRELATION
<b>USE REASONING FOR EQUAL, GREATER THAN, AND LESS THAN</b>	The students will compare numbers using mental math skills.	greater than more than less than fewer than equal to	Ask questions orally: Which is more—56 or 65? Why?  Harry has three dimes, a nickel, and four pennies. Gerri has a quarter, a dime, and four pennies. Who has more? (They both have the same amount.)		<i>Real life:</i> Many real-life activities lend to questions of this type. Compare items in classroom, etc.	K-2, N, 78 K-2, D, 108 K-2, C, 132  2.1. 3.F	
<b>CALCULATING MULTIPLES OF TENS, HUNDREDS</b>	The students will calculate mentally using multiples of tens and hundreds.	units/ones tens hundreds	30 + 40 - _____  Think: There is a zero in ones place in both numbers, so add the tens and put a zero in units place.  3 + 4 = 7 so, 30 + 40 = 70 and 300 + 400 = 700		<i>Mathematics:</i> Estimation skills, problem solving, operations, measurement.	K-2, N, 78 K-2, A, 90 K-2, CO, 128  2.1. 3.B 2.11. 3.D	

## Mental Mathematics – Level 2

SKILL	OBJECTIVE	VOCABULARY	EXAMPLE	PROBLEM SOLVING EXAMPLE	CONNECTIONS, INTEGRATION	STANDARDS	PROGRAM CORRELATION
<b>USING COMPENSATION</b>	The students will learn that when adding and subtracting near tens, rounding the number to ten and compensating will make the task easier.	near tens tens frame	$14 + 9 = \underline{\quad}$ $14 + 10 = 24$ Use a tens frame to show “near tens.”  Since 9 is $10 - 1$ , take 1 from 24. $24 - 1 = 23$ So, $14 + 9 = 23$ .	Oral problems: If I have 27 bottle caps and lose 9 in a game, how many do I have left?	<i>Mathematics:</i> Apply to other strands in mathematics. Using tens frames, have students model other “near tens.”	K-2, N, 78 K-2, P, 116 K-2, CO, 128 2.1. 3.J 2.1. 3.L 2.2. 3.E 2.2. 3.F	

## Mental Mathematics – Level 2

SKILL	OBJECTIVE	VOCABULARY	EXAMPLE	PROBLEM SOLVING EXAMPLE	CONNECTIONS, INTEGRATION	STANDARDS	PROGRAM CORRELATION
<b>COUNTING BACK/ COUNTING ON</b>	The students will use the strategy of counting on/ counting back to find the solutions to addition and subtraction sentences.	count on count back number line	Use a number line. Give the students a number sentence: Tell them to start with the larger number and count on or count back.  $15 + 8 = \underline{\quad}$ Start at 15. Move 8 spaces to 23.	Sharon and Karen were playing a game on the hundreds chart. Sharon's marker was on the 31. Sharon rolled a 7 with her dice. Karen rolled a nine. Where did they land?	<i>Mathematics:</i> Apply to problems in Operations.  <i>Recreation:</i> Board games such as Monopoly give practice in counting on and counting back.  Use the hundreds chart as described in the sample problem to create a game students can play in groups.	K-2, N, 78 K-2, P, 116 K-2, CO, 128 K-2, C, 132  2.1. 3.A 2.2. 3.A	
<b>BALANCING DOUBLES AND DOUBLES PLUS ONE</b>	The students will explore "near doubles."	near doubles	$8 + 9 = \underline{\quad}$ Think: $8 + 8 = 16$ . 9 is one more than 8, so $8 + 9$ is one more than $8 + 8$ .	Marta sold 11 boxes of candy. Alex sold 12 boxes. How many boxes did they sell?	<i>Mathematics:</i> Problem solving.	K-2, N, 78 2.2. 3.A 2.2. 3.5	

## Technology – Level 2

SKILL	OBJECTIVE	VOCABULARY	EXAMPLE	PROBLEM SOLVING EXAMPLE	CONNECTIONS, INTEGRATION	STANDARDS	PROGRAM CORRELATION
<b>SOLVE PROBLEMS USING A CALCULATOR</b>	<p>Suggestions for the use of the calculator are provided throughout the guidelines. It is <b>strongly</b> suggested that the students use a calculator as an aid to problem solving.</p> <p>Guidance from the teacher in the proper use of the calculator is essential.</p>				K-2, N, 78		
<b>DISCOVER PATTERNS USING A CALCULATOR</b>	<p>Refer to the Number Sense and the Geometry sections of these guidelines for further development of this skill.</p>				K-2, N, 78		
<b>USE A COMPUTER TO REINFORCE SKILLS</b>	<p>The students should use software/internet resources to reinforce math skills.</p>				K-2, N, 78		
<b>USE COMPUTER APPLICATIONS PROGRAMS AS A MATH TOOL</b>	<p>The students should use word processing software:</p> <ul style="list-style-type: none"> <li>⌚ to create original word problems</li> <li>⌚ to write journal responses to math questions</li> <li>⌚ to create drawings of geometric figures</li> </ul> <p>The students should be able to use a spreadsheet:</p> <ul style="list-style-type: none"> <li>⌚ to calculate</li> </ul> <p>It is strongly recommended that the teacher of mathematics work with the teacher of technology skills to insure that these skills are understood and utilized.</p>				<p>K-2, P, 116            K-2, G, 96            K-2, R, 136            K-2, CO, 128</p>		

## Enrichment Topics/Activities – Level 2

Space is provided here for the teacher to record ideas for horizontal enrichment.

Unit	Topic/Activity
Readiness	
Algebraic Concepts	
Number Concepts	
Problem-Solving	
Operations	
Data/Statistics	

<b>Geometry</b>	
<b>Measurement</b>	
<b>Estimation</b>	
<b>Mental Math</b>	
<b>Technology</b>	