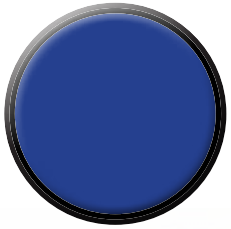
Sense of Number

Visual Calculation Policy

Basic Edition for

Stanley Road Community Primary School

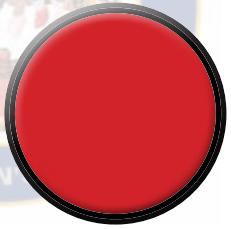
October 2014



Graphic Design by Dave Godfrey

Compiled by the Sense of Number Maths Team

For sole use within Stanley Road Community Primary School.



'A picture is worth 1000 words!'

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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

Division

×

÷

8 × 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")

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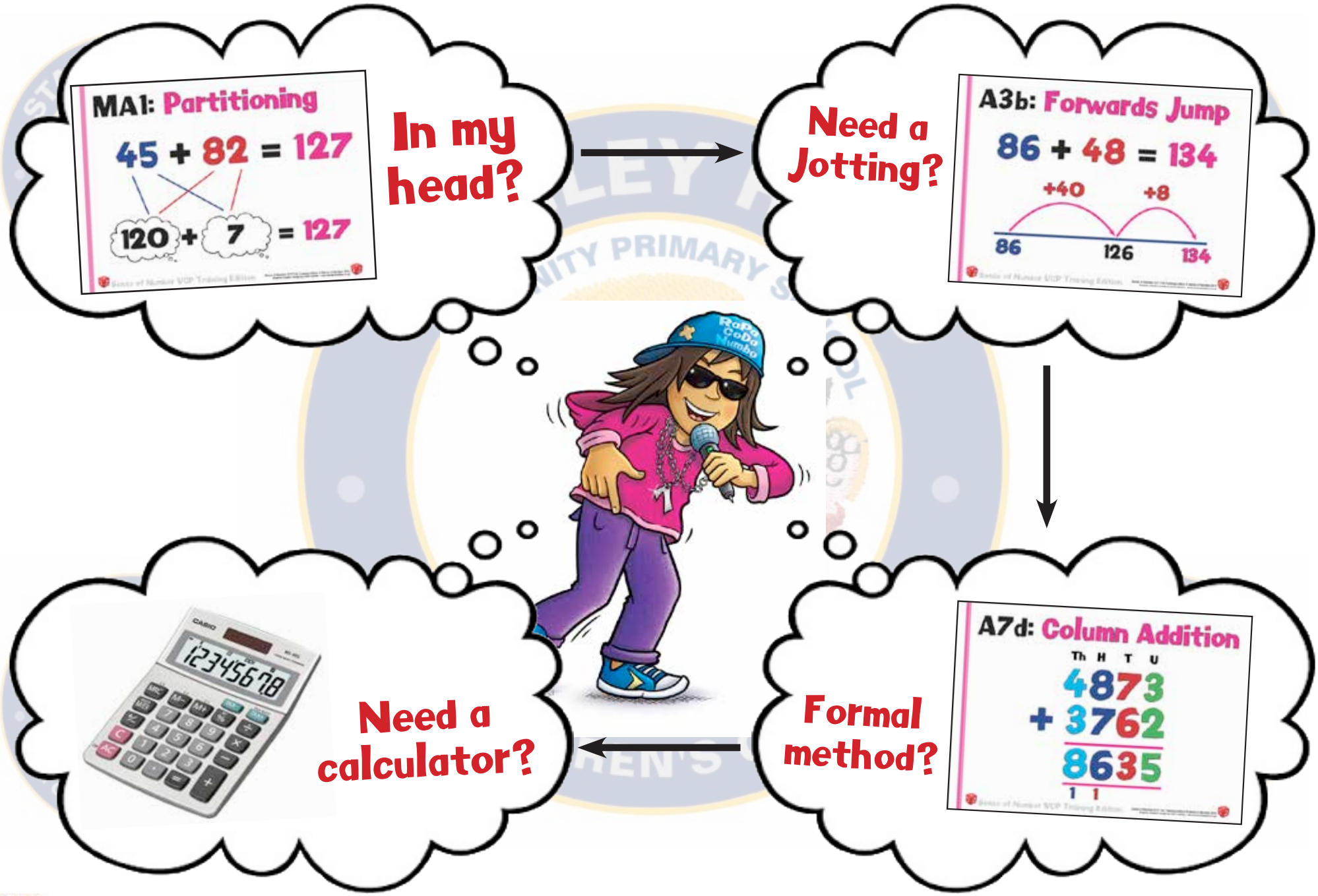

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1

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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Do I need a calculator?

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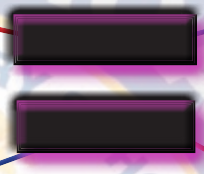
Calculation Vocabulary



equivalent to

equals

is the same as

balance

Operations

+ Addition

× Multiplication

− Subtraction

÷ Division

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Addition Vocabulary

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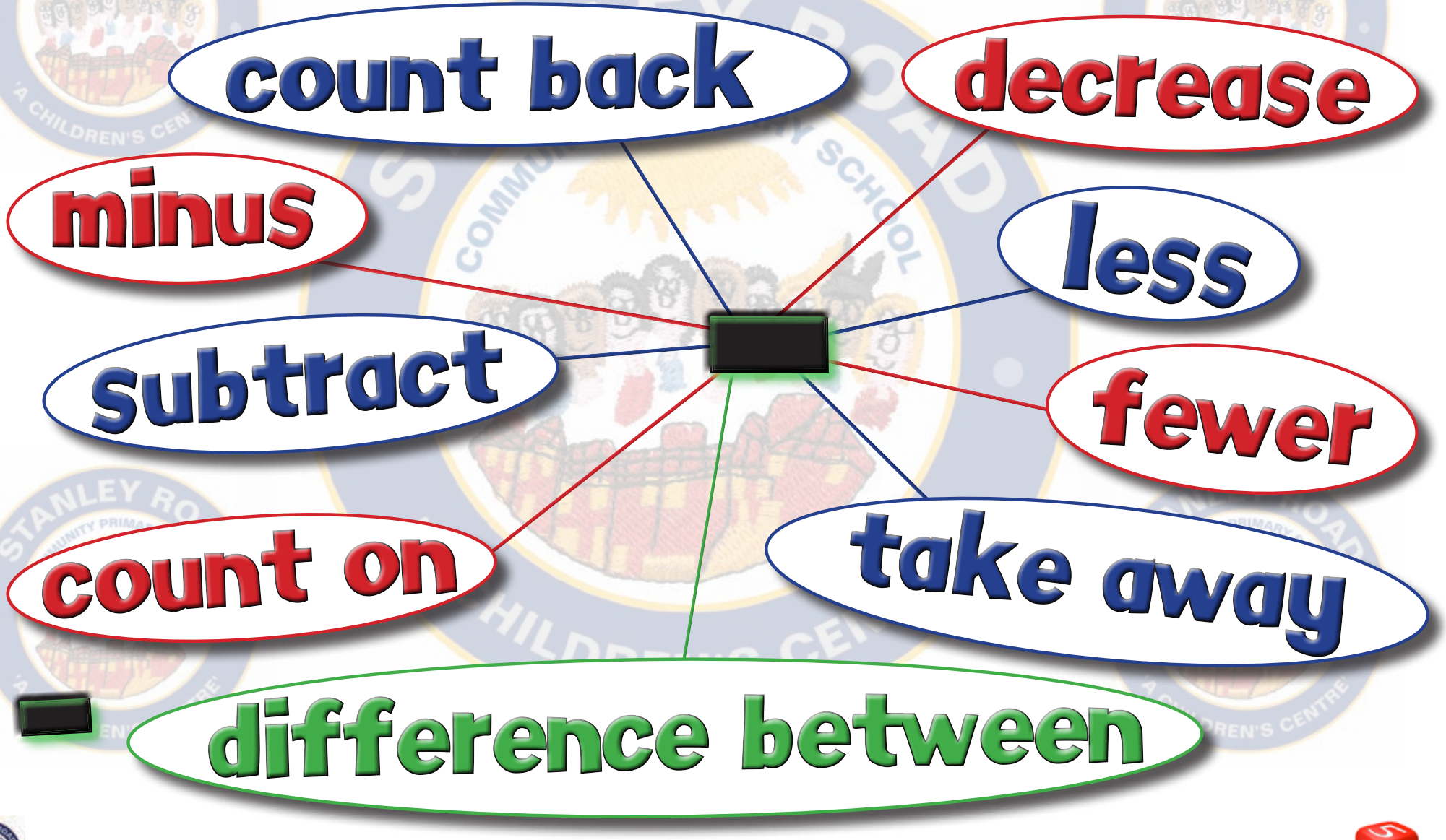
Subtraction Vocabulary



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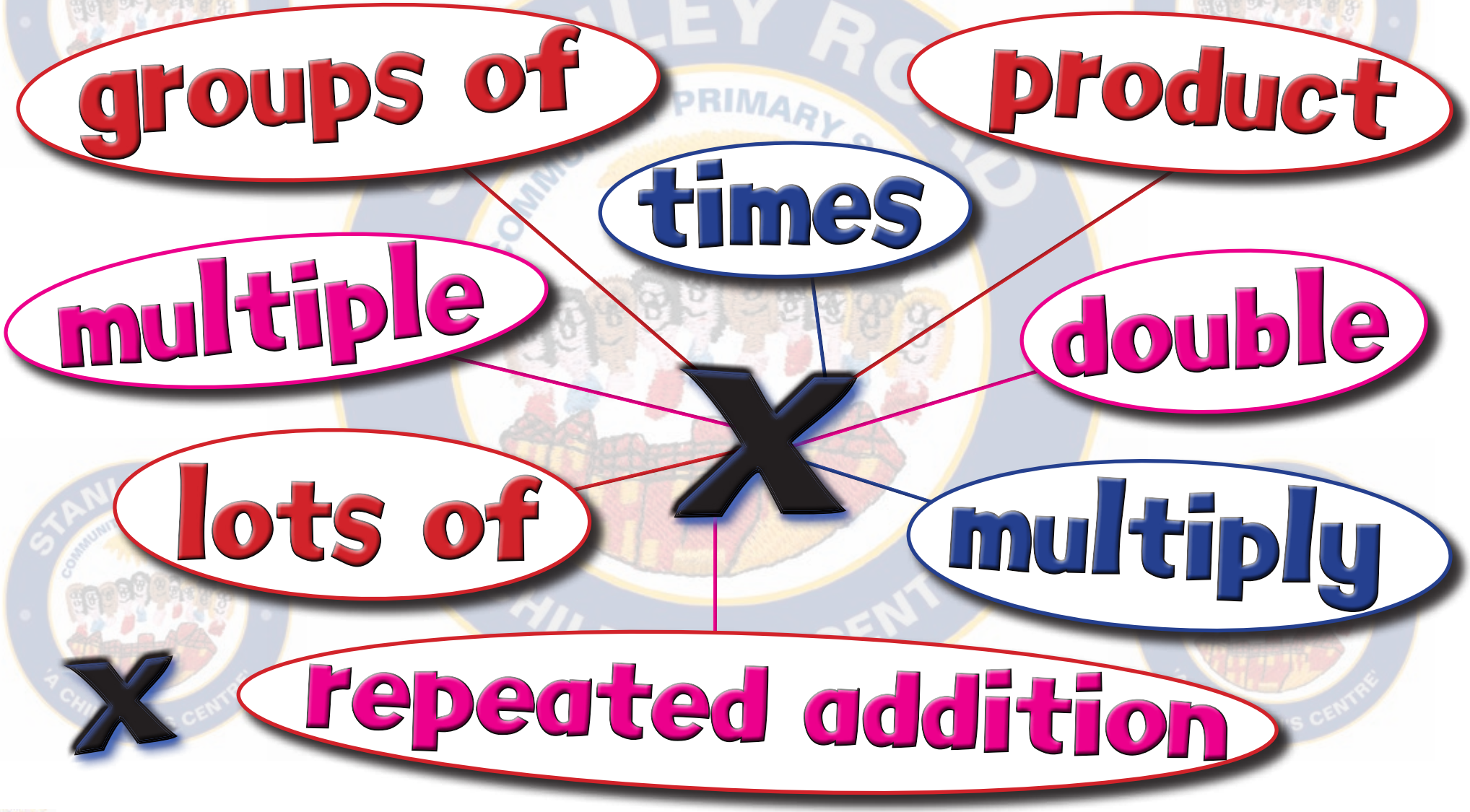
Multiplication Vocabulary



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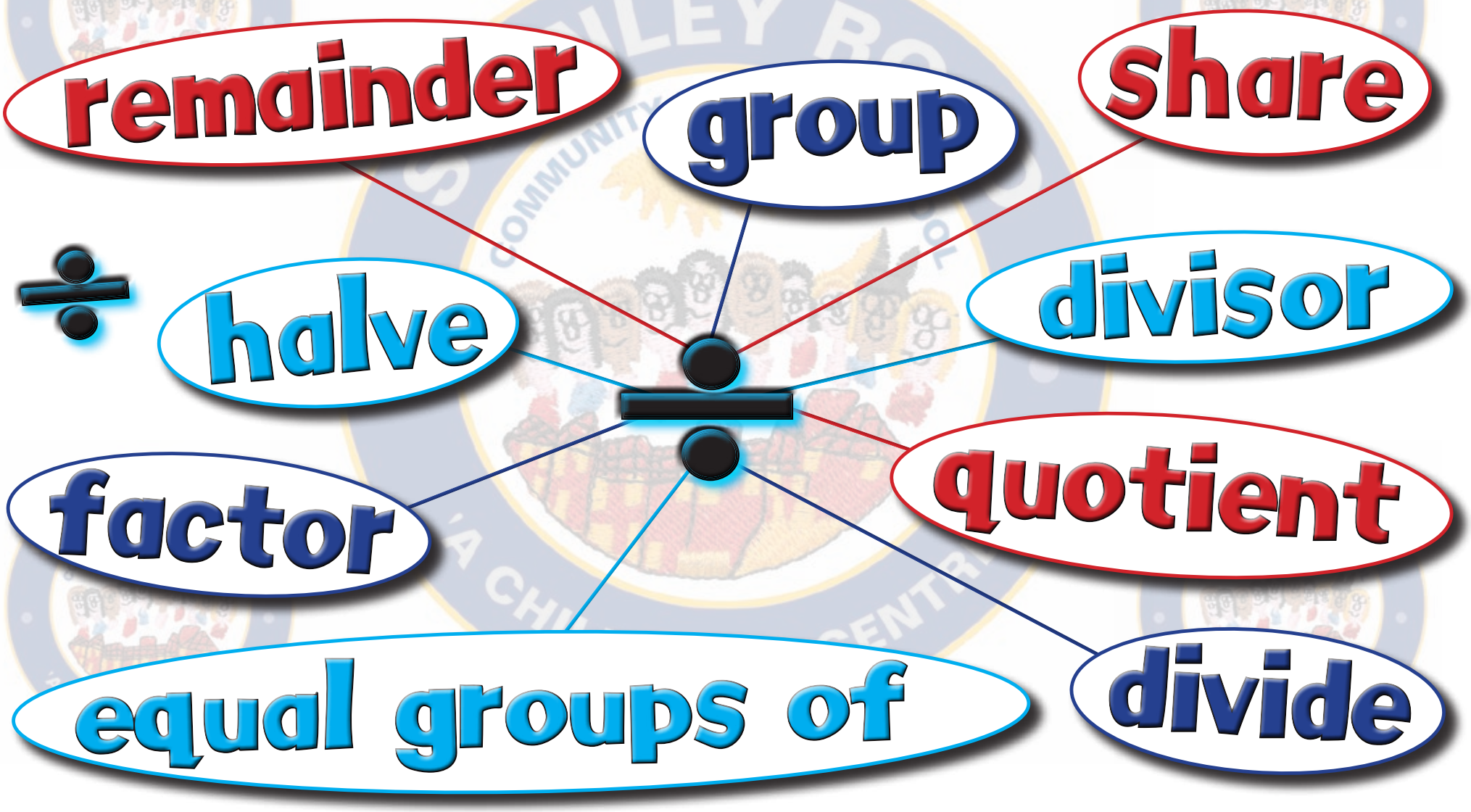
Division Vocabulary



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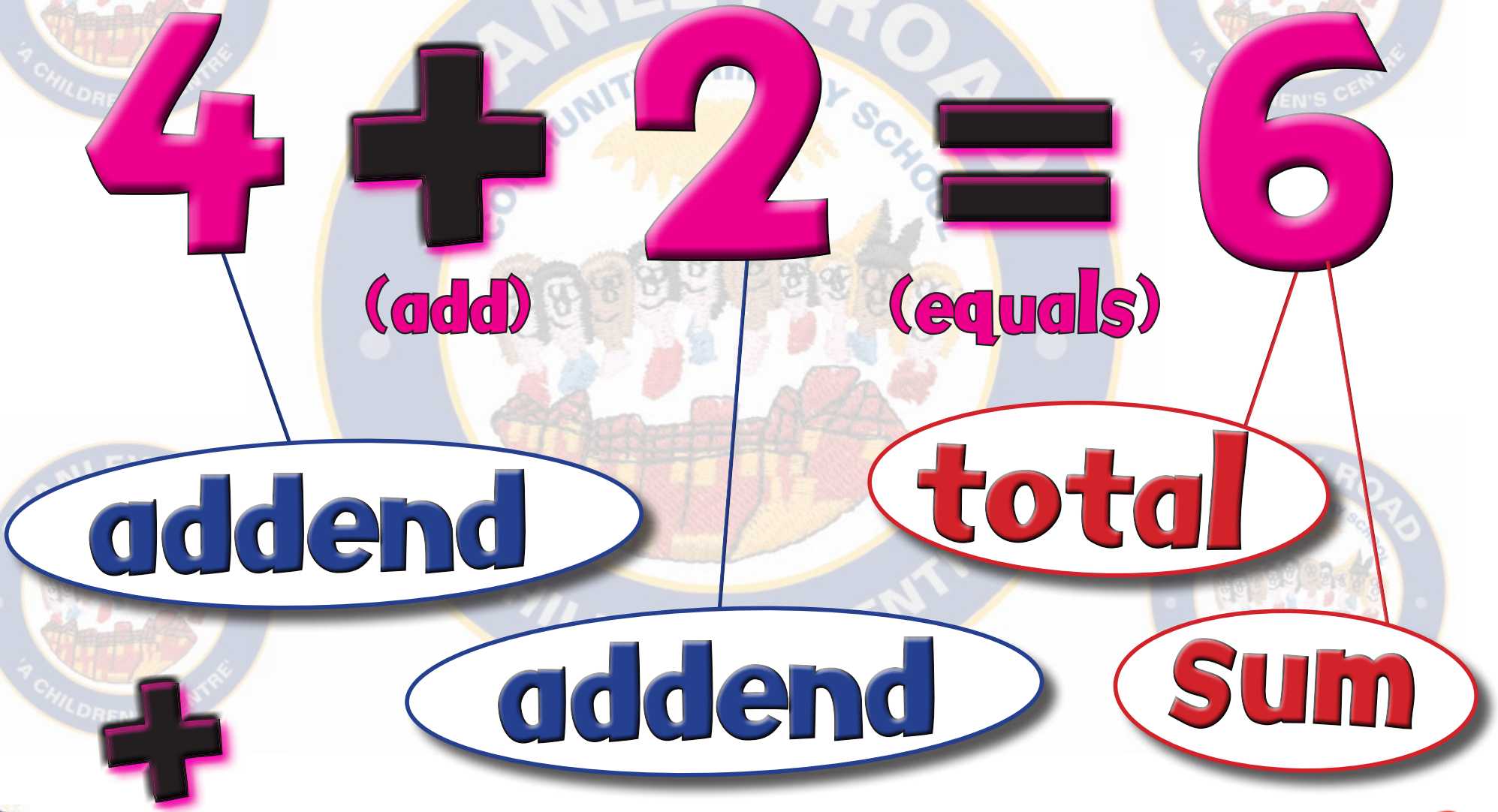
Addition Calculation



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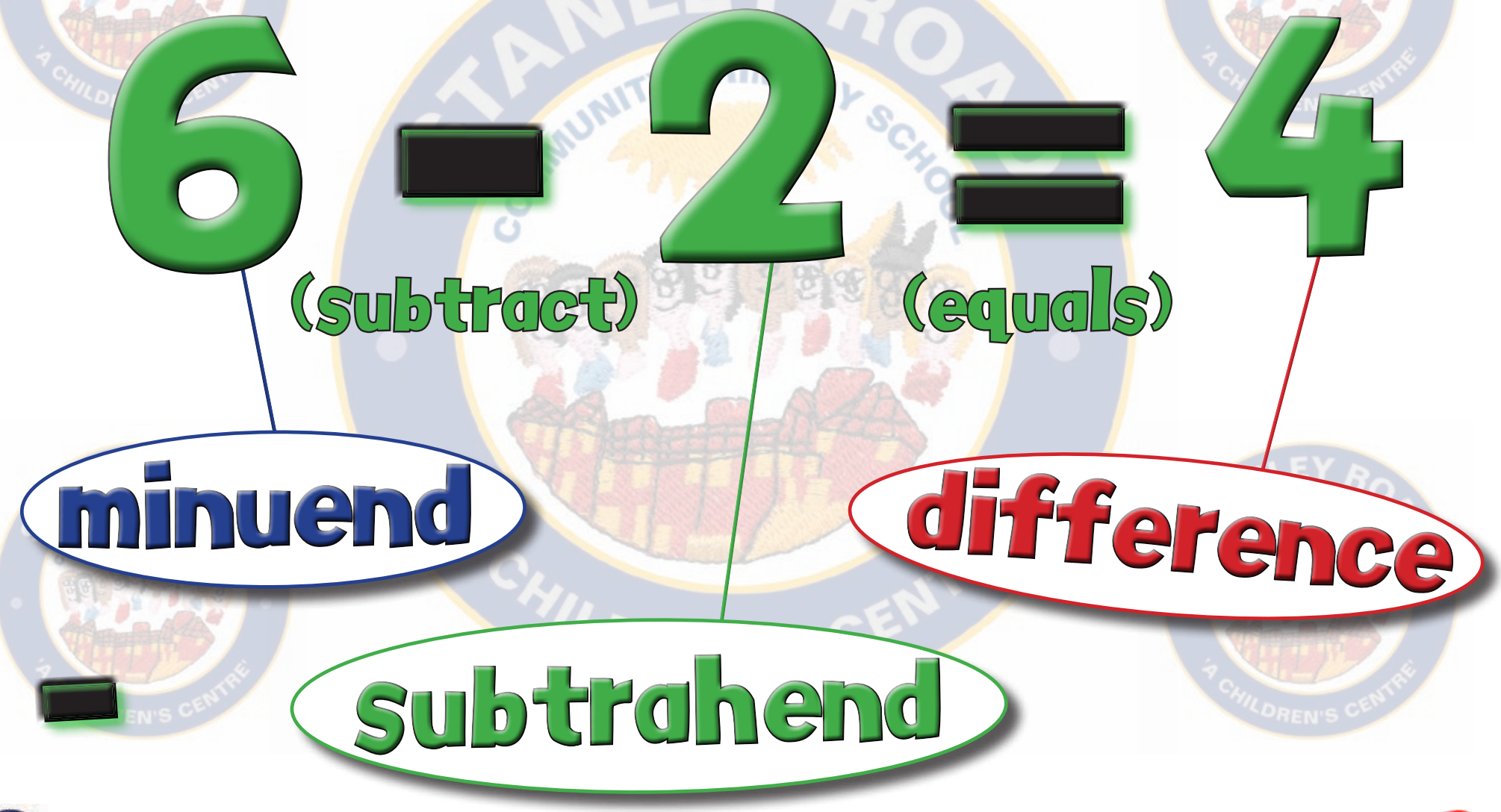
Subtraction Calculation



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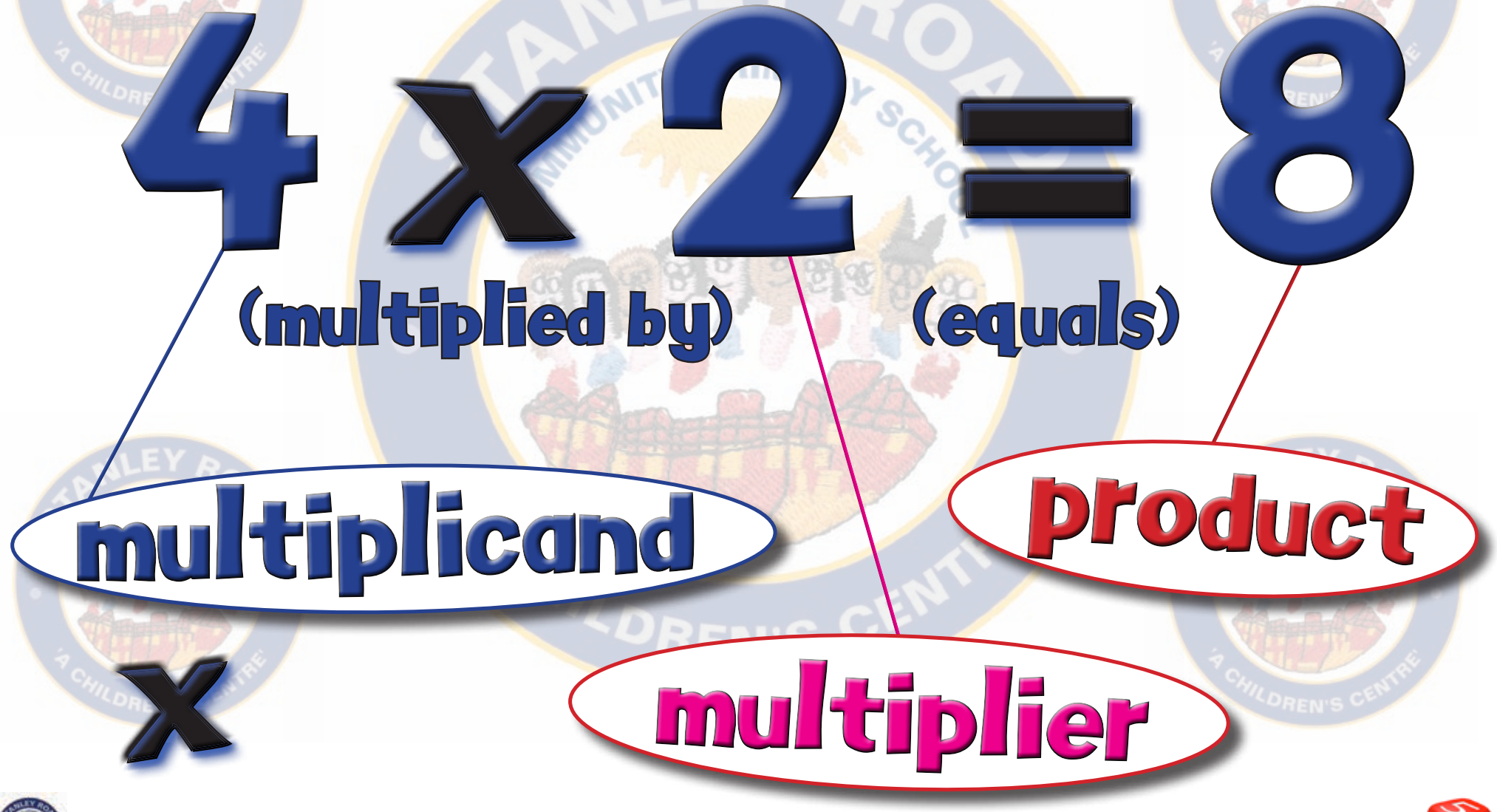
Multiplication Calculation



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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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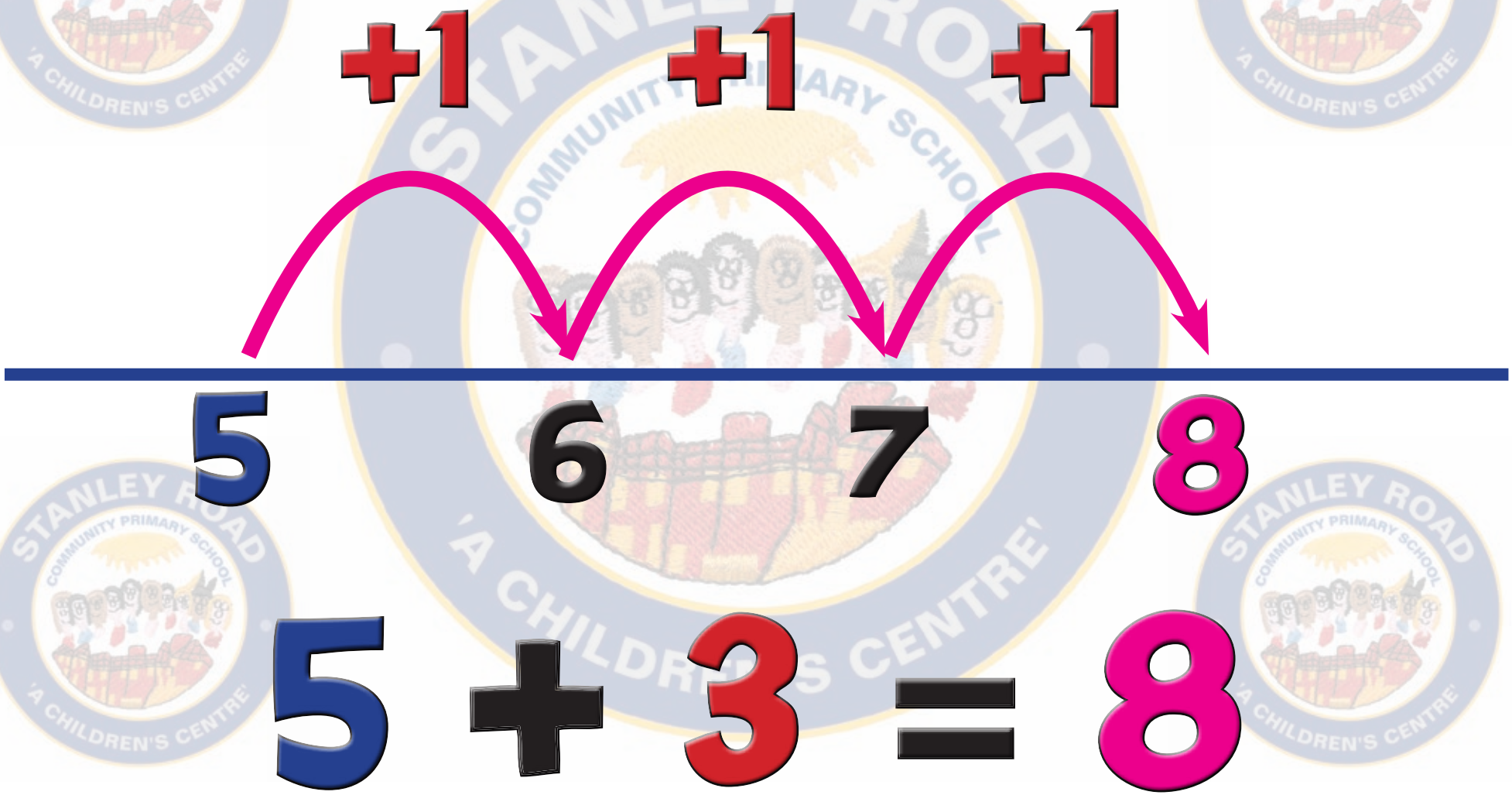
A2: Counting On



$5 + 3 = 8$

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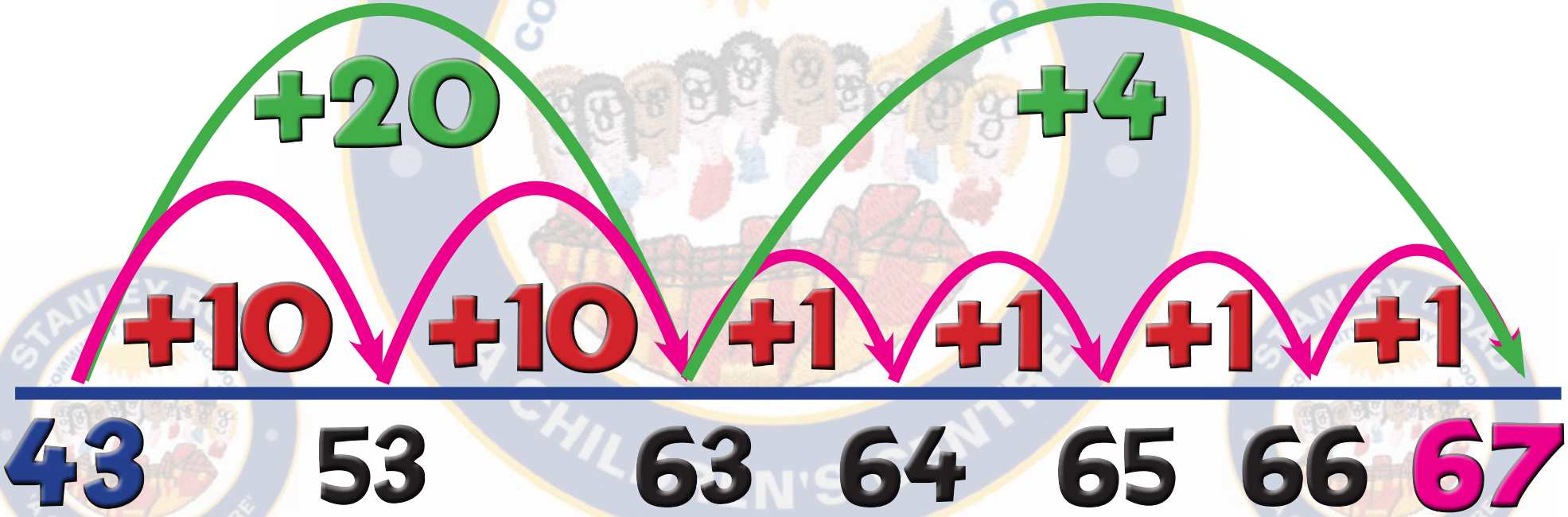
A3: Forwards Jump

43 + 24 = 67



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A4: Partitioning

$$43 + 24 = 67$$

$$40 + 20 = 60$$

$$3 + 4 = 7$$

$$67$$

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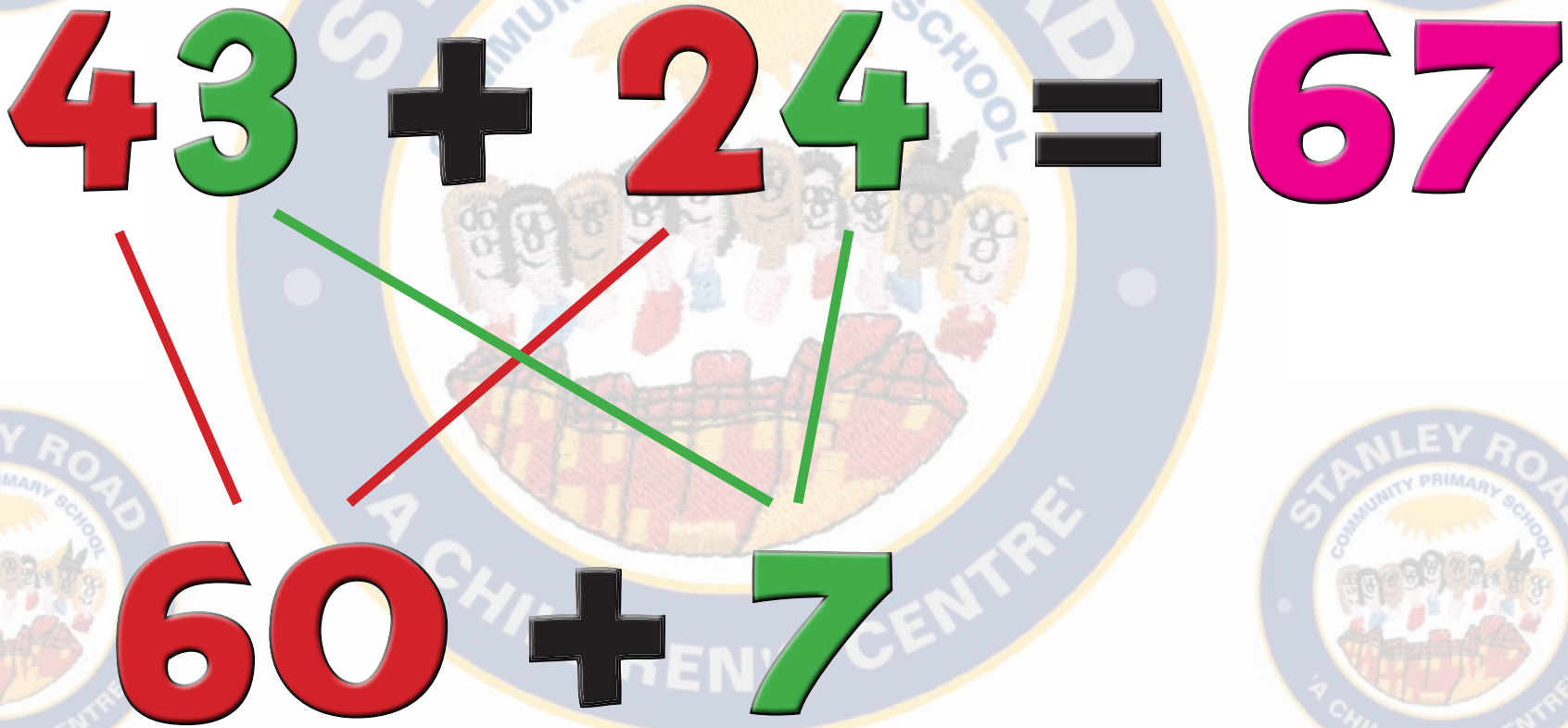
A5: Partition Jot



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A6: Expanded Column Addition

100	10	1
6	8	7
+ 2	4	8
		15
1	20	
8	00	
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

+20

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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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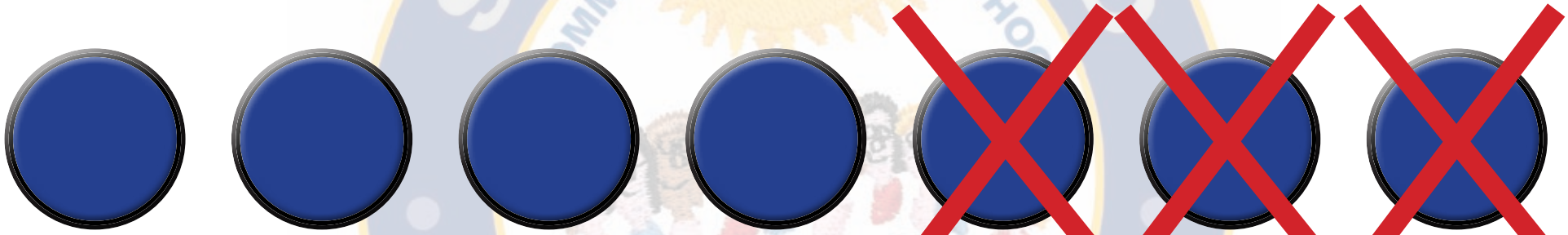
S1: Objects



7 - 3 = 4

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

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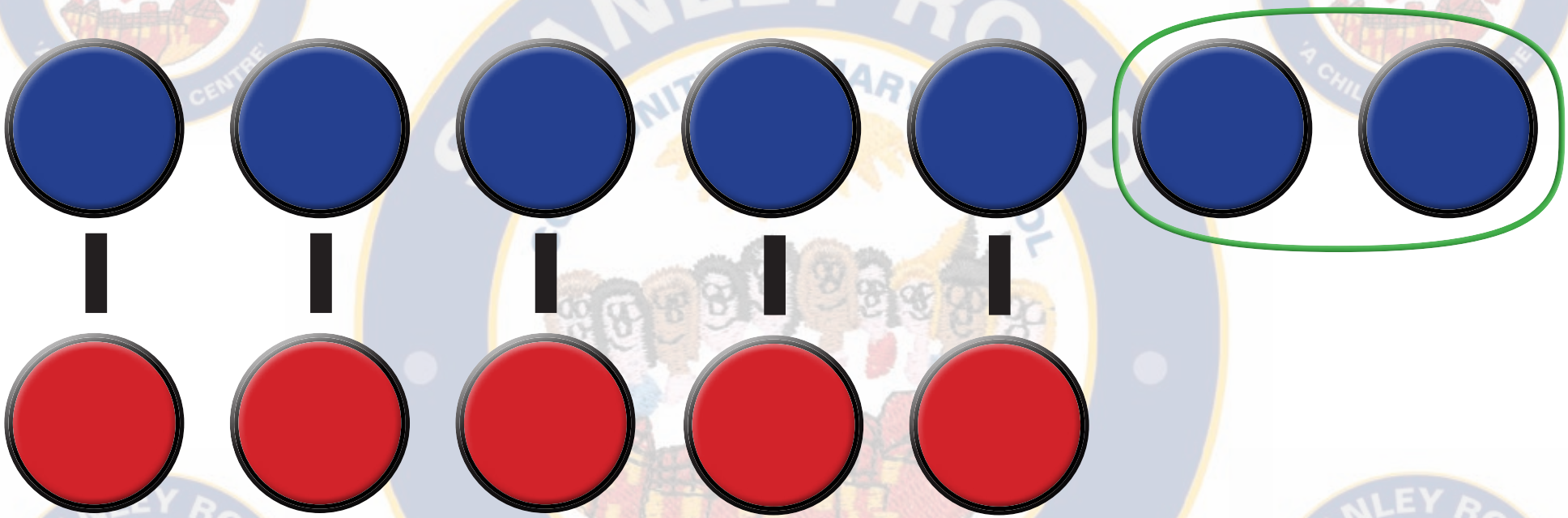
S2: What's the Difference?



7 - 5 = 2

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

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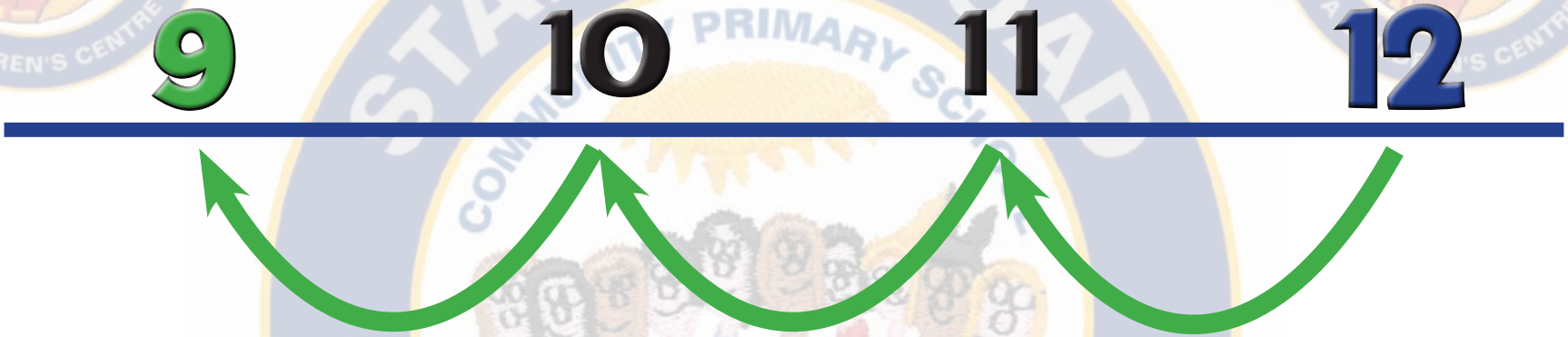
S3: Counting Back



12 - 3 = 9

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

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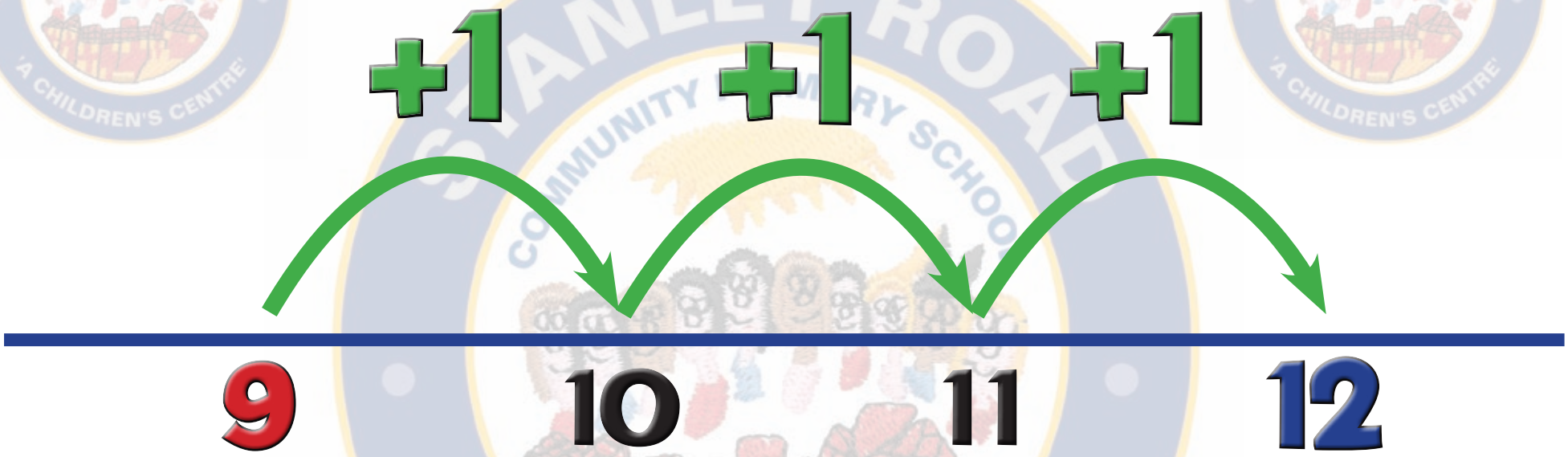
S4: Counting On



12 - 9 = 3

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

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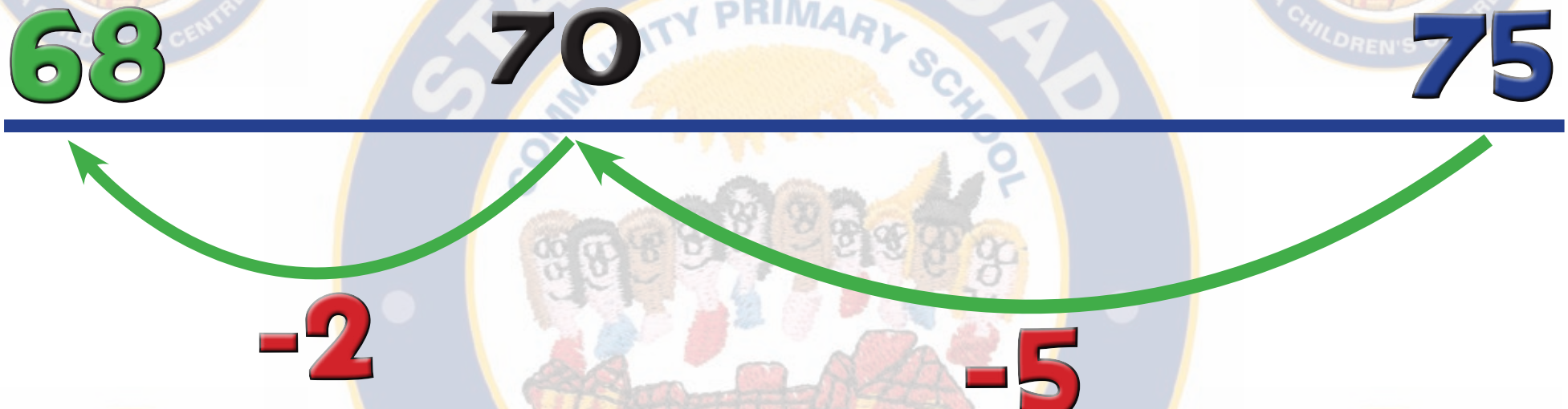
S5: Backwards Boing



75 - 7 = 68

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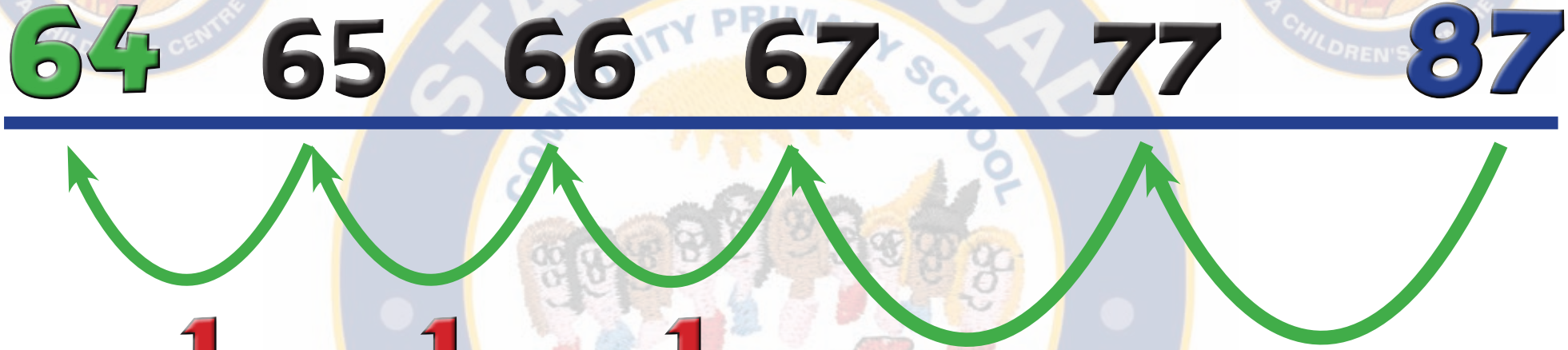
S6: Backwards Bounce



87 - 23 = 64

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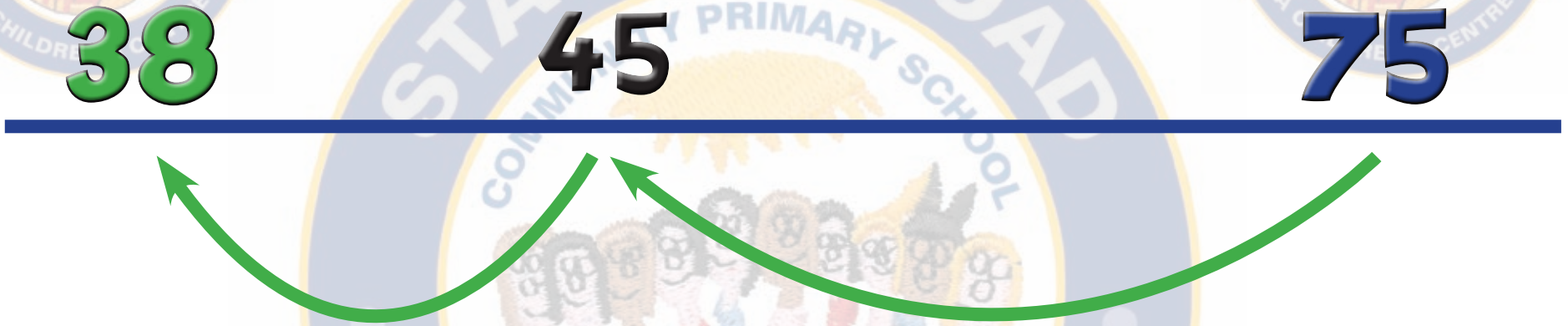
S7: Backwards Jump



75 - 37 = 38

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S8: Triple Jump!

75 - 37 = 38

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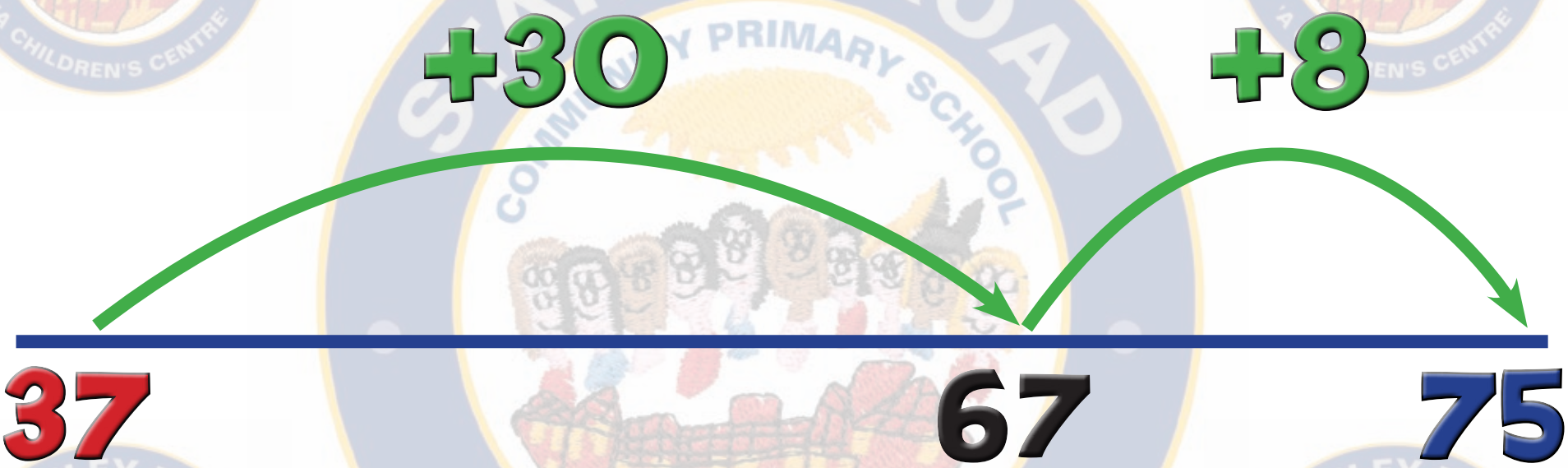
S9: 10s Jump, 1s Jump!



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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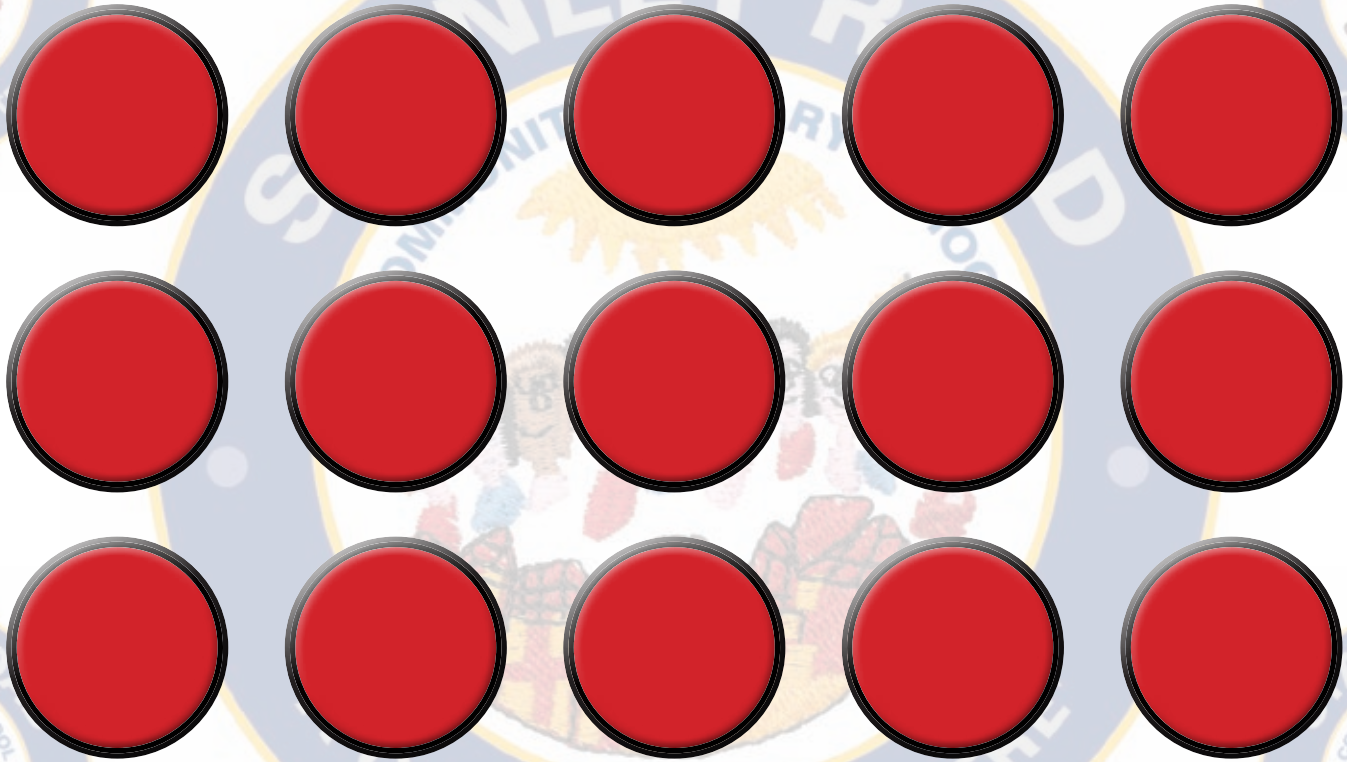
M3: Arrays



3 x 5 = 15 or 5 x 3 = 15

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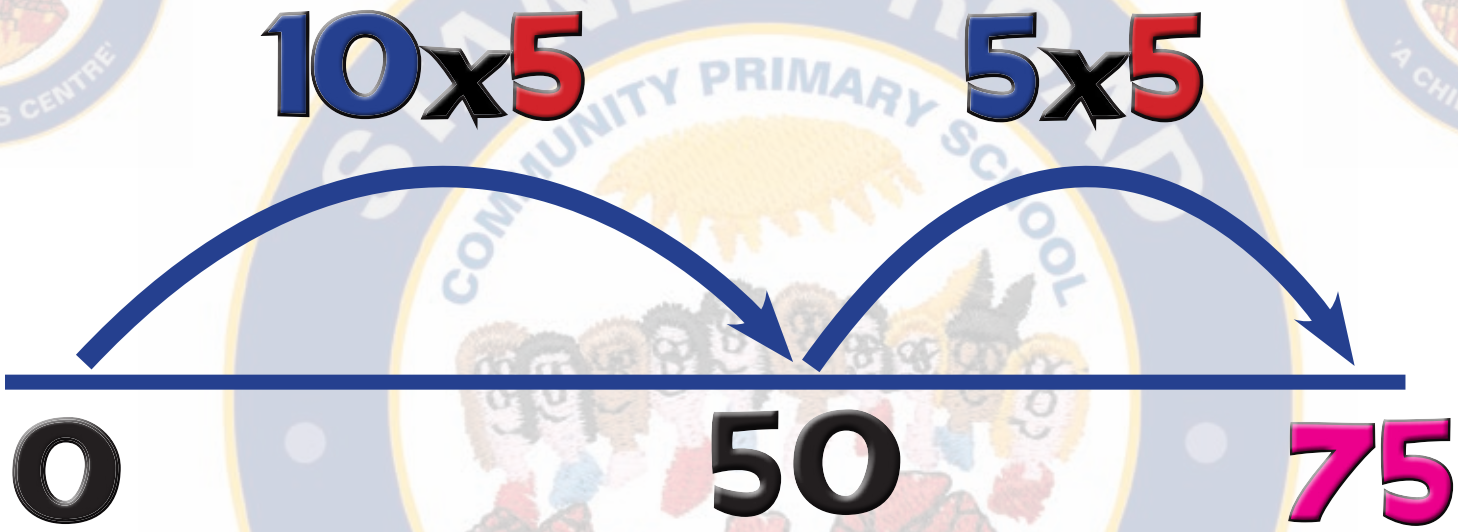
M4: Multi Boing!



10 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

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M6: Expanded Column

100	10	1	
1	4	7	
x		4	
		28	(4 x 7)
	160		(4 x 40)
400			(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	.	$\frac{1}{10}$	$\frac{1}{100}$
	3	4	0	0		
		3	4	0		
			3	4		
			3	.	4	
			0	.	3	4

×100

×10

÷10

÷100

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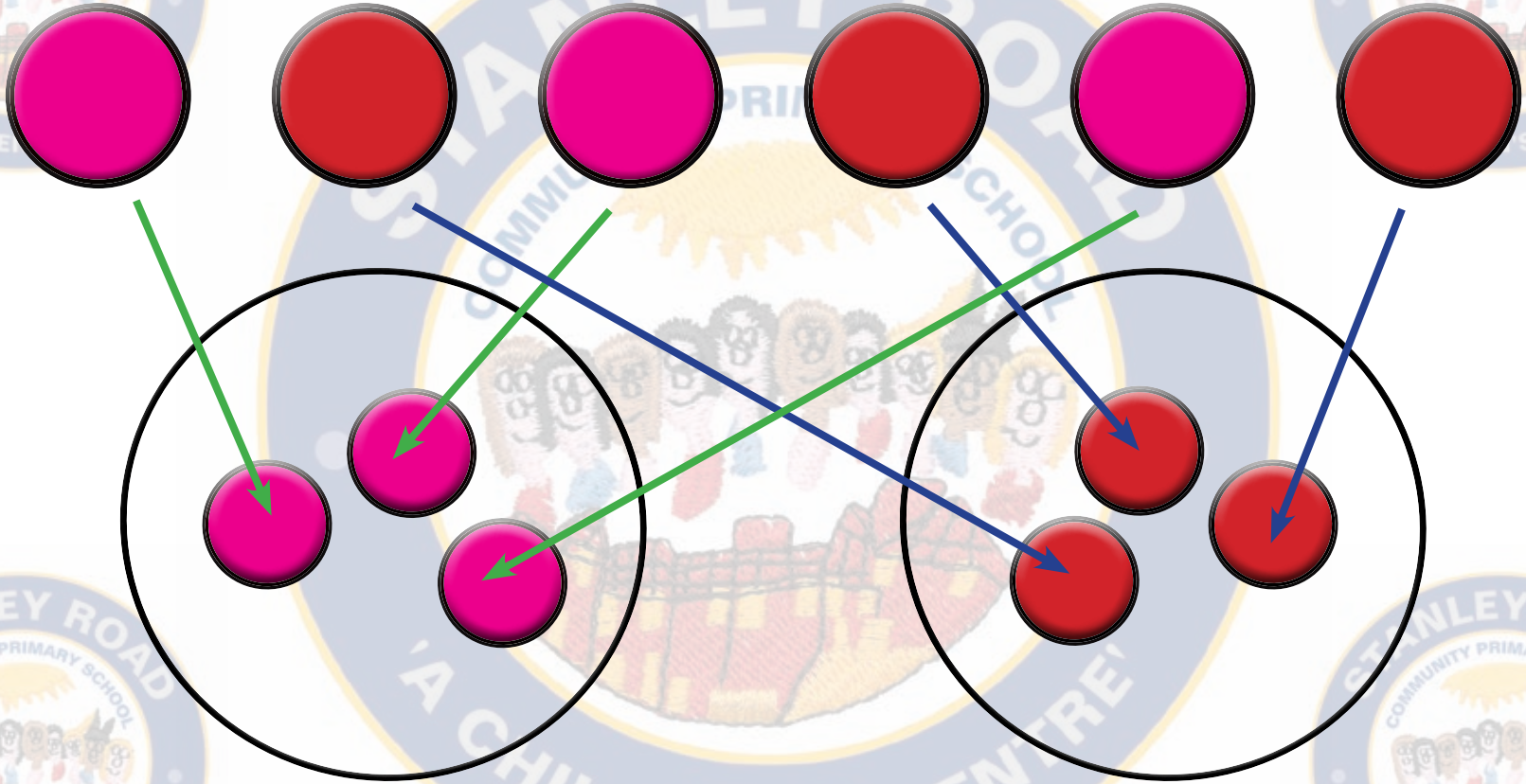
D1: Sharing (Concept)



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

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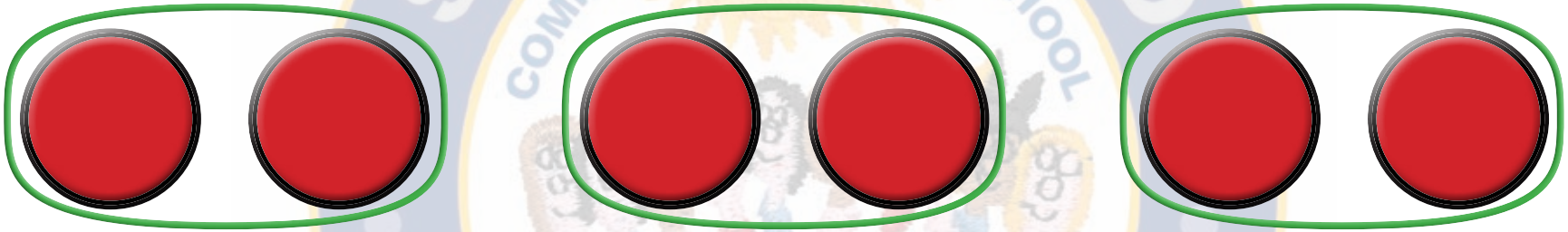
D2: Grouping (Concept)



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

Answer: 3

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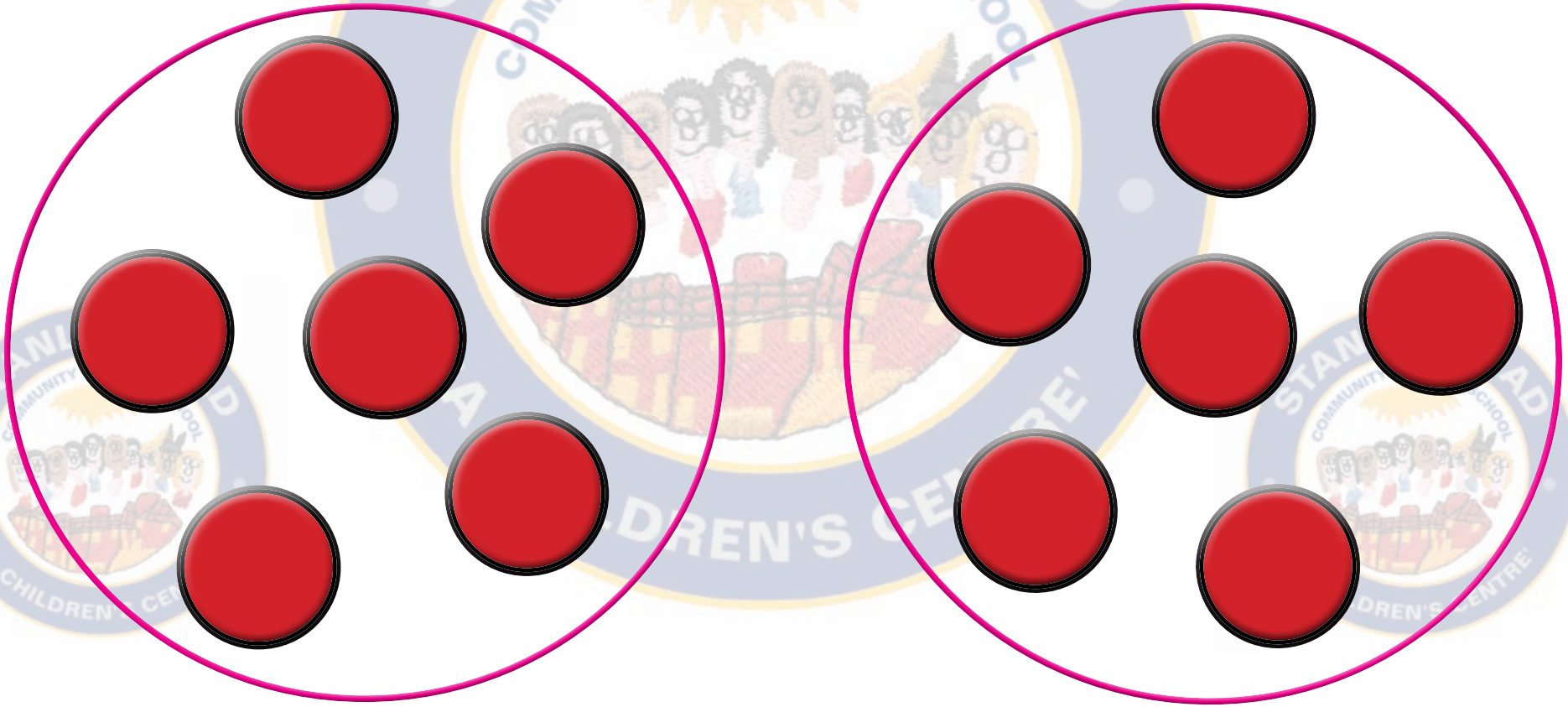
D3: Division as Sharing

12 ÷ 2 = 6

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



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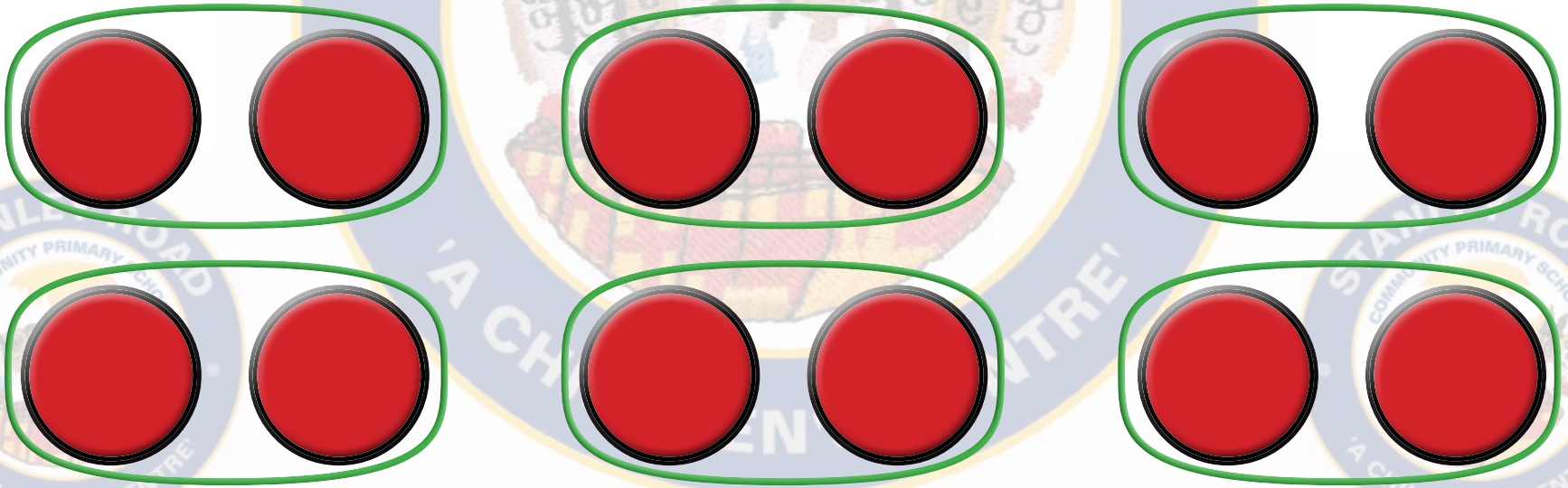
D4: Division as Grouping

12 ÷ 2 = 6

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



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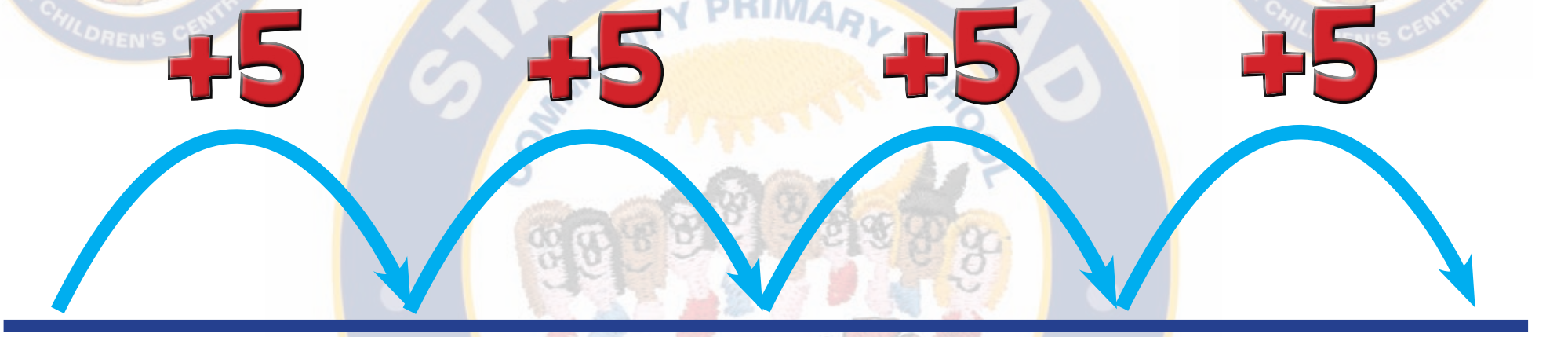
D5: Grouping on a Number Line



"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

$$27 \div 4 = 6r3$$

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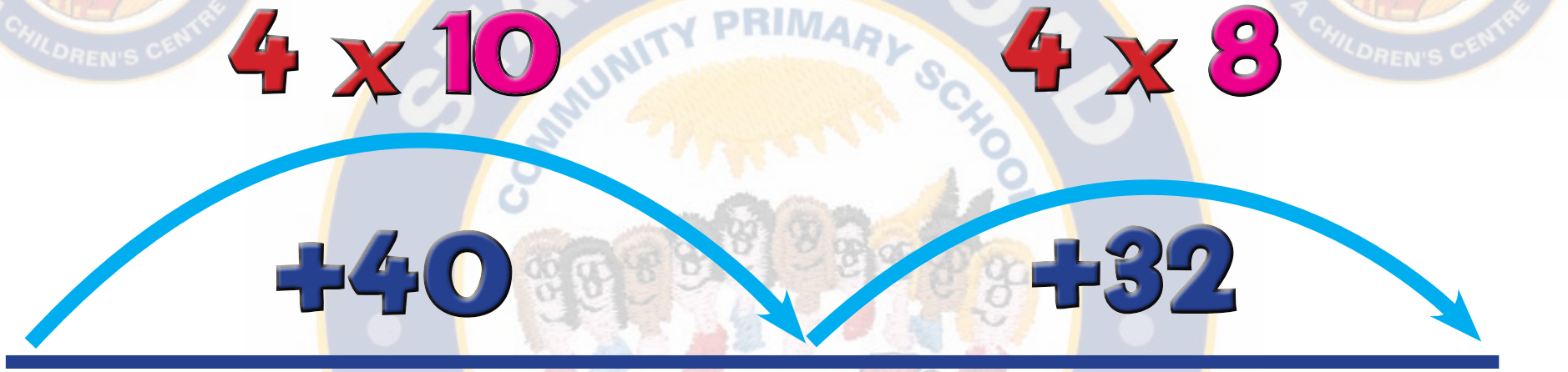
D7: Chunking Jump



"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

$$136 \div 4 = 34$$

$$\begin{array}{r} 34 \\ 4\overline{)1^{1}3^{1}6} \end{array}$$

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D11: Chunking

$$
\begin{array}{r|l}
 & 34 \\
\hline
4 & 136 \\
-120 & (4 \times 30) \\
\hline
 & 16 \\
-16 & (4 \times 4) \\
\hline
 & 0
\end{array}
$$

$136 \div 4 = 34$

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D12: Long Division

Short Division Method

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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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