Addition Strategies and Algorithms

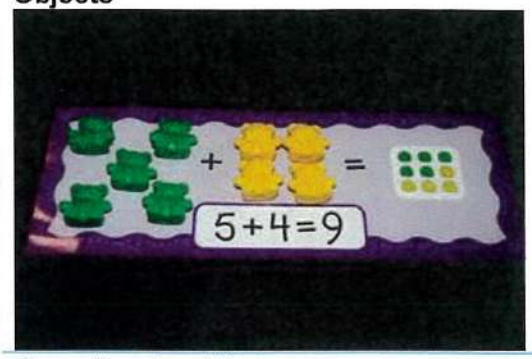
STRATEGY/ALGORITHM	GRADE LEVEL	REPRESENTATIONS
Counting All	K	Objects
Counting On	K, 1, 2, 3	Objects, Number Line, Ten frames, Open Number line, Arrow Method, Number Grid, Unifix Cubes
Making Ten	1	Ten Frames, Number line/Chart, Bundles, Unifix Cubes
Decomposing to make an easier problem	1, 2, 3	Number bonds, Number line,
Decomposing by place value	2, 3, 4	Place Value Chart, Place value chips, number grid
Compensation	2, 3	Number lines, number grids, Mental Strategies
Partial Sums	2, 3, 4	Base Ten blocks, place value charts, place value chips
Column Addition	3, 4	Place Value Charts, Place Value Chips
Traditional Algorithm	4	

Subtraction Strategies and Algorithms

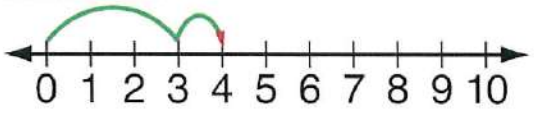
STRATEGY/ALGORITHM	GRADE LEVEL	REPRESENTATIONS
Counting Back/Up	K, 1, 2, 3	Objects, Number Line, Ten Frames, Open Number Line, Arrow Method, Number Grid
Same-Change	2, 3	Number Line, Mental Math
Renaming	2, 3	Place Value Charts, Place Value Chips, Base Ten Blocks
(Partial Differences)	4, 5	
Traditional Algorithm	4	

Visual Representations for Addition

Objects

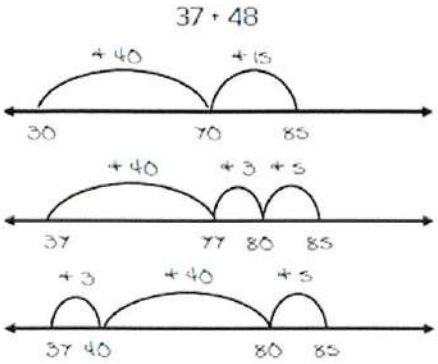


Number Line

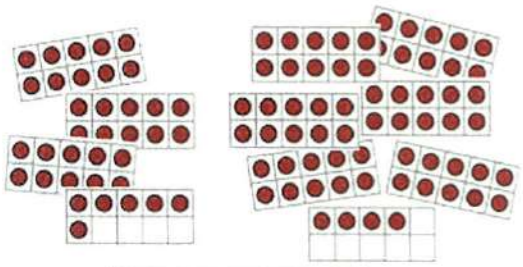


3 + 1 = 4

Open Number Line

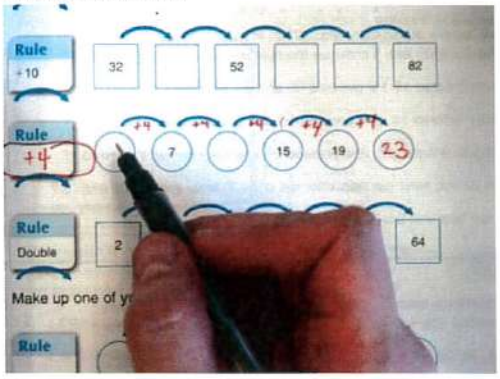


Ten Frames



36 + 64 = 100

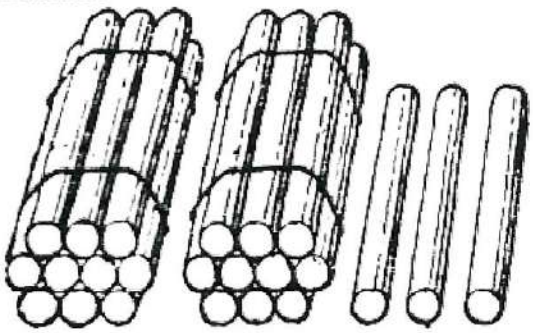
Arrow Method



Number Grid

+	0	1	2	3	4	5	6	7	8	9	10
0	0	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10	11
2	2	3	4	5	6	7	8	9	10	11	12
3	3	4	5	6	7	8	9	10	11	12	13
4	4	5	6	7	8	9	10	11	12	13	14
5	5	6	7	8	9	10	11	12	13	14	15
6	6	7	8	9	10	11	12	13	14	15	16
7	7	8	9	10	11	12	13	14	15	16	17
8	8	9	10	11	12	13	14	15	16	17	18
9	9	10	11	12	13	14	15	16	17	18	19
10	10	11	12	13	14	15	16	17	18	19	20

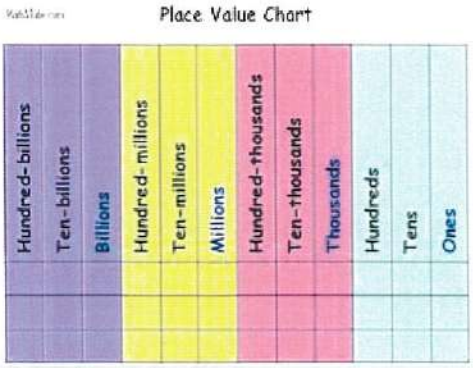
Bundles



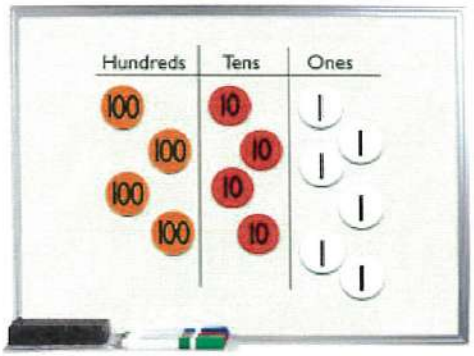
Number Bonds

1 + 9	2 + 8
3 + 7	4 + 6
5 + 5	6 + 4

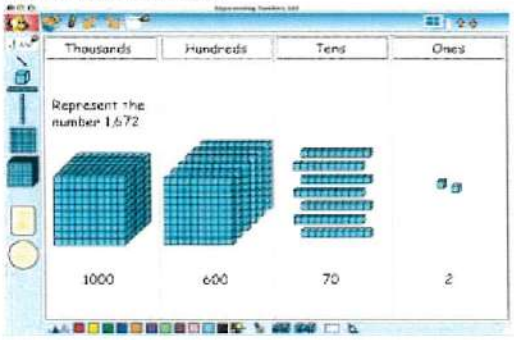
Place Value Chart



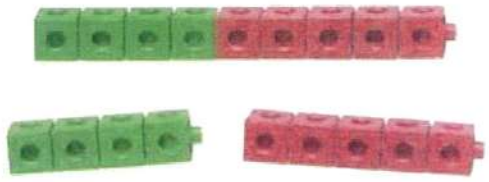
Place Value Chips



Base Ten Blocks



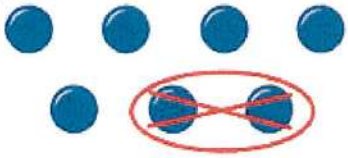
Unifix Cubes



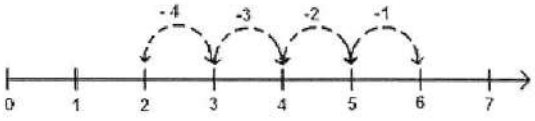
4 + 5 = 9

Visual Representations for Subtraction

Objects

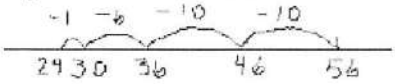


Number Line



6 - 4 = 2

Open Number Line



56 - 27

Arrow Method

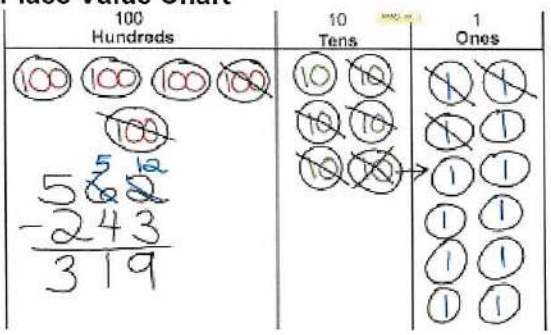
Number Grid

WALT: Subtract using a hundred grid.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Rich Donnell

Place Value Chart



Number Bonds

Subtraction Strategies using Number Bonds

- Addition bonds for Subtraction

16 – 9

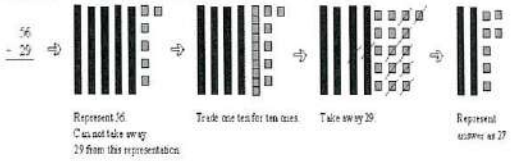
16 is made up of (10 + 6)

Use 10 – 9 = 1

Add 1 to 6 (remaining number in the bond)

1 + 6 = 7

Base Ten Blocks



$$\begin{array}{r} 56 \\ -\ 29 \end{array} \Rightarrow \begin{array}{r} (50+6) \\ -(20+9) \end{array} \Rightarrow \begin{array}{r} (40+16) \\ -(20+\ 9) \\ \hline (20+\ 7) = 27 \end{array}$$

[Videos of Singapore Math Strategies]