Sense of Number
Visual Calculation Policy

Basic Edition for
Glynne Primary School
January 2015

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

For sole use within Glynne Primary School.

'A picture is worth 1000 words!'
www.senseofnumber.co.uk

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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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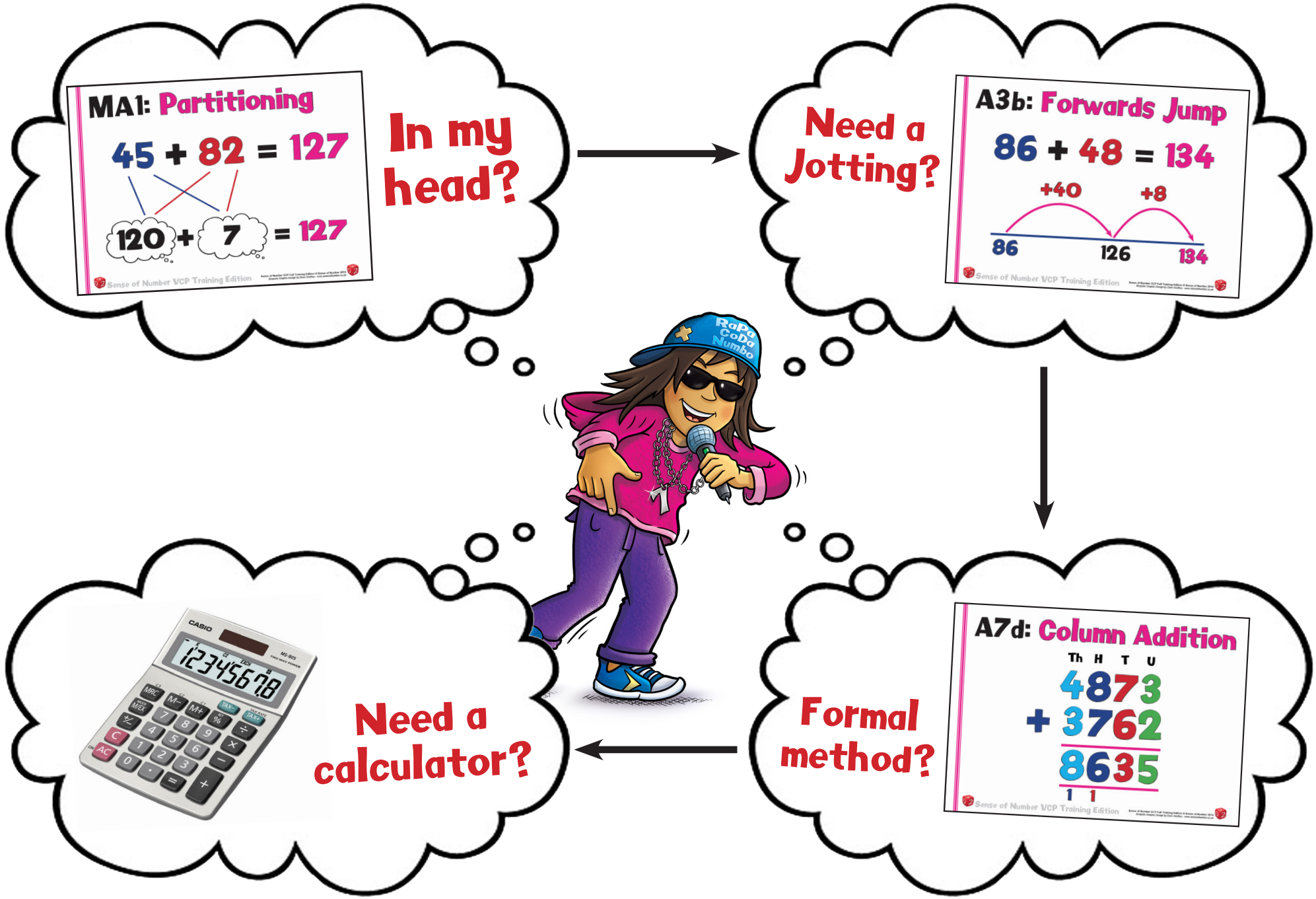

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1

Can I do this in my head?

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2

Do I need to use a drawing or a jotting?

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3

Do I need an expanded or a standard method?

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4

Do I need a calculator?

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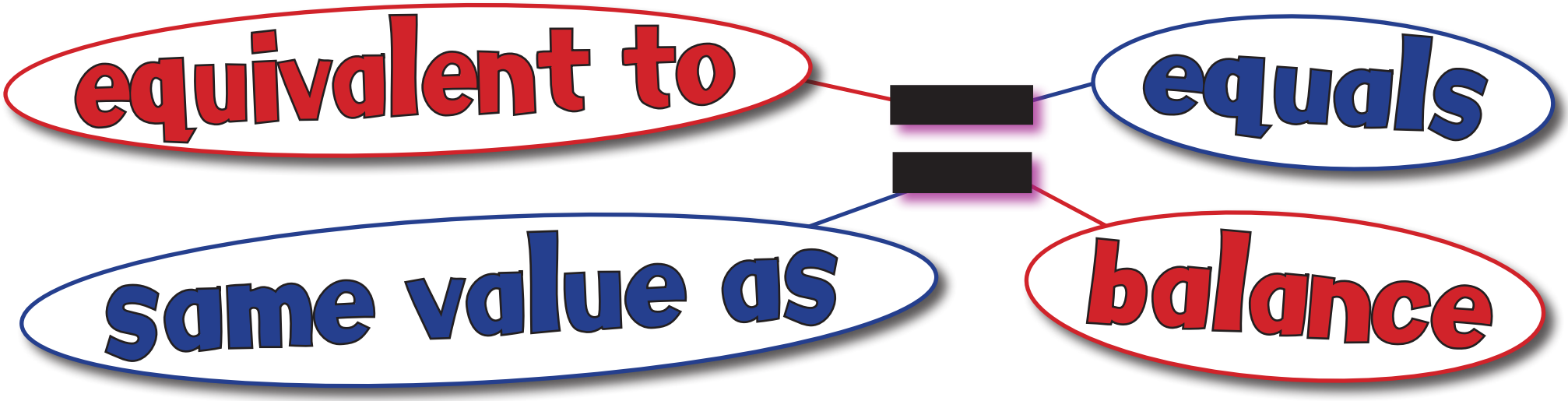
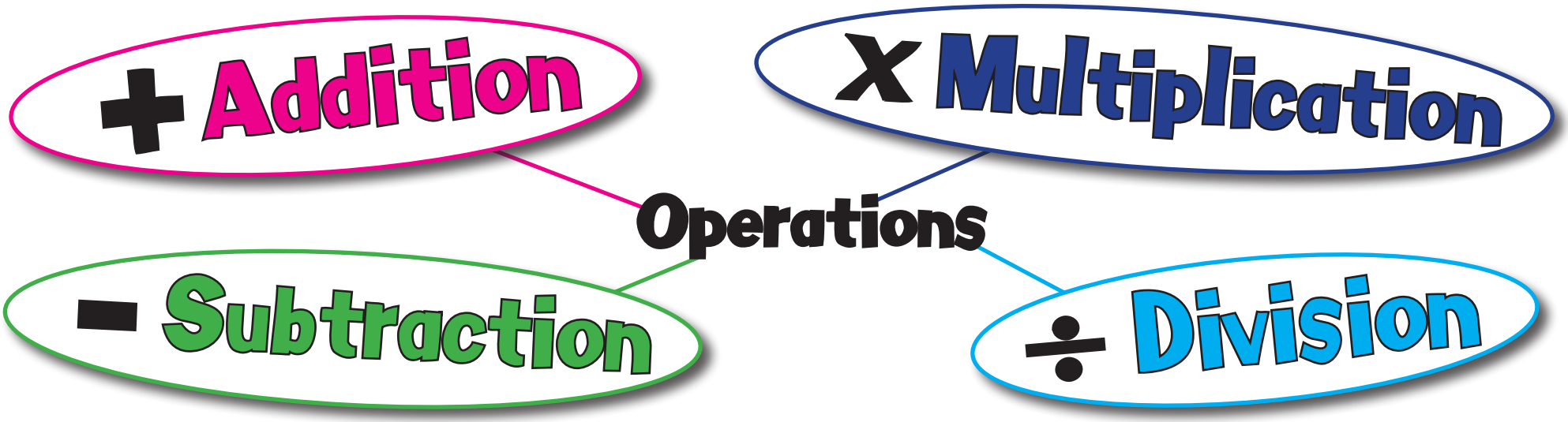
Calculation Vocabulary





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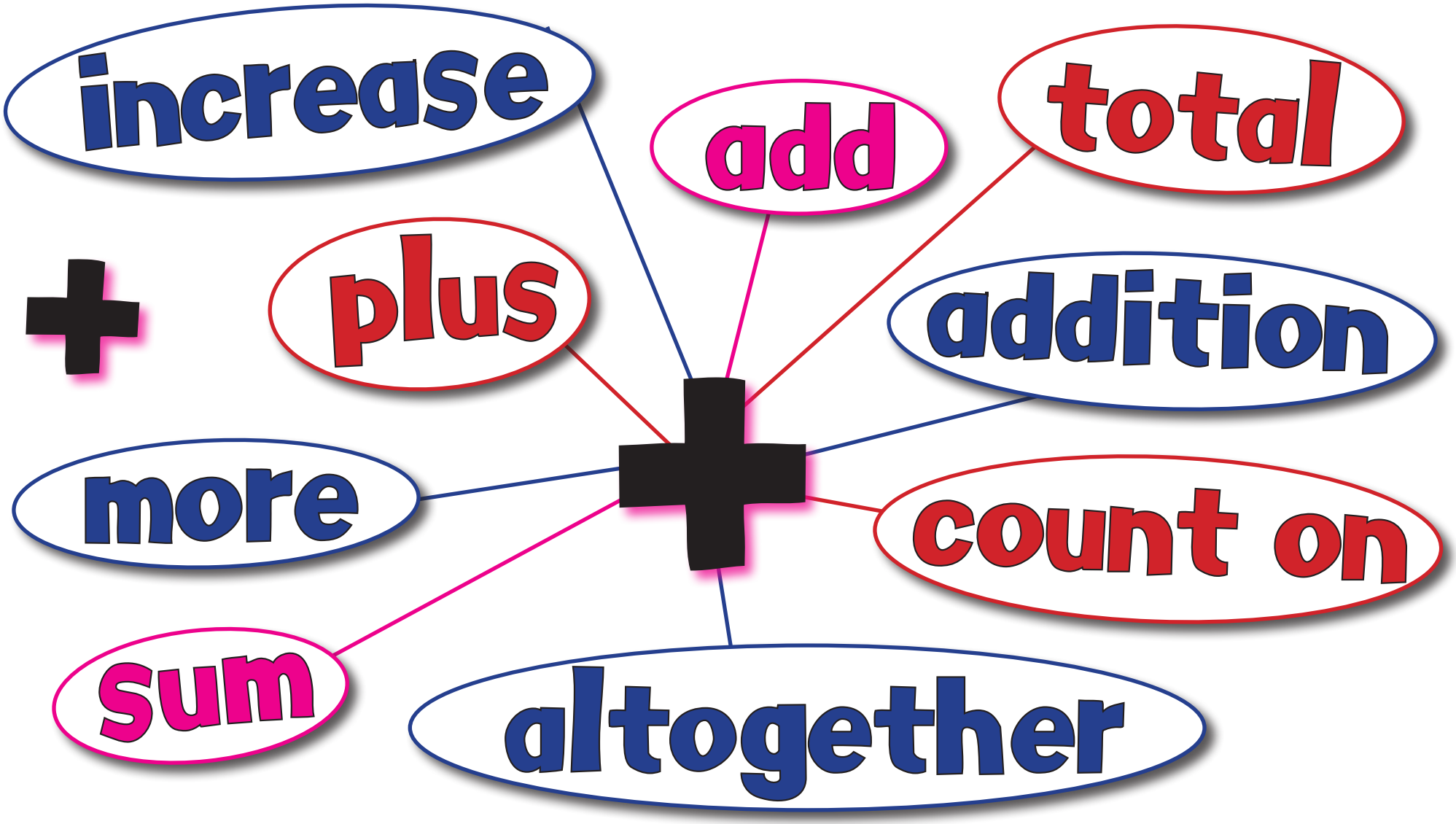
Addition Vocabulary



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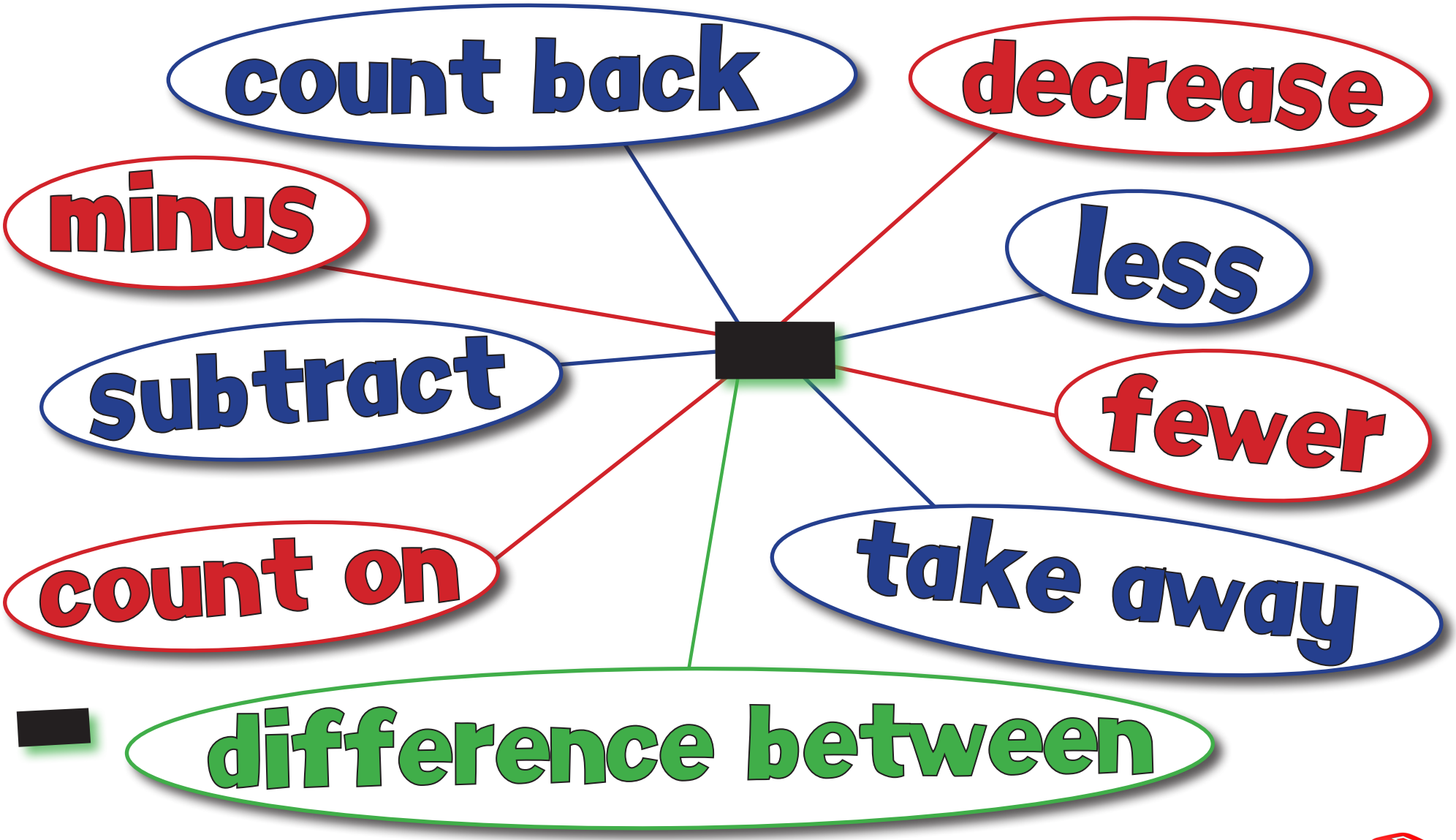
Subtraction Vocabulary



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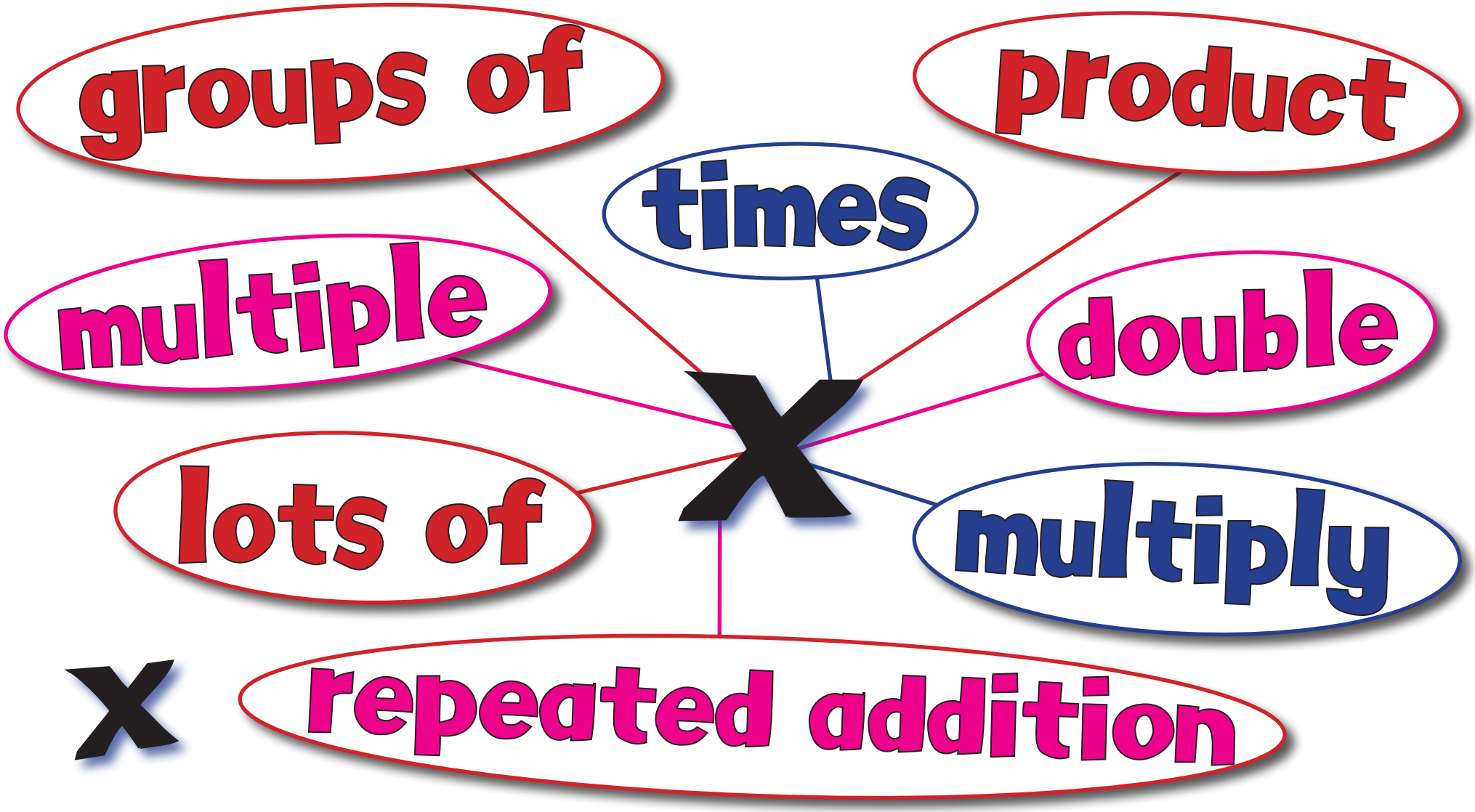
Multiplication Vocabulary



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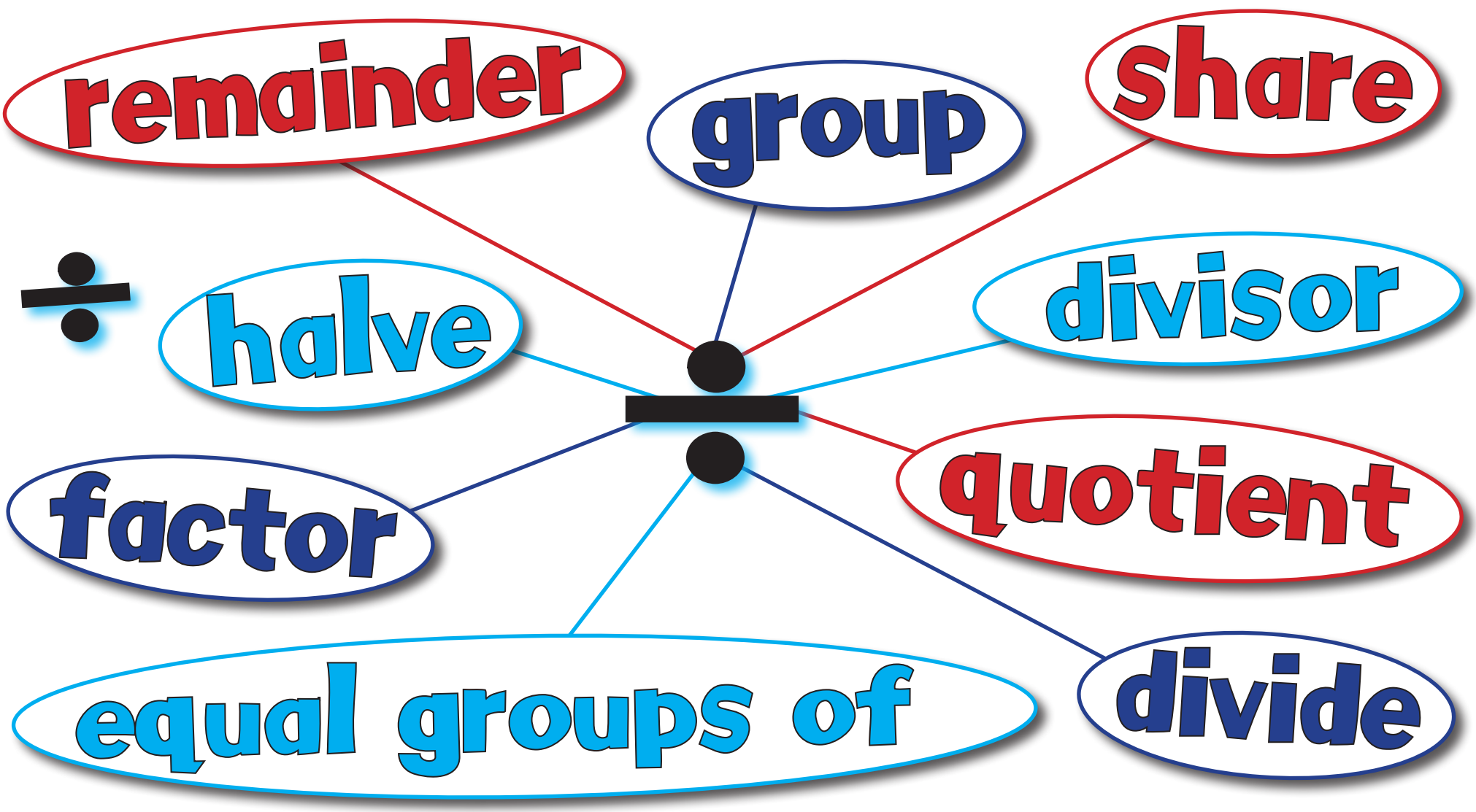
Division Vocabulary



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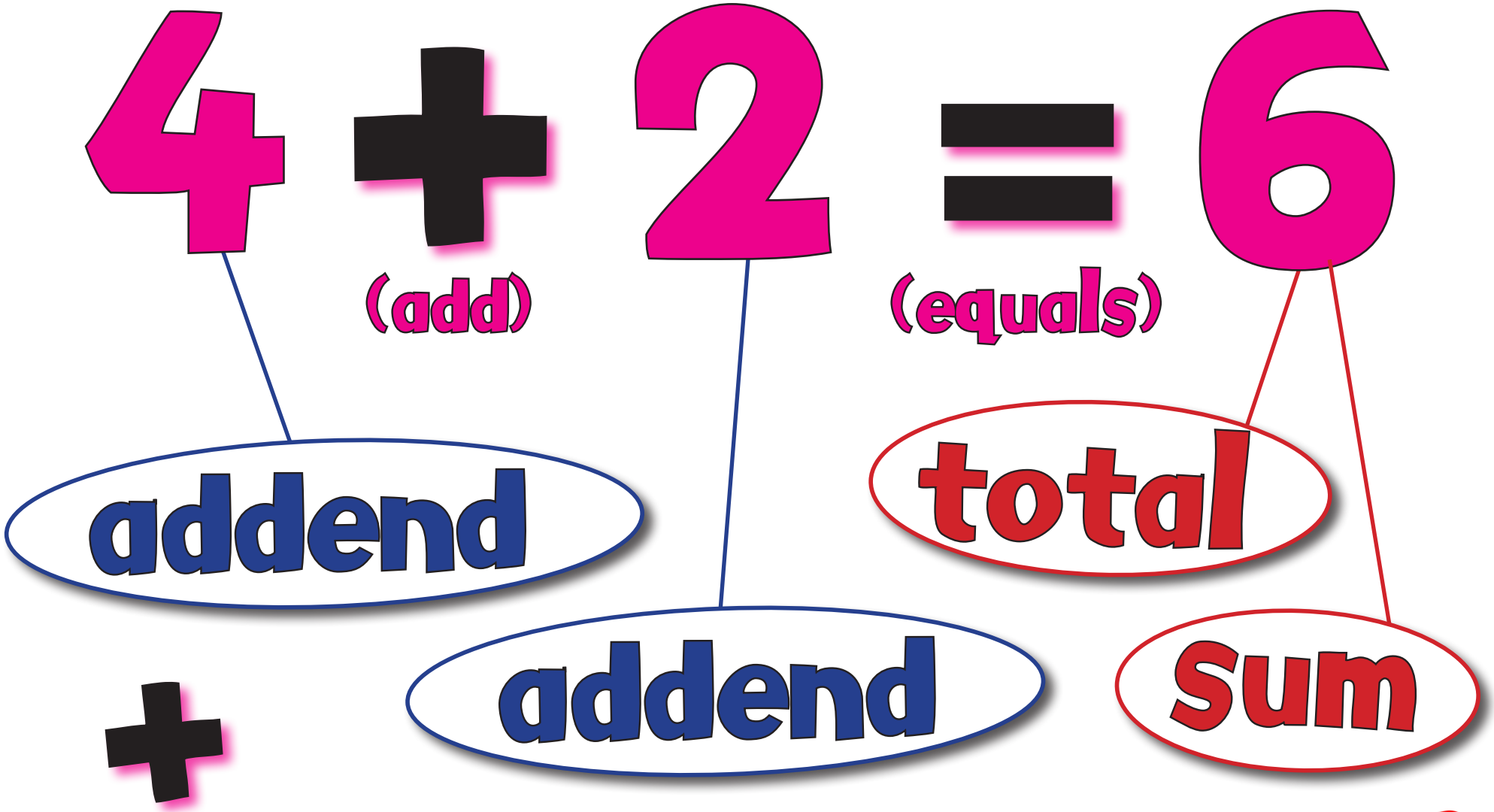
Addition Calculation



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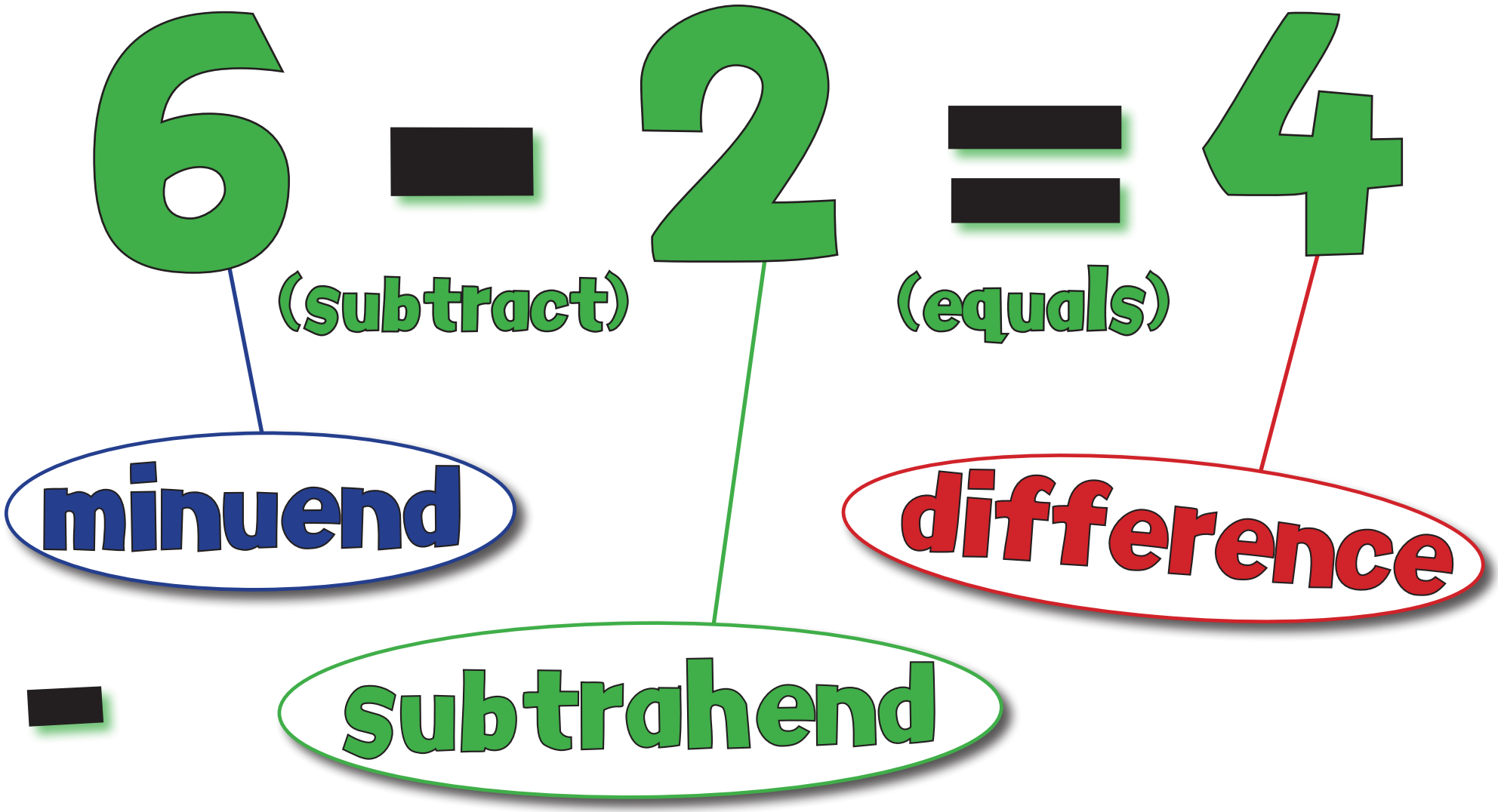
Subtraction Calculation



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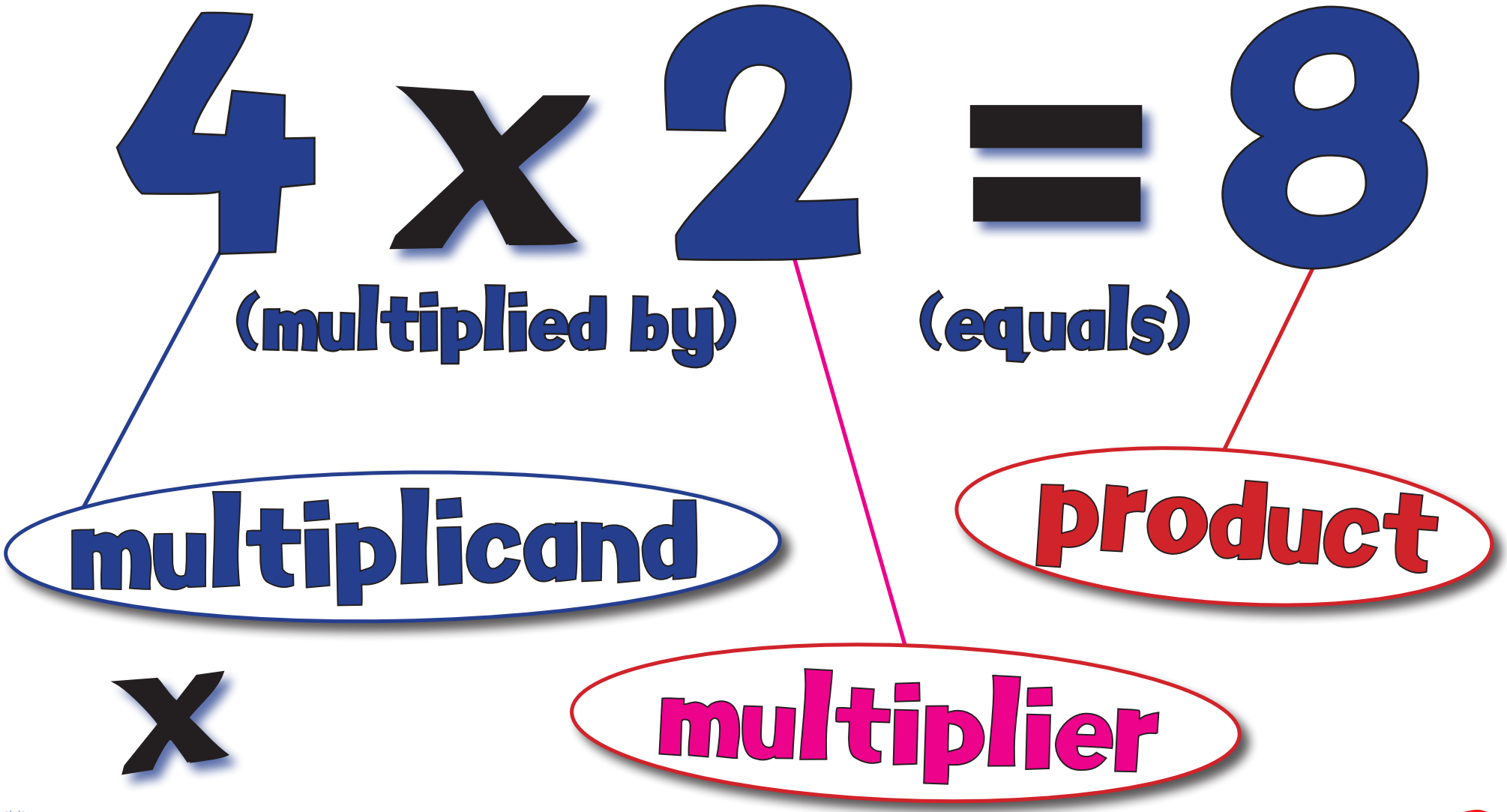
Multiplication Calculation



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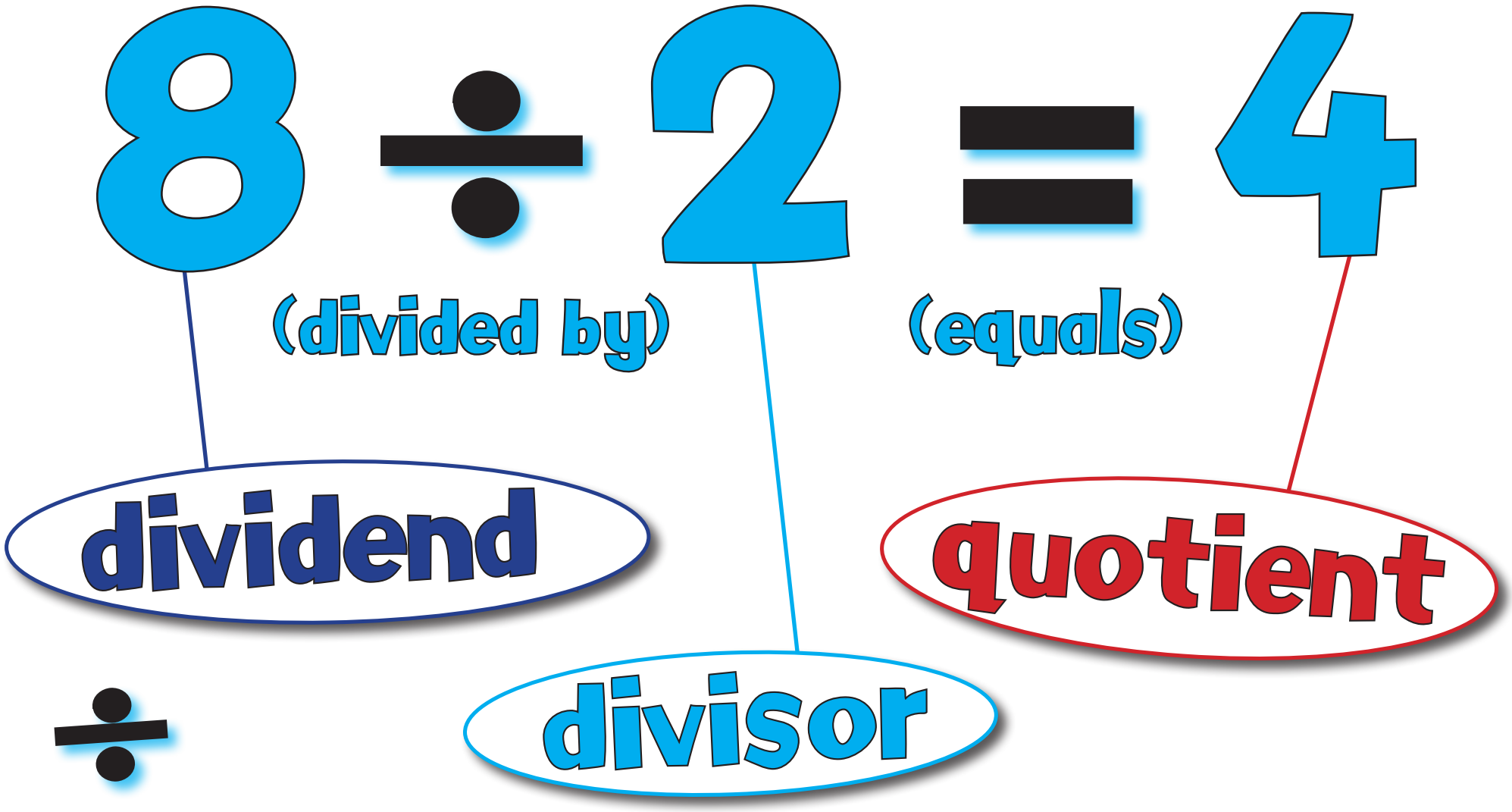
Division Calculation



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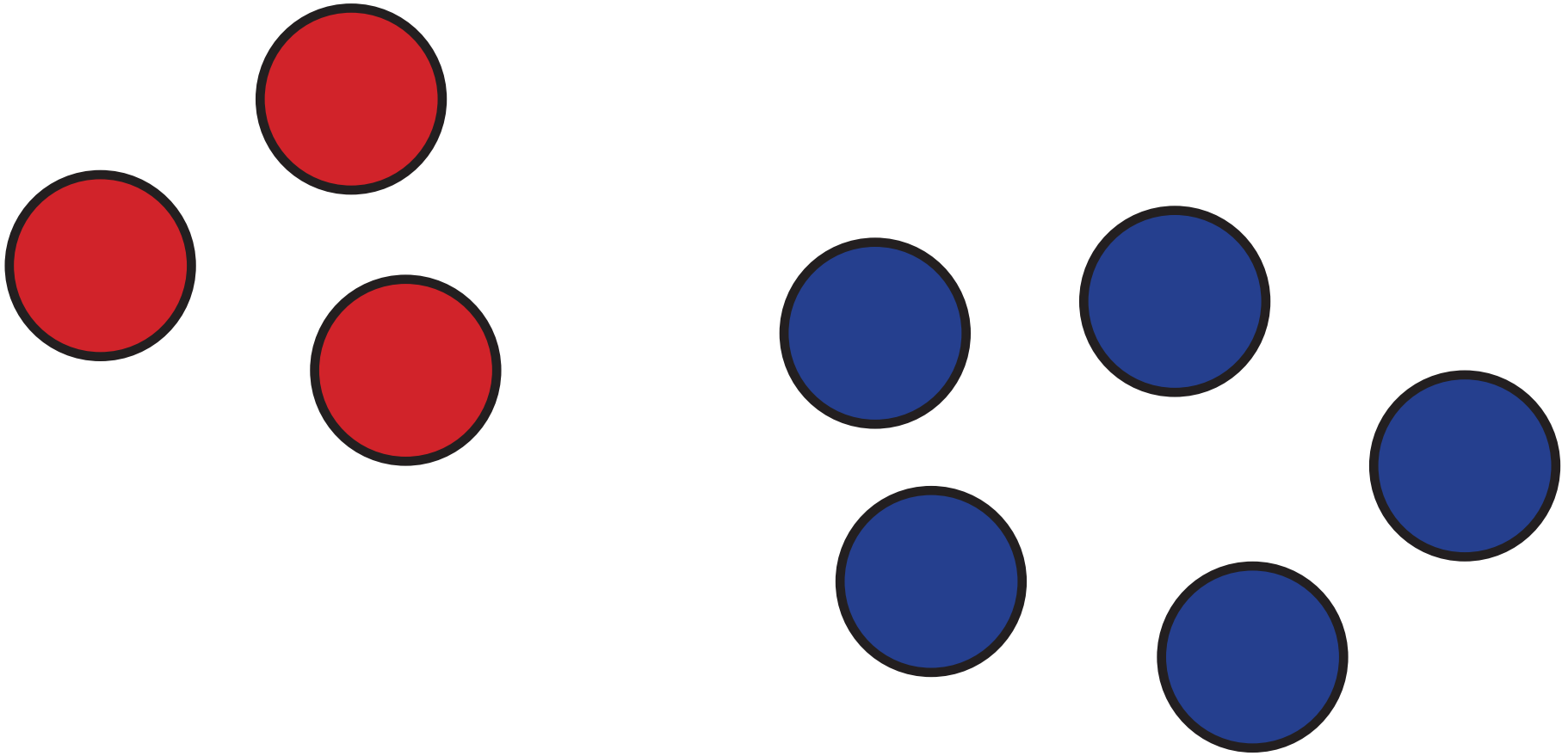
A1: Objects & Pictures



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

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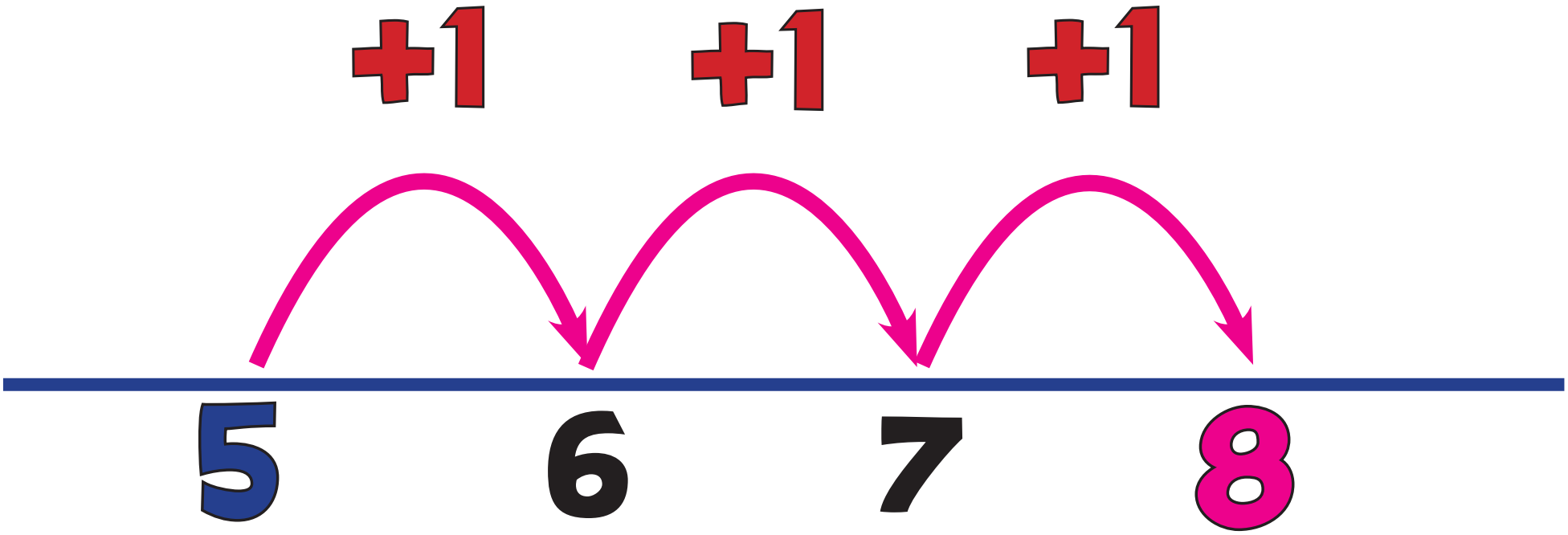
A2: Counting On



$$5 + 3 = 8$$

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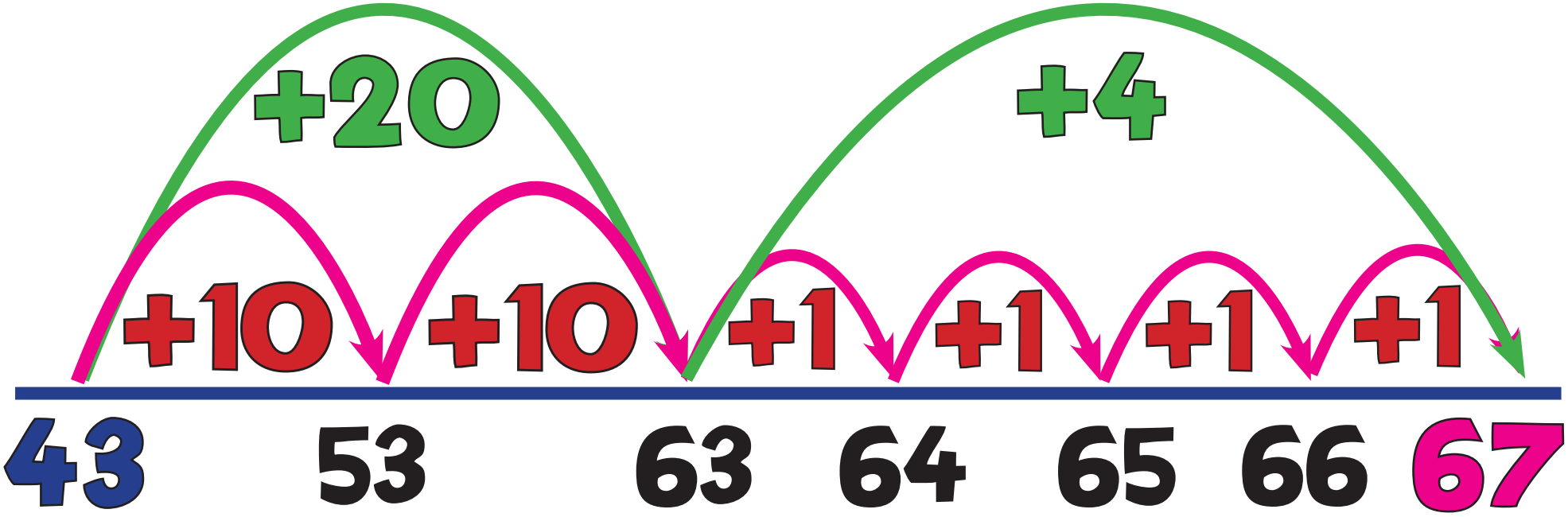
A3: Forwards Jump

43 + 24 = 67



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A4: Partitioning

$$43 + 24 = 67$$

$$40 + 20 = 60$$

$$3 + 4 = 7$$

$$67$$

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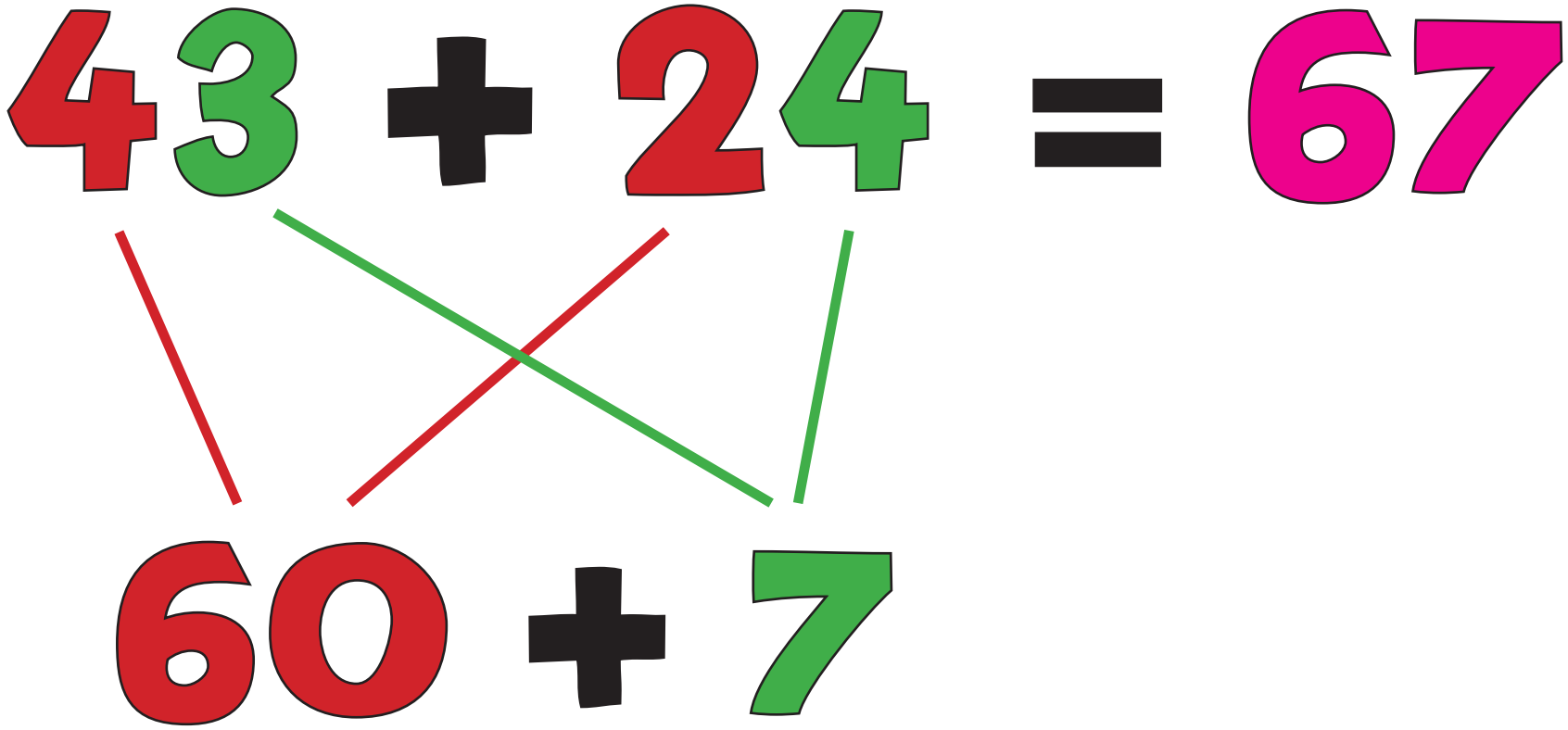
A5: Partition Jot



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A6: Expanded Column Addition

	100	10	1
	6	8	7
+	2	4	8
			15
	1	20	
	800		
	9	35	

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A7: Column Addition

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

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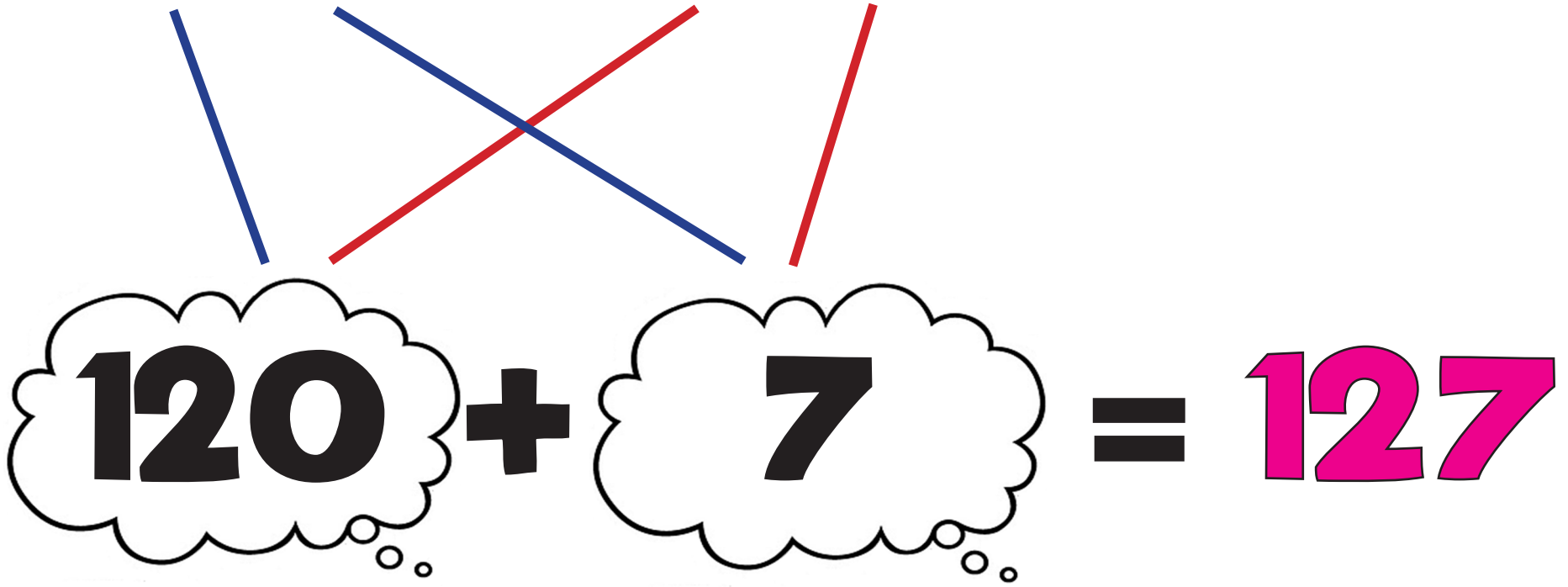
MA1: Partitioning

45 + 82 = 127



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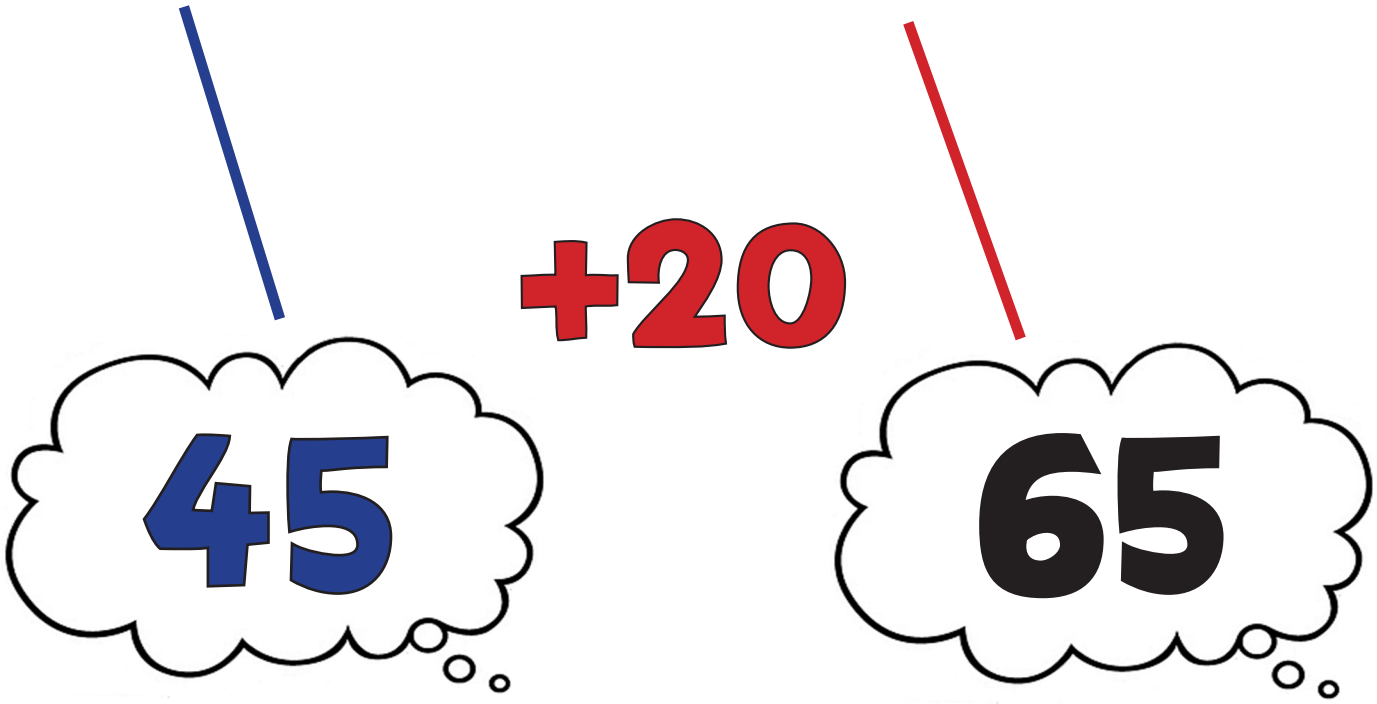
MA2: Counting On

$$45 + 20 = 65$$



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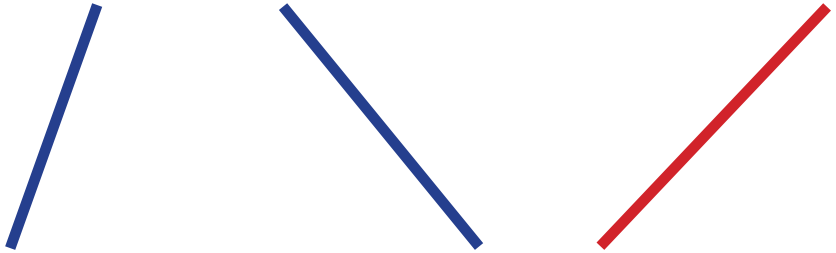
MA3: Number Bonds

45 + 95 = 140



40 + 100 = 140

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MA4: Double & Adjust

45 + 46 = 91

45 + 45 + 1

90 + 1 = 91

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MA5: Round & Adjust

$$45 + 39 = 84$$

$$45 + 40 - 1$$

$$85 - 1 = 84$$

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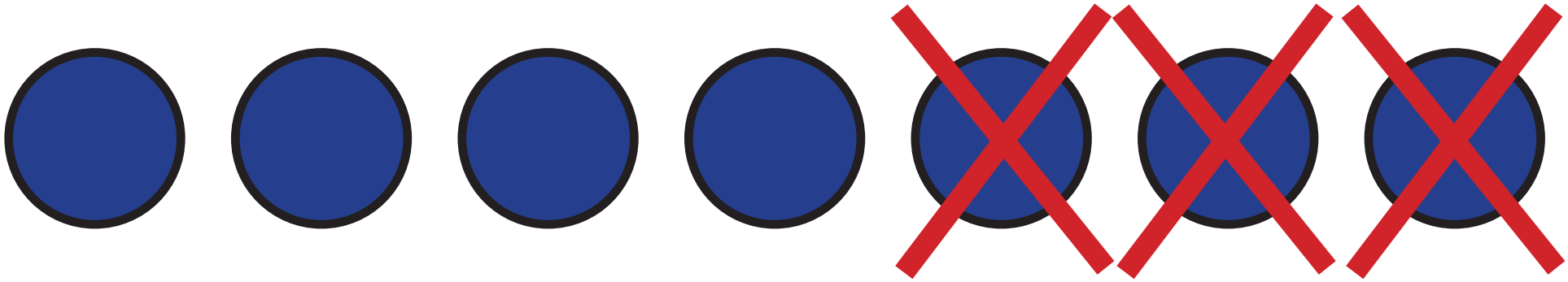
S1: Objects



7 - 3 = 4

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

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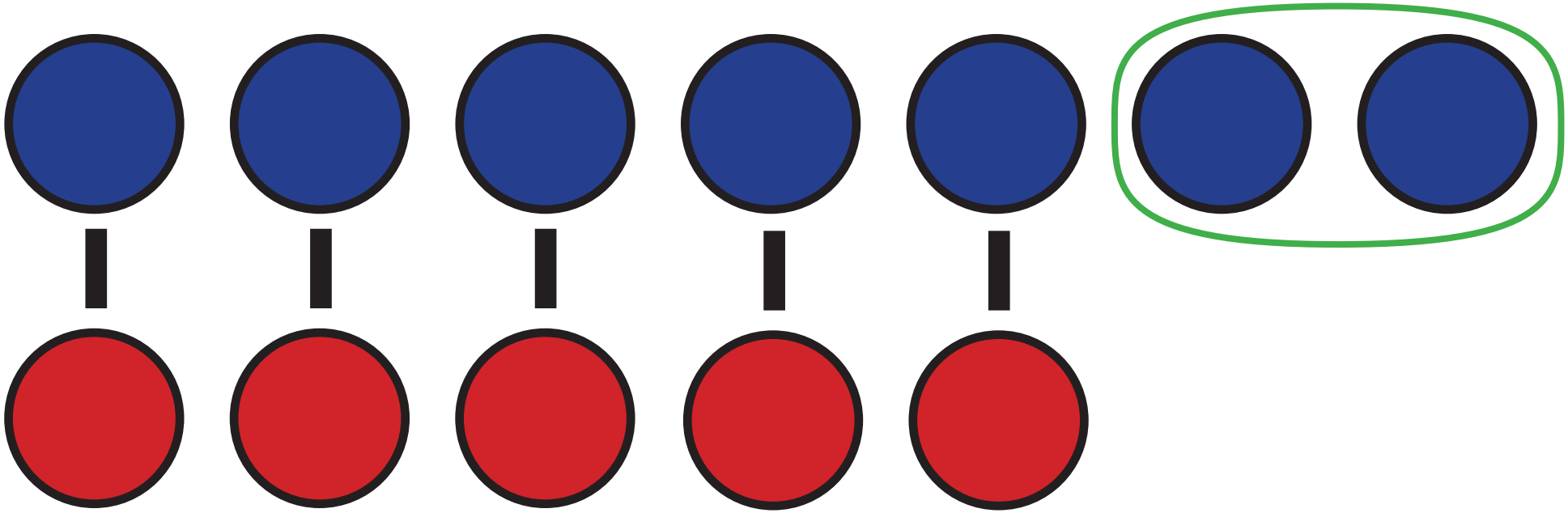
S2: What's the Difference?



7 - 5 = 2

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

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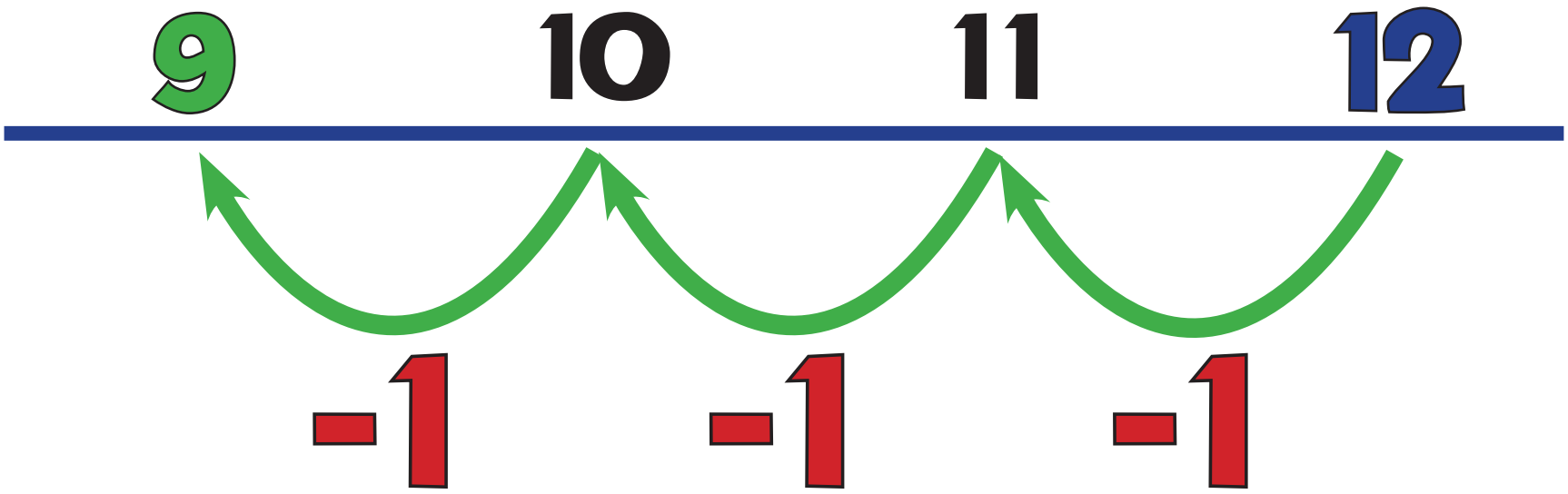
S3: Counting Back



12 - 3 = 9

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

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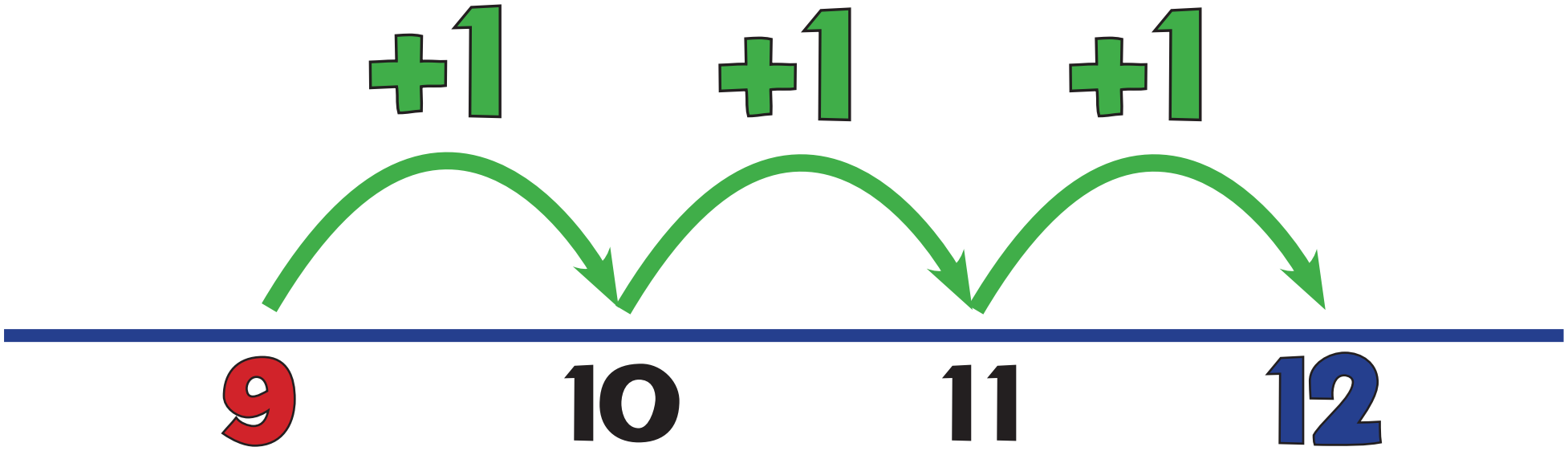
S4: Counting On



12 - 9 = 3

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

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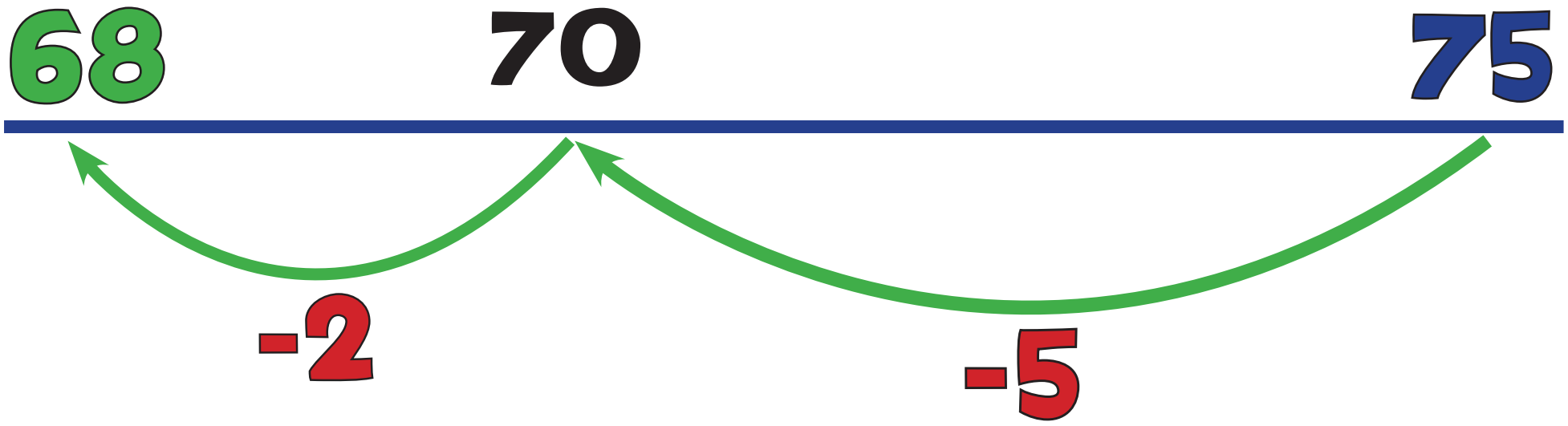
S5: Backwards Boing



75 - 7 = 68

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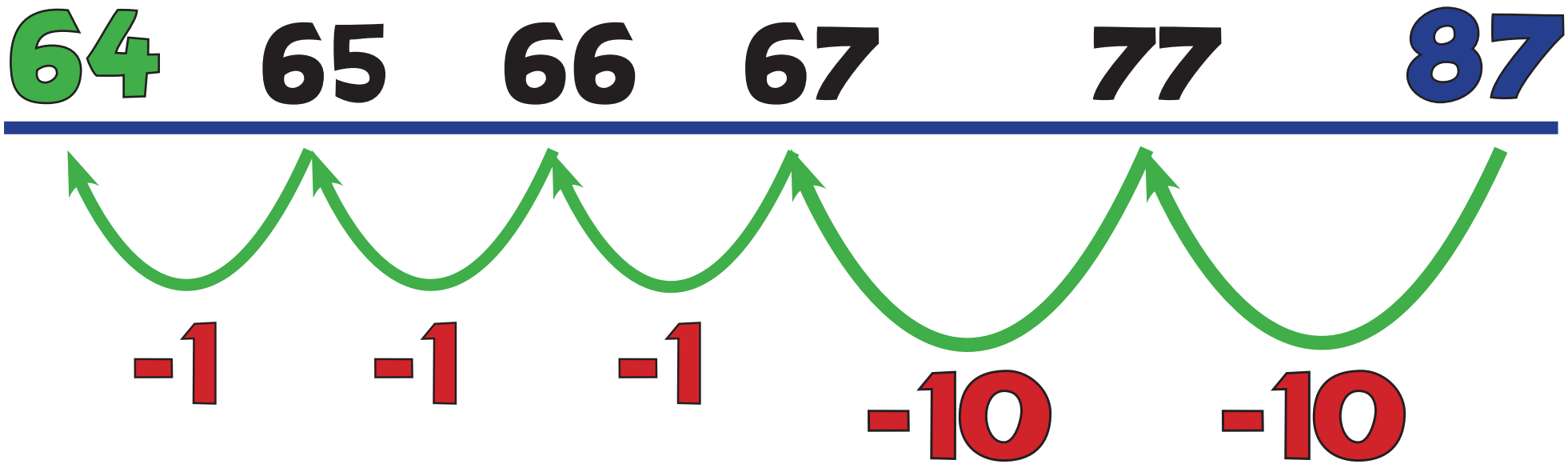
S6: Backwards Bounce



87 - 23 = 64

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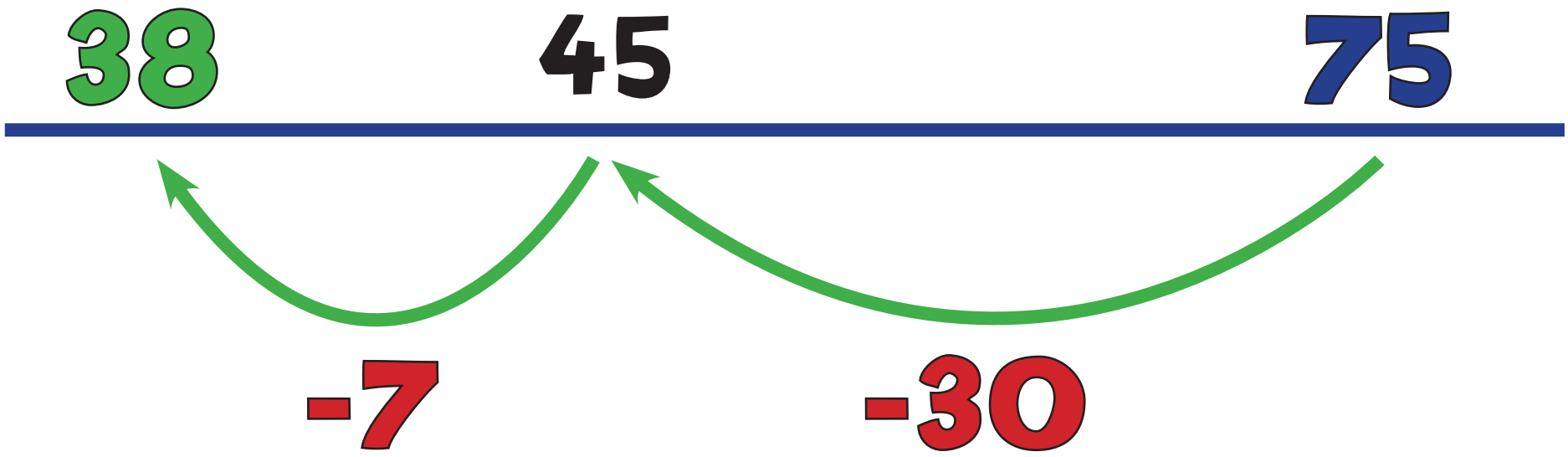
S7: Backwards Jump



75 - 37 = 38

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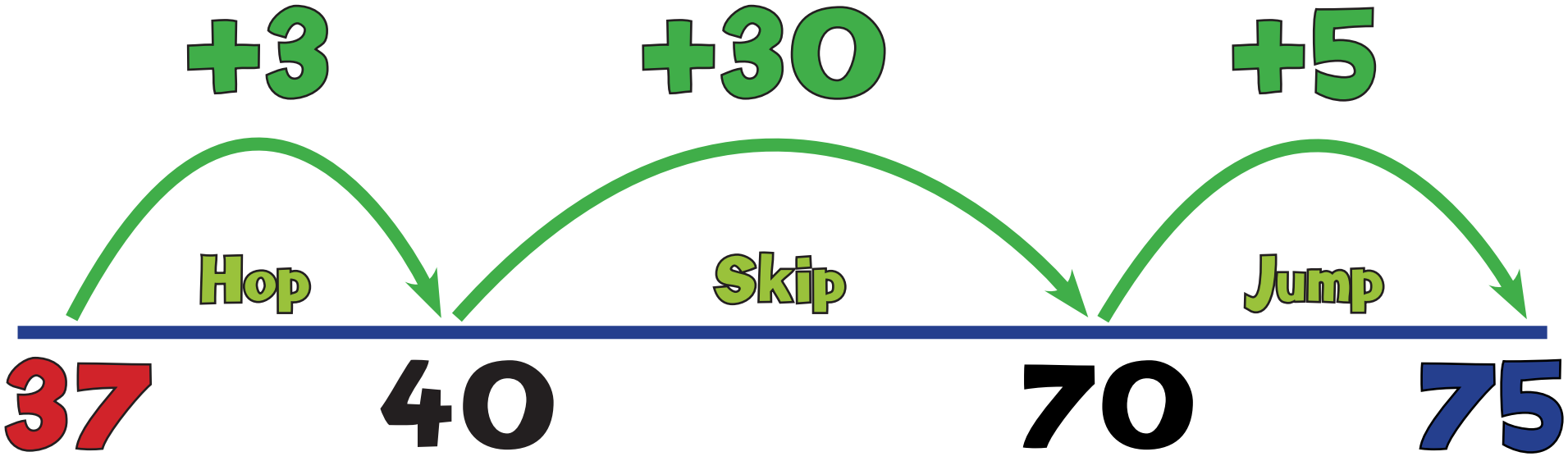
S8: Triple Jump!



75 - 37 = 38

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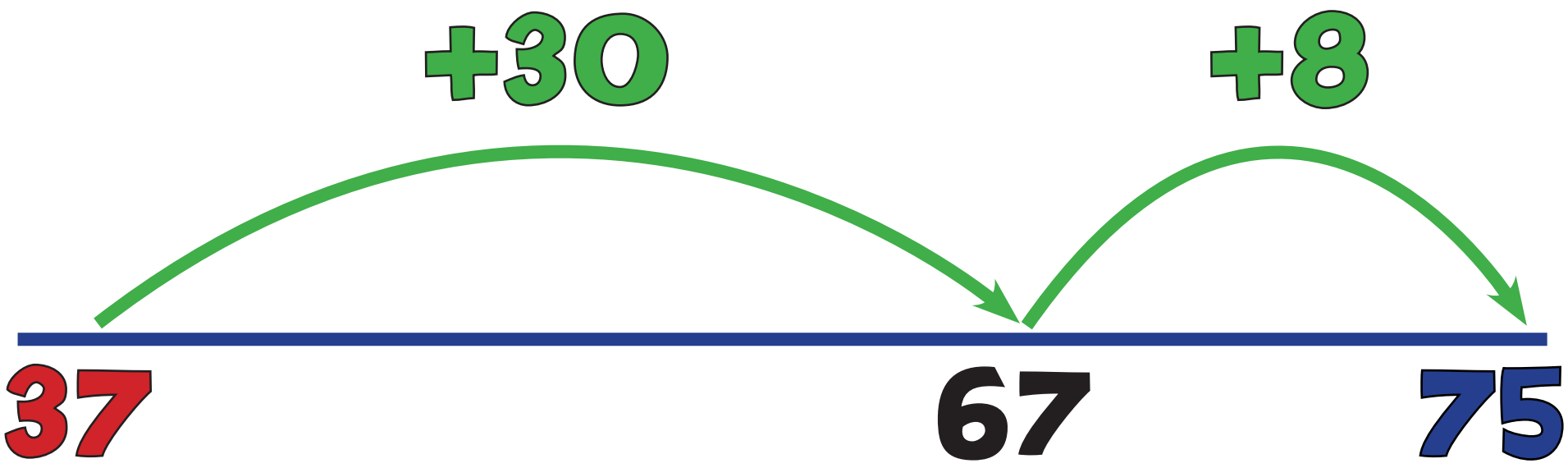
S9: 10s Jump, 1s Jump!



75 - 37 = 38

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S10: Expanded Column

Subtraction (100, 10, 1s)

723 - 356 = 367

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

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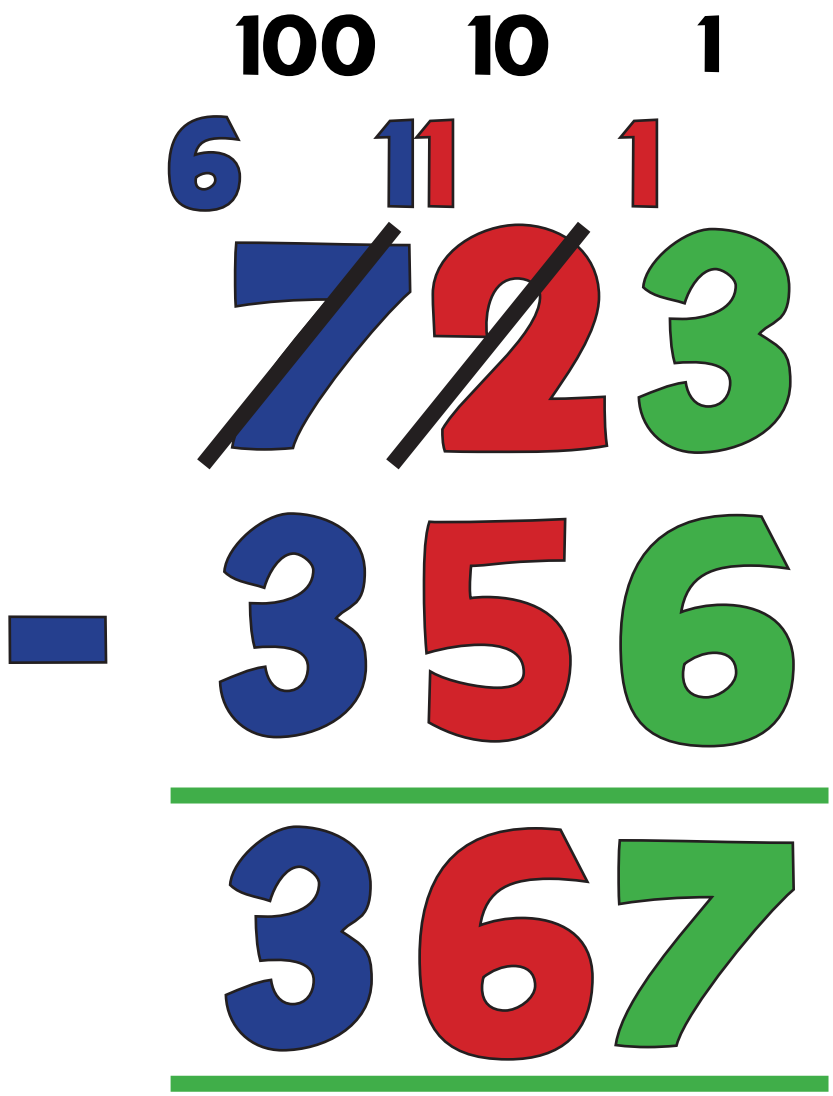
S11: Column Subtraction



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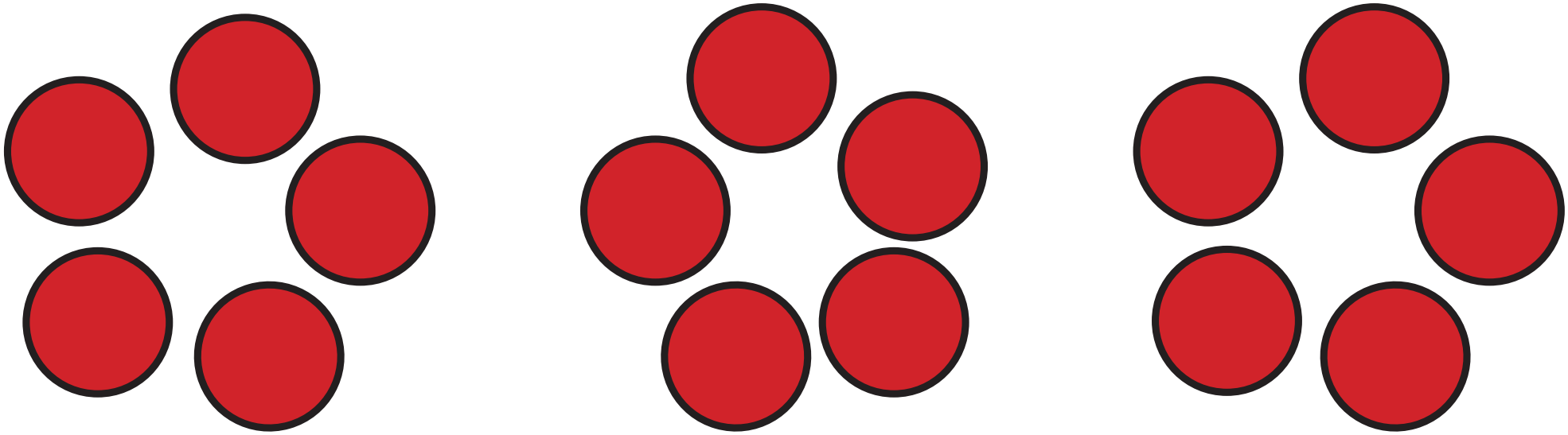
M1: Repeated Addition
(Groups)



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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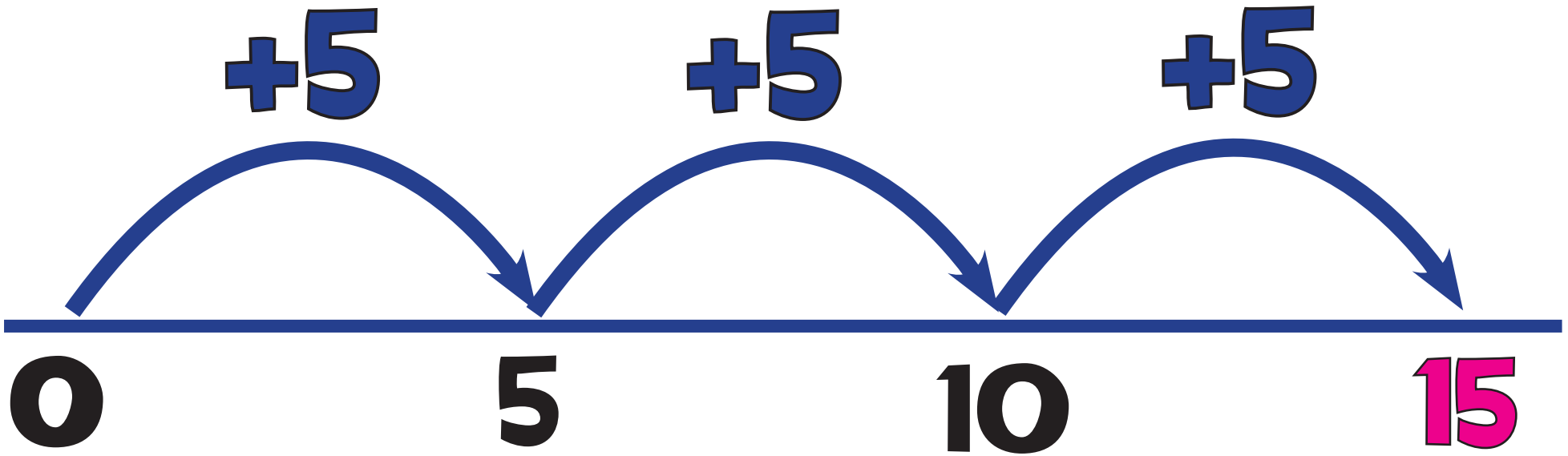
M2: Repeated Addition

(Number Line)



5 x 3 = 5 + 5 + 5 = 15

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

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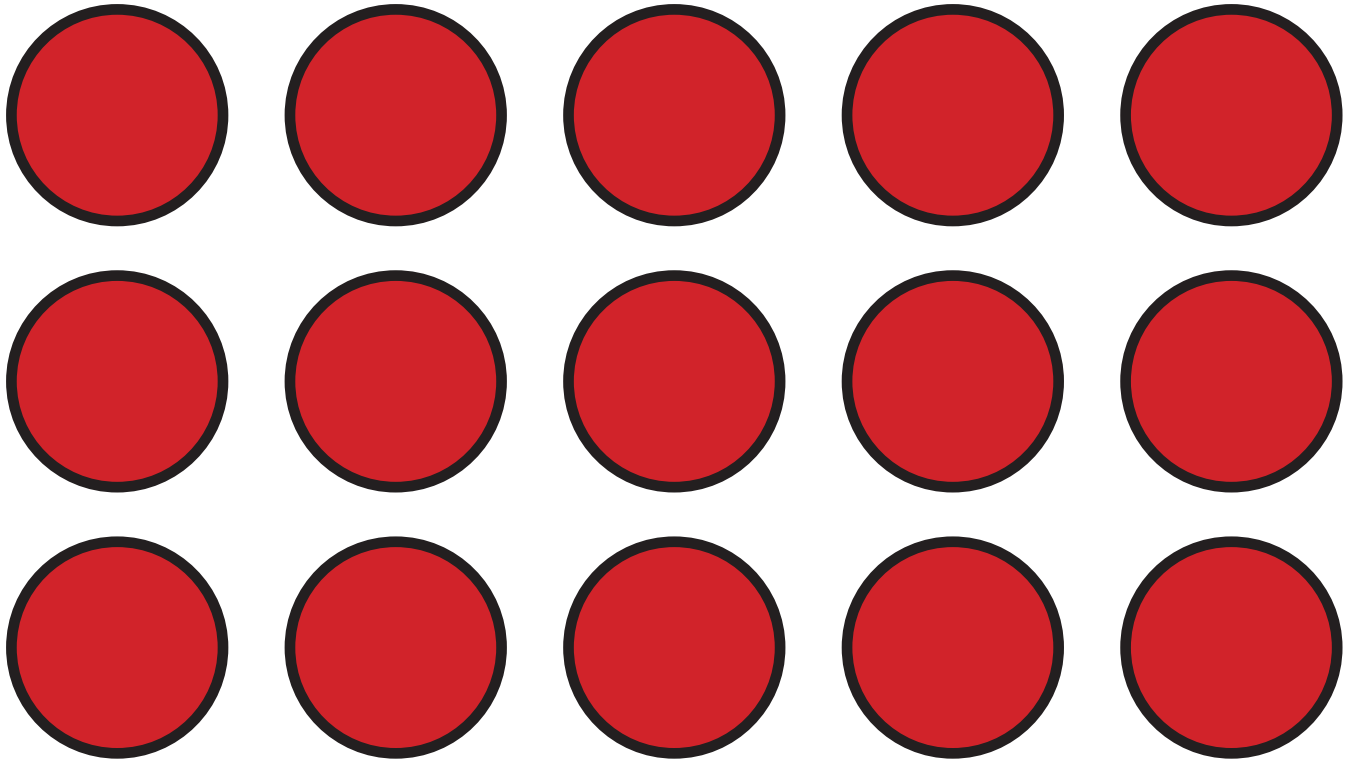
M3: Arrays



3 x 5 = 15 or 5 x 3 = 15

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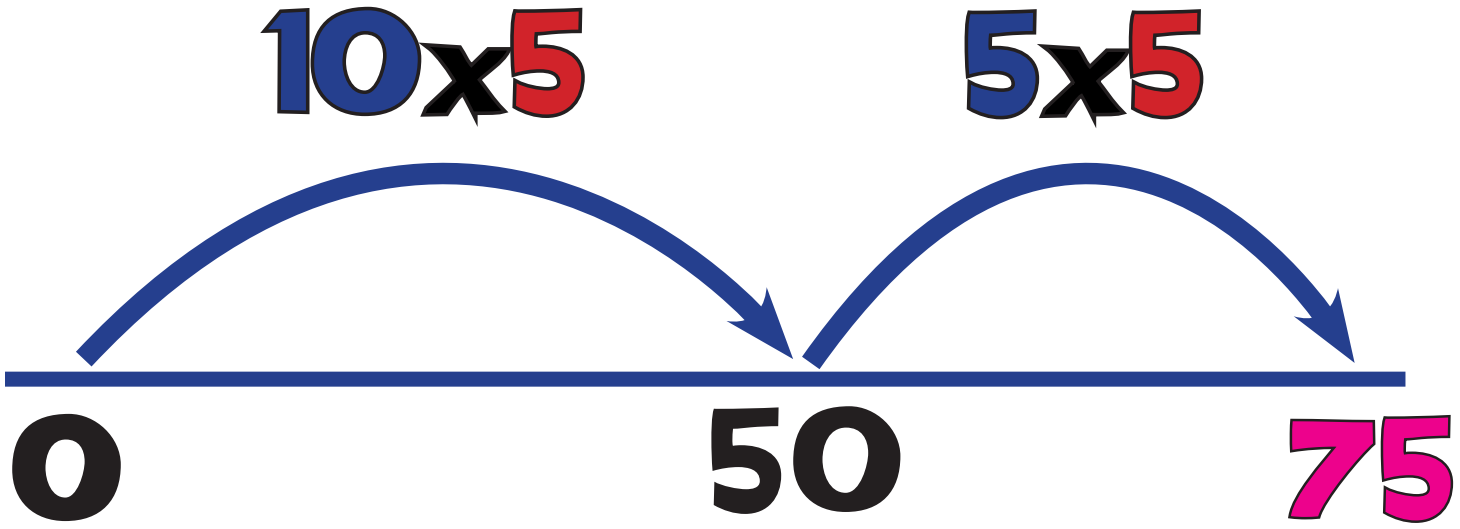
M4: Multi Boing!



$10 \times 5 = 50$

$5 \times 5 = 25$

75

$15 \times 5 = 75$

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M5: Grid Method

Short Multiplication

15 x 5 = 75

x	10	5
5	50	25

50 + 25 = 75

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M6: Expanded Column

100	10	1		
1	4	7		
x		4		
		28		(4 x 7)
	1	60		(4 x 40)
4	00			(4 x 100)
	588			

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M7: Column Multiplication

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

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M8: Grid Method

Long Multiplication

43 x 65 = 2795

x	40	3
60	2400	180
5	200	15

2400 + 180 + 200 + 15 = 2795

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M9: Long Multiplication

Column

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

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MM1: Jump!

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

×100

×10

÷10

÷100

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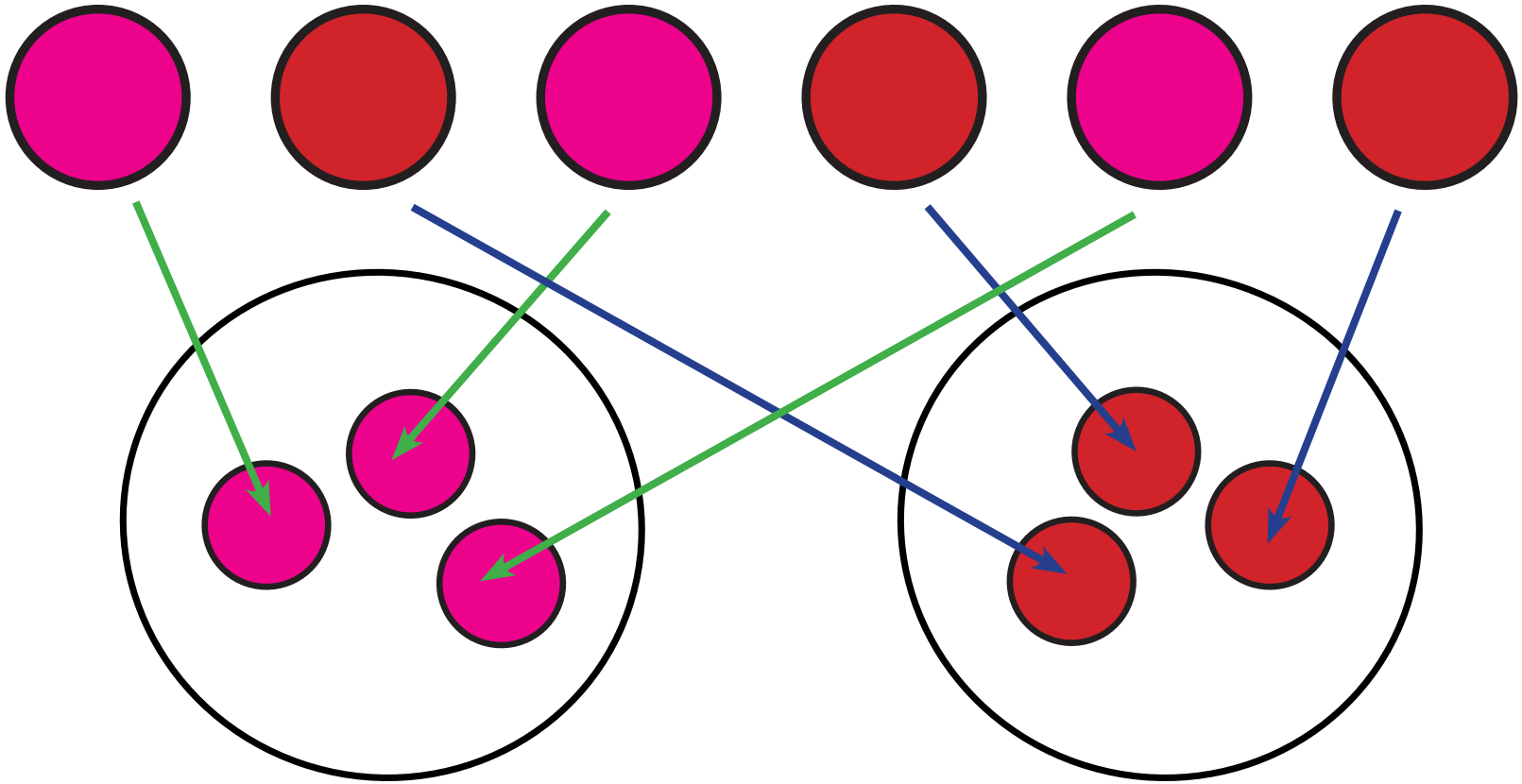
D1: Sharing (Concept)



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

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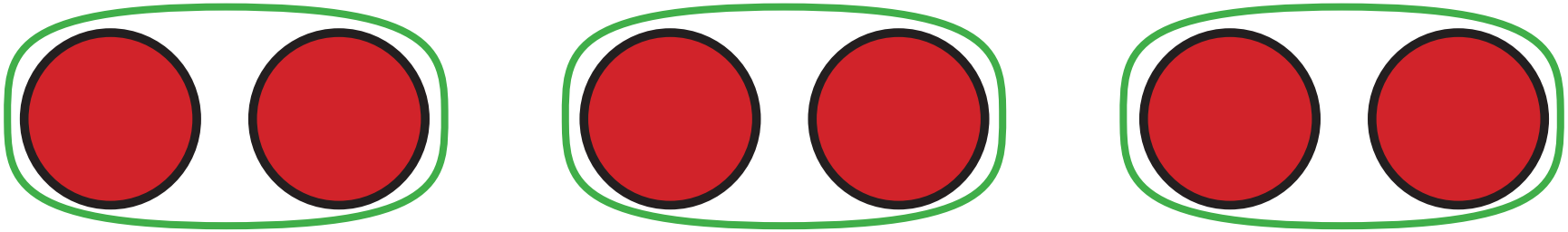
D2: Grouping (Concept)



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

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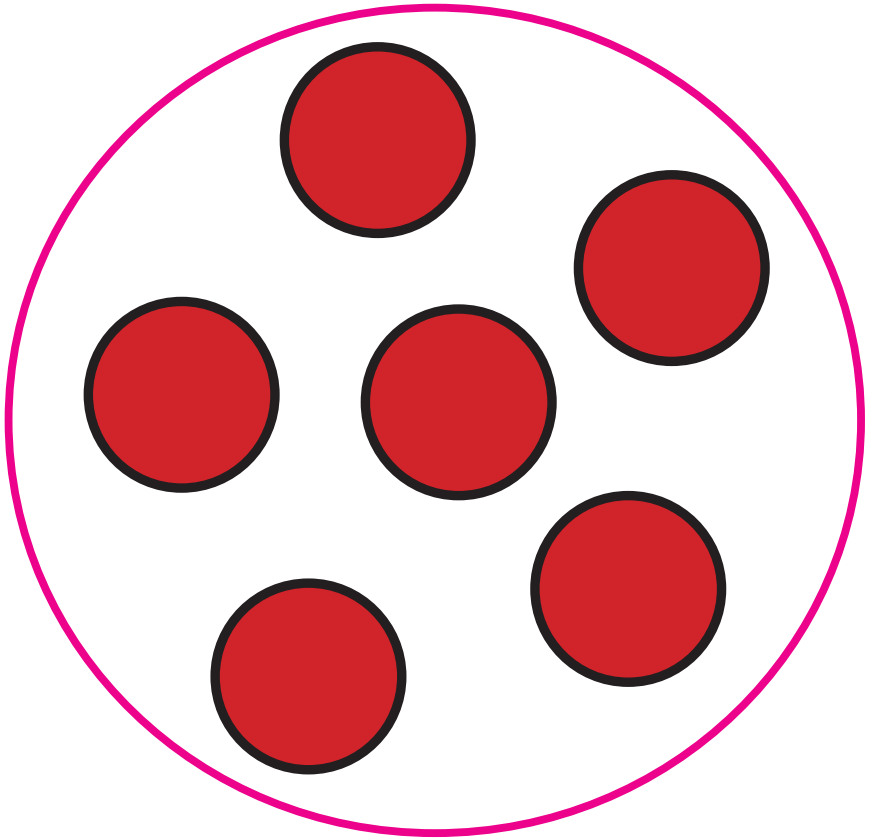
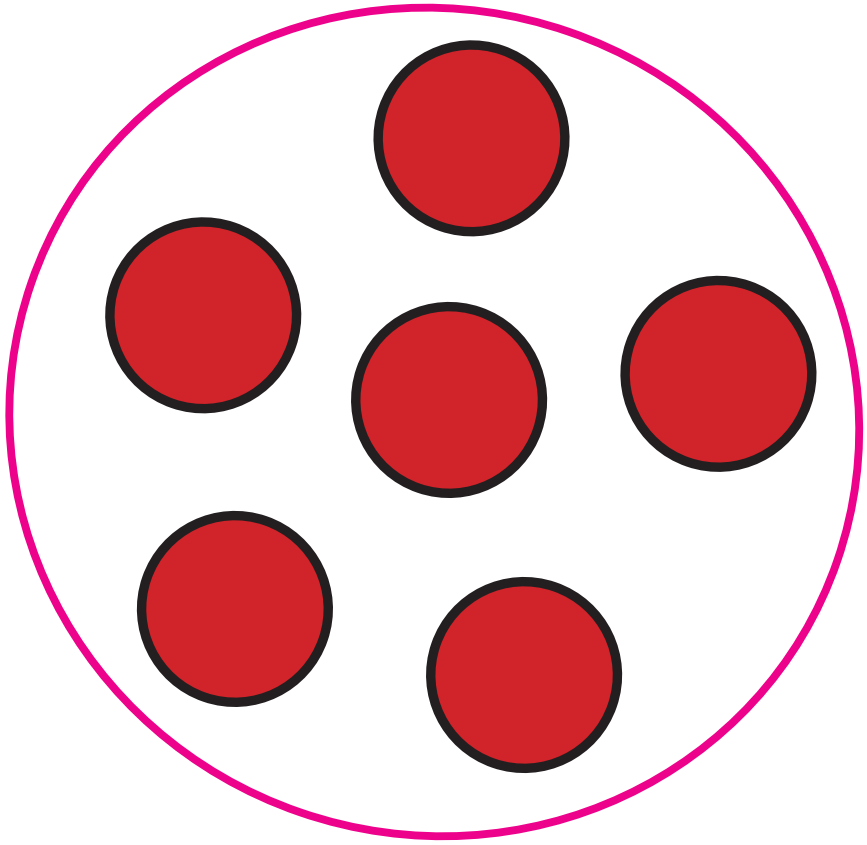
D3: Division as Sharing

12 ÷ 2 = 6

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





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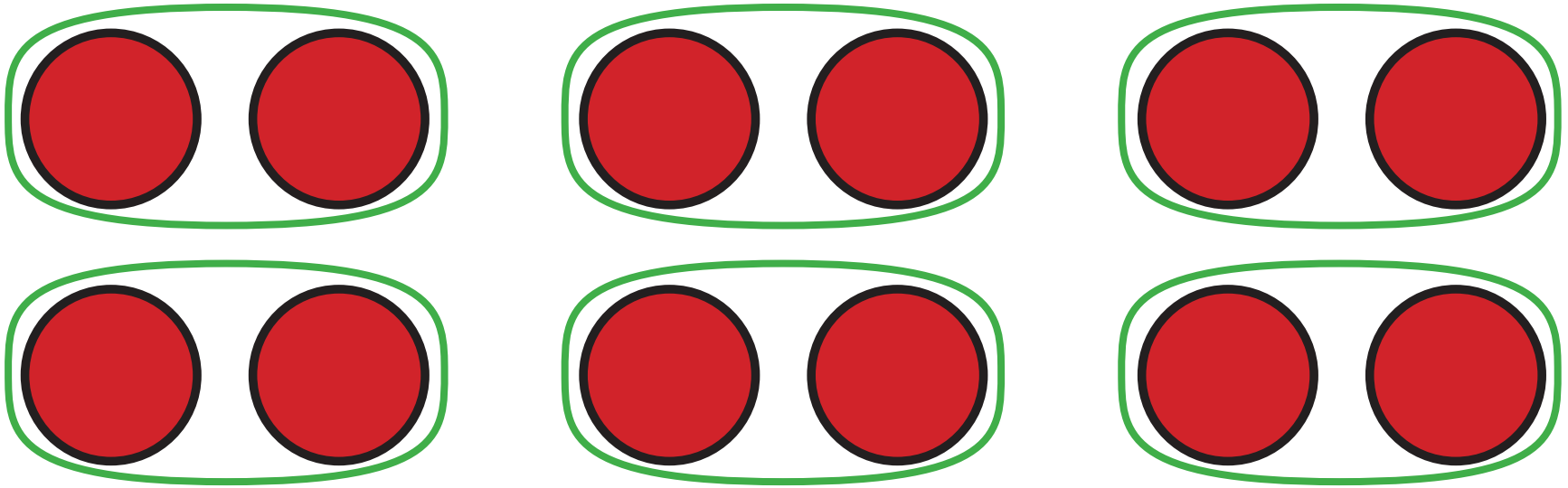
D4: Division as Grouping

12 ÷ 2 = 6

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



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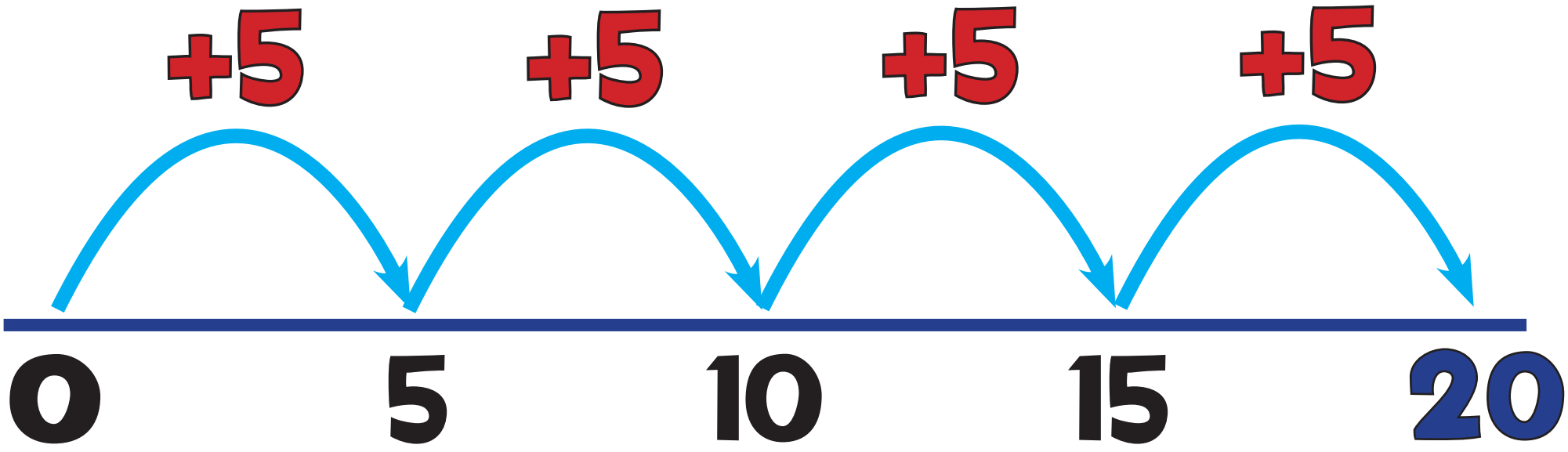
D5: Grouping on a Number Line



"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 ÷ 4 = 6r3

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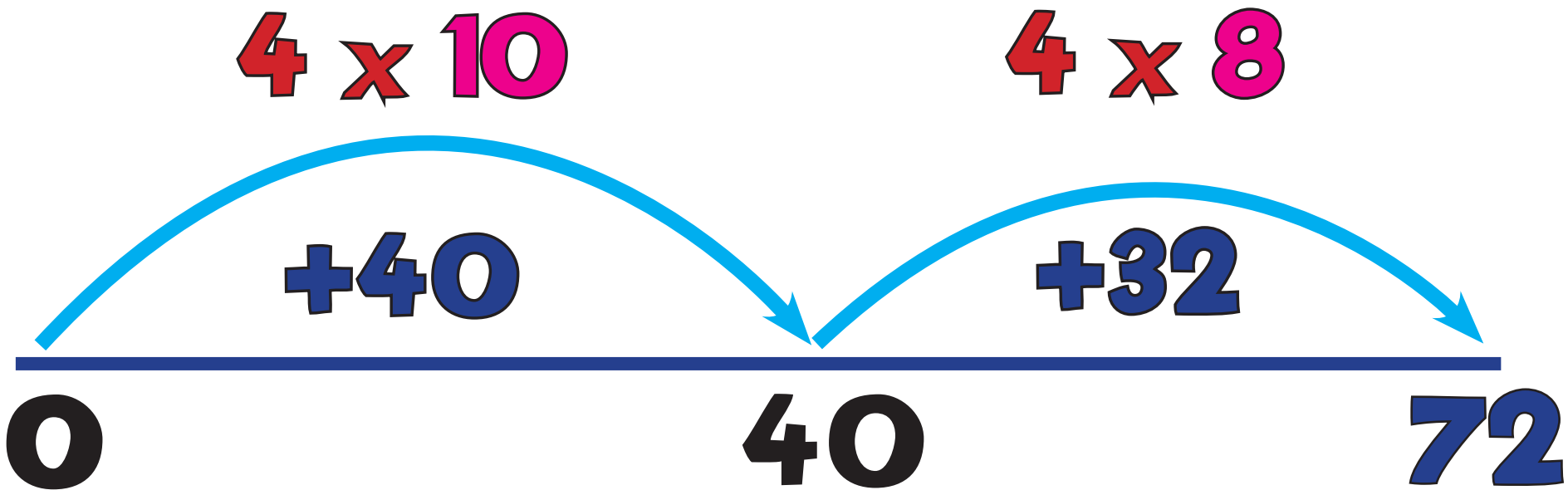
D7: Chunking Jump



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

$$72 \div 4 = 18$$

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D8: Find the Hunk!

72 ÷ 4 = 18

The Hunk!

Chunk

40 + 32 ÷ 4

10 + 8 = 18

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D9: Mega Hunk!

136 ÷ 4 = 34

Mega Hunk!

Chunk

120 + 16

÷ 4

30 + 4 = 34

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D10: Short Division

$$136 \div 4 = 34$$

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

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D11: Chunking

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

$136 \div 4 = 34$

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D12: Long Division

Short Division Method

26 r21

$$37\overline{)983}$$

9 24

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D13: Long Division

Chunking Method

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

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

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D14: Long Division

Traditional Method

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

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

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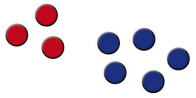
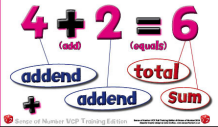
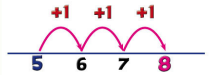
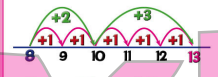
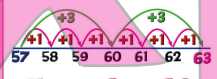
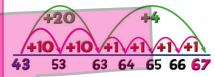
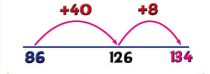
Sense of Number
Visual Calculations Policy

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**  +1 +1 +1 5 6 7 8 5 + 3 = 8						
Y1		**A2a: Counting On** Bridging 10  +2 +3 +1 +1 +1 +1 +1 8 9 10 11 12 13 8 + 5 = 13						
Y2		**A2b: Counting On** Bridging 10s Number  +3 +3 +1 +1 +1 +1 +1 +1 57 58 59 60 61 62 63 57 + 6 = 63						
Y2		**A3: Forwards Jump** 43 + 24 = 67  +20 +4 +10 +10 +1 +1 +1 +1 43 53 63 64 65 66 67	**A4: Partitioning** 43 + 24 = 67 40 + 20 = 60 3 + 4 = 7 67	**A5: Partition Jot** 43 + 24 = 67 60 + 7	**(A6: Expanded Column)** 10 1 43 + 24 7 60 67	**(A7: Column Addition)** 10 1 43 + 24 67		
Y2		**A3a: Forwards Jump** 57 + 25 = 82 +20 +5 57 77 82	**A4a: Partitioning** 57 + 25 = 82 50 + 20 = 70 7 + 5 = 12 82	**A5a: Partition Jot** 57 + 25 = 82 70 + 12	**(A6: Expanded Column)** 10 1 57 + 25 12 70 82	**(A7: Column Addition)** 10 1 57 + 25 82 1		
Y2/3		**A3b: Forwards Jump** 86 + 48 = 134  +40 +8 86 126 134	**A4b: Partitioning** 86 + 48 = 134 80 + 40 = 120 6 + 8 = 14 134	**A5b: Partition Jot** 86 + 48 = 134 120 + 14	**(A6: Expanded Column)** 100 10 1 86 + 48 14 120 134	**(A7: Column Addition)** 100 10 1 86 + 48 134 1 1		
Y3		**A3c: Forwards Jump** 687 + 248 = 935 +200 +40 +8 687 887 927 935	**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** 100 10 1 687 + 248 15 120 800 935	**A7: Column Addition** 100 10 1 687 + 248 935 1 1		

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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		

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Y1	**S1: Objects** 7 - 3 = 4 "What do I get if I take 3 away from 7? Answer: 4"					**S**	**Subtraction Calculation** 6 − 2 = 4 (subtract) (equals) minuend difference subtrahend	**Subtraction Vocabulary** count back, decrease, minus, less, subtract, fewer, count on, take away, difference between
Y1		**S2: What's the Difference?** 7 - 5 = 2 "How many more is 7 than 5? What is the difference?"	**S3: Counting Back** 9 10 11 12 -1 -1 -1 12 - 3 = 9 "What do I get if I take 3 away from 12? Answer: 9"	**S4: Counting On** +1 +1 +1 9 10 11 12 12 - 9 = 3 "How many more is 12 than 9? What is the difference?"				
Y2			**S5: Backwards Boing** 68 70 75 -2 -5 75 - 7 = 68	**S4a: Counting On** +1 +1 +1 +1 +1 78 79 80 81 82 83 83 - 78 = 5 "How many more is 83 than 78? What is the difference?"				
Y2			**S6: Backwards Bounce** 64 65 66 67 77 87 -1 -1 -1 -10 -10 87 - 23 = 64	**(S8: Triple Jump!)** Additional +7 +50 +7 Hop Skip Jump 23 30 80 87 87 - 23 = 64	**(S9: 10s Jump, 1s Jump!)** Additional +60 +4 23 83 87 87 - 23 = 64	**(S10: Expanded Column)** Additional Subtraction 87 - 23 = 64 80 7 20 3 60 4	**(S11: Column Subtraction)** Additional 10 1 87 - 23 64	
Y2			**S7: Backwards Jump** 38 45 75 -7 -30 75 - 37 = 38	**S8: Triple Jump!** +3 +30 +5 Hop Skip Jump 37 40 70 75 75 - 37 = 38	**S9: 10s Jump, 1s Jump!** +30 +8 37 67 75 75 - 37 = 38	**(S10: Expanded Column)** Additional Subtraction 75 - 37 = 38 60 70 15 30 7 30 8	**(S11: Column Subtraction)** Additional 10 1 6 7 15 - 37 38	
Y3				**S8b: Quad Jump!** +4 +40 +30 +2 56 60 100 130 132 132 - 56 = 76	**S9b: 10s Jump, 1s Jump!** +70 +6 56 126 132 132 - 56 = 76	**(S10: Expanded Column)** Additional Subtraction 132 - 56 = 38 0 100 120 12 - 50 6 70 6	**(S11: Column Subtraction)** Additional 100 10 1 0 12 1 1 3 2 - 5 6 7 6	
Y3				**S8c: Big Jump!** +44 +323 +4 +40 +300 +23 356 360 400 700 723 723 - 356 = 367	**S9c: 100s, 10s, 1s Jump** +300 +60 +7 356 656 716 723 723 - 356 = 367	**S10: Expanded Column** Subtraction 100, 10, 1s 723 - 356 = 367 600 110 13 - 300 50 6 300 60 7	**S11: Column Subtraction** 100 10 1 6 11 13 7 2 3 - 3 5 6 3 6 7	**M7a: Column Multiplication** 3647 x 4 14588 2 1 2
Y4				**S8d: Quad Jump Extreme** +24 +200 +3000 +42 1776 1800 2000 5000 5042 5042 - 1776 = 3266	**S9d: 1000s, 100s, 10s, 1s Jump** +3000 +200 +60 +6 1776 4776 4976 5036 5042 5042 - 1776 = 3266		**S11d: Column Subtraction** 4 9 13 11 5 0 4 2 - 1 7 7 6 3 2 6 6	

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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					

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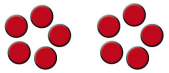
Expanded Edition

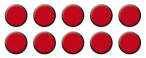
Y1

(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, x, repeated addition

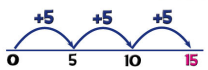
Y2

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

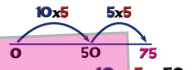
4x table

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 Addition)

15
x 5
25 (5 x 5)
50 (5 x 10)
75

(M7: Column Multiplication Addition)

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 Addition)

43
x 6
18 (6 x 3)
240 (6 x 40)
258

(M7: Column Multiplication Addition)

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)
11
2795

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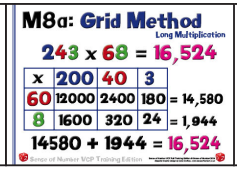
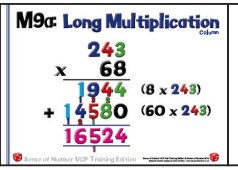
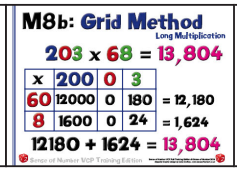
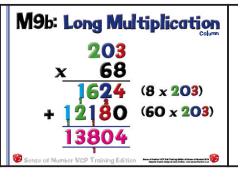
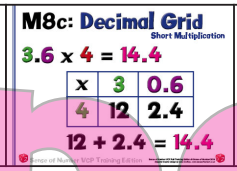
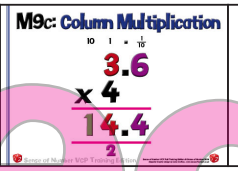
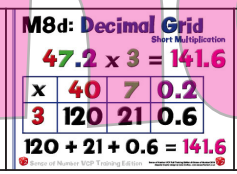
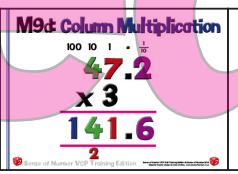
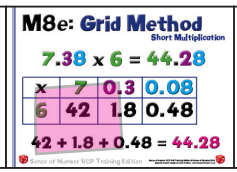
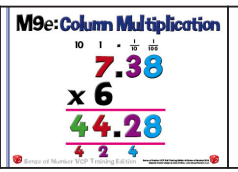
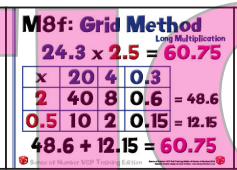
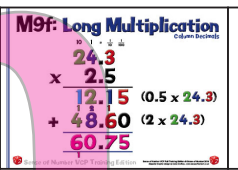
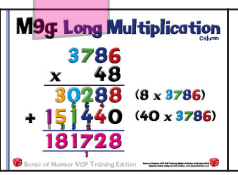
Y5						
Y5						
Y5						
Y6						
Y6						
Y6						
Y6							

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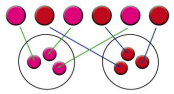
D

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

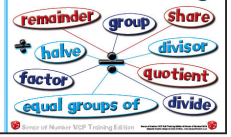
Division Calculation

8 ÷ 2 = 4

(divided by) (equals)

dividend, divisor, quotient

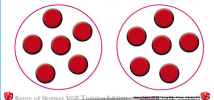
Division Vocabulary



Y2

D3: Division as Sharing

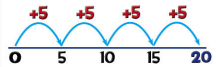
12 ÷ 2 = 6



D4: Division as Grouping

12 ÷ 2 = 6

D5: Grouping on a Number Line

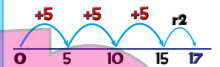


20 ÷ 5 = 4

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

Y2

D5a: Grouping on a Number Line Remainders

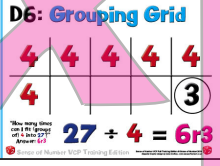


17 ÷ 5 = 3r2

"How many 5s in 17?" Answer: 3 remainder 2

Y3

D6: Grouping Grid

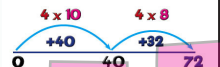


"How many times can I fit 4 groups of 4 into 27?" Answer: 6r3

27 ÷ 4 = 6r3

Y3

D7: Chunking Jump



72 ÷ 4 = 18

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

D8: Find the Hunk!

72 ÷ 4 = 18

The Hunk! 40 + Chunk 32

÷ 4

10 + 8 = 18

(D10: Short Division) Additional

72 ÷ 4 = 18

(D11: Chunking) Additional

Y3

D7a: Chunking Jump Remainders

65 ÷ 4 = 16r1

"How many 4s in 65?" Answer: 16r1

D8a: Find the Hunk! Remainders

65 ÷ 4 = 16r1

The Hunk! 40 + Chunk 25

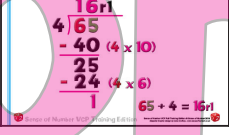
÷ 4

10 + 6r1 = 16r1

(D10: Short Division) Additional

65 ÷ 4 = 16r1

(D11: Chunking) Additional



Y4

D9: Mega Hunk!

136 ÷ 4 = 34

Mega Hunk! 120 + Chunk 16

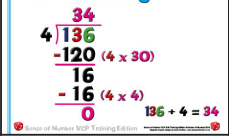
÷ 4

30 + 4 = 34

D10: Short Division

136 ÷ 4 = 34

D11: Chunking



D11b: Chunking

Y5

D9c: Mega Hunk! Remainders

394 ÷ 6 = 65r4

Mega Hunk! 360 + Chunk 34

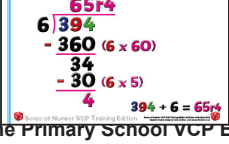
÷ 6

60 + 5r4 = 65r4

D10c: Short Division

394 ÷ 6 = 65r4

D11c: Chunking Remainders



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Y5				D9d: Mega Hunk! 591 ÷ 3 = 197 Mega Hunk! Mega Hunk! Chunk 300 + 270 + 21 ÷ 3 100 + 90 + 7 = 197	D10d: Short Division 591 ÷ 3 = 197 197 3) 5 2 9 1	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! Mega Hunk! Chunk 5600 + 350 + 28 ÷ 7 800 + 50 + 4 = 854	D10e: Short Division 5978 ÷ 7 = 854 854 7) 5 9 3 7 8	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! Mega Hunk! Chunk 500 + 300 + 46 ÷ 3 100 + 60 + 9r1 = 169r1	D10f: Short Division Different Remainders 169.2 5) 8 4 6 . 0 846 ÷ 5 169r1 5) 8 4 6 169 1/5 5) 8 4 6	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! Chunk 450 + 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! Chunk 15 + 3 ÷ 1.5 10 + 2 = 12				
Y6				D9i: Decimal Hunk! 87.5 ÷ 7 = 12.5 Mega Hunk! Chunk Chunk 70 + 14 + 3.5 ÷ 7 10 + 2 + 0.5 = 12.5	D10i: Short Division 87.5 ÷ 7 = 12.5 12.5 7) 8 1 7 . 5 3			
Y6					D12: Long Division Short Division Method 26r21 37) 9 8 3	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		

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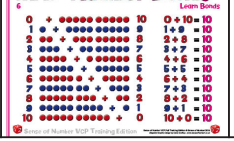
MA	**MA1: Partitioning** 45 + 82 = 127 120 + 7 = 127	**MA2: Counting On** 45 + 20 = 65 +20: 45 → 65		**MA3: Number Bonds** 45 + 95 = 140 40 + 100 = 140	**MA4: Double & Adjust** 45 + 46 = 91 45 + 45 + 1 90 + 1 = 91	**MA5: Round & Adjust** 45 + 39 = 84 45 + 40 - 1 85 - 1 = 84
Y1		**MA2a: Counting On** (Ones) 12 + 5 = 17 +5: 12 → 17	**MA2b: Counting On** (Tens) 57 + 10 = 67 +10: 57 → 67	**MA3: Number Bonds** (Learn Bonds) 	**MA4: Double & Adjust** 5 + 6 = 11 5 + 5 + 1 10 + 1 = 11	**MA5: Round & Adjust** 45 + 9 = 54 45 + 10 - 1 = 55 - 1 = 54
Y2	**MA1: Partitioning** 43 + 21 = 64 60 + 4 = 64	**MA2a: Counting On** (Ones) 78 + 7 = 85 +7: 78 → 85	**MA2b: Counting On** (Tens) 58 + 40 = 98 +40: 58 → 98	**MA3: Number Bonds** 3 + 4 + 7 = 14 10 4	**MA4: Double & Adjust** 7 + 8 = 15 7 + 7 + 1 14 + 1 = 15	**MA5: Round & Adjust** 45 + 19 = 64 45 + 20 - 1 65 - 1 = 64
Y3	**MA1: Partitioning** 57 + 25 = 82 70 + 12 = 82	**MA2a: Counting On** (Tens) 85 + 50 = 135 +50: 85 → 135	**MA2b: Counting On** (Hundreds) 534 + 300 = 834 +300: 534 → 834	**MA3: Number Bonds** 43 + 9 + 7 + 21 = 80 50 30	**MA4: Double & Adjust** 16 + 17 = 33 16 + 16 + 1 32 + 1 = 33	**MA5: Round & Adjust** 45 + 97 = 142 45 + 100 - 3 145 - 3 = 142
Y4	**MA1: Partitioning** 648 + 231 = 879 800 + 70 + 9 = 879	**MA2a: Counting On** (Tens) 784 + 60 = 844 +60: 784 → 844	**MA2b: Counting On** (Hundreds) 4837 + 3000 = 8347 +3000: 4837 → 7837	**MA3: Number Bonds** 42 + 16 + 28 + 54 = 140 70 70	**MA4: Double & Adjust** 37 + 38 = 75 37 + 37 + 1 74 + 1 = 75	**MA5: Round & Adjust** 345 + 298 = 643 345 + 300 - 2 645 - 2 = 643
Y5	**MA1: Partitioning** 576 + 258 = 834 700 + 120 + 14 = 834	**MA2a: Counting On** (Hundreds) 837 + 500 = 1337 +500: 837 → 1337	**MA2b: Counting On** (Thousands) 7583 + 5000 = 12583 +5000: 7583 → 12583	**MA3: Number Bonds** £4.56 + £3.27 + £1.44 = £9.27 £6.00 £3.27	**MA4: Double & Adjust** 125 + 127 = 252 125 + 125 + 2 250 + 2 = 252	**MA5: Round & Adjust** 4645 + 1996 = 6641 4645 + 2000 - 4 6645 - 4 = 6641
Y6	**MA1: Partitioning** 4.73 + 2.21 = 6.94 6 + 0.9 + 0.04 = 6.94	**MA2a: Counting On** (Ten Thousands) 43,826 + 30,000 = 73,826 +30,000: 43,826 → 73,826	**MA2b: Counting On** (Millions) 5,763,947 + 4,000,000 = 9,763,947 +4,000,000: 5,763,947 → 9,763,947	**MA3: Number Bonds** 24.25 + 31.63 + 21.75 = 77.63 46 31.63	**MA4: Double & Adjust** 4.5 + 4.7 = 9.2 4.5 + 4.5 + 0.2 9 + 0.2 = 9.2	**MA5: Round & Adjust** 45.2 + 49.9 = 95.1 45.2 + 50 - 0.1 95.2 - 0.1 = 95.1

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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

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	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.				

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Sense of Number
Visual Calculation Policy

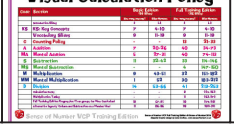
Full Training Edition for
Sample Edition Primary School
October 2014

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.
Website: 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 +
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"

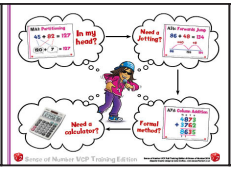
KC2: Key Concepts!

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")

Calculation Vocabulary

equivalent to = equals
is the same as = balance
Addition + Multiplication x
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?

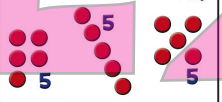
4 Do I need a calculator?

C1a: Number Order

0 1 2 3 4 5

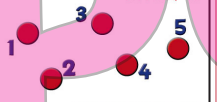
The Numbers must be said once and always in the conventional order.

C1b: At a Glance Subitising



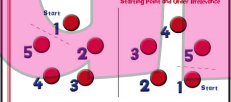
See at a glance how many are in small collections and match correct number names to such collections.

C2a: Number Match One to One Correspondence



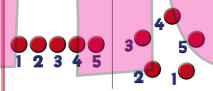
Each object to be counted must be touched or 'included' exactly once as the numbers are said.

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

1 2 3 4 5

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

0 1 2 3 4 5

C6: Counting On

8 9 10 11 12 13

C7: Counting Back

4 5 6 7 8 9

C8: Counting in Steps

3 5 7 9 11

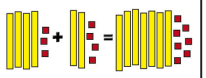
Sense of Number
Calculation Cards

by Dave Godfrey

dave@senseofnumber.co.uk Tel: 01604 772846

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

A: Base 10
43 + 24 = 67



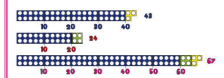
B: Arrow Cards
43 + 24 = 67

40 + 20 = 60
3 + 4 = 7

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

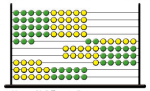
D: Numicon
43 + 24 = 67



E: Place Value Counters
43 + 24 = 67

F: Money
43 + 24 = 67

G: Abacus
43 + 24 = 67



H: Number Line
43 + 24 = 67

+20 +4
43 63 67

Expanded Edition

Sense of Number

Standard Alternative Slides

Alternative Layout Slides

by Dave Godfrey

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

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A7: Column Addition

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

Alternative Layout Slides

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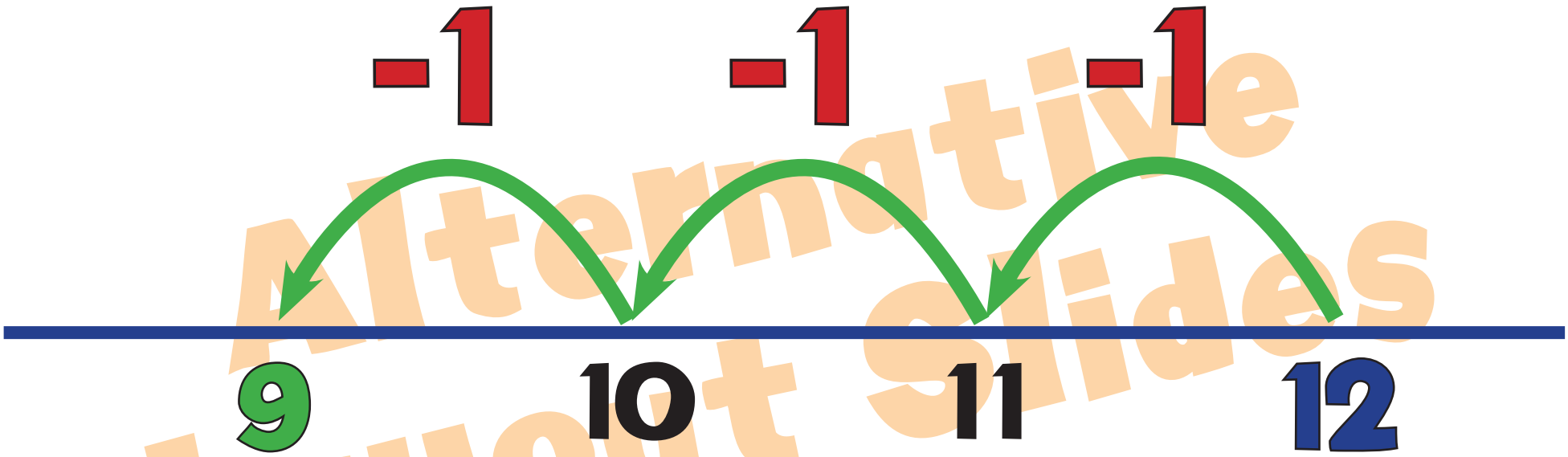
S3: Counting Back



Alternative Layout Slides

12 - 3 = 9

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

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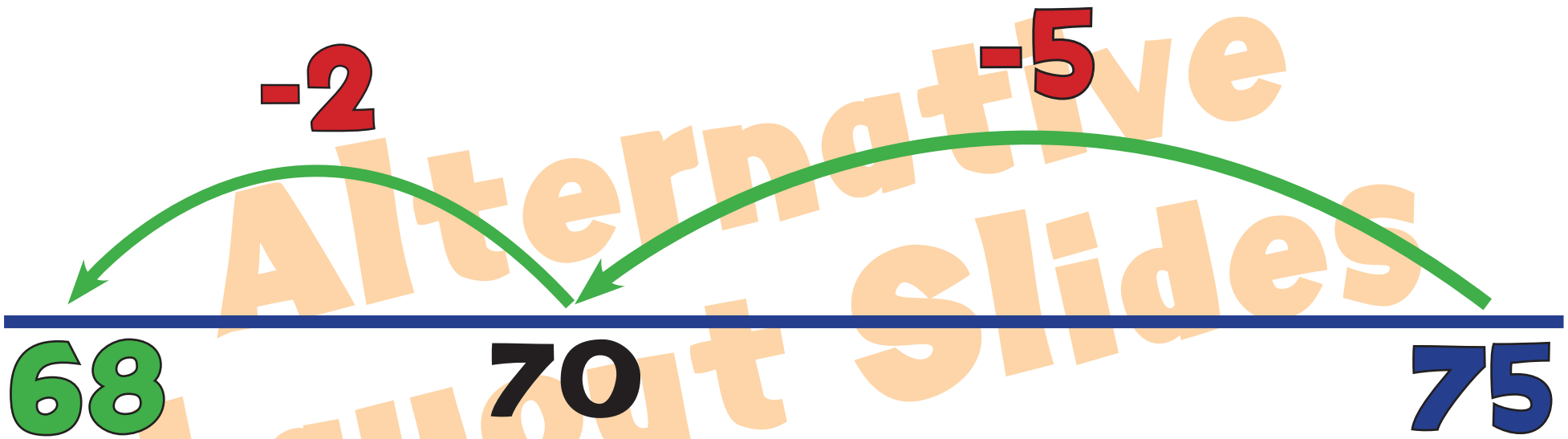
S5: Backwards Boing



Alternative Layout Slides

$$75 - 7 = 68$$

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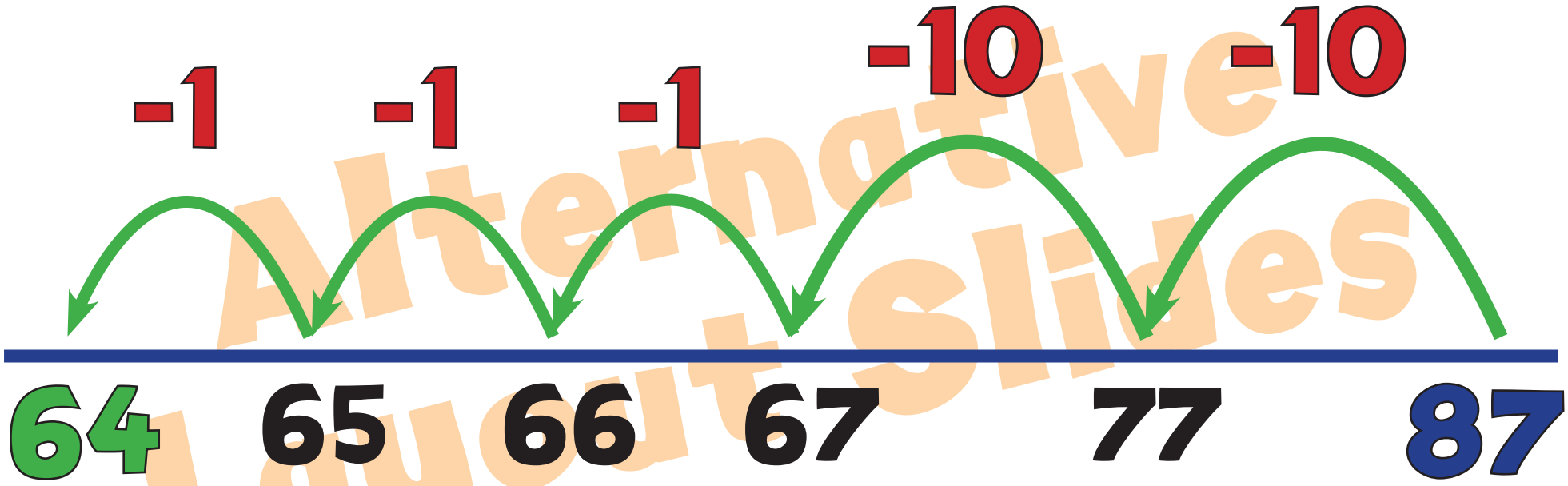
S6: Backwards Bounce



Alternative Layout Slides

87 - 23 = 64

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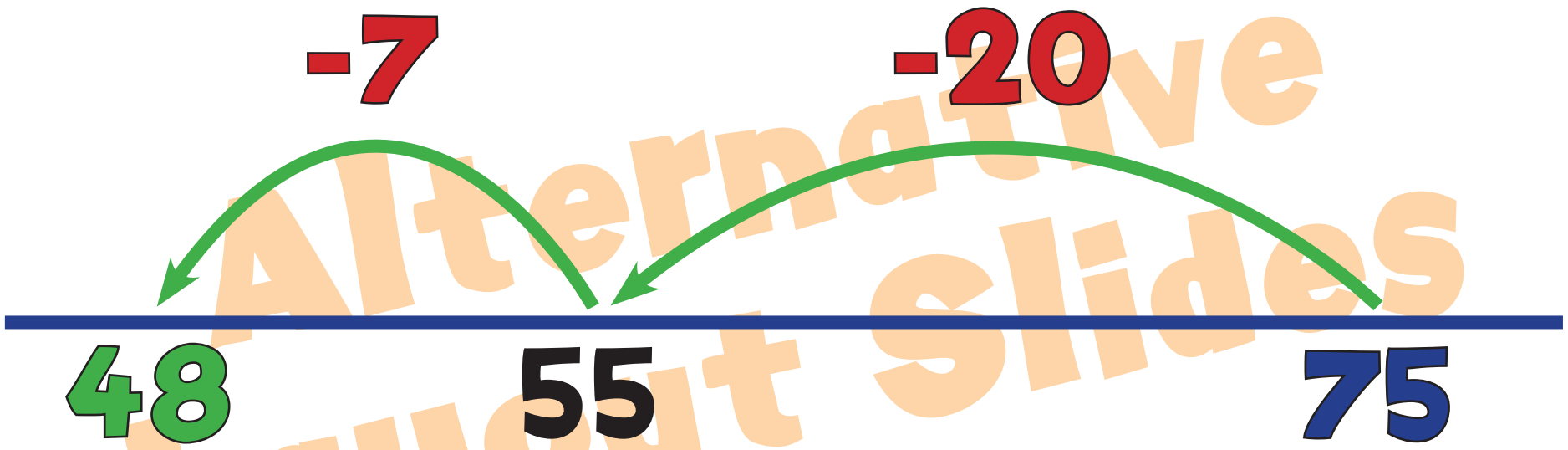
S7: Backwards Jump



Alternative Layout slides

75 - 27 = 48

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M7: Column Multiplication

100	10	1
	1	47
×		4
	1	2
	5	88

Alternative Layout Slides

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M9: Long Multiplication

Column

Alternative Layout Slides

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

(5 x 43)

(60 x 43)

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