Sense of Number

Visual Calculation Policy

Basic Edition for

Belle Vue Primary School

January 2015

Graphic Design by Dave Godfrey

Compiled by the Sense of Number Maths Team

For sole use within Belle Vue Primary School.

'A picture is worth 1000 words!'

www.senseofnumber.co.uk

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"No child is left behind" - Ofsted 2011

Poster Guide

Visual Calculation Policy

Code	Section	Basic Edition (99 Slides)		Expanded Edition (316 Slides)	
		How many posters?	Slide Numbers	How many posters?	Slide Numbers
	Introduction Slides	3	1-3	3	1-3
KS	KS: Key Concepts	7	4-10	7	4-10
	Vocabulary Slides	9	11-19	9	11-19
C	Counting Policy	-	-	13	21-33
A	Addition	7	20-26	40	34-73
MA	Mental Addtion	5	27-31	40	74-113
S	Subtraction	11	32-42	33	114-146
MS	Mental Subtraction	-	-	4	147-150
M	Multiplication	9	43-51	32	151-182
MM	Mental Multiplication	1	52	30	183-212
D	Division	14	53-66	41	213-253
	Calculation Cards	-	-	9	254-262
	Multiplication Tables	-	-	11	263-273
	Expanded Edition Progression (Year groups for New Curriculum)	13	67-79	19	274-291
	Alternative layouts (Column and Subtraction on a Number Line)	11	80-90	29	292-321

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Guide to using a Visual Calculation Policy

The Sense of Number Visual Calculation Policy provides an visual representation of a school's written and mental calculation policy.

Typical uses:

Classoom: The slides are printed out (e.g. A4) and the appropriate slides are displayed within each classroom for continual reference or on a working wall.

Teacher Reference: The slides are printed out (e.g. 9 slides per A4 page) and inserted in the teacher's planning folder.

Parents: The slides are used to communicate to parents the methods being taught and used within school.

Website: Slides from the VCP are inserted on a schools' maths webpages.

(Please note: the VCP should not be made available for download)

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KC1: Key Concepts!

Addition

+

8 + 2 = 10

"What is 8 add 2?"
Answer: 10

Subtraction

−

8 - 2 = 6

"What is 8 subtract 2?"
Answer: 6

"The difference between 8 and 2 is 6"

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KC2: Key Concepts!

Multiplication

x

8 x 2 = 16

"8 multiplied by 2" means
"8, 2 times" or
"2 groups of 8"

Division

÷

8 ÷ 2 = 4

"8 divided by 2" means "How many groups of 2 are there in 8?" Answer: 4

("8 shared into 2 sets is 4")

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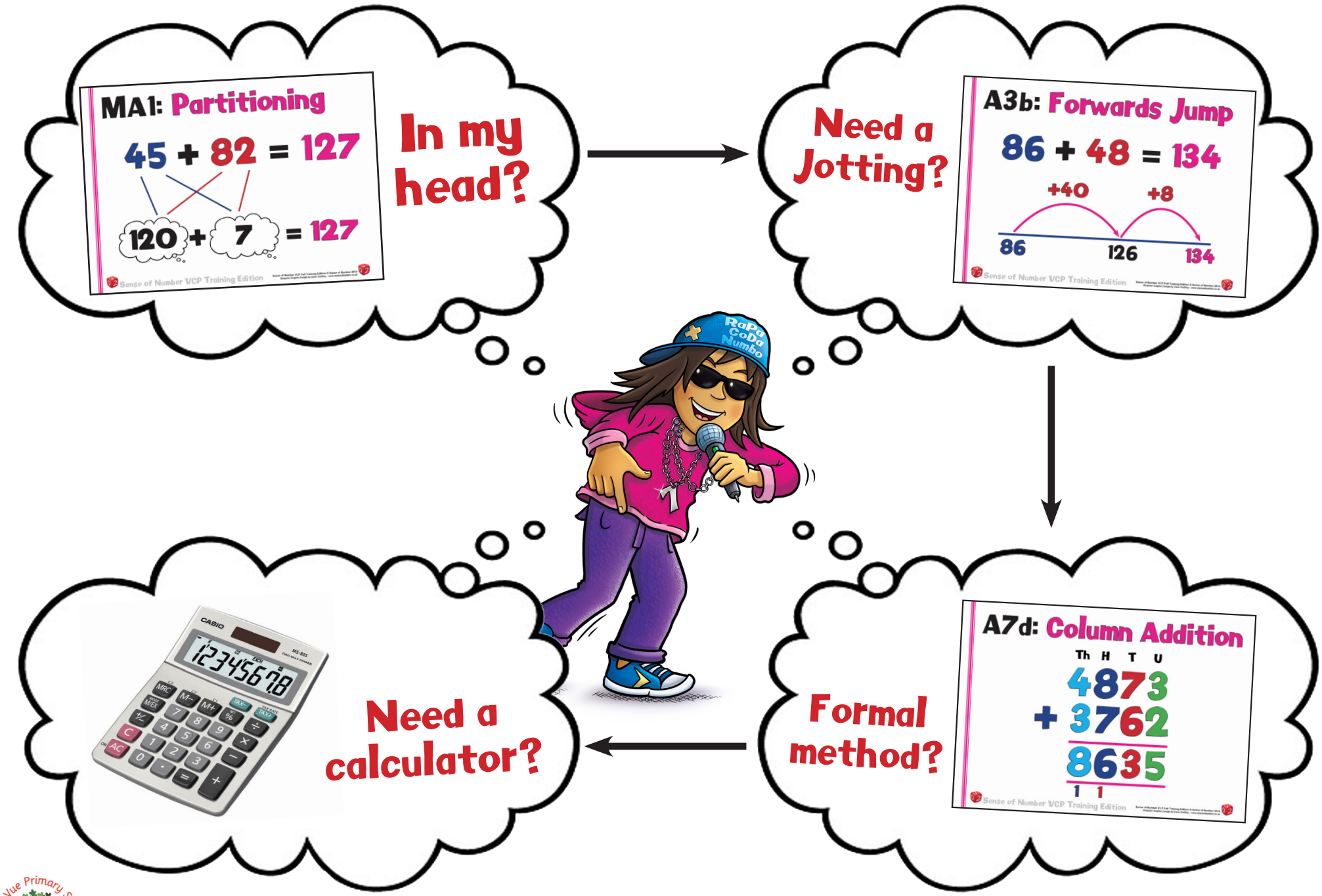

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1

Can I do this in my head?

2

Do I need to use a drawing or a jotting?

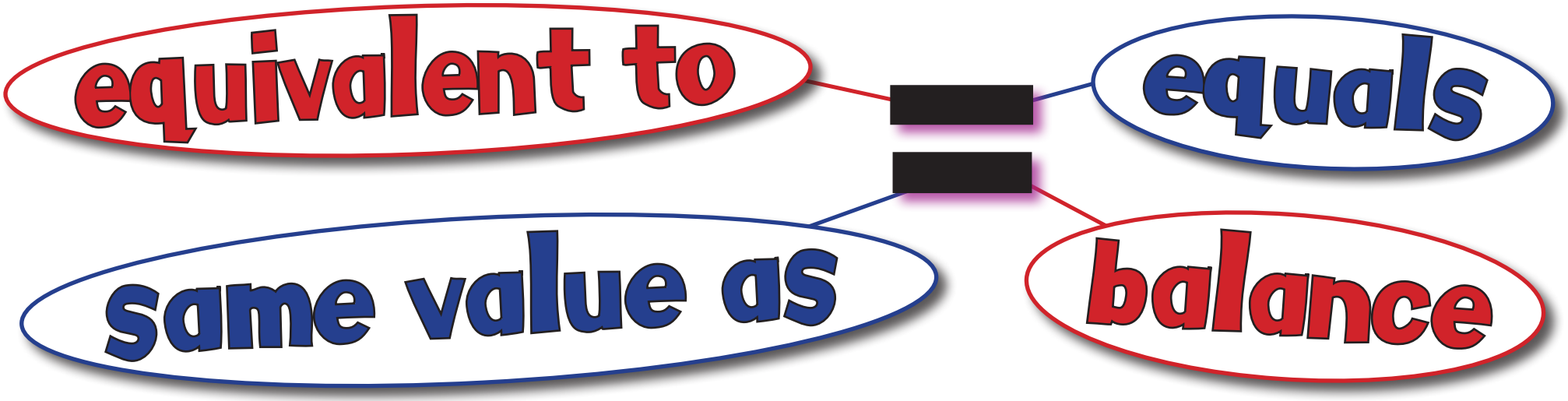
3

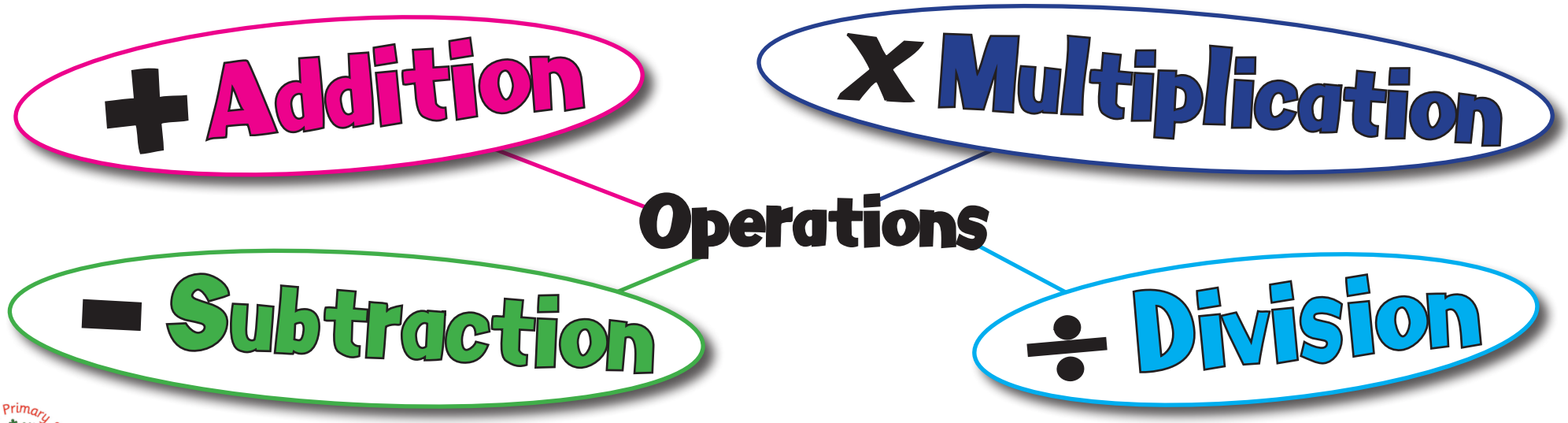
Do I need an expanded or a standard method?

4

Do I need a calculator?

Calculation Vocabulary





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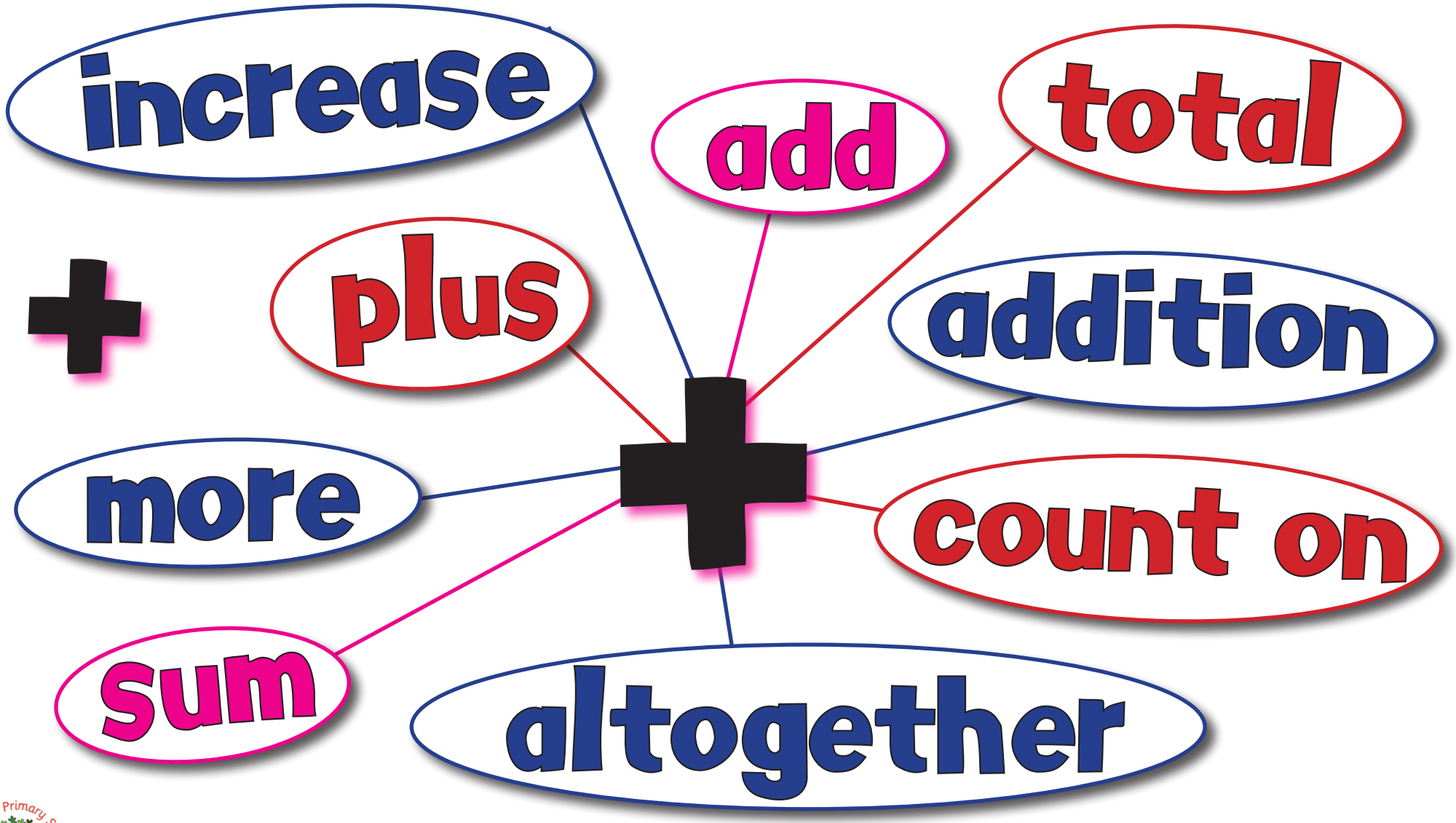
Addition Vocabulary



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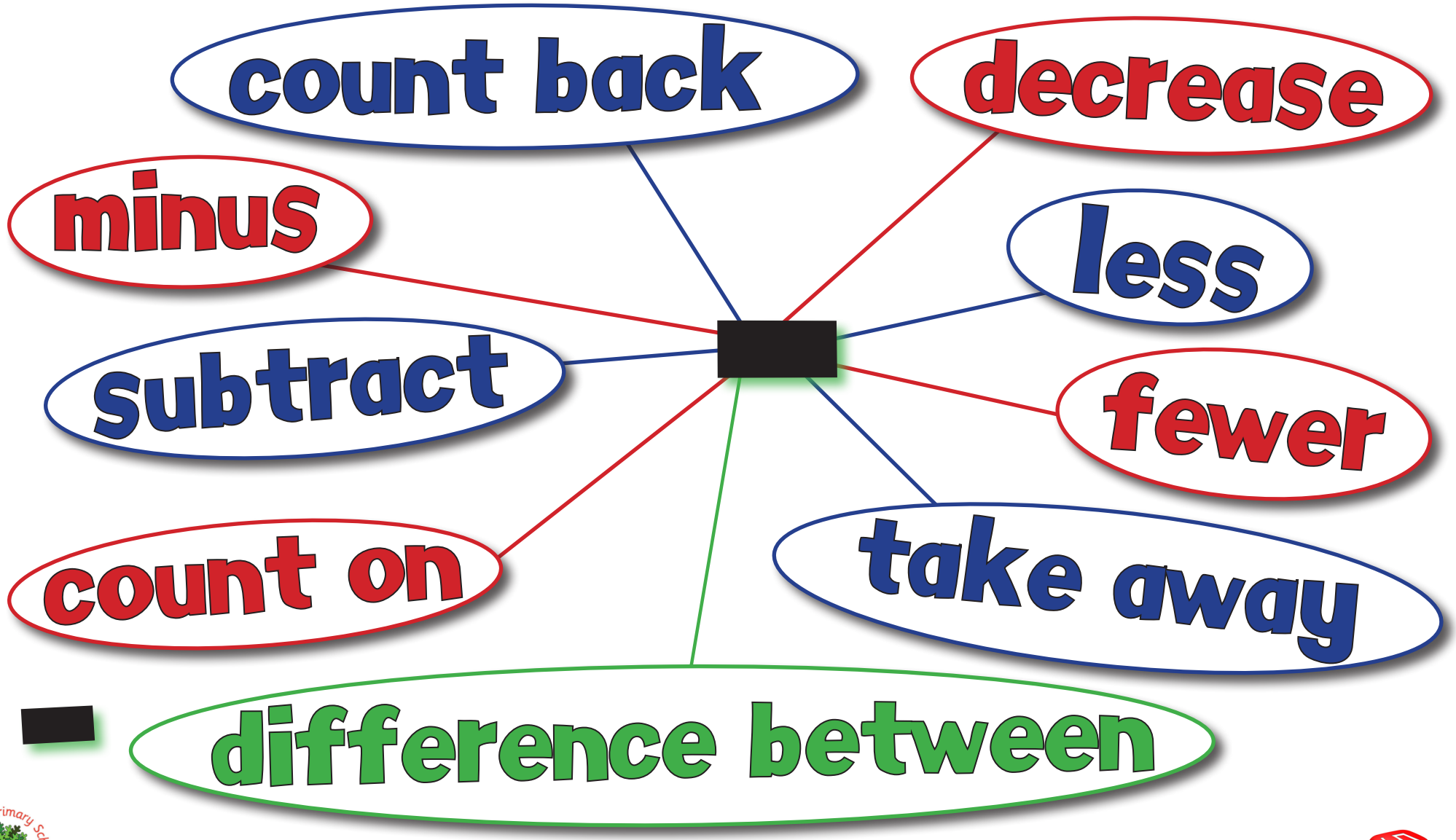
Subtraction Vocabulary



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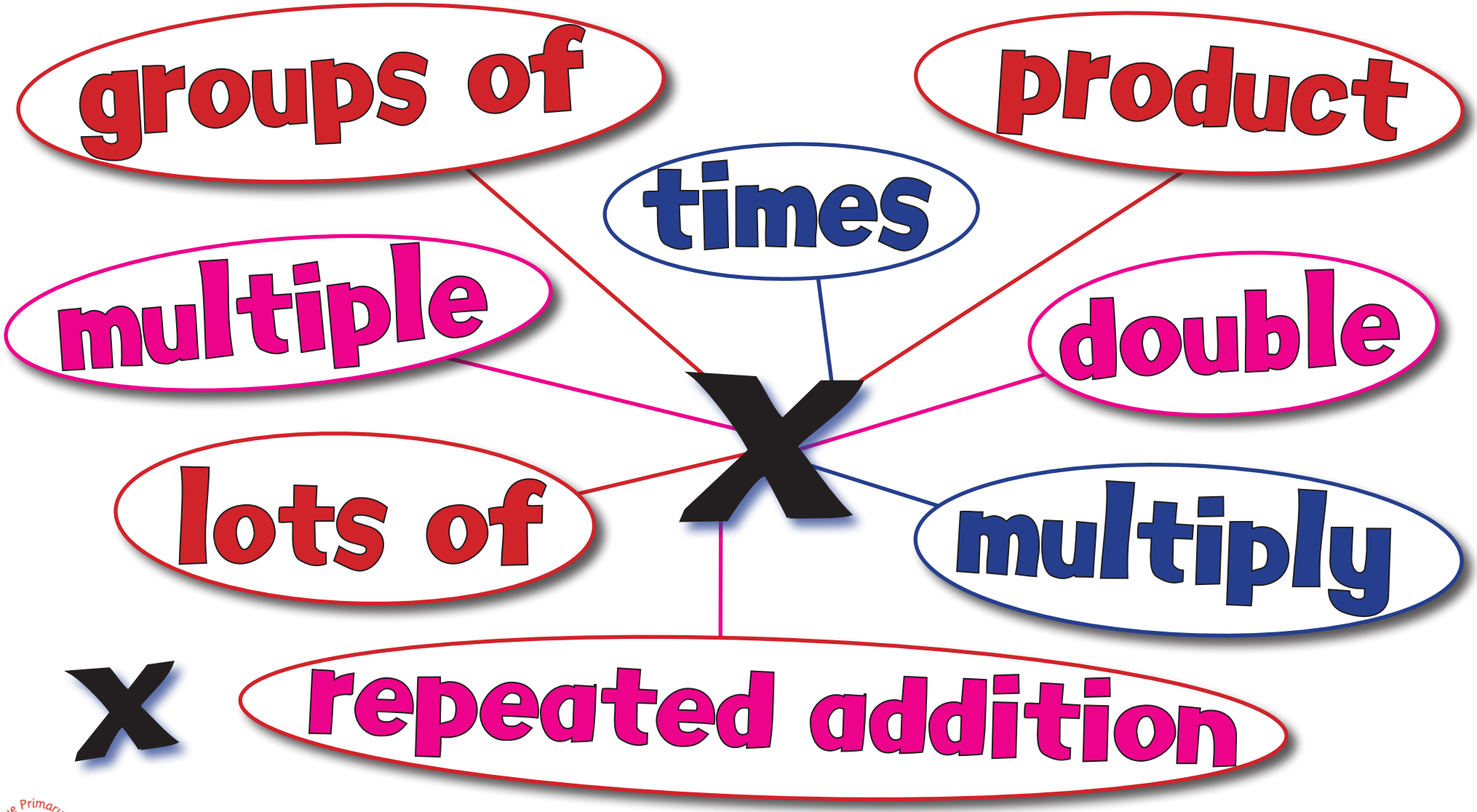
Multiplication Vocabulary



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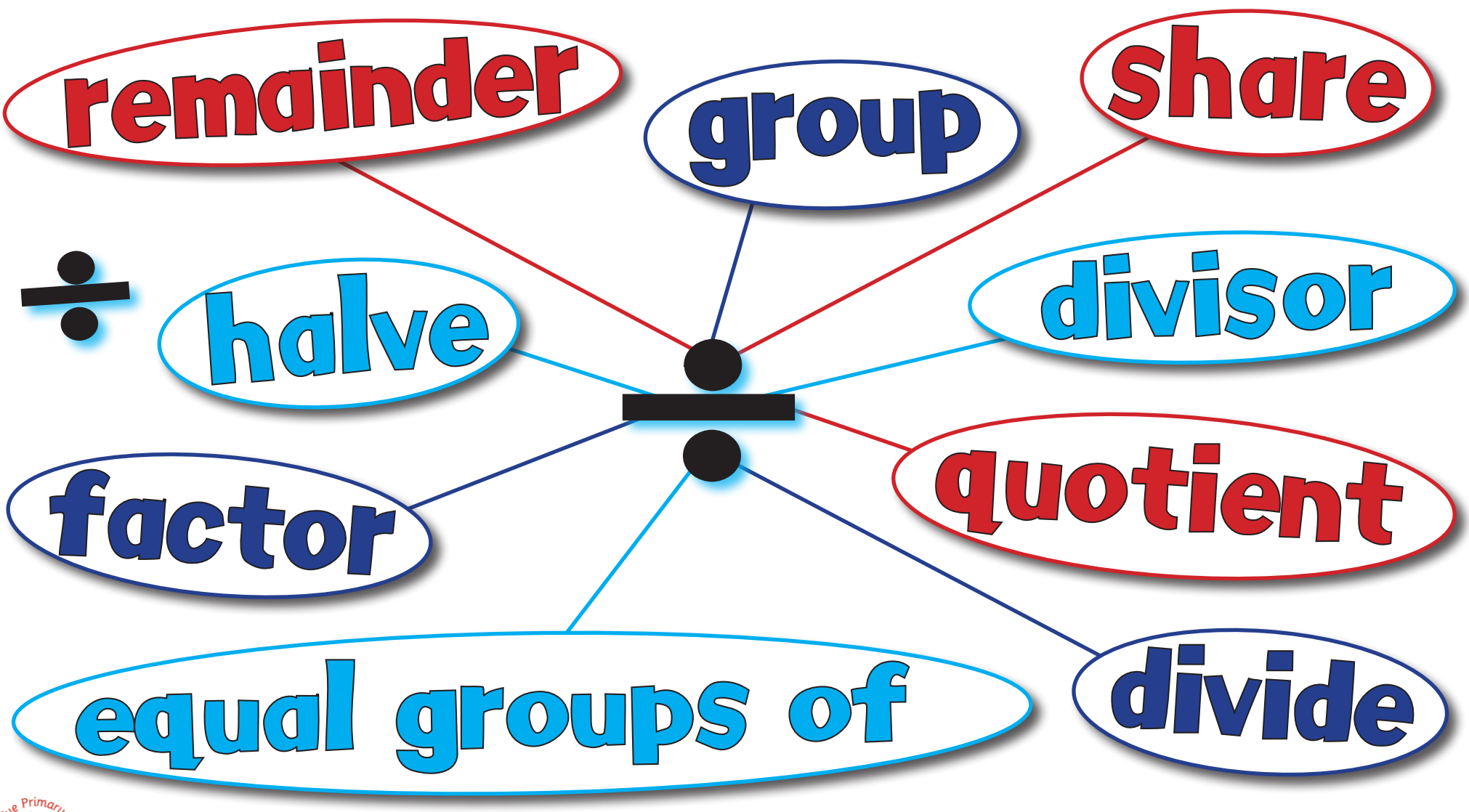
Division Vocabulary



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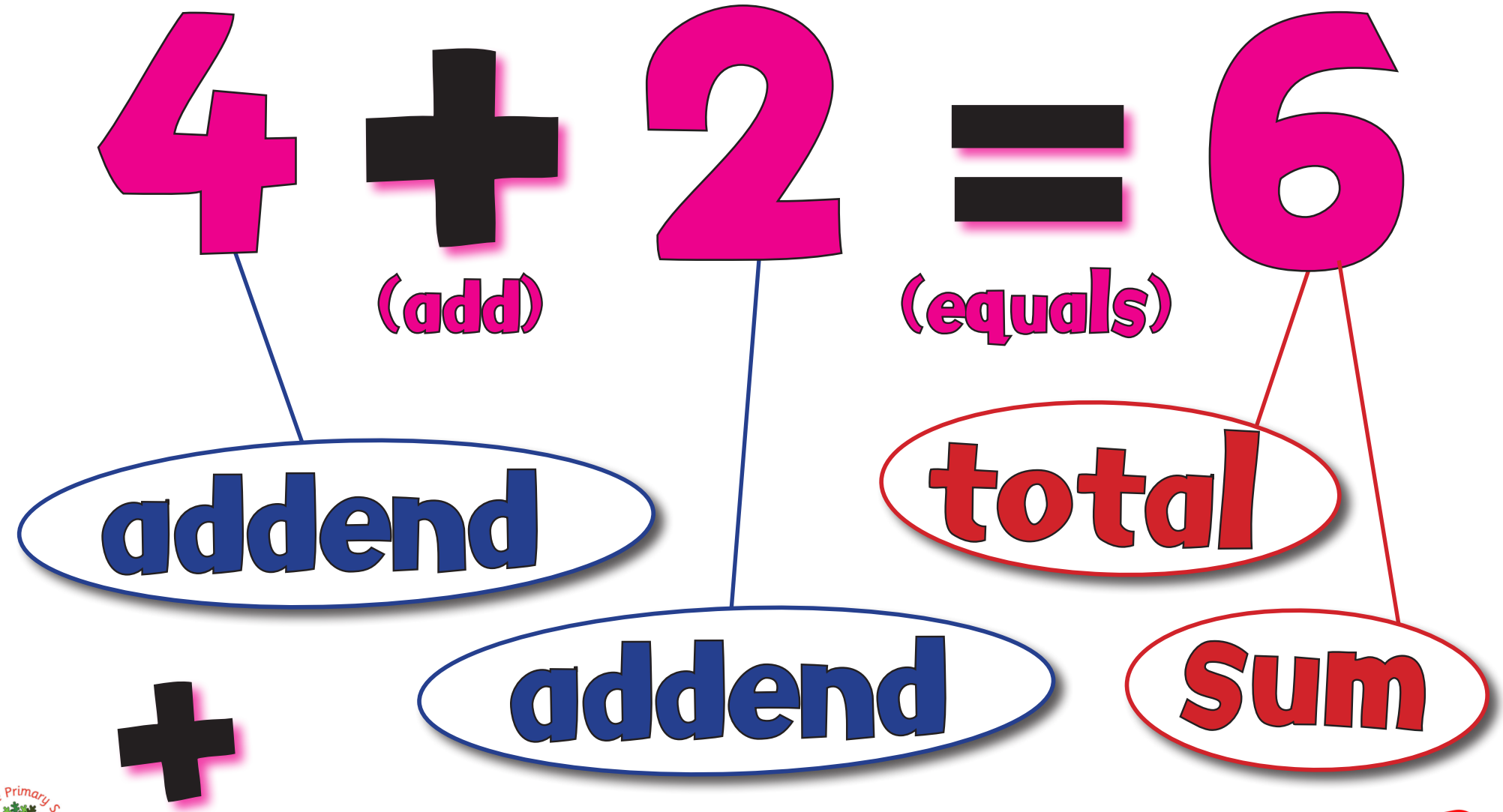
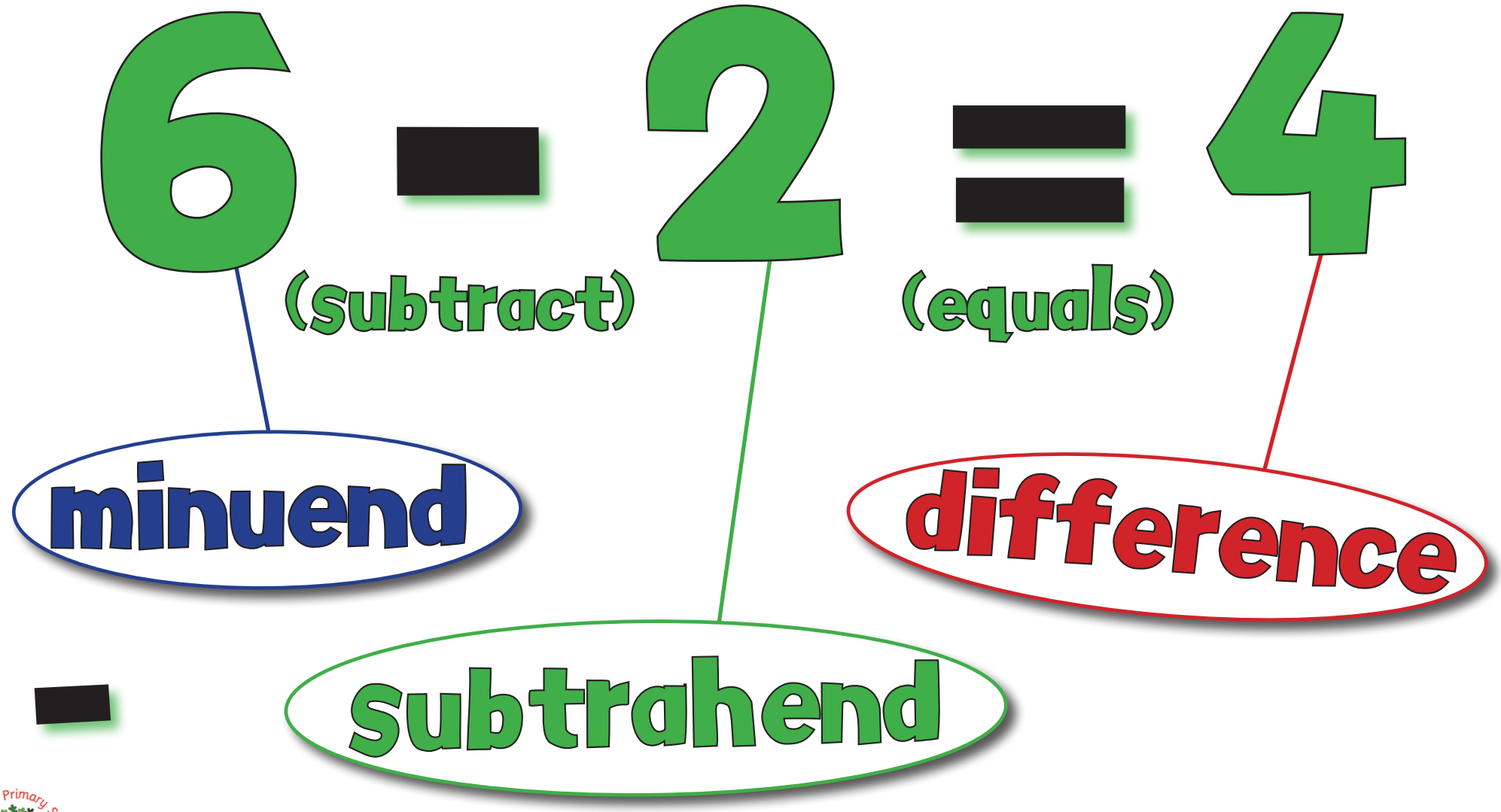
Addition Calculation



Subtraction Calculation



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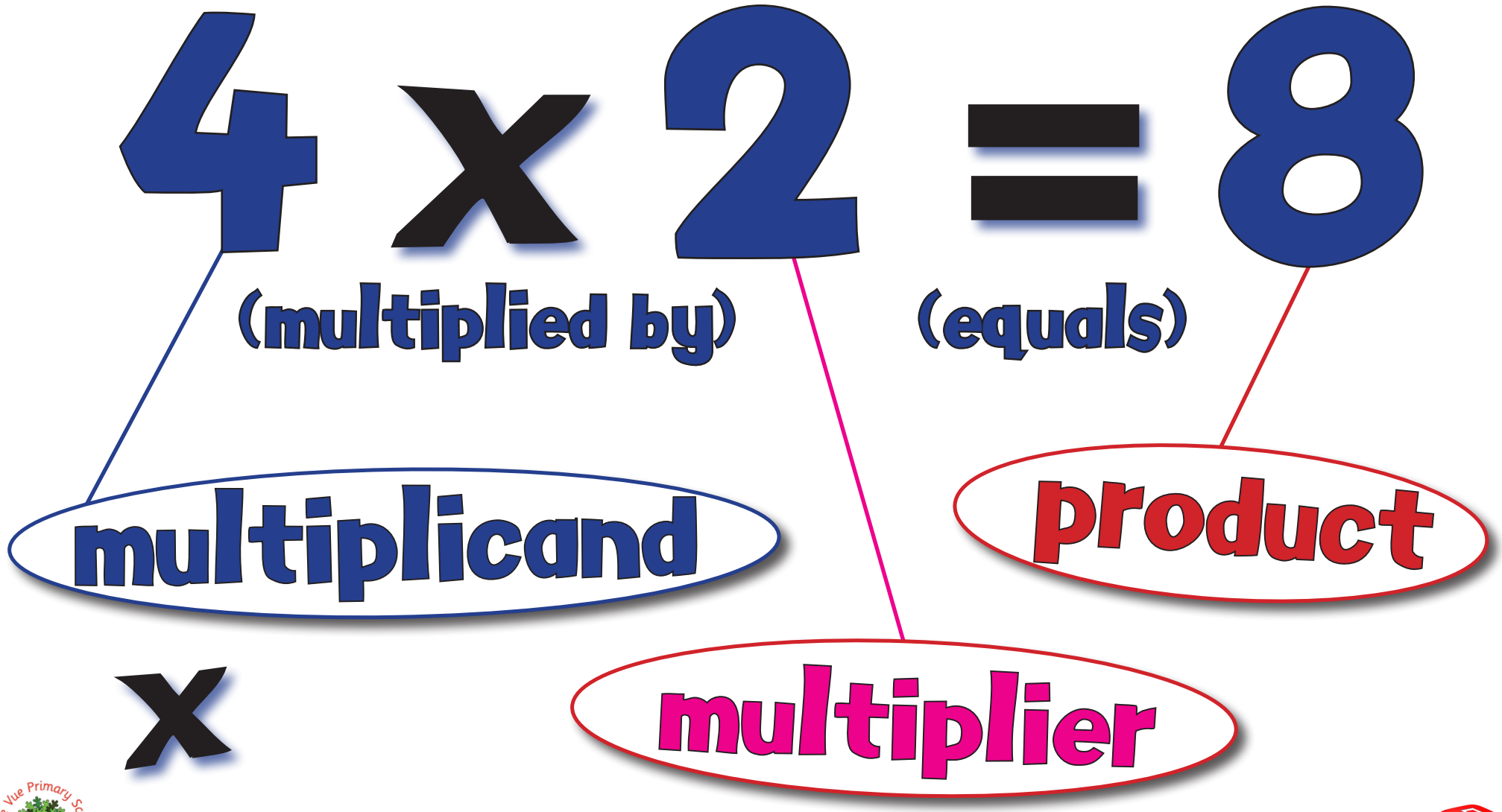
Multiplication Calculation



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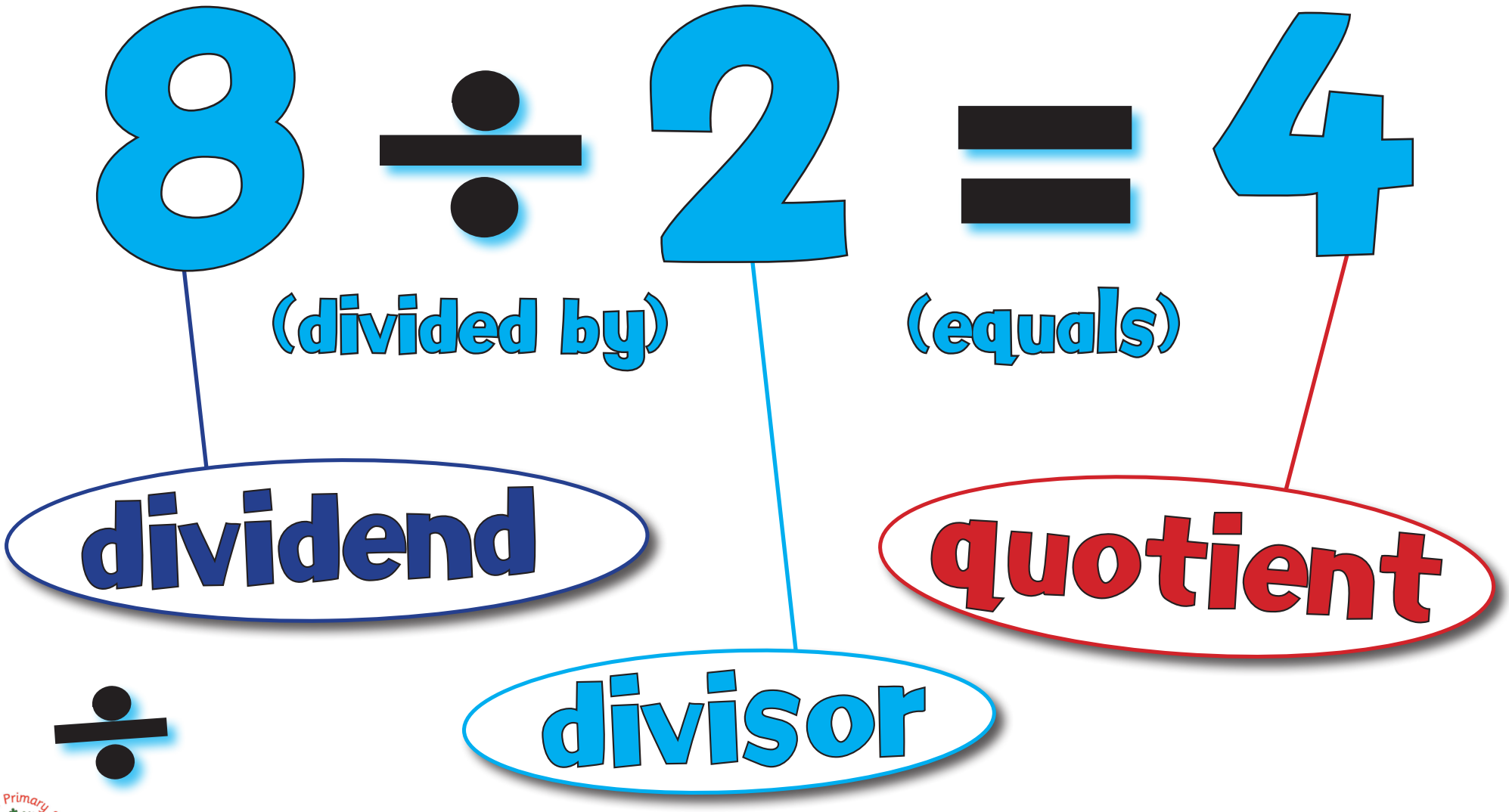
Division Calculation



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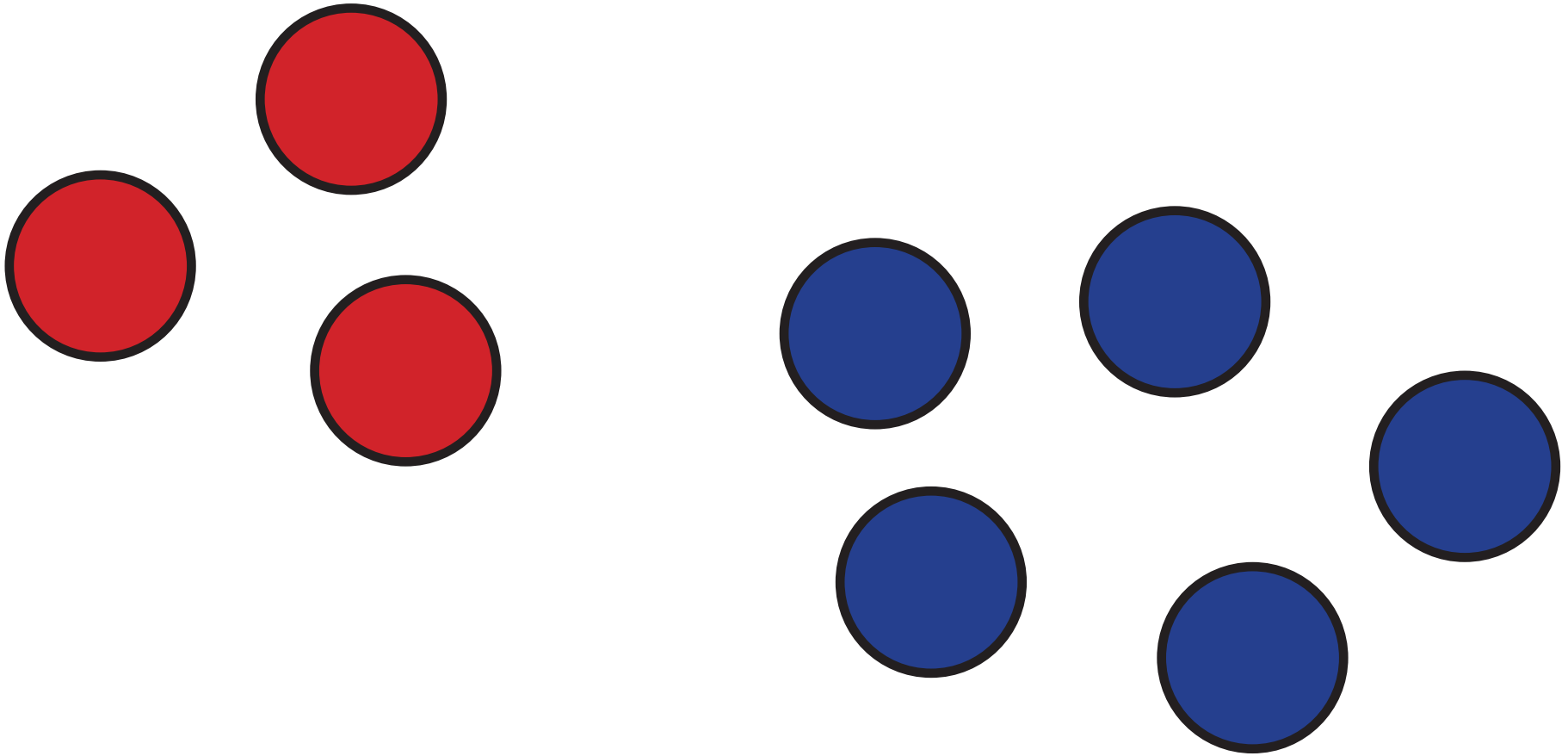
A1: Objects & Pictures



"If I have 3 and then 5 more, how many altogether? Answer: 8"

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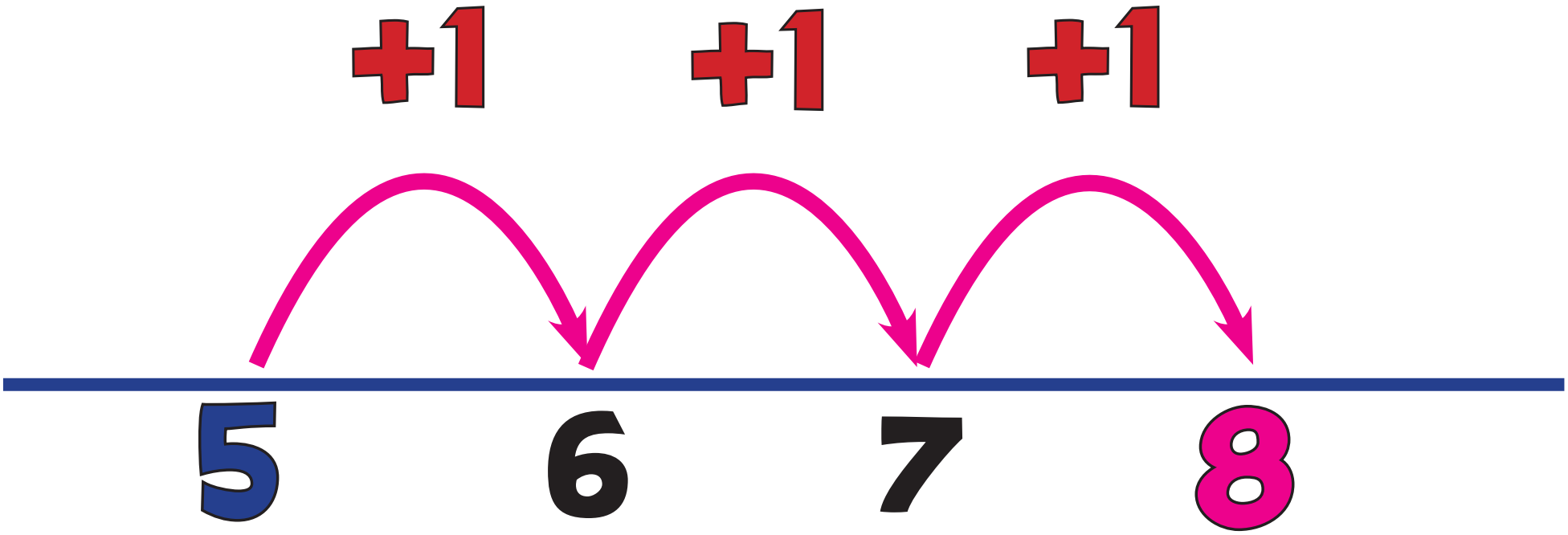
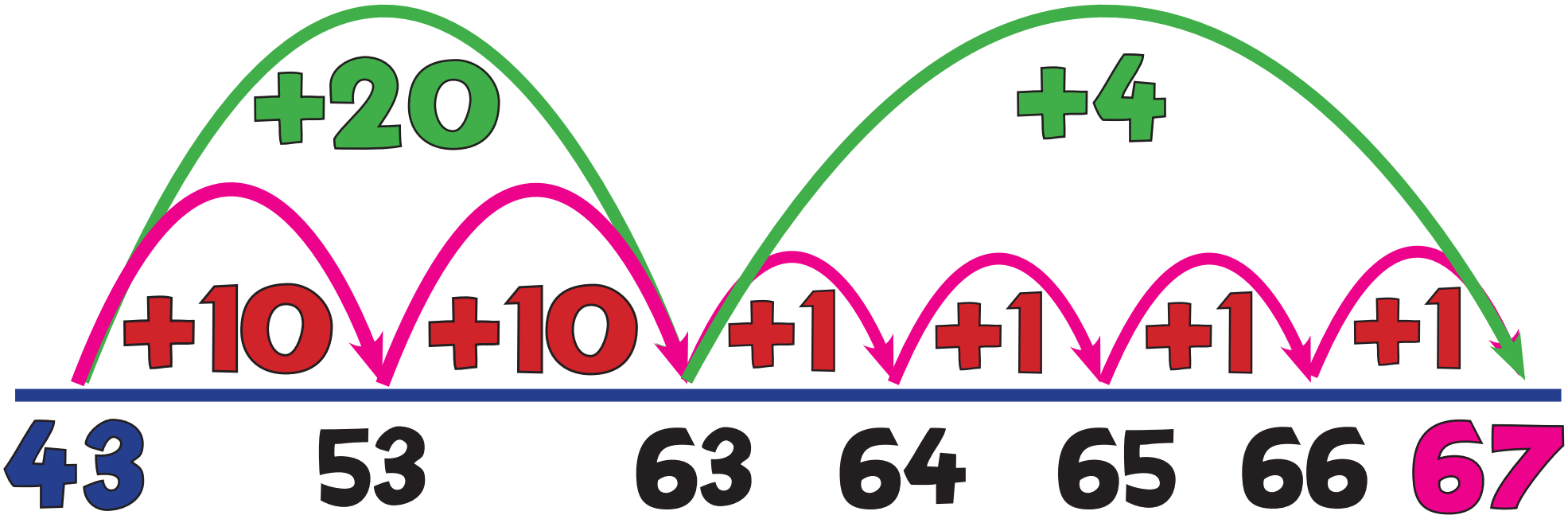
A2: Counting On



$$5 + 3 = 8$$

A3: Forwards Jump

43 + 24 = 67



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A4: Partitioning

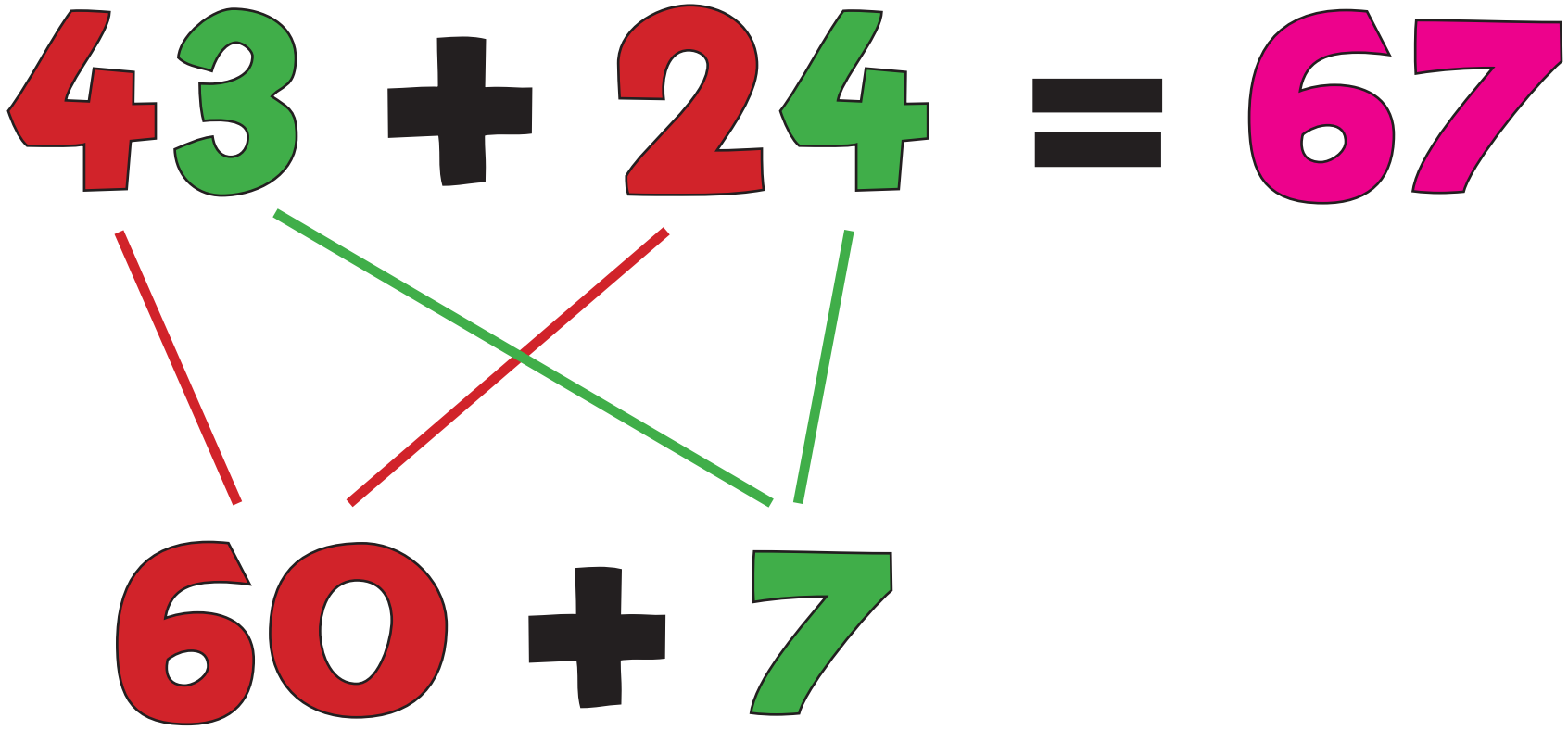
$$43 + 24 = 67$$

$$40 + 20 = 60$$

$$3 + 4 = 7$$

$$67$$

A5: Partition Jot



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A6: Expanded Column Addition

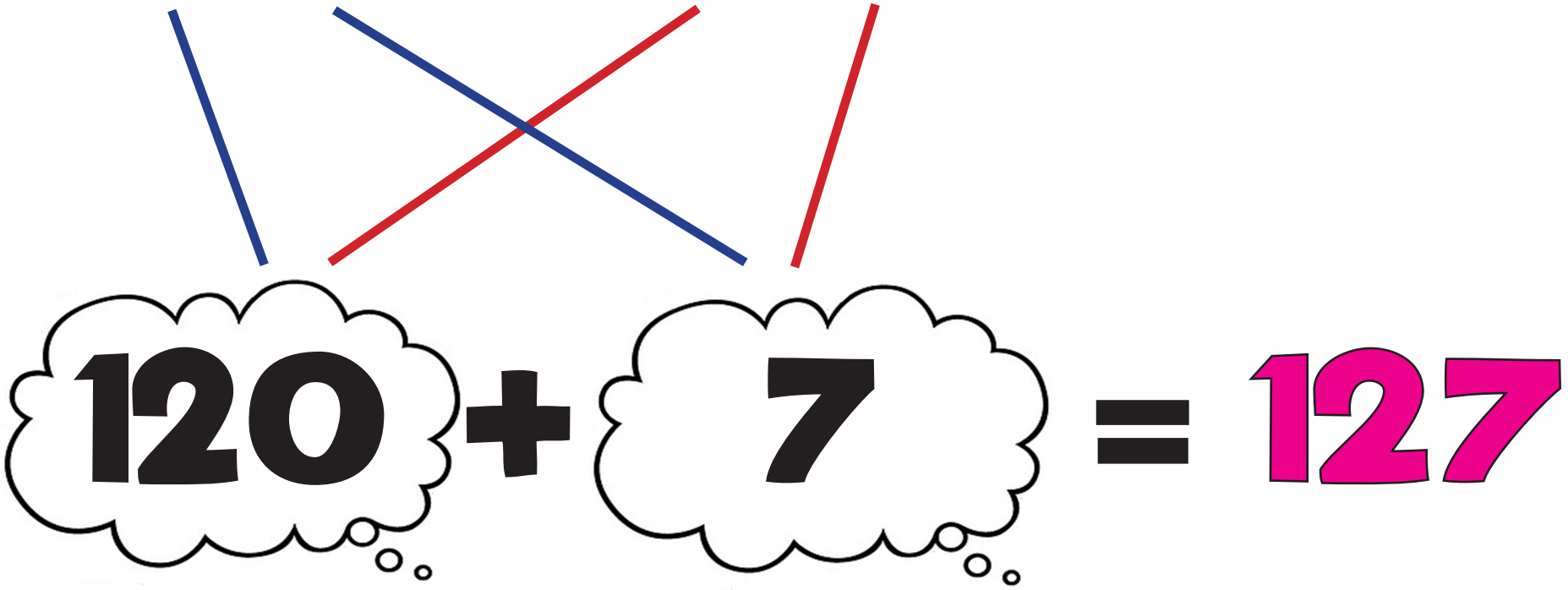
	100	10	1
	600	80	7
+	200	40	8
			15
		120	
	800		
	900	30	5

A7: Column Addition

	100	10	1
	6	8	7
+	2	4	8
	9	3	5
	1	1	

MA1: Partitioning

45 + 82 = 127



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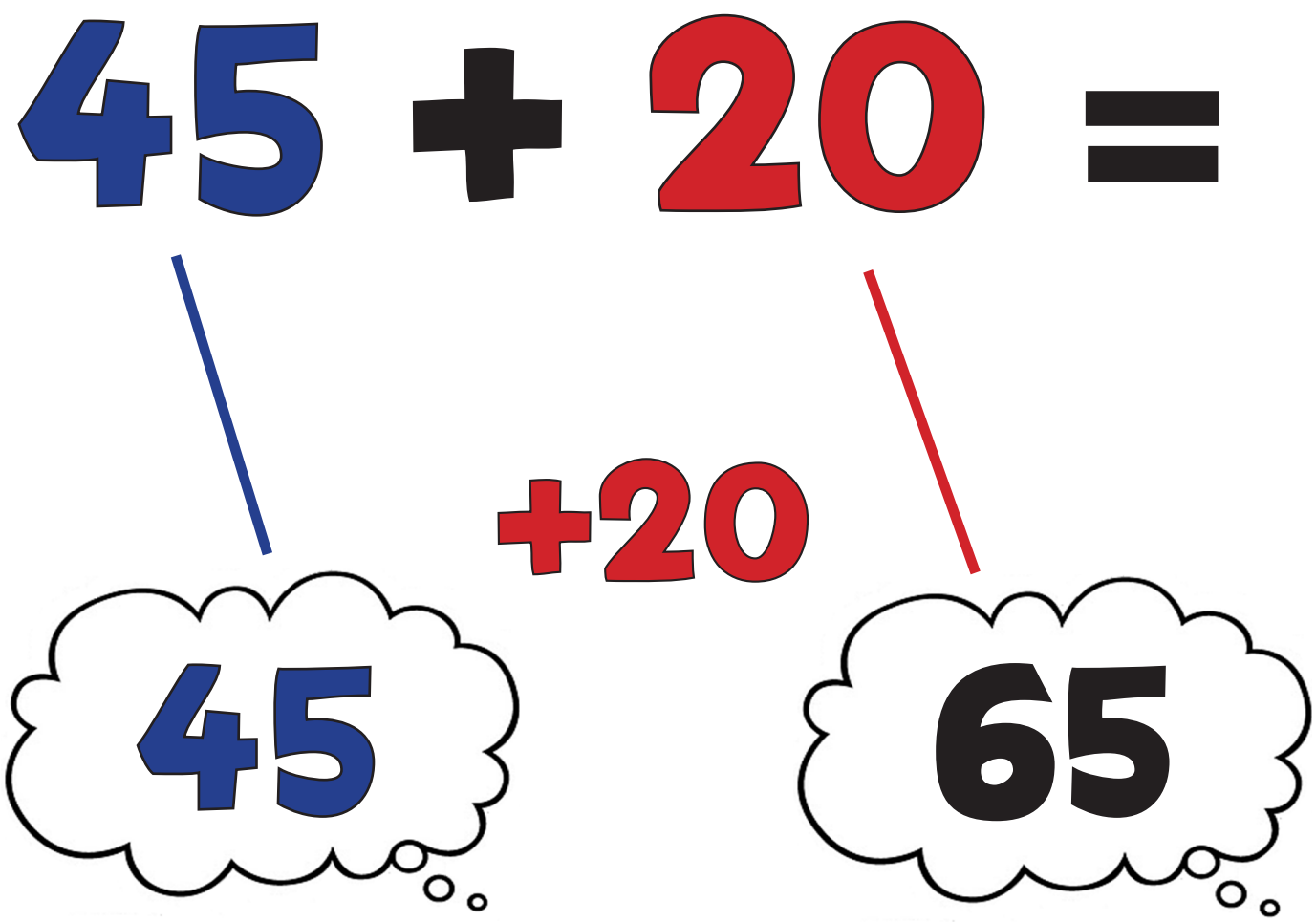
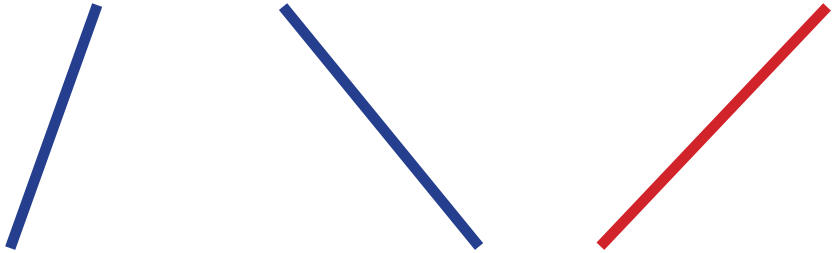
MA2: Counting On



MA3: Number Bonds

45 + 95 = 140



40 + 100 = 140

MA4: Double & Adjust

$$45 + 46 = 91$$

$$45 + 45 + 1$$

$$90 + 1 = 91$$

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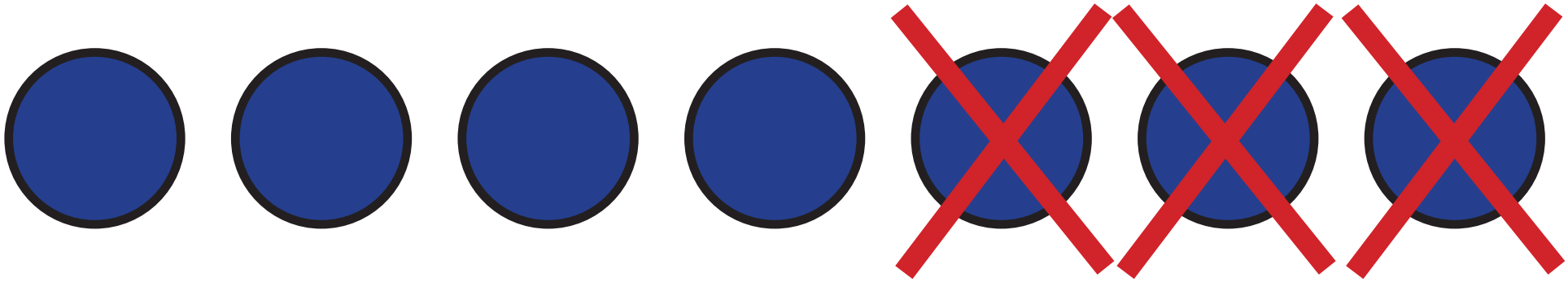
MA5: Round & Adjust

$$45 + 39 = 84$$

$$45 + 40 - 1$$

$$85 - 1 = 84$$

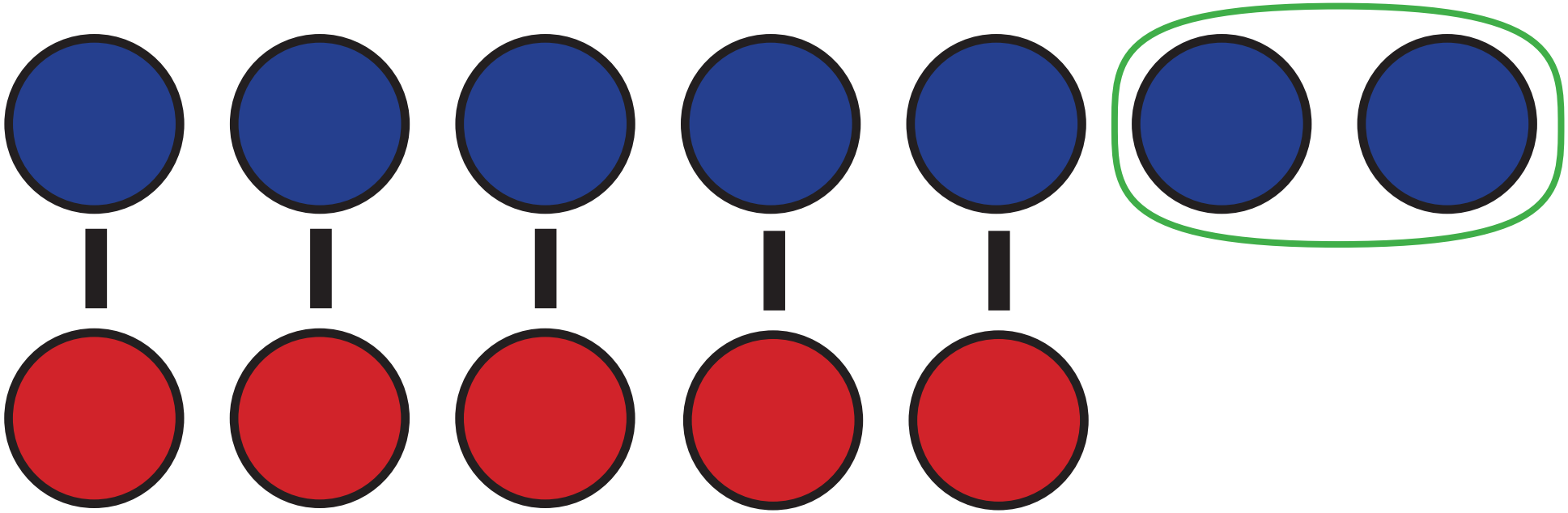
S1: Objects



7 - 3 = 4

"What do I get if I take 3 away from 7? Answer: 4"

S2: What's the Difference?



7 - 5 = 2

"How many more is 7 than 5? What is the difference?"

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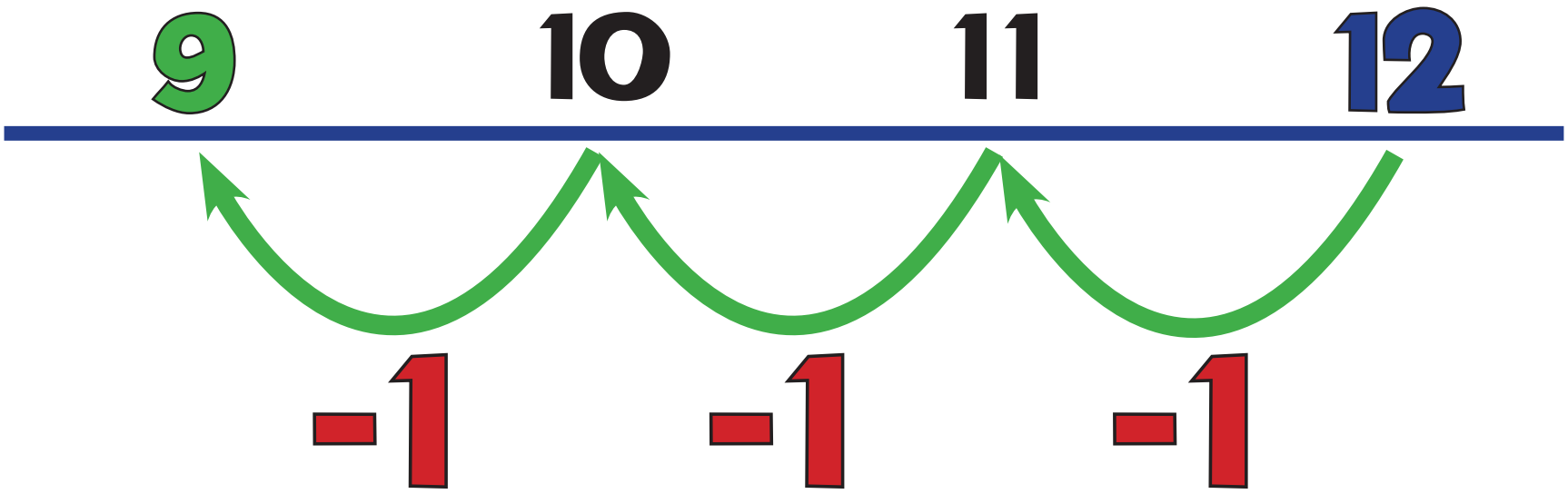
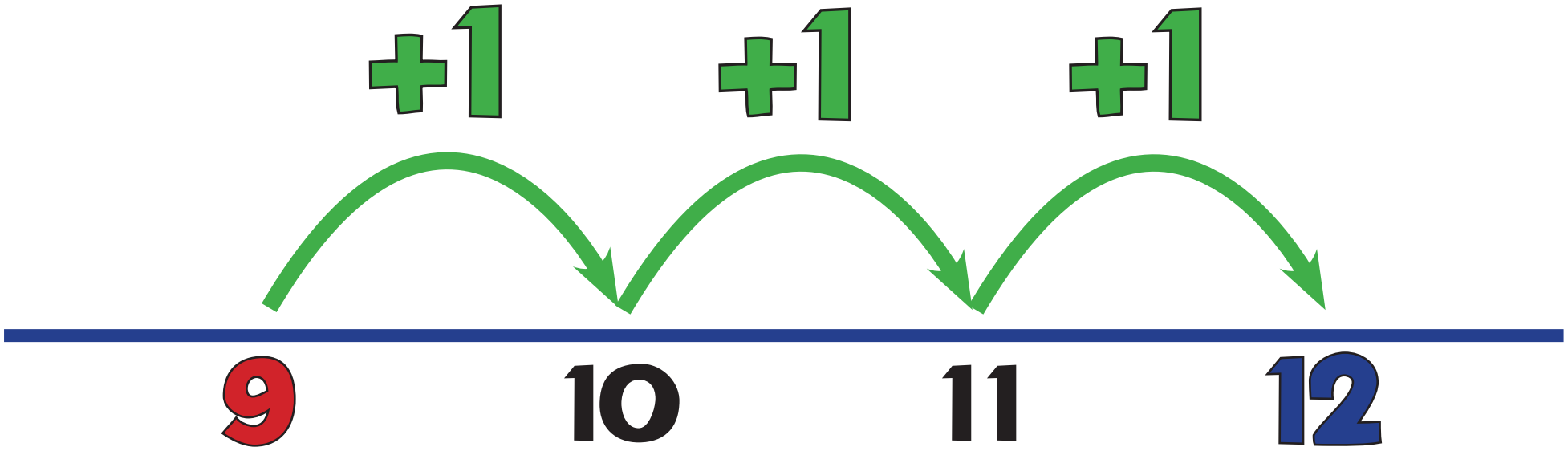
S3: Counting Back



12 - 3 = 9

"What do I get if I take 3 away from 12? Answer: 9"

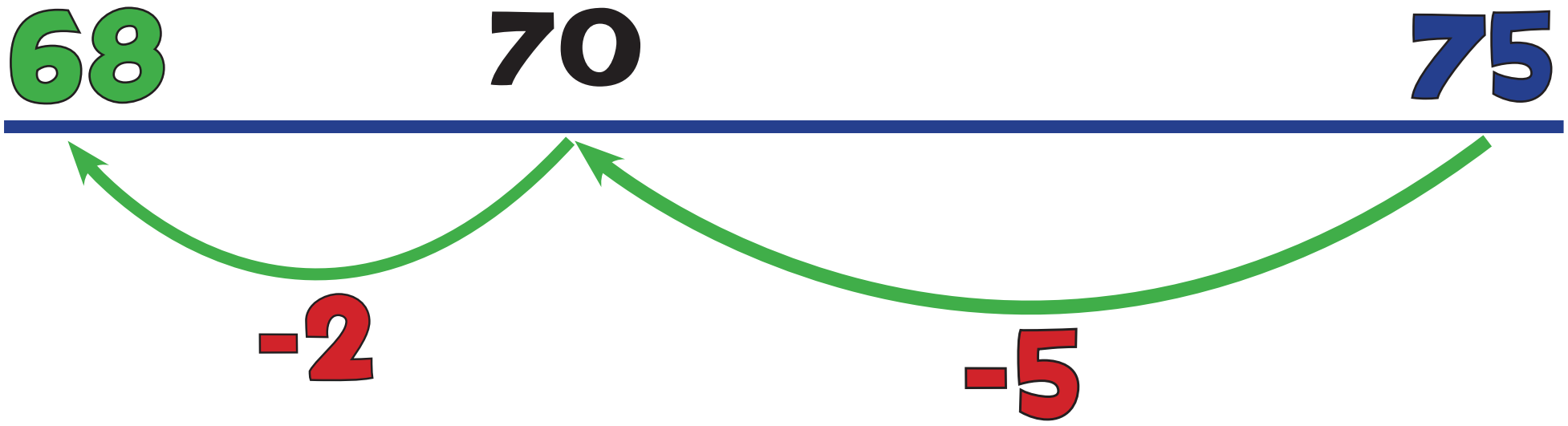
S4: Counting On



12 - 9 = 3

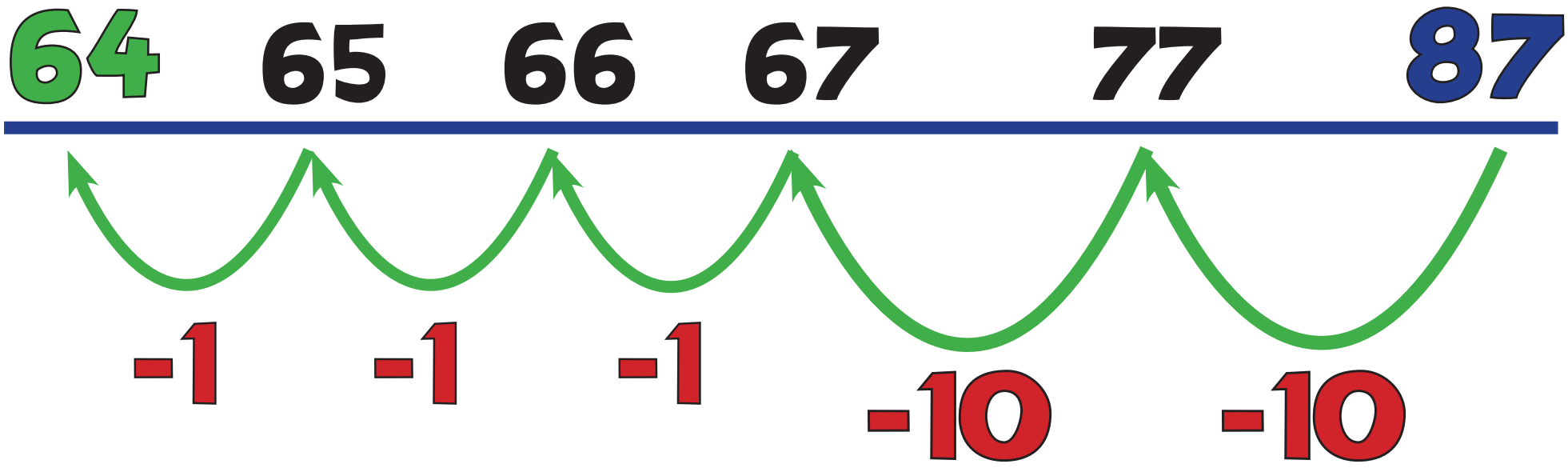
"How many more is 12 than 9? What is the difference?"

S5: Backwards Boing



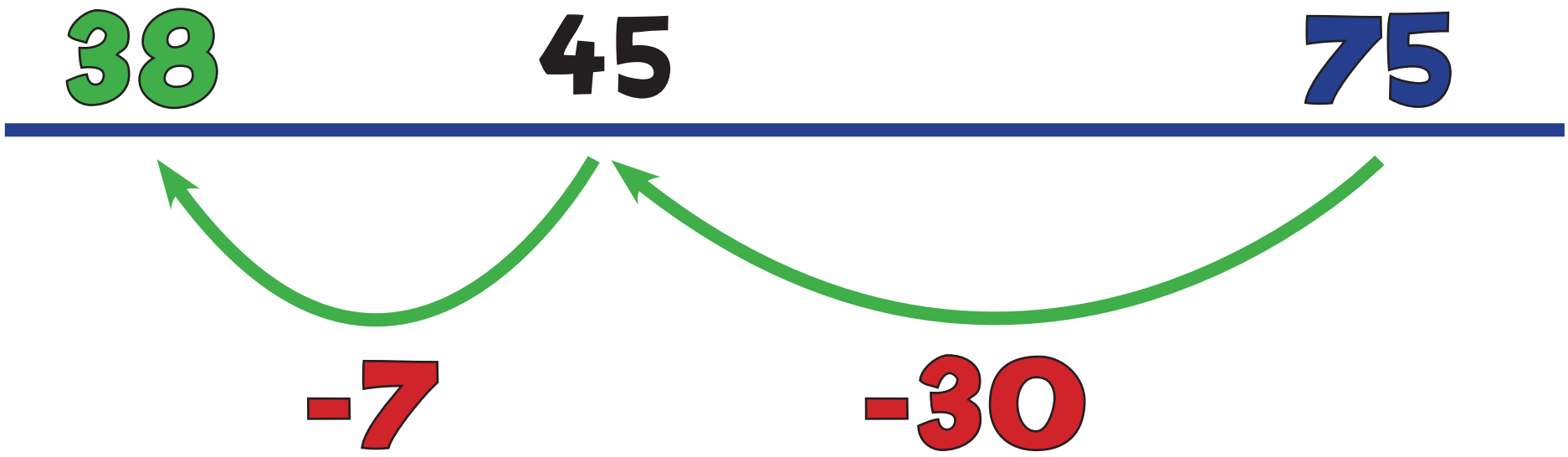
75 - 7 = 68

S6: Backwards Bounce



87 - 23 = 64

S7: Backwards Jump



75 - 37 = 38

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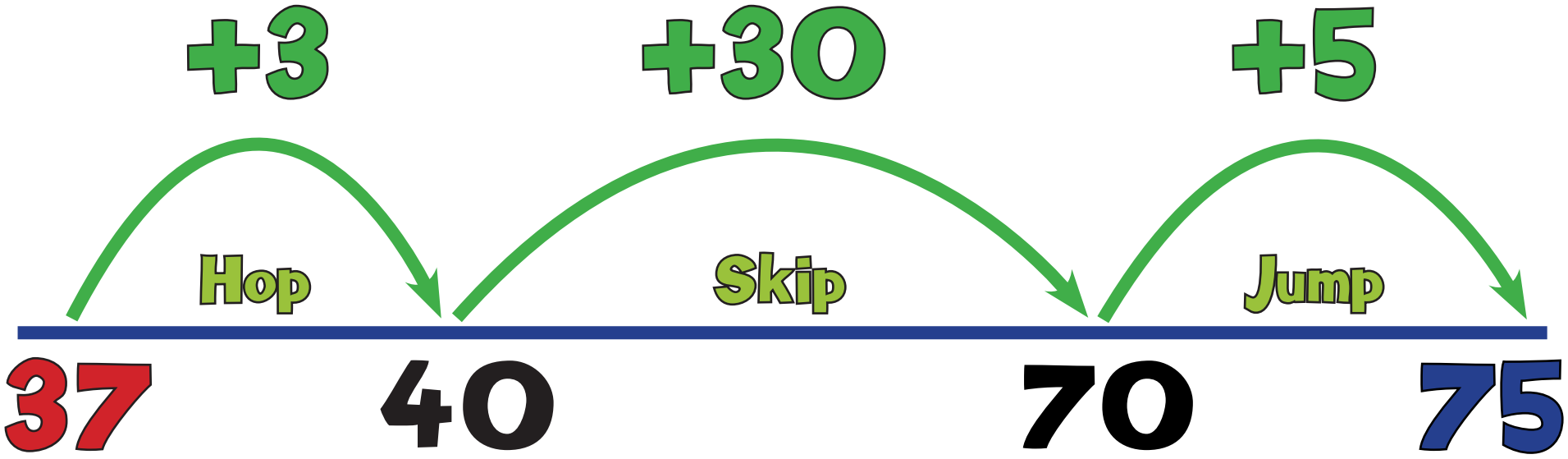
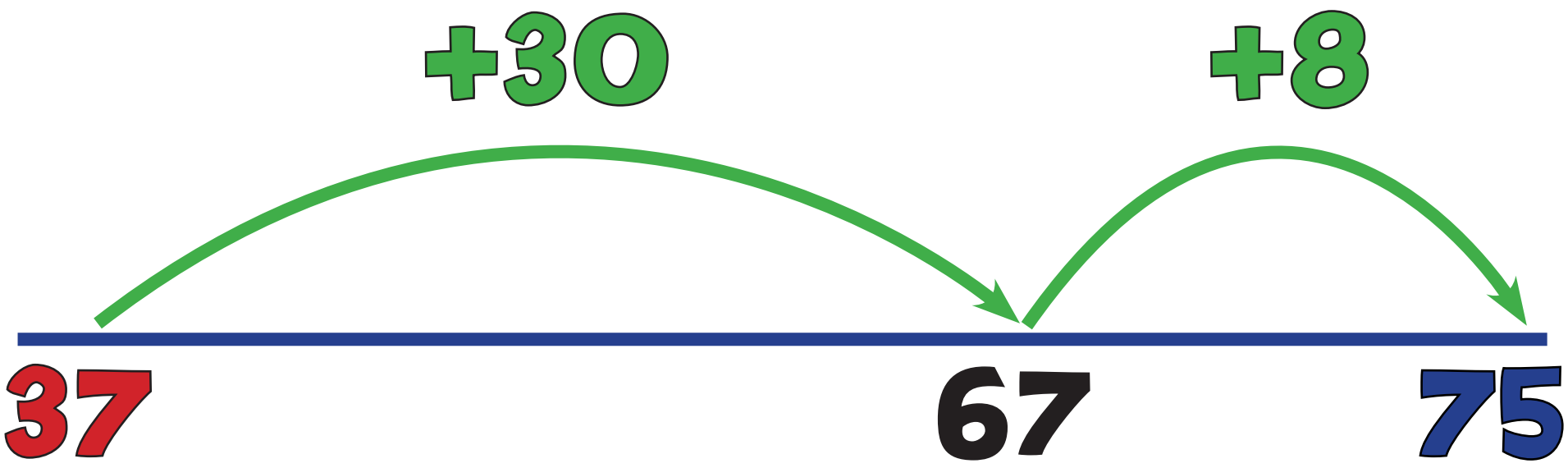
S8: Triple Jump!



75 - 37 = 38

S9: 10s Jump, 1s Jump!



75 - 37 = 38

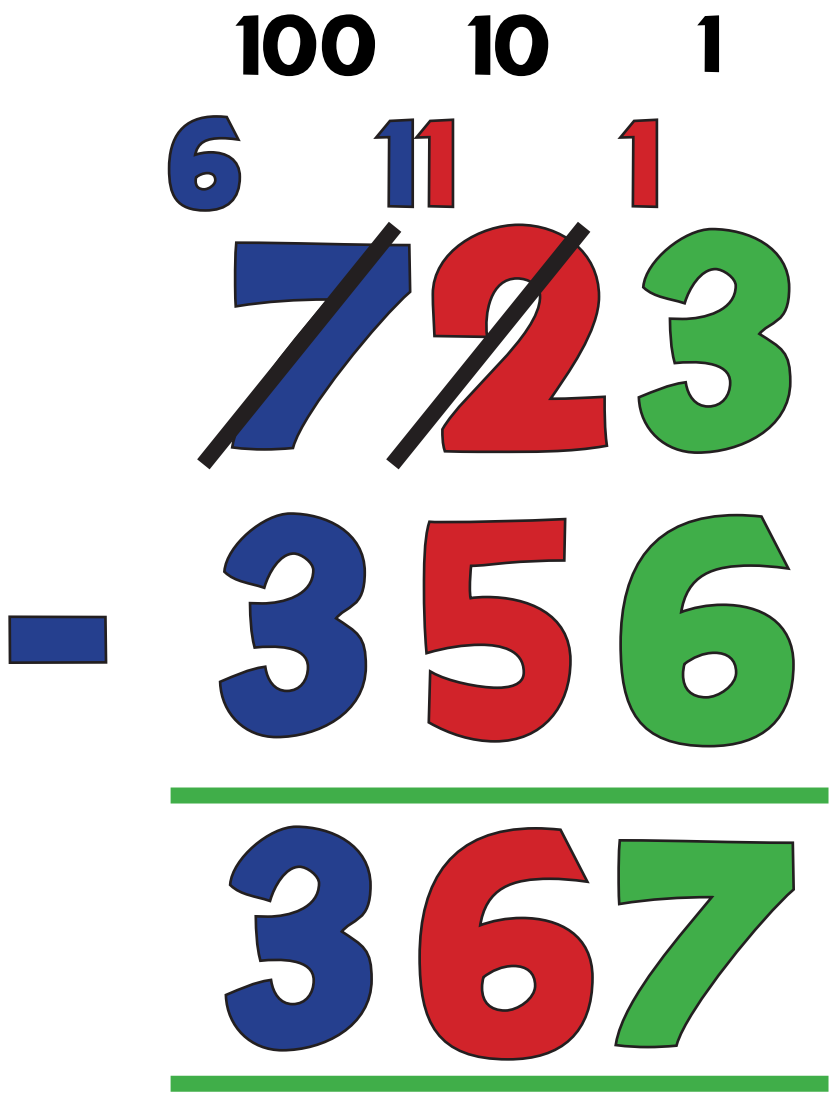
S10: Expanded Column

Subtraction (100, 10, 1s)

723 - 356 = 367

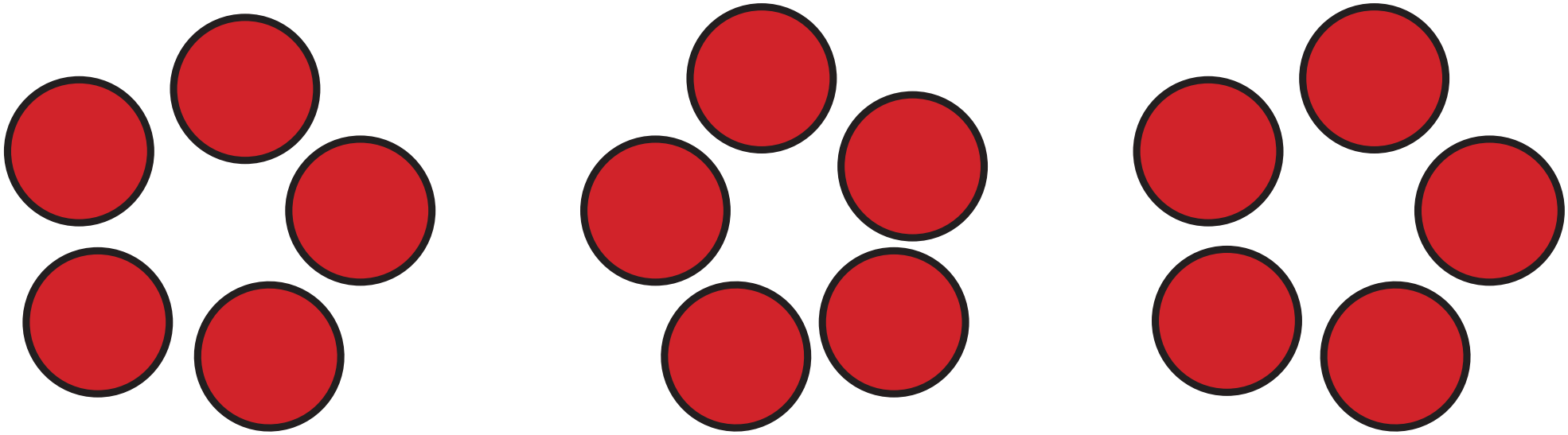
	600	110	1
	~~700~~	~~20~~	3
-	300	50	6
	300	60	7

S11: Column Subtraction



M1: Repeated Addition

(Groups)



5 x 3 = 5 + 5 + 5 = 15

"5 multiplied by 3" means "5, 3 times", which gives "3 lots of 5"!

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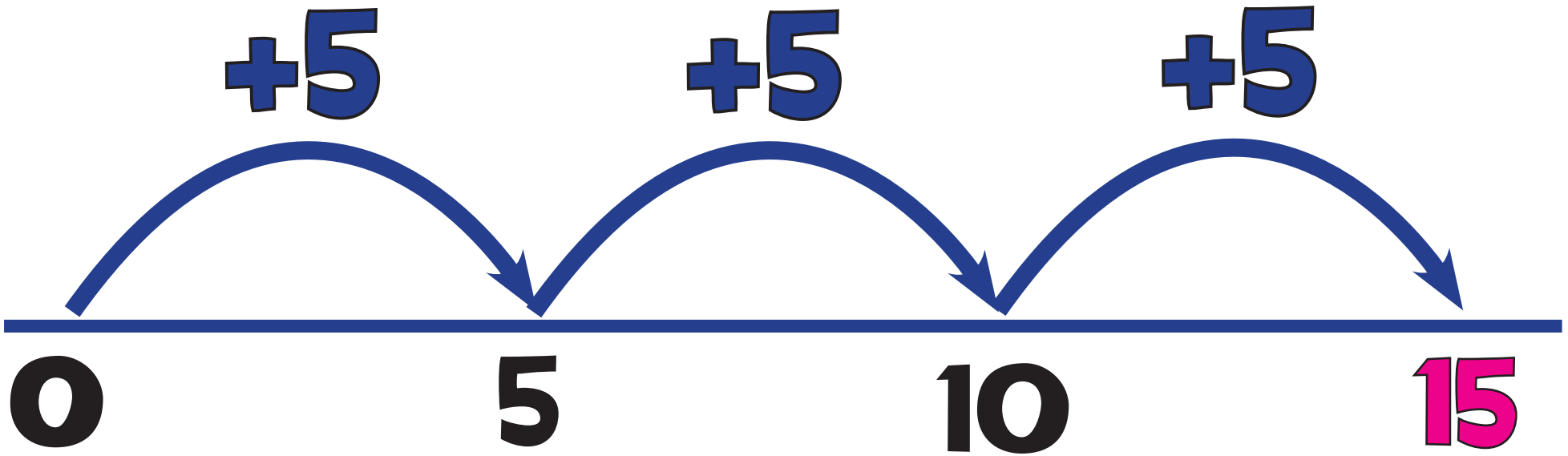
M2: Repeated Addition

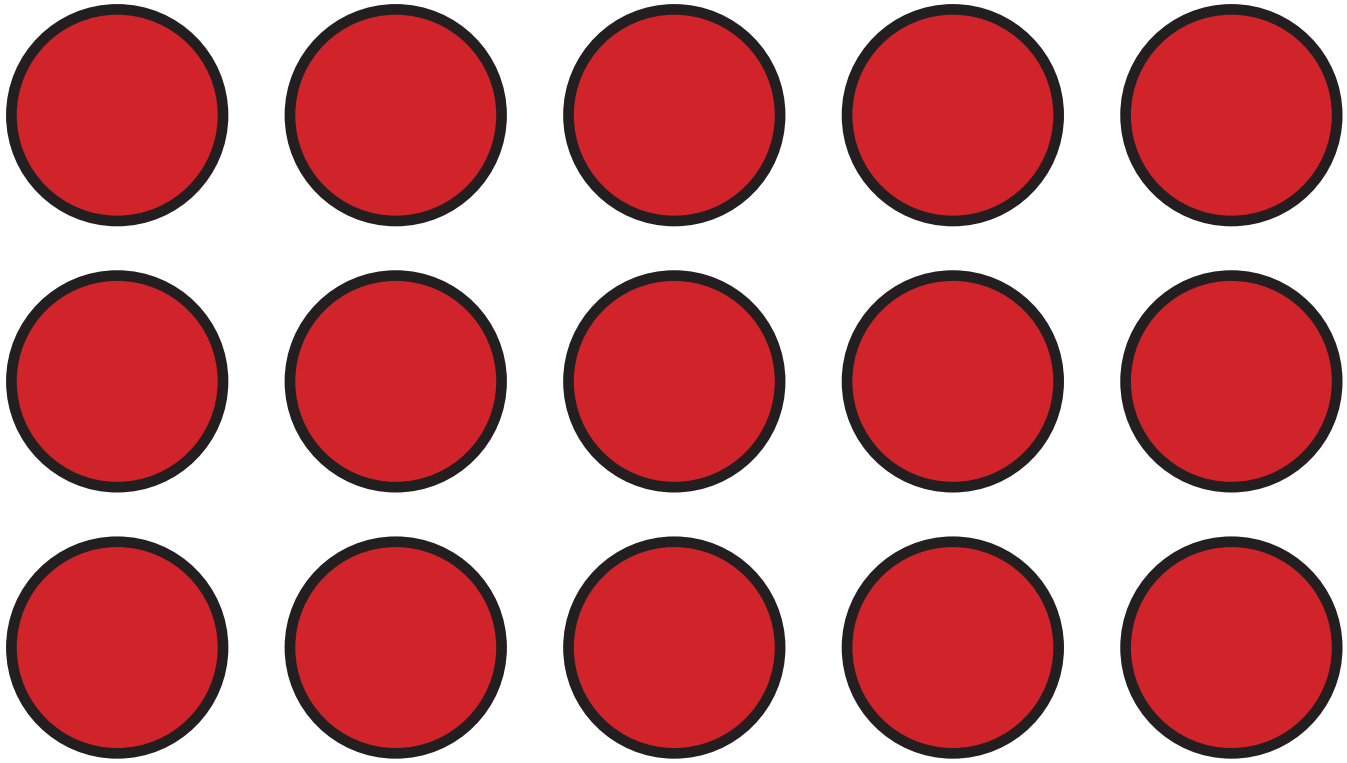
(Number Line)



5 x 3 = 5 + 5 + 5 = 15

"5 times 3" means "5, 3 times!"

M3: Arrays



3 x 5 = 15 or 5 x 3 = 15

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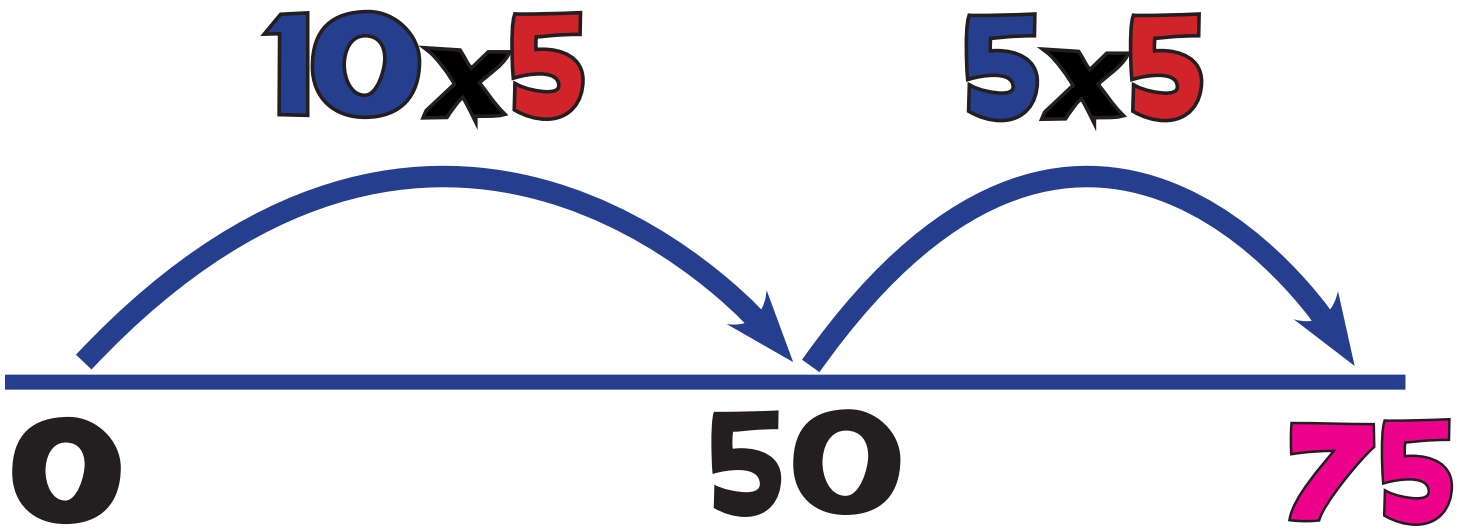
M4: Multi Boing!



10 x 5 = 50

5 x 5 = 25

75

15 x 5 = 75

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M5: Grid Method

Short Multiplication

15 x 5 = 75

x	10	5
5	50	25

50 + 25 = 75

M6: Expanded Column

100	10	1	
1	4	7	
x		4	
	2	8	(4 x 7)
1	6	0	(4 x 40)
4	0	0	(4 x 100)
5	8	8	

M7: Column Multiplication

100	10	1
1	4	7
x		4
5	8	8
1	2	

M8: Grid Method

Long Multiplication

43 x 65 = 2795

x	40	3
60	2400	180
5	200	15

2400 + 180 + 200 + 15 = 2795

M9: Long Multiplication

Column

$$
\begin{array}{rr}
 & 43 \\
\times & 65 \\
\hline
 & 215 \quad (5 \times 43) \\
+ & 2580 \quad (60 \times 43) \\
\hline
 & 2795
\end{array}
$$

MM1: Jump!

1000	100	10	1	■	$\frac{1}{10}$	$\frac{1}{100}$
			3400			
			340			
			34			
			3.4			
			0.34			

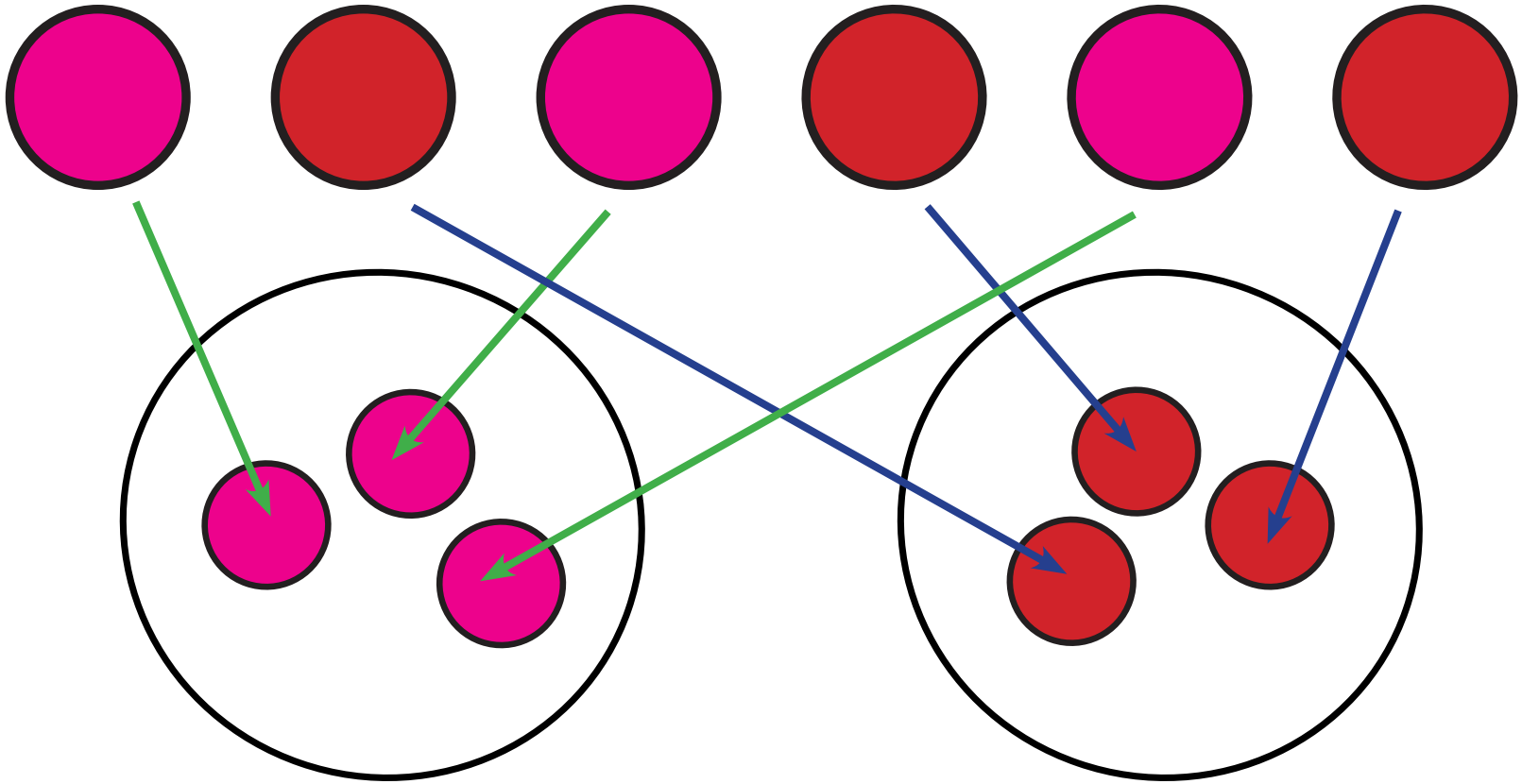
×100

×10

÷10

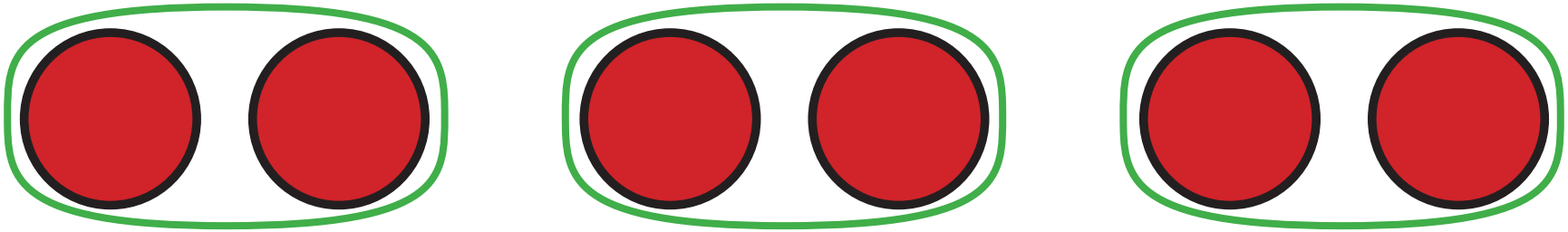
÷100

D1: Sharing (Concept)



"If I share 6 into 2 equal amounts, how many in each group?" Answer: 3

D2: Grouping (Concept)

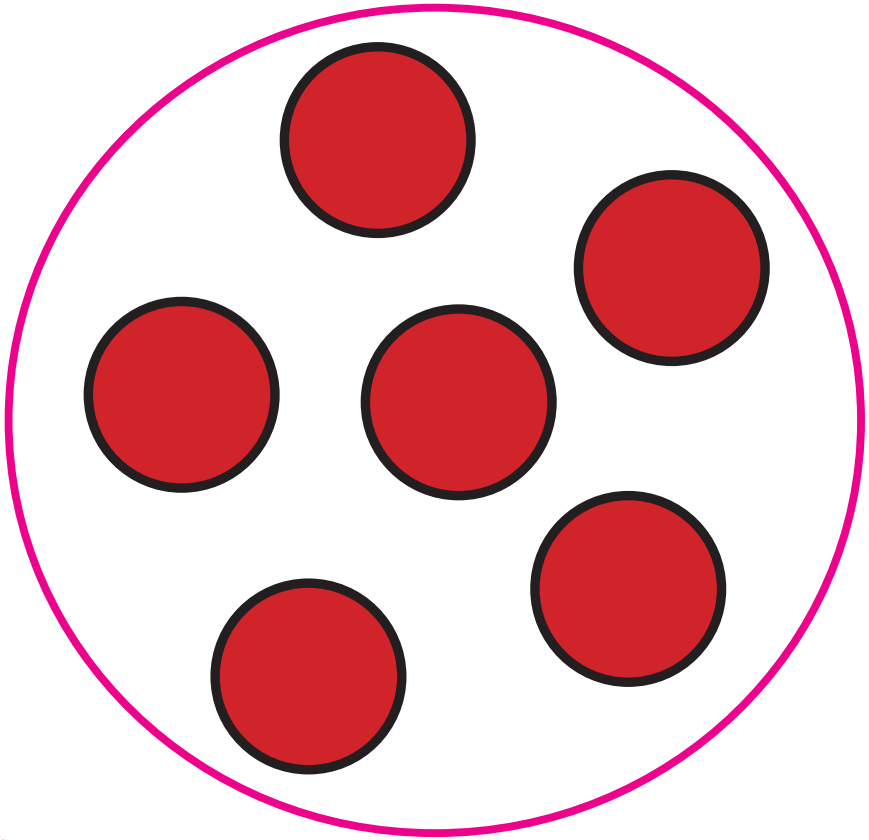


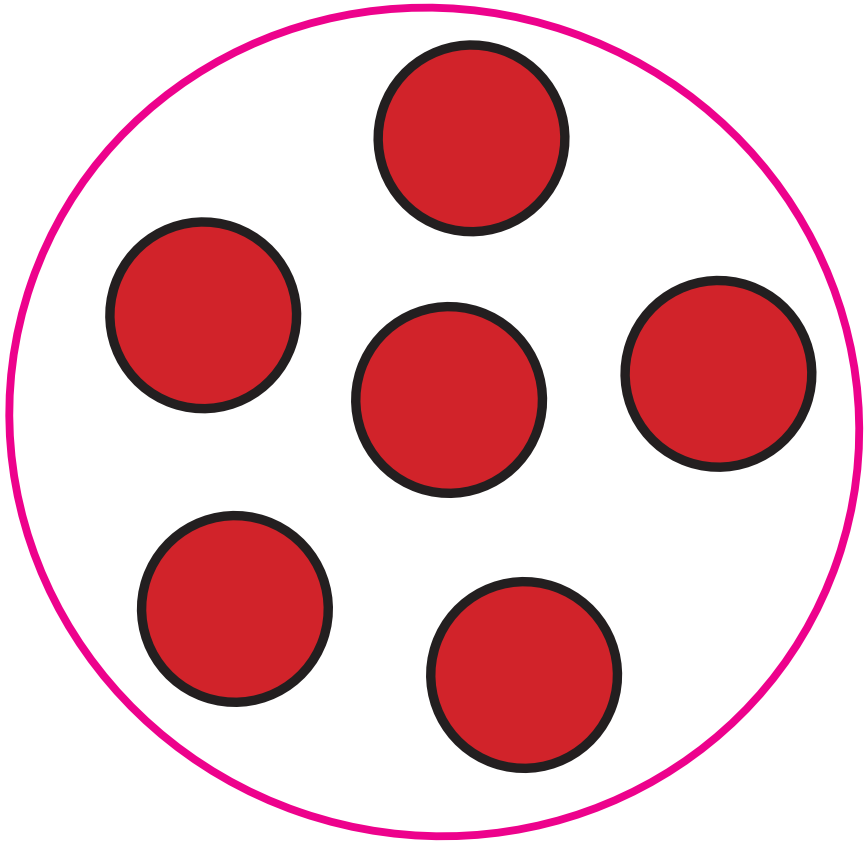
"How many groups of 2 can I make out of 6?
Answer: 3

D3: Division as Sharing

12 ÷ 2 = 6

"If I share 12 into 2 equal amounts, how many in each group?" Answer: 6





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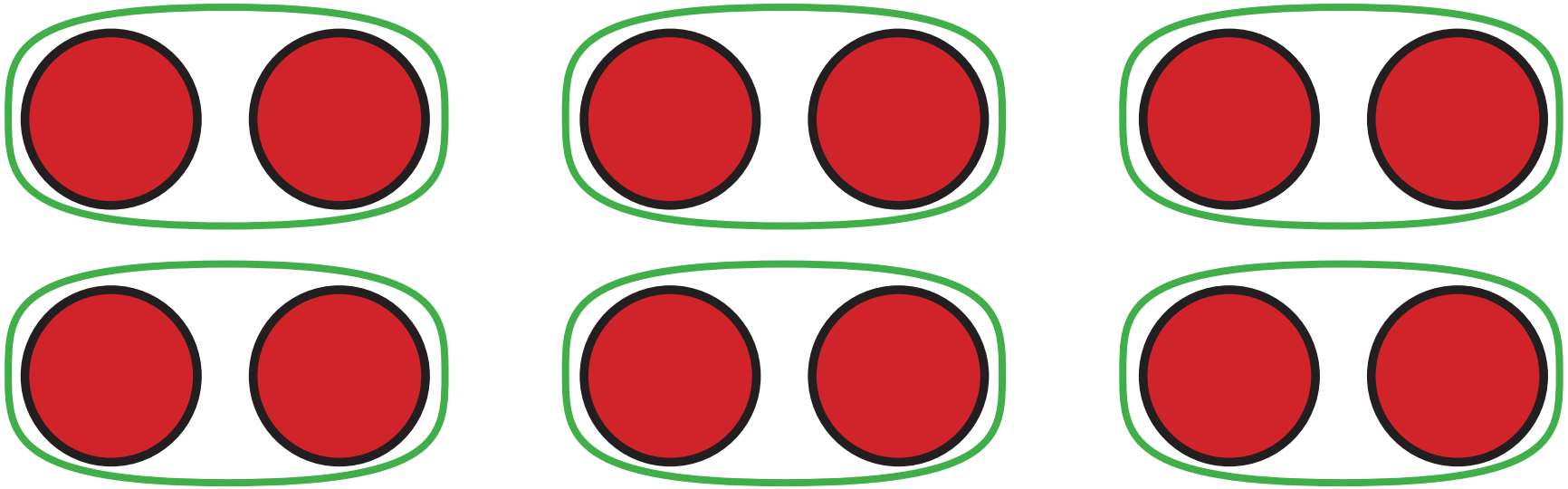
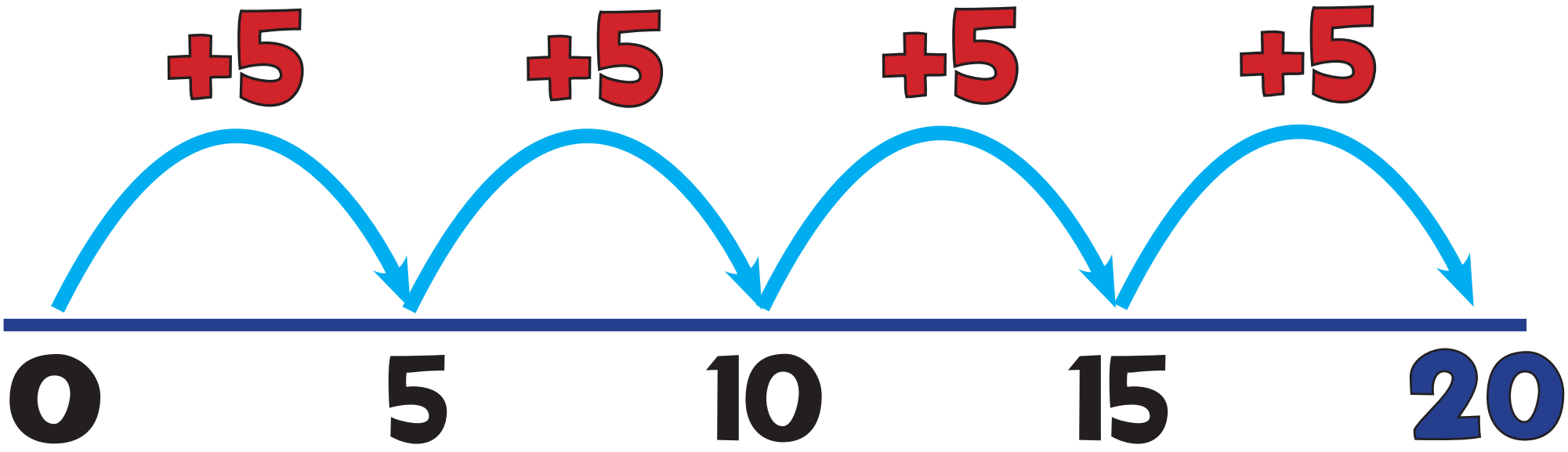
D4: Division as Grouping

12 ÷ 2 = 6

"How many groups of 2 can I fit into 12?"
Answer: 6



D5: Grouping on a Number Line



"How many 5s in 20?"
Answer: 4

$$20 \div 5 = 4$$

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D6: Grouping Grid

4	4	4	4	4
4				3

"How many times can I fit (groups of) 4 into 27?"
Answer: 6r3

$27 \div 4 = 6r3$

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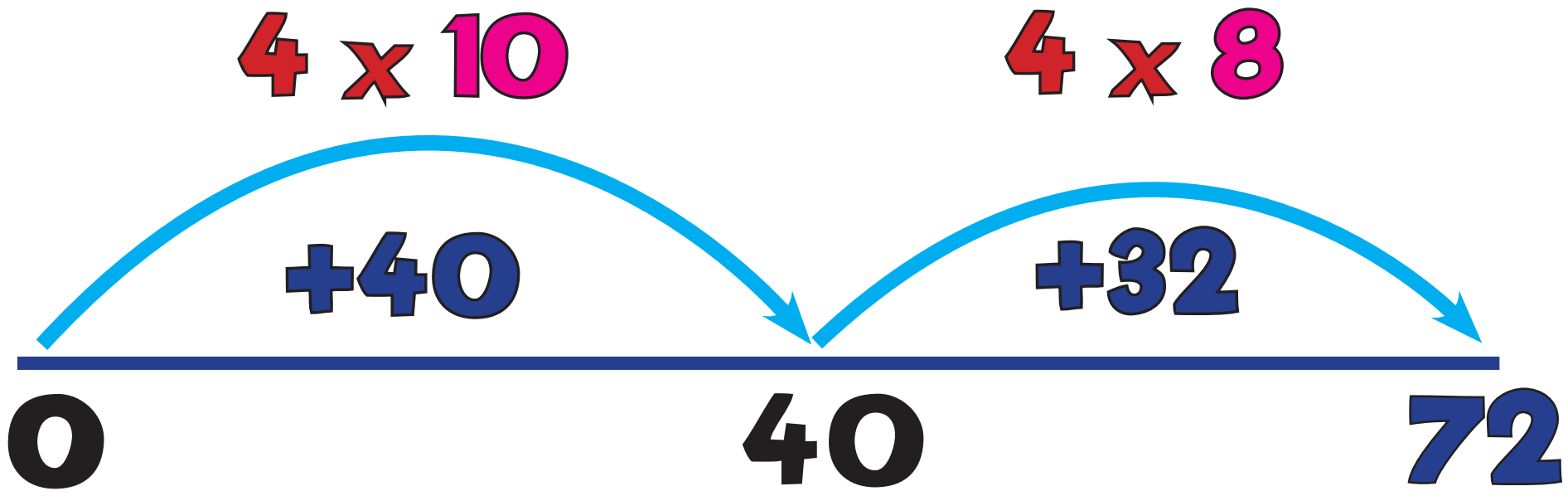
D7: Chunking Jump



"How many 4s in 72?"
Answer: 18

$$72 \div 4 = 18$$

D8: Find the Hunk!

$$72 \div 4 = 18$$

The Hunk!

Chunk

$$40 + 32 \quad \div 4$$

$$10 + 8 = 18$$

D9: Mega Hunk!

136 ÷ 4 = 34

Mega Hunk!

Chunk

120 + 16 ÷ 4

30 + 4 = 34

D10: Short Division

$$136 \div 4 = 34$$

$$\begin{array}{r} 34 \\ 4\overline{)136} \end{array}$$

D11: Chunking

$$
\begin{array}{r}
34 \\
4 \overline{)\,136} \\
-120 \quad (4 \times 30) \\
\hline
16 \\
-\ 16 \quad (4 \times 4) \\
\hline
0
\end{array}
$$

$136 \div 4 = 34$

D12: Long Division

Short Division Method

$$
\begin{array}{r}
26\ r21 \\
37\overline{)\,9^{\,9}\,8^{\,24}\,3}
\end{array}
$$

D13: Long Division

Chunking Method

$$
\begin{array}{r}
26 \text{ r } 21 \\
37 \overline{)\,983} \\
-\,740 \quad (37 \times 20) \\
\hline
243 \\
-\,222 \quad (37 \times 6) \\
\hline
21
\end{array}
$$

$$983 \div 37 = 26 \text{ r } 21$$

D14: Long Division

Traditional Method

$$
\begin{array}{r}
26 \text{ r } 21 \\
37 \overline{)\,983} \\
-\,74 \\
\hline
243 \\
-\,222 \\
\hline
21
\end{array}
$$

$983 \div 37 = 26 \text{ r } 21$

Sense of Number

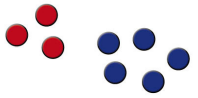
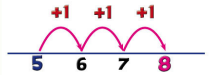
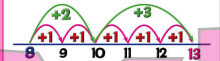
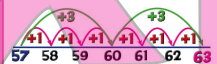
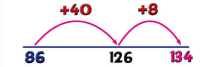
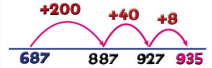
Visual Calculations Policy

Expanded Edition 2014 by Dave Godfrey, Anthony Reddy and Laurence Hicks

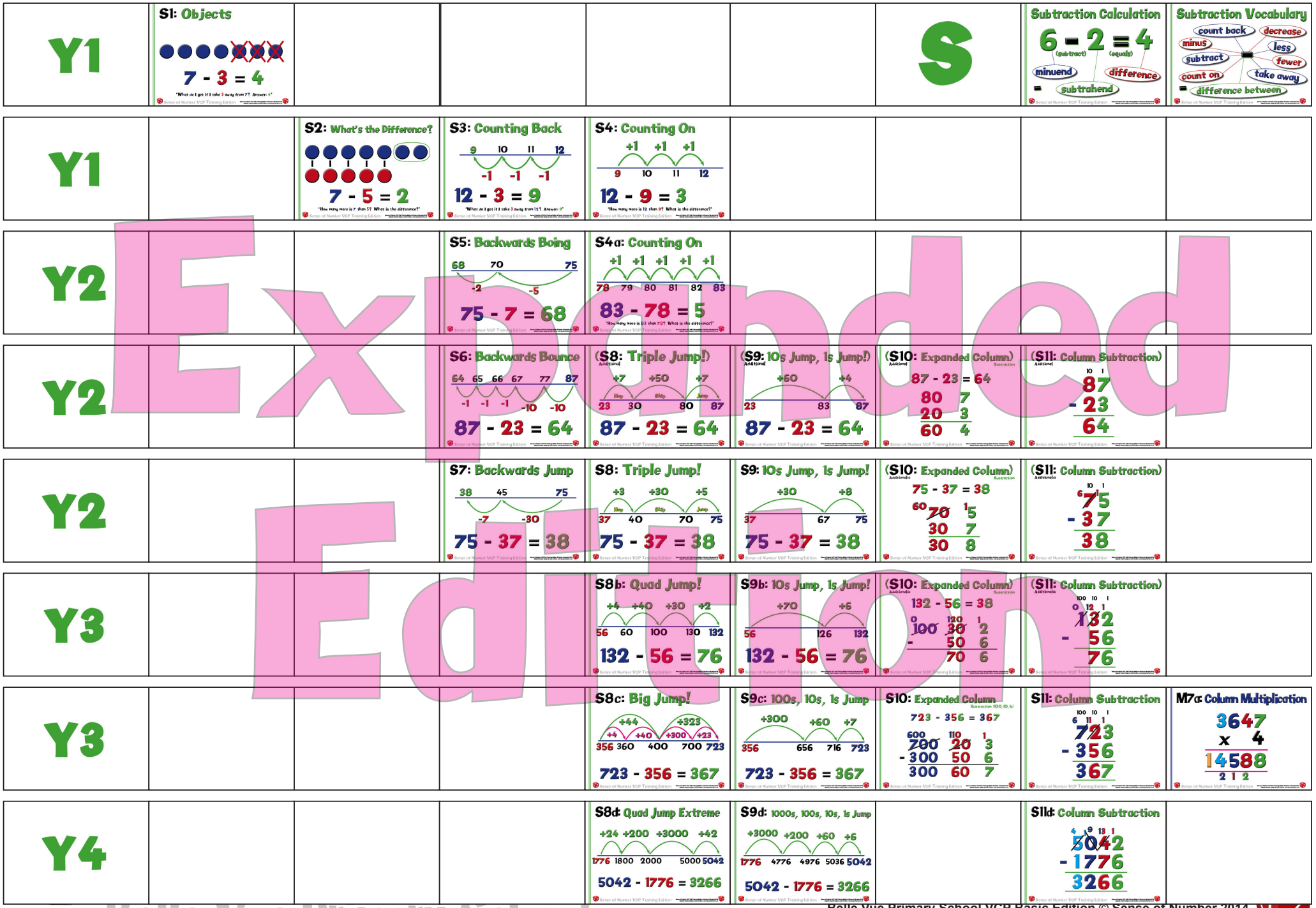
The following pages contain a snapshot of the 235 slide, Sense of Number Expanded Edition of the VCP. It contains a Counting Policy, leveled progression of strategies found in the Basic Edition and additional Subtraction & Multiplication Mental Method slides.

This edition is also available for bespoke preparation at additional cost of £100.

Expanded Edition

Y1	**A1: Objects & Pictures**  "If I have 3 and then 5 more, how many altogether? Answer: 8"					**A**	**Addition Calculation** 4 + 2 = 6 (add) (equals) addend addend total sum	**Addition Vocabulary** increase add total plus addition more count on sum altogether
Y1	**A1a: Largest Number 1st**  5 + 3 = 8	**A2: Counting On**  5 + 3 = 8						
Y1		**A2a: Counting On** Bridging 10  8 + 5 = 13						
Y2		**A2b: Counting On** Bridging 10s Number  57 + 6 = 63						
Y2		**A3: Forwards Jump** 43 + 24 = 67 	**A4: Partitioning** 43 + 24 = 67 40 + 20 = 60 3 + 4 = 7 67	**A5: Partition Jot** 43 + 24 = 67 60 + 7	**(A6: Expanded Column)** 43 + 24 7 60 67	**(A7: Column Addition)** 43 + 24 67		
Y2		**A3a: Forwards Jump** 57 + 25 = 82 	**A4a: Partitioning** 57 + 25 = 82 50 + 20 = 70 7 + 5 = 12 82	**A5a: Partition Jot** 57 + 25 = 82 70 + 12	**(A6: Expanded Column)** 57 + 25 12 70 82	**(A7: Column Addition)** 57 + 25 82		
Y2/3		**A3b: Forwards Jump** 86 + 48 = 134 	**A4b: Partitioning** 86 + 48 = 134 80 + 40 = 120 6 + 8 = 14 134	**A5b: Partition Jot** 86 + 48 = 134 120 + 14	**(A6: Expanded Column)** 86 + 48 14 120 134	**(A7: Column Addition)** 86 + 48 134		
Y3		**A3c: Forwards Jump** 687 + 248 = 935 	**A4c: Partitioning** 687 + 248 = 935 600 + 200 = 800 80 + 40 = 120 7 + 8 = 15 935	**A5c: Partition Jot** 687 + 248 = 935 800 + 120 + 15	**A6: Expanded Column** 687 + 248 15 120 800 935	**A7: Column Addition** 687 + 248 935		

Y4				A5d: Partition Jot 4873 + 3762 = 8635 7000 + 1500 + 130 + 5		A7d: Column Addition 4873 + 3762 8635		
Y5						A7e: Column Addition 787567 + 446278 1233845		
Y5		A3f: Decimal Jump 4.8 + 3.8 = 8.6 +3 +0.8 4.8 7.8 8.6	A4f: Partitioning 4.8 + 3.8 = 8.6 4 + 3 = 7 0.8 + 0.8 = 1.6 8.6	A5f: Partition Jot 4.8 + 3.8 = 8.6 7 + 1.6		A7f: Column Addition 4.8 + 3.8 8.6		
Y5		A3g: Decimal Jump 5.65 + 3.29 = 8.94 +3 +0.2 +0.09 5.65 8.65 8.85 8.94		A5g: Partition Jot 5.65 + 3.29 = 8.94 8 + 0.8 + 0.14		A7g: Column Addition 5.65 + 3.29 8.94		
Y5				A5h: Partition Jot 76.7 + 58.5 = 135.2 120 + 14 + 1.2		A7h: Column Addition 76.7 + 58.5 135.2		
Y5				A5i: Partition Jot £38.25 + £27.46 = £65.71 £65.00 + £0.71		A7i: Column Addition With Money £38.25 + £27.46 £65.71		
Y5						A7j: Column Addition With Decimals 73.4 + 5.67 = 79.07 73.4 + 5.67 79.07		

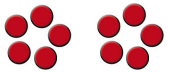


"No child is left behind" - Ofsted 2011

Y5							**S11e: Column Subtraction** 742831 - 427358 315473
Y5				**S8f: Decimal T-J!** +0.3 +4 +0.4 Hop Skip Jump 8.7 9 13 13.4 13.4 - 8.7 = 4.7	**S9f: Is Jump, Tenths Jump!** +4 +0.7 8.7 12.7 13.4 13.4 - 8.7 = 4.7		**S11f: Column Subtraction** 13.4 - 8.7 4.7
Y5							**S11g: Column Subtraction** 72.43 - 47.85 24.58
Y5							**S11h: Column Subtraction** With Decimals 12.4 - 5.97 = 6.43 12.40 - 5.97 6.43
MS	**MS1: Counting Back** 46 - 21 = 25 -20 -1 46 26 25	**MS2: Counting On** 75 - 47 = 28 +20 +8 47 67 75	**MS3: Round & Adjust** 84 - 29 = 55 84 - 30 + 1 54 + 1 = 55				
		MS2a: Counting On 75 - 47 = 28 +3 +25 47 50 75					

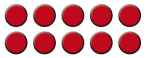
Y1

(M1: Groups)



"2 groups of 5 counters makes 10 counters altogether"

(M3: Arrays)



"2 groups of 5 counters" or "5 groups of 2 counters" - "10 counters altogether"

M

Multiplication Calculation

4 x 2 = 8

(multiplied by) (equals)

multiplicand x multiplier = product

Multiplication Vocabulary

groups of, times, product, multiple, double, x, lots of, multiply, repeated addition

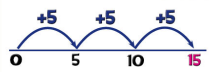
Y2

M1: Repeated Addition (Groups)

5 x 3 = 5 + 5 + 5 = 15

"5 multiplied by 3" means "5, 3 times", which gives "3 lots of 5"

M2: Repeated Addition (Number Line)



5 x 3 = 5 + 5 + 5 = 15

"5 times 3" means "5, 3 times"

M3: Arrays

3 x 5 = 15 or 5 x 3 = 15

Y2

Mx2: Table Facts

2x table

Mx5: Table Facts

5x table

Mx10: Table Facts

10x table

Y3

Mx3: Table Facts

3x table

Mx4: Table Facts

4x table

Mx8: Table Facts

8x table

Y3

M4: Multi Boing!

10 x 5 = 50

5 x 5 = 25

50 + 25 = 75

15 x 5 = 75

M4a: Partitioning

15 x 5 = 75

10 x 5 = 50

5 x 5 = 25

50 + 25 = 75

M5: Grid Method Short Multiplication

15 x 5 = 75

x	10	5
5	50	25

50 + 25 = 75

(M6: Expanded Column) Additional

15 x 5

25 (5 x 5)

50 (5 x 10)

75

(M7: Column Multiplication) Additional

15 x 5 = 75

(2)

Y4

Mx6: Table Facts

6x table

Mx7: Table Facts

7x table

Mx9: Table Facts

9x table

M5a: Grid Method Short Multiplication

43 x 6 = 258

x	40	3
6	240	18

240 + 18 = 258

(M6: Expanded Column) Additional

43 x 6

18 (6 x 3)

240 (6 x 40)

258

(M7: Column Multiplication) Additional

43 x 6 = 258

(1)

Y4

Mx11: Table Facts

11x table

Mx12: Table Facts

12x table

M5b: Grid Method Short Multiplication

147 x 4 = 588

x	100	40	7
4	400	160	28

400 + 160 + 28 = 588

M6: Expanded Column

147 x 4

28 (4 x 7)

160 (4 x 40)

400 (4 x 100)

588

M7: Column Multiplication

147 x 4 = 588

(1 2)

M7a: Column Multiplication

3647 x 4 = 14588

(2 1 2)

Y5

M8: Grid Method Long Multiplication

43 x 65 = 2795

x	40	3
60	2400	180
5	200	15

2400 + 180 + 200 + 15 = 2795

M9: Long Multiplication Column

43 x 65

215 (5 x 43)

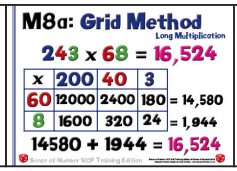
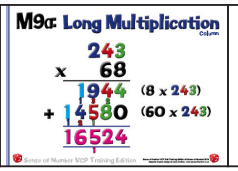
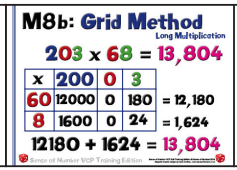
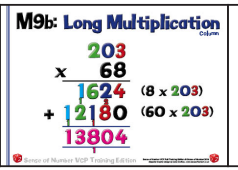
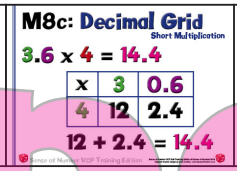
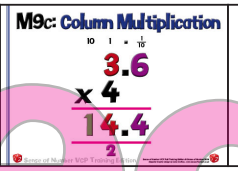
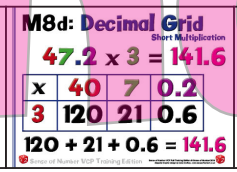
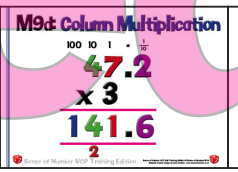
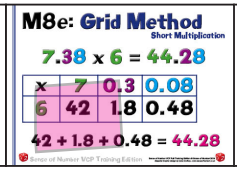
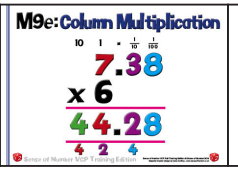
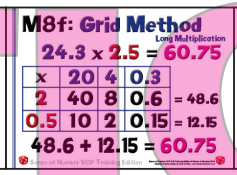
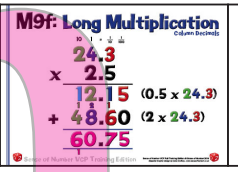
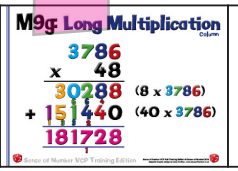
+ 2580 (60 x 43)

2795

(1 1)

"No child is left behind" - Ofsted 2011

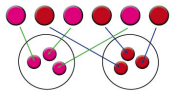
Belle Vue Primary School

Y5						
Y5						
Y5						
Y6						
Y6						
Y6						
Y6							

D

Y1

D1: Sharing (Concept)



"If I share 6 into 2 equal amounts, how many in each group?" Answer: 3

D2: Grouping (Concept)

"How many groups of 2 can I make out of 6?" Answer: 3

Division Calculation

8 ÷ 2 = 4

(divided by) (equals)

dividend, divisor, quotient

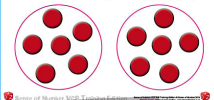
Division Vocabulary

remainder, group, share, halve, divisor, factor, quotient, equal groups of, divide

Y2

D3: Division as Sharing

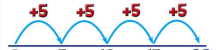
12 ÷ 2 = 6



D4: Division as Grouping

12 ÷ 2 = 6

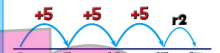
D5: Grouping on a Number Line



20 ÷ 5 = 4

Y2

D5a: Grouping on a Number Line Remainders



17 ÷ 5 = 3r2

Y3

D6: Grouping Grid

27 ÷ 4 = 6r3

Y3

D7: Chunking Jump

72 ÷ 4 = 18

D8: Find the Hunk!

72 ÷ 4 = 18

The Hunk! 40 + Chunk 32

÷ 4

10 + 8 = 18

(D10: Short Division) Additional

72 ÷ 4 = 18

18

4 | 7 2

(D11: Chunking) Additional

18

4 | 72

- 40 (4 x 10)

32

- 32 (4 x 8)

0

72 ÷ 4 = 18

Y3

D7a: Chunking Jump Remainders

65 ÷ 4 = 16r1

D8a: Find the Hunk! Remainders

65 ÷ 4 = 16r1

The Hunk! 40 + Chunk 25

÷ 4

10 + 6r1 = 16r1

(D10: Short Division) Additionals

65 ÷ 4 = 16r1

16r1

4 | 6 2 5

(D11: Chunking) Additionals

16r1

4 | 65

- 40 (4 x 10)

25

- 24 (4 x 6)

1

65 ÷ 4 = 16r1

Y4

D9: Mega Hunk!

136 ÷ 4 = 34

Mega Hunk! 120 + Chunk 16

÷ 4

30 + 4 = 34

D10: Short Division

136 ÷ 4 = 34

34

4 | 1 3 6

D11: Chunking

34

4 | 136

-120 (4 x 30)

16

- 16 (4 x 4)

0

136 ÷ 4 = 34

D11b: Chunking

34

4 | 136

- 40 (4 x 10)

96

- 40 (4 x 10)

56

- 40 (4 x 10)

16

- 16 (4 x 4)

0

136 ÷ 4 = 34

Y5

D9c: Mega Hunk! Remainders

394 ÷ 6 = 65r4

Mega Hunk! 360 + Chunk 34

÷ 6

60 + 5r4 = 65r4

D10c: Short Division

394 ÷ 6 = 65r4

65r4

6 | 3 9 4

D11c: Chunking Remainders

65r4

6 | 394

- 360 (6 x 60)

34

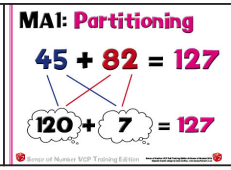
- 30 (6 x 5)

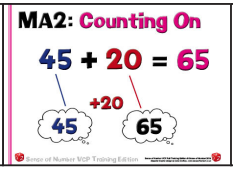
4

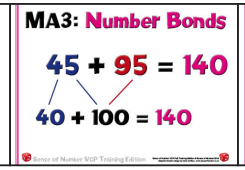
394 ÷ 6 = 65r4

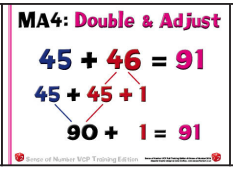
Y5				**D9d: Mega Hunk!** 591 ÷ 3 = 197 Mega Hunk! 300 + Mega Hunk! 270 + Chunk 21 ÷ 3 100 + 90 + 7 = 197	**D10d: Short Division** 591 ÷ 3 = 197 197 3 591	**D11d: Chunking** Mega Chunk 197 3 591 - 300 (3 x 100) 291 - 270 (3 x 90) 21 - 21 (3 x 7) 0 591 ÷ 3 = 197		
Y5				**D9e: Mega Hunk!** 5978 ÷ 7 = 854 Mega Hunk! 5600 + Mega Hunk! 350 + Chunk 28 ÷ 7 800 + 50 + 4 = 854	**D10e: Short Division** 5978 ÷ 7 = 854 854 7 5978	**D11e: Chunking** Mega Chunk 854 7 5978 - 5600 (7 x 800) 378 - 270 (7 x 50) 28 - 28 (7 x 4) 0 5978 ÷ 7 = 854		
Y5				**D9f: Mega Hunk!** 846 ÷ 5 = 169r1 Mega Hunk! 500 + Mega Hunk! 300 + Chunk 46 ÷ 5 100 + 60 + 9r1 = 169r1	**D10f: Short Division** Different Remainders 169.2 5 846.0 846 ÷ 5 169r1 5 846 169 1/5 5 846	**D11f: Chunking** Mega Chunk 169r1 5 846 - 500 (5 x 100) 346 - 300 (5 x 60) 46 - 45 (5 x 9) 1 846 ÷ 5 = 169r1		
Y6				**D9g: Mega Hunk!** Simple Long Division 480 ÷ 15 = 32 Mega Hunk! 450 + Chunk 30 ÷ 15 30 + 2 = 32		**D11g1: Chunking** Long Division 32 15 480 - 450 (15 x 30) 30 - 30 (15 x 2) 0 480 ÷ 15 = 32	**D11g2: Chunking** Long Division 32 15 480 - 150 (15 x 10) 330 - 150 (15 x 10) 180 - 150 (15 x 10) 30 - 30 (15 x 2) 0 480 ÷ 15 = 32	
Y6				**D9h: Decimal Hunk!** 18 ÷ 1.5 = 12 The Hunk! 15 + Chunk 3 ÷ 1.5 10 + 2 = 12				
Y6				**D9i: Decimal Hunk!** 87.5 ÷ 7 = 12.5 Mega Hunk! 70 + Chunk 14 + Chunk 3.5 ÷ 7 10 + 2 + 0.5 = 12.5	**D10i: Short Division** 87.5 ÷ 7 = 12.5 12.5 7 87.5			
Y6					**D12: Long Division** Short Division Method 26r21 37 983	**D13: Long Division** Chunking Method 26r21 37 983 - 740 (37 x 20) 243 - 222 (37 x 6) 21 983 ÷ 37 = 26r21		**D14: Long Division** Traditional Method 26r21 37 983 - 74 243 - 222 21 983 ÷ 37 = 26r21
Y6						**D13j: Long Division** Chunking Method 26r21 37 983 - 370 (37 x 10) 613 - 370 (37 x 10) 243 - 222 (37 x 6) 21 983 ÷ 37 = 26r21		

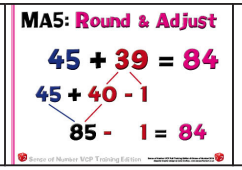
MA



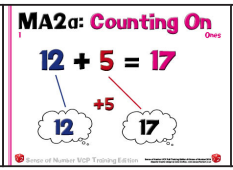


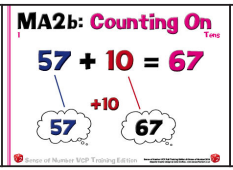


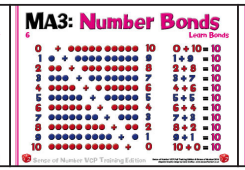


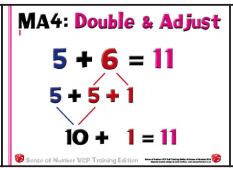


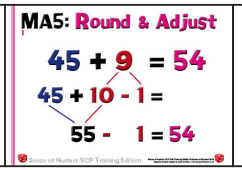
Y1











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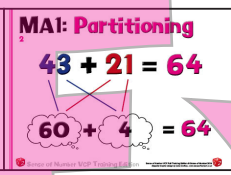

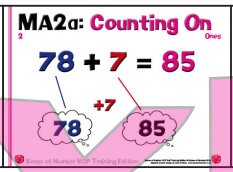

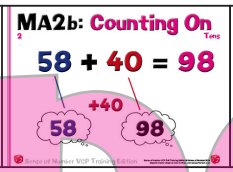

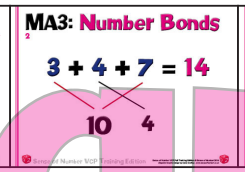

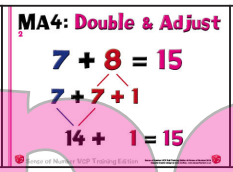

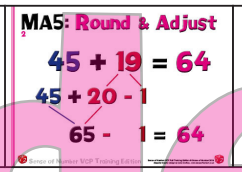

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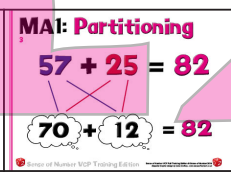

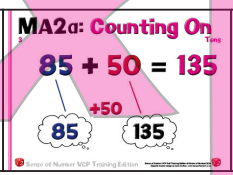

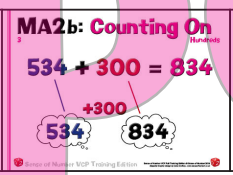

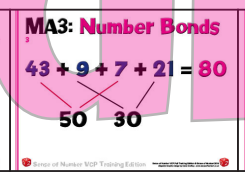

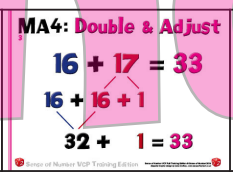

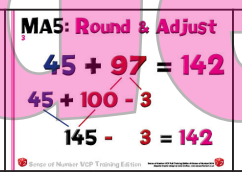

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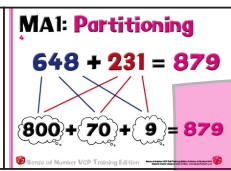

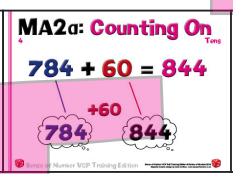

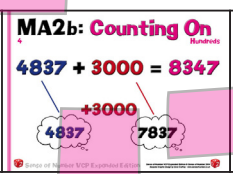

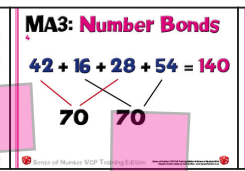

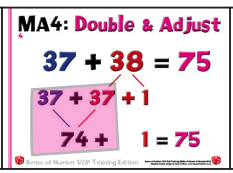

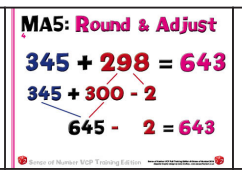

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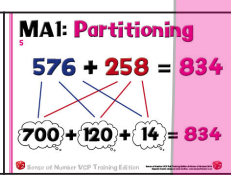

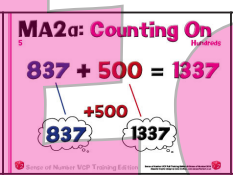

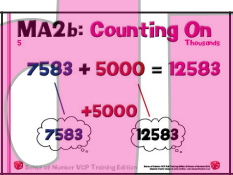

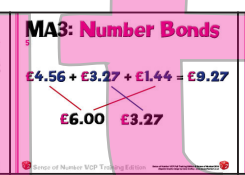

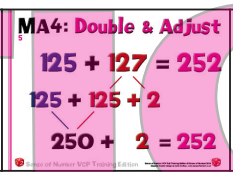

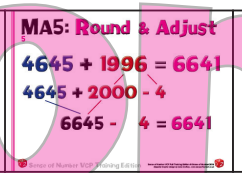

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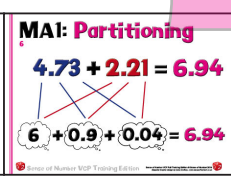
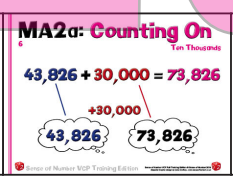
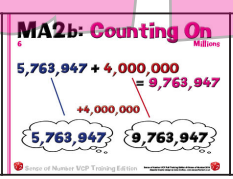
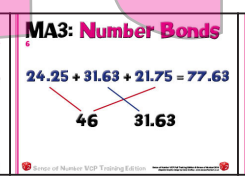
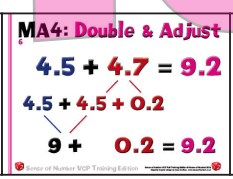
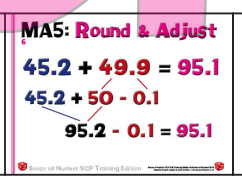












Belle Vue Primary School
"No child is left behind" - Ofsted 2011

Belle Vue Primary School

MM

MM1: Jump!

x100 3400
x10 340
34
+10 3.4
+100 0.34

MM2: Re-ordering

(9 x 2) x 5
18 x 5 = 90
(9 x 5) x 2
45 x 2 = 90
(2 x 5) x 9
10 x 9 = 90 *

MM3: Partitioning

15 x 5 = 75

50 (10 x 5) + 25 (5 x 5) = 75

MM4: Round & Adjust

49 x 3 = 147
(50 x 3) - (1 x 3)
150 - 3 = 147

MM5: Doubling

Double 17 = 34
20 + 14 = 34

MM1a: Jump!

x1000 634000
x100 6340
x10 634
63.4
+100 6.34
+100 0.634
+1000 0.0634

MM2a: Re-ordering

(7 x 4) x 5
28 x 5 = 140
(7 x 5) x 4
35 x 4 = 140
(4 x 5) x 7
20 x 7 = 140 *

MM3a: Partitioning

37 x 4 = 148

120 (30 x 4) + 28 (7 x 4) = 148

MM4a: Round & Adjust

198 x 4 = 792
(200 x 4) - (2 x 4)
800 - 8 = 792

MM5a: Doubling

Double 37 = 74
60 + 14 = 74

MM2b: Re-ordering

(9 x 8) x 6
72 x 6 = 432
(9 x 6) x 8
54 x 8 = 432 *
(8 x 6) x 9
48 x 9 = 432

MM4b: Round & Adjust

3.9 x 5 = 19.5
(4 x 5) - (0.1 x 5)
20 - 0.5 = 19.5

MM5b: Doubling

Double 78 = 156
140 + 16 = 156

MM4c: Round & Adjust

£5.99 x 6 = £35.94
(£6 x 6) - (1p x 6)
£36 - 6p = £35.94

MM5c: Doubling

Double 340 = 680
600 + 80 = 680

M4a: Partitioning

15 x 5 = 75
10 x 5 = 50
5 x 5 = 25
50 + 25 = 75

MM5d: Doubling

Double 480 = 960
800 + 160 = 960

MM5e: Doubling

Double 278 = 556
400 + 140 + 16 = 556

MM5f: Doubling

Double 768 = 1536
1400 + 120 + 16 = 1536

MM5g: Doubling

Double 3.7 = 7.4
6 + 1.4 = 7.4

MM6: Doubling Table Facts

16 x 7 = 112
(8 x 2)
8 x 7 = 56
↓ ↓ x 2
16 x 7 = 112

MM7: Doubling Up

17 x 4 = 68

Double 17 = 34 (17 x 2)
Double 34 = 68 (17 x 4)

MM8: Mult by:10, 100, 1000 then Halve

86 x 5 = 430

86 x 10 = 860
860 ÷ 2 = 430

MM9: Doubling & Halving

45 x 14
90 x 7 = 630

MM10: Factorising

32 x 15 = 480
(32 x 5 x 3)
160 x 3 = 480

MM7a: Doubling Up

36 x 8 = 112

Double 36 = 72 (36 x 2)
Double 72 = 144 (36 x 4)
Double 144 = 288 (36 x 8)

MM8a: Mult by:10, 100, 1000 then Halve

56 x 25 = 1400

56 x 100 = 5600
5600 ÷ 2 = 2800
2800 ÷ 2 = 1400

MM9a: Doubling & Halving

36 x 25
18 x 50
9 x 100 = 900

MM10a: Factorising

52 x 24 = 1248
(52 x 4 x 6)
208 x 6 = 1248

MM7b: Doubling Up

125 x 16 = 2000

Double 125 = 250 (125 x 2)
Double 250 = 500 (125 x 4)
Double 500 = 1000 (125 x 8)
Double 1000 = 2000 (125 x 16)

MM9b: Doubling & Halving

26 x 32
52 x 16
104 x 8 = 832
208 x 4 etc.

Sense of Number
Visual Calculation Policy

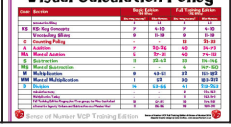
Full Training Edition for
Sample Edition Primary School
October 2014

Graphic Design by Dave Godfrey
Compiled by the Sense of Number Maths Team

For sole use within Sample Edition Primary School.

'A picture is worth 1000 words'

Poster Guide
Visual Calculation Policy



Guide to using a
Visual Calculation Policy

The Sense of Number Visual Calculation Policy provides an visual representation of it's written and mental calculation policy.

Typical uses:
Classroom: The slides are printed out (e.g. A4) and the appropriate slides are displayed within each classroom for continual reference or on a working wall.
Teacher Reference: The slides are printed out (e.g. 9 slides per A4 page) for reference in the teacher's planning folder.
Parents: The slides are used to communicate to parents the methods being taught and used within school.
Websites: Slides from the VCP are inserted on a schools' maths webpages.
(Please note: the VCP should not be made available for download)

KC1: Key Concepts!

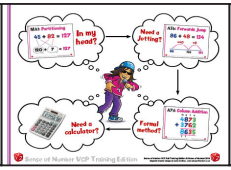
Addition	Subtraction
+	−
8 + 2 = 10	8 - 2 = 6
"What is 8 add 2?" Answer: 10	"What is 8 subtract 2?" Answer: 6 "The difference between 8 and 2 is 6"

KC2: Key Concepts!

Multiplication	Division
x	÷
8 x 2 = 16	8 ÷ 2 = 4
"8 multiplied by 2" means "8, 2 times" or "2 groups of 8"	"8 divided by 2" means "How many groups of 2 are there in 8?" Answer: 4 ("8 shared into 2 sets is 4")

Calculation Vocabulary

equivalent to = equals
is the same as = balance
Addition, Multiplication
Operations
Subtraction, Division



1 Can I do this in my head?

2 Do I need to use a drawing or a jotting?

3 Do I need an expanded or a standard method?

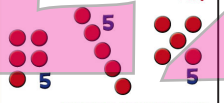
4 Do I need a calculator?

C1a: Number Order

0 1 2 3 4 5

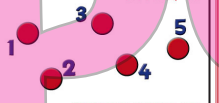
The Numbers must be said once and always in the conventional order.

C1b: At a Glance Subitising



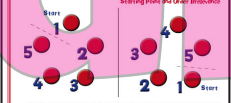
See at a glance how many are in small collections and attach correct number names to such collections.

C2a: Number Match One to One Correspondence



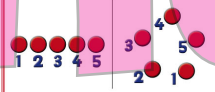
Each object to be counted must be touched or 'included' exactly once as the numbers are said.

C2b: Counting Objects Starting Point and Order Irrelevance



The objects can be touched in any order. The starting point and order in which the objects are counted does not affect how many there are.

C2c: Order Arrangement Arrangement Irrelevance



The arrangement of the objects does not affect how many there are.

C3: How Many? Final number is the total

The last number said tells 'how many' in the whole collection. It does not describe the last object touched.

C4: Arranging Sets of 5

7

C4a: Arranging Sets of 5

18

C4b: Arranging Sets of 5 (Non Linear)

18

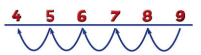
C4c: Arranging Sets of 5 (Non Linear)

43

C5: Counting Forwards

C6: Counting On

C7: Counting Back



C8: Counting in Steps

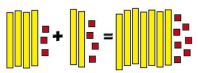
Sense of Number
Calculation Cards

by Dave Godfrey

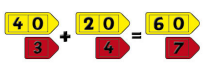
dave@senseofnumber.co.uk Tel: 01604 778848

The following slides show the calculation 43 + 24 using a variety of resources and manipulatives.

A: Base 10
43 + 24 = 67



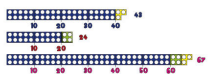
B: Arrow Cards
43 + 24 = 67



C: Hundred Square
43 + 24 = 67

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

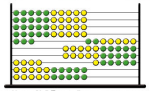
D: Numicon
43 + 24 = 67



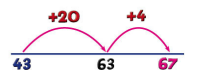
E: Place Value Counters
43 + 24 = 67

F: Money
43 + 24 = 67

G: Abacus
43 + 24 = 67



H: Number Line
43 + 24 = 67



Sense of Number

Standard Alternative Slides

by Dave Godfrey

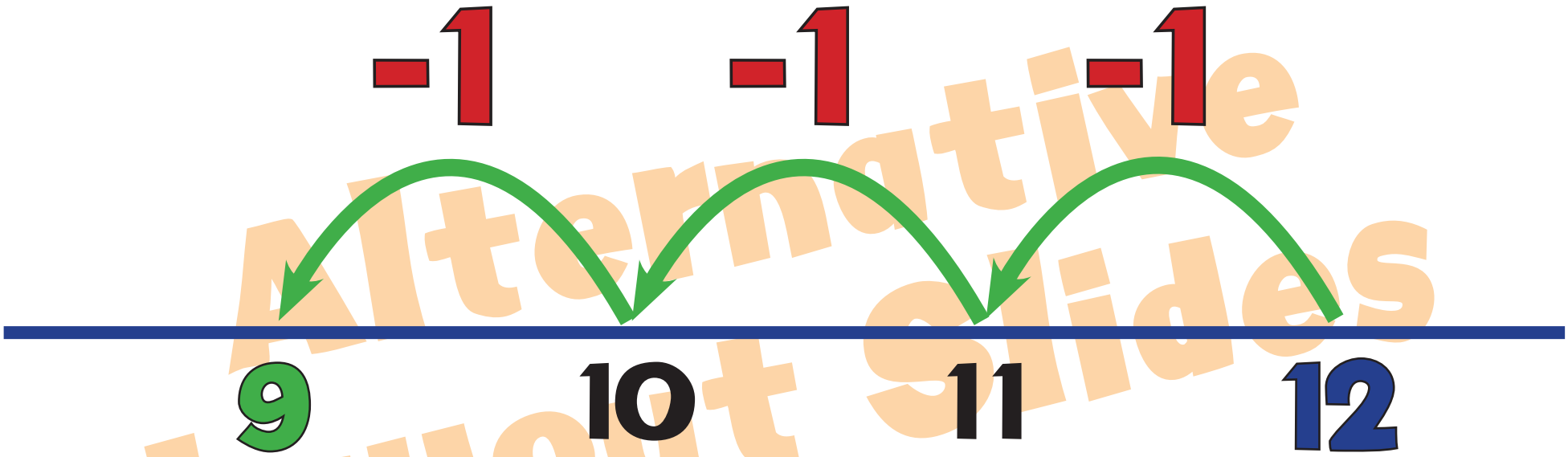
dave@senseofnumber.co.uk Tel: 01904 778848

The following slides the standard alternative slide configurations to the main set of slides.

A7: Column Addition

100	10	1
6	8	7
+ 2	4	8
	1	1
9	3	5

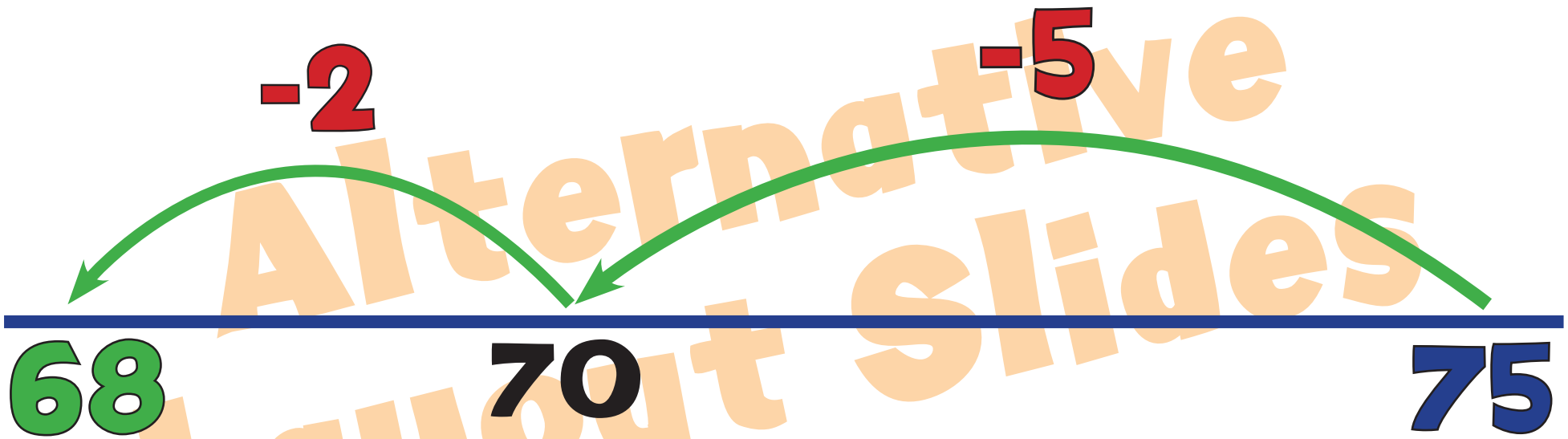
S3: Counting Back



12 - 3 = 9

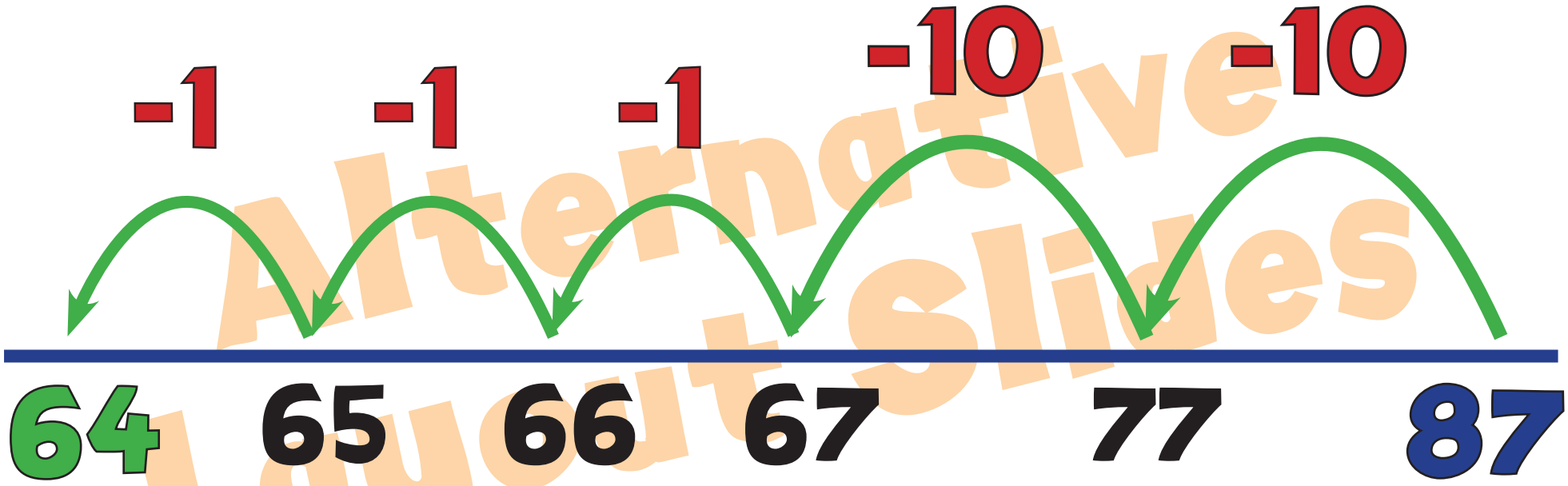
"What do I get if I take 3 away from 12? Answer: 9"

S5: Backwards Boing



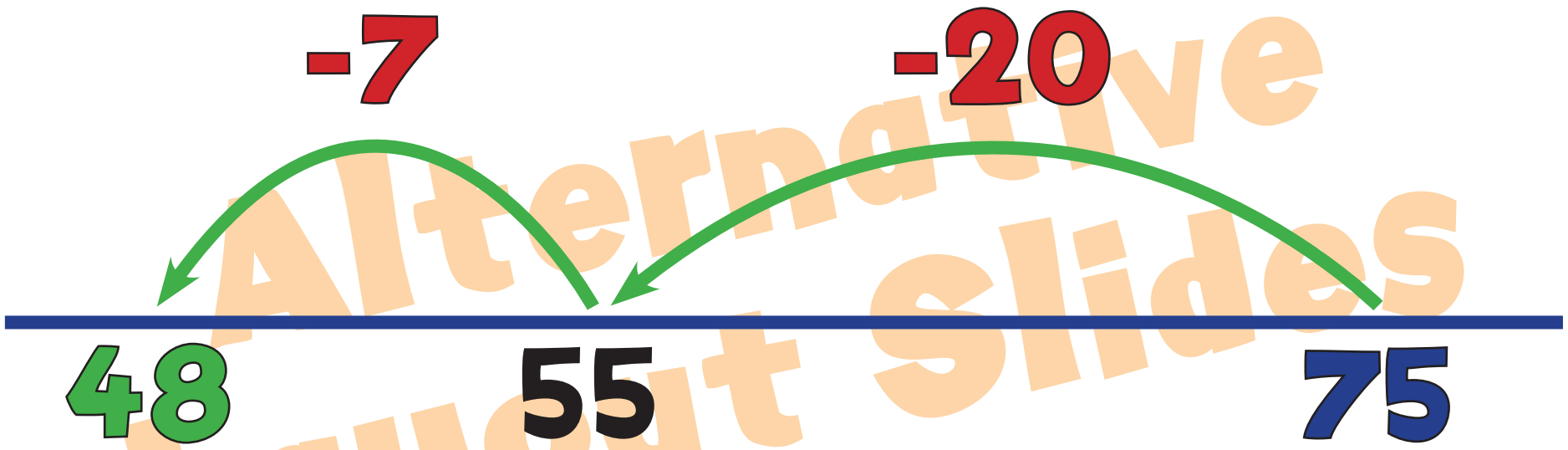
$$75 - 7 = 68$$

S6: Backwards Bounce



87 - 23 = 64

S7: Backwards Jump



75 - 27 = 48

M7: Column Multiplication

100	10	1
	147	
×		4
	12	
	588	

M9: Long Multiplication

Column

$$
\begin{array}{r}
43 \\
\times\ 65 \\
\hline
^{2}\,^{1}215 \quad (5 \times 43) \\
+\ ^{2}\,^{1}2580 \quad (60 \times 43) \\
\hline
2795 \\
\hline
\end{array}
$$