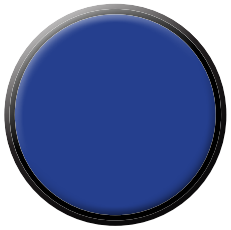
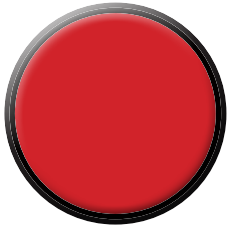
Sense of Number
Visual Calculation Policy

Basic Edition for
Abbey Meads Primary School
October 2014



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

For sole use within Abbey Meads Primary School.



'A picture is worth 1000 words!'

www.senseofnumber.co.uk

Abbey Meads Primary School

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)

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

×

8 x 2 = 16

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

Division

÷

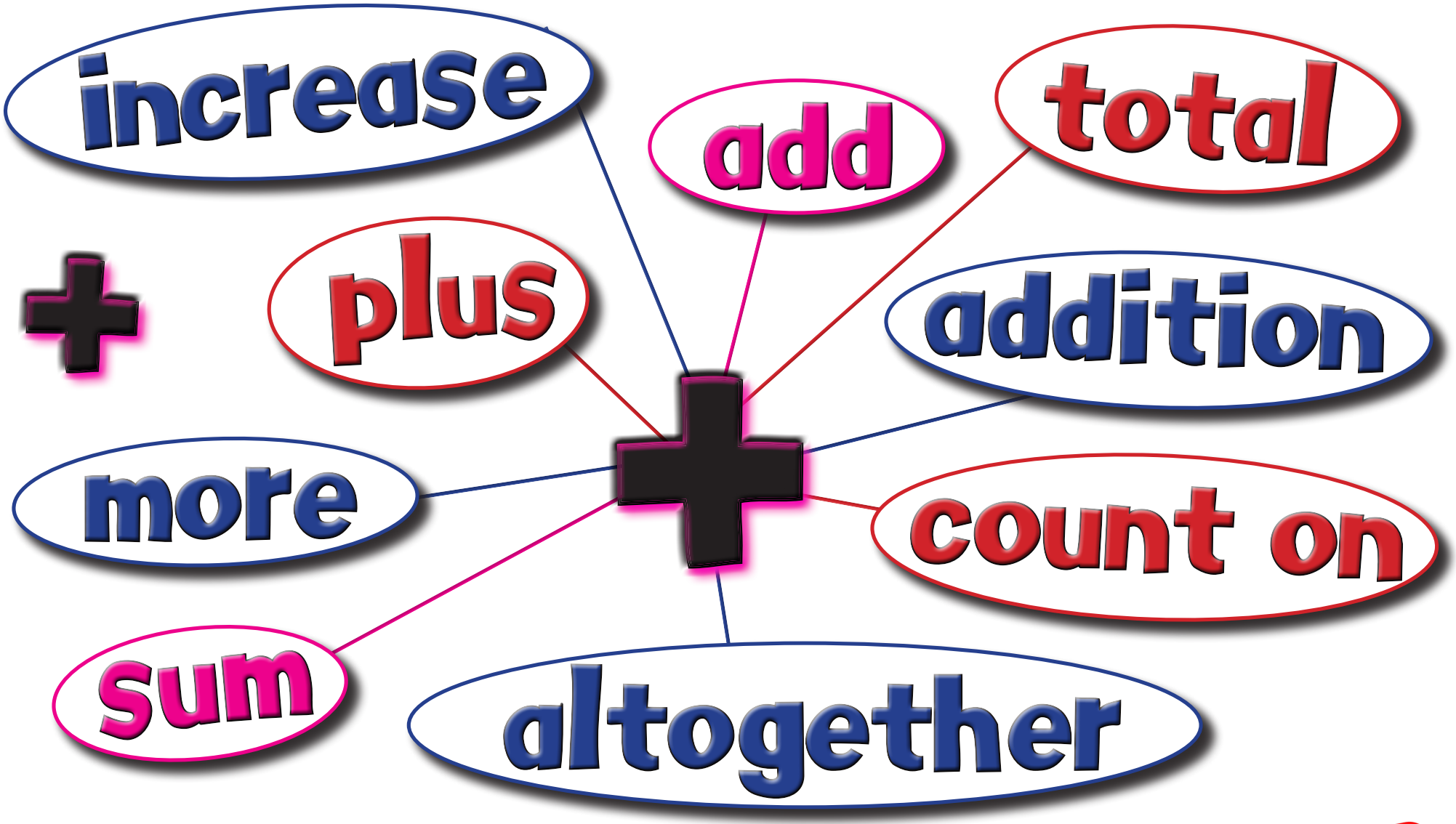
8 ÷ 2 = 4

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

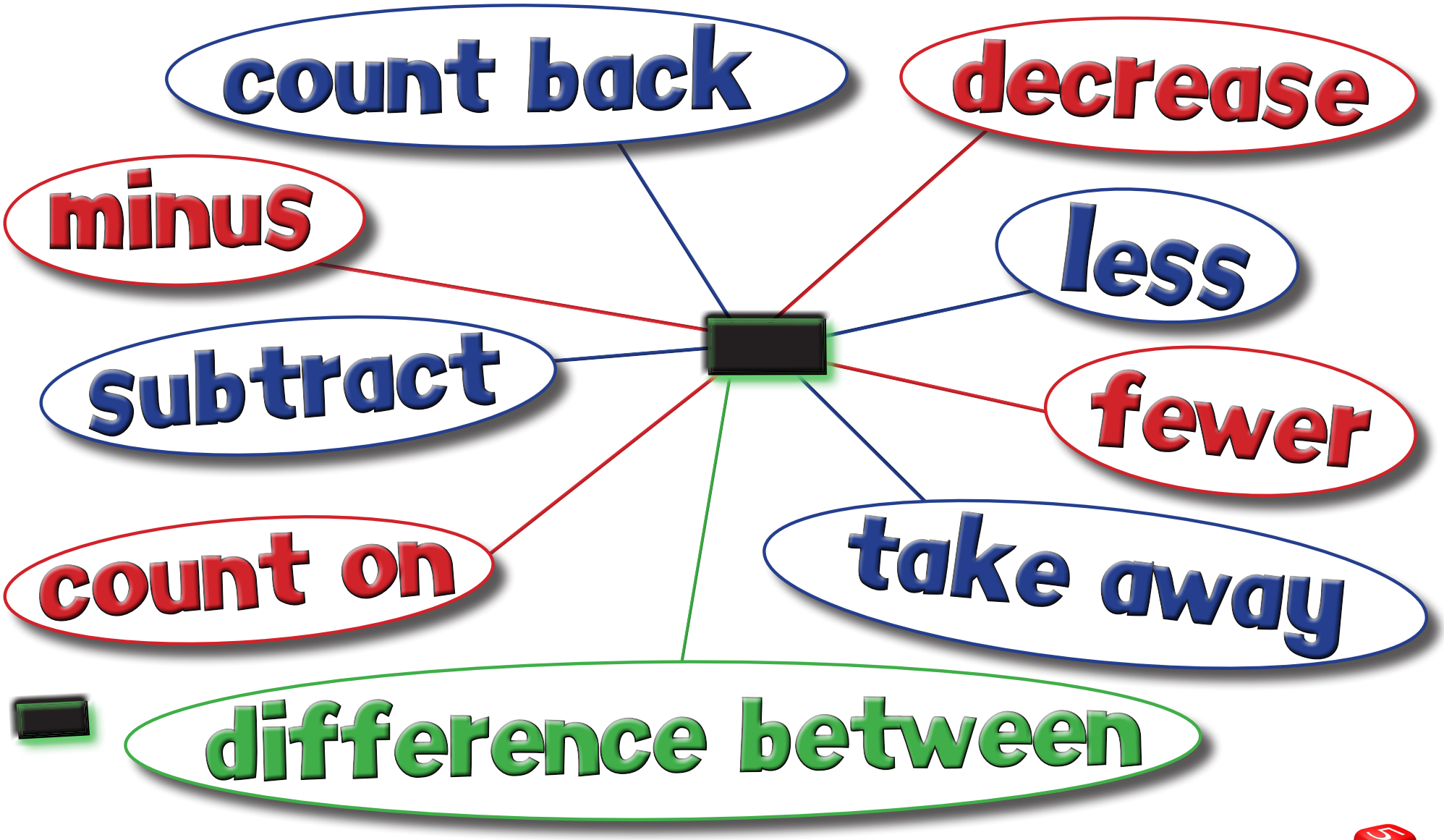
("8 shared into 2 sets is 4")

Calculation Vocabulary

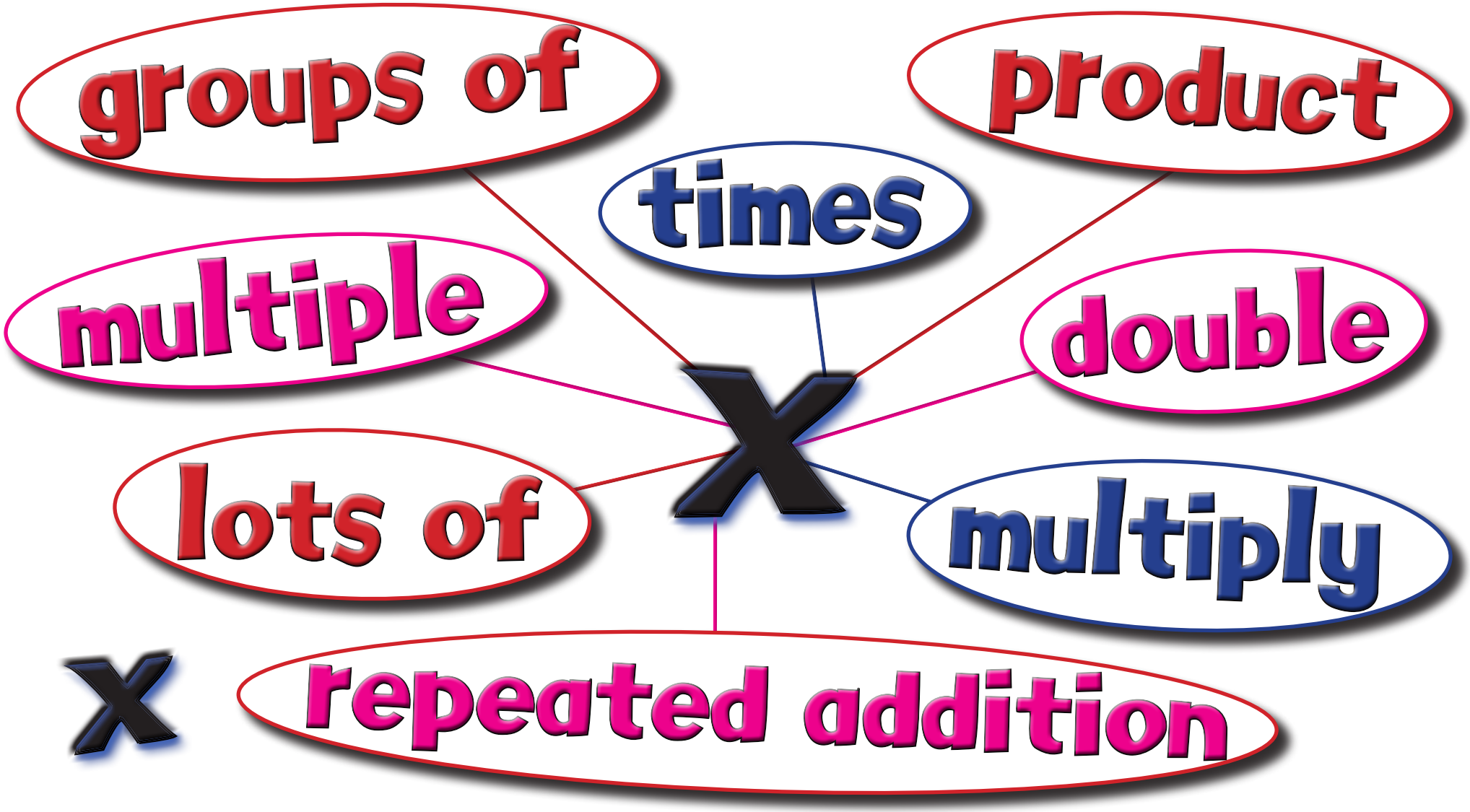
Addition Vocabulary



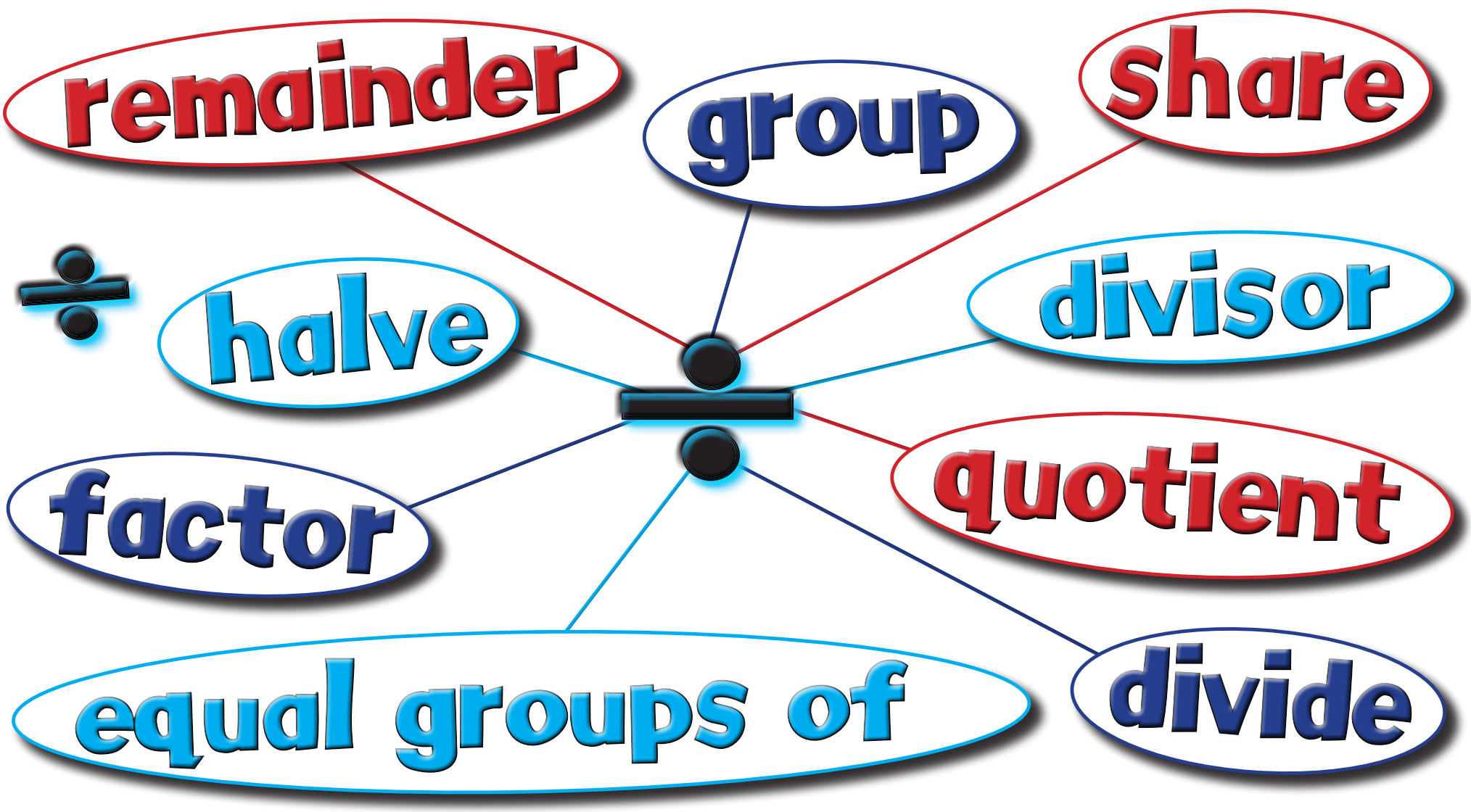
Subtraction Vocabulary



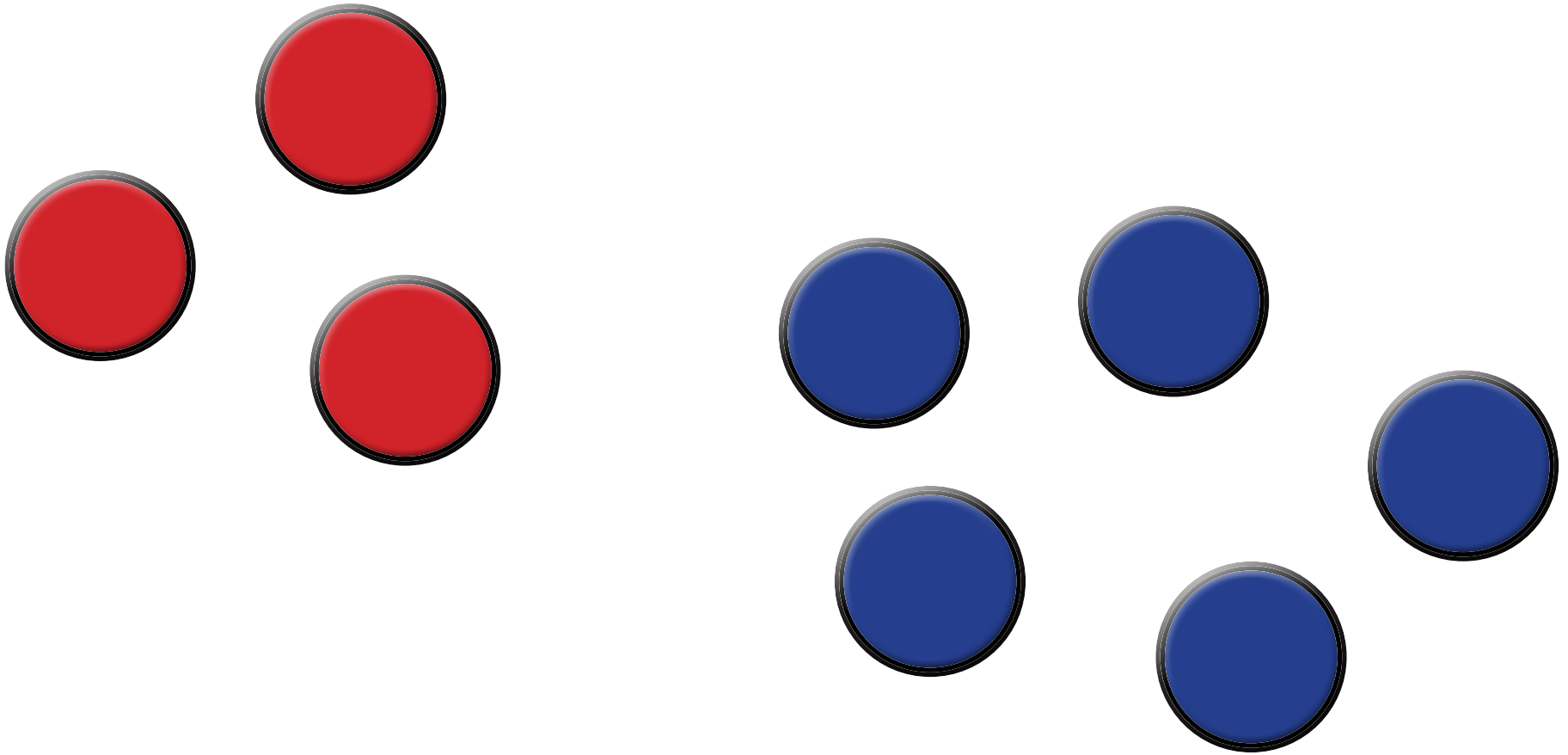
Multiplication Vocabulary



Division Vocabulary

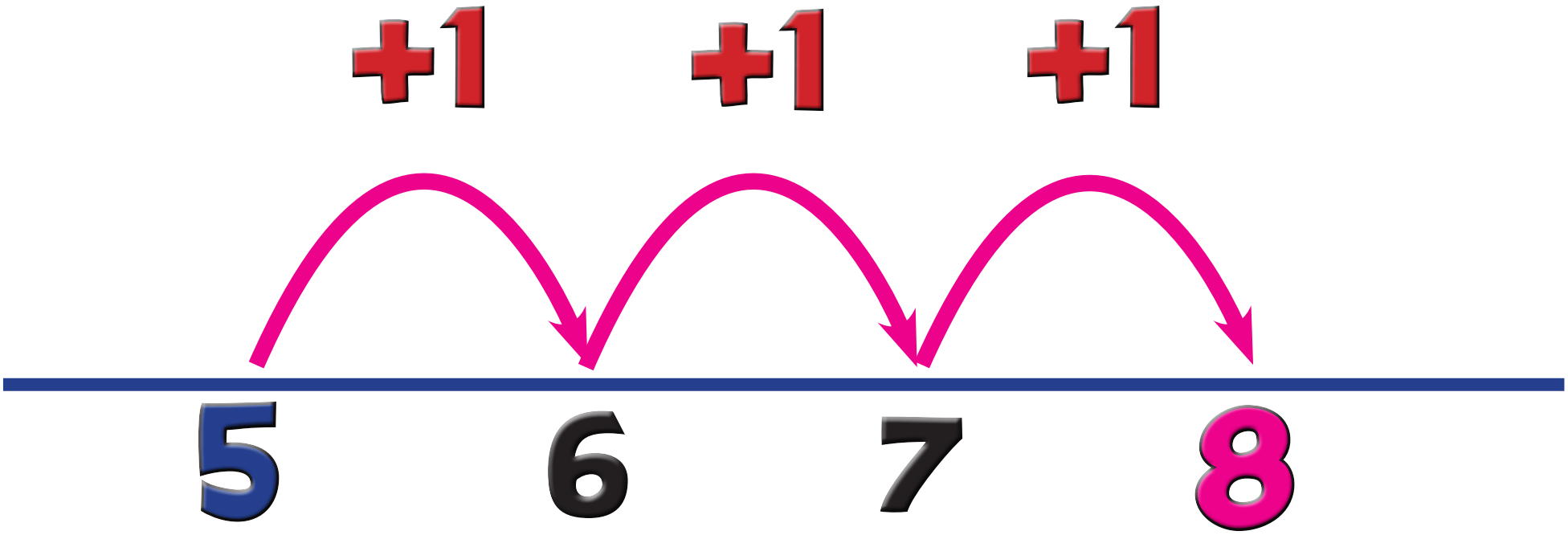


A1: Objects & Pictures



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

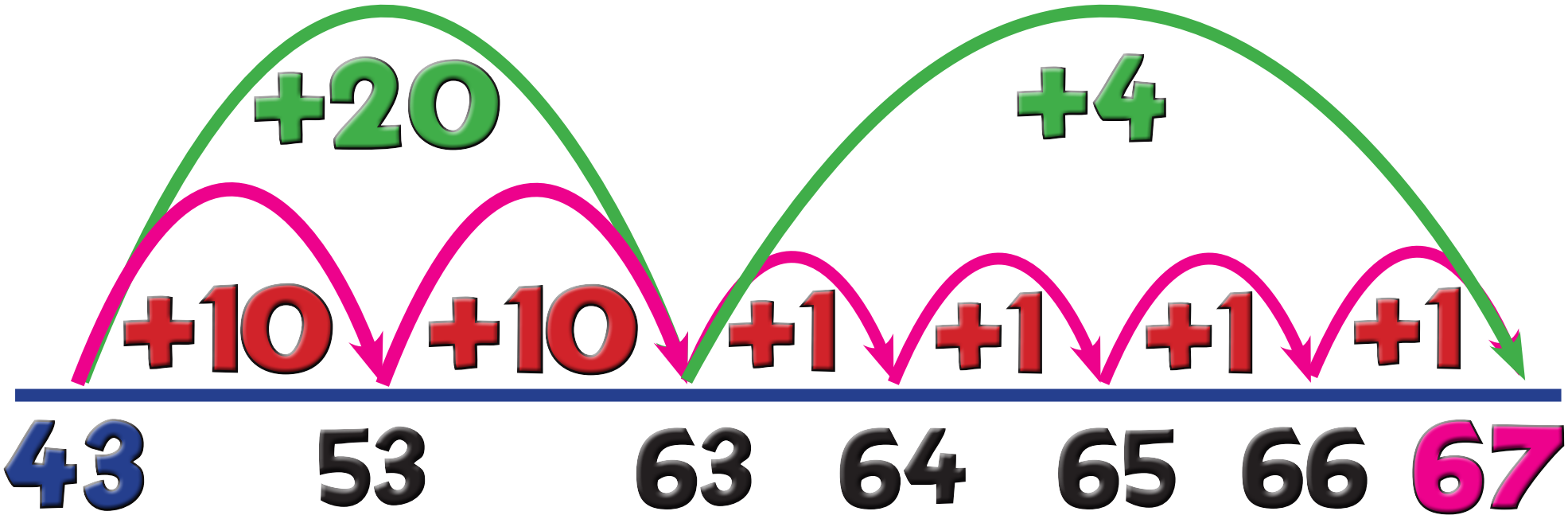
A2: Counting On



$$5 + 3 = 8$$

A3: Forwards Jump

43 + 24 = 67



A4: Partitioning

26 + 35 = 61

20 + 6

\+ 30 + 5

---

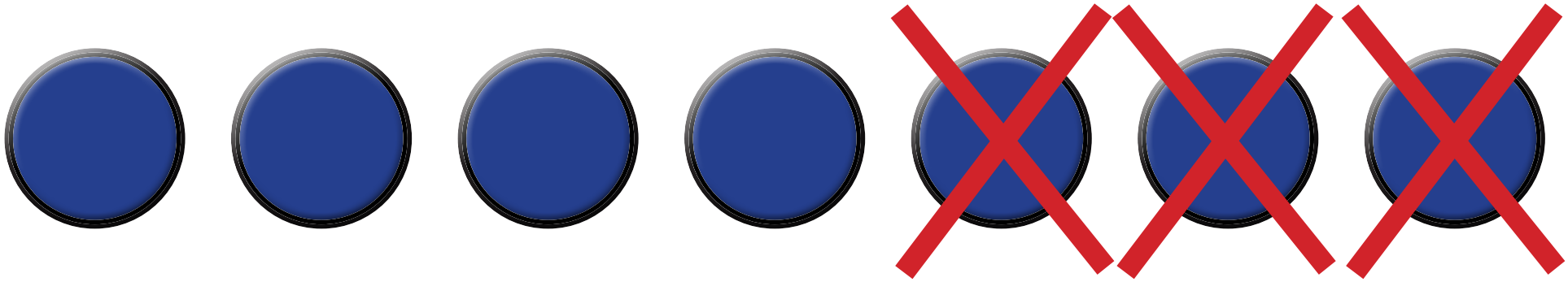
60 + 1

10

A5: Column Addition

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

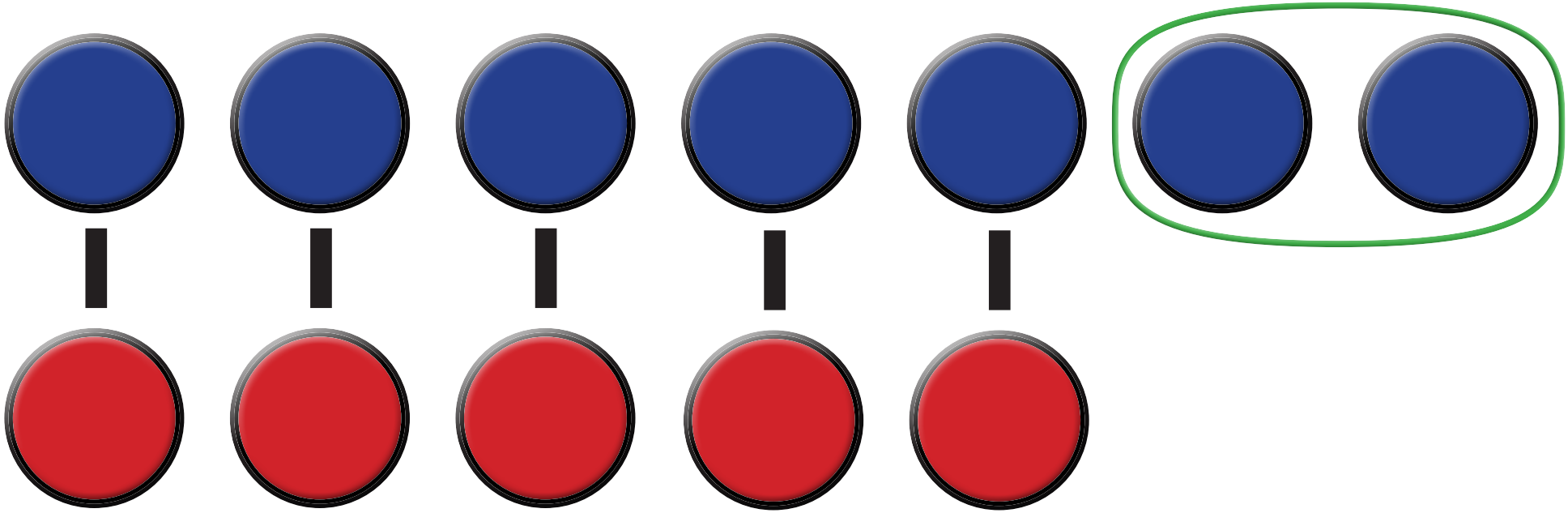
S1: Objects



7 - 3 = 4

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

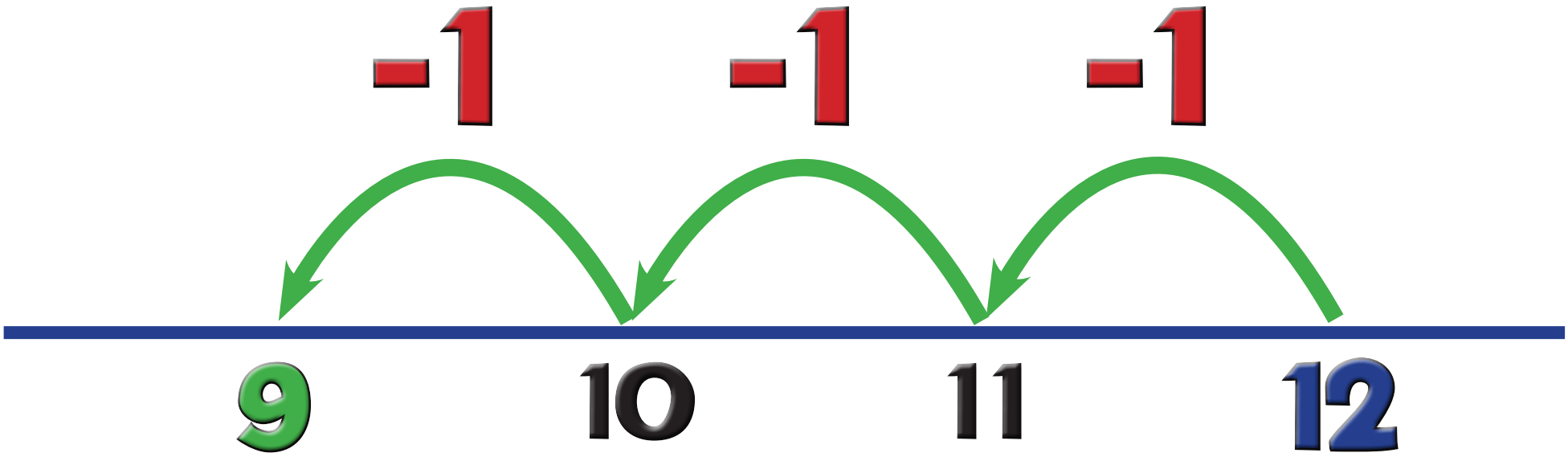
S2: What's the Difference?



7 - 5 = 2

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

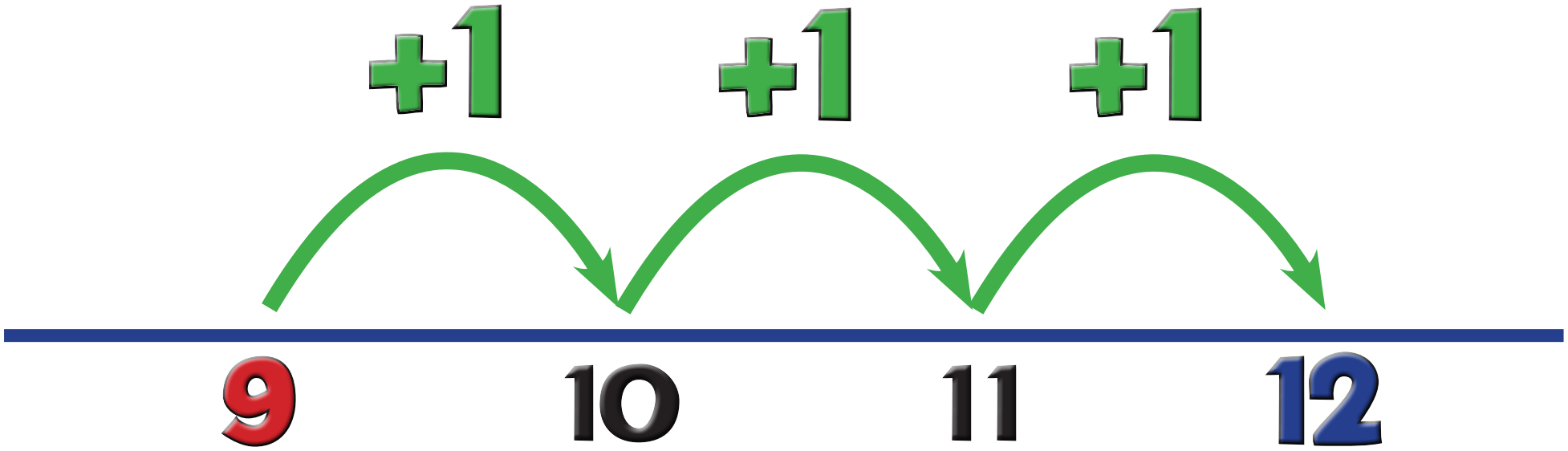
S3: Counting Back



12 - 3 = 9

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

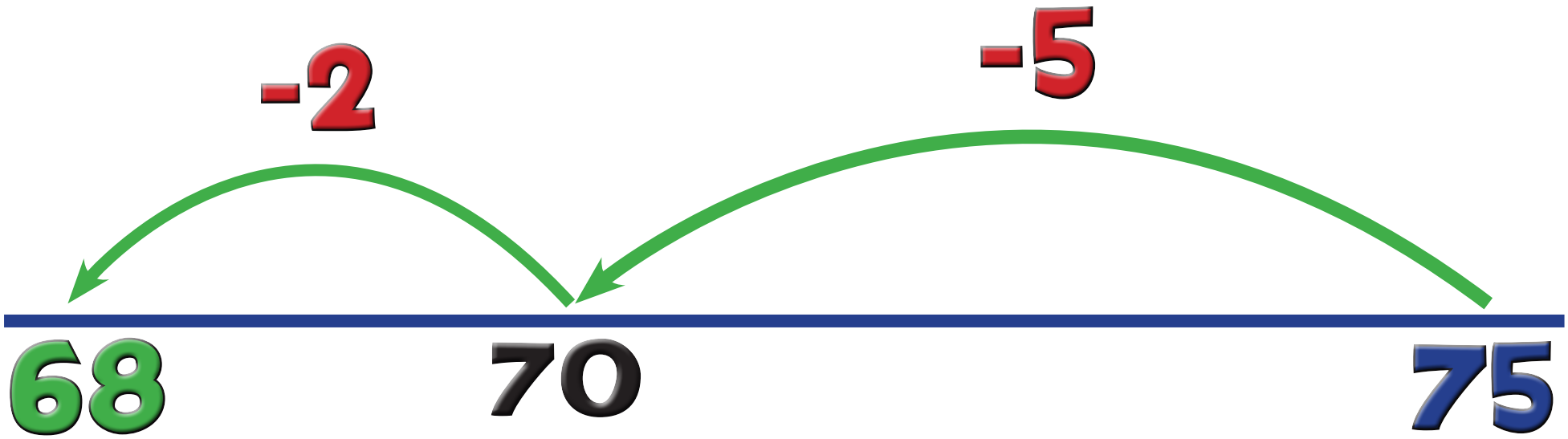
S4: Counting On



12 - 9 = 3

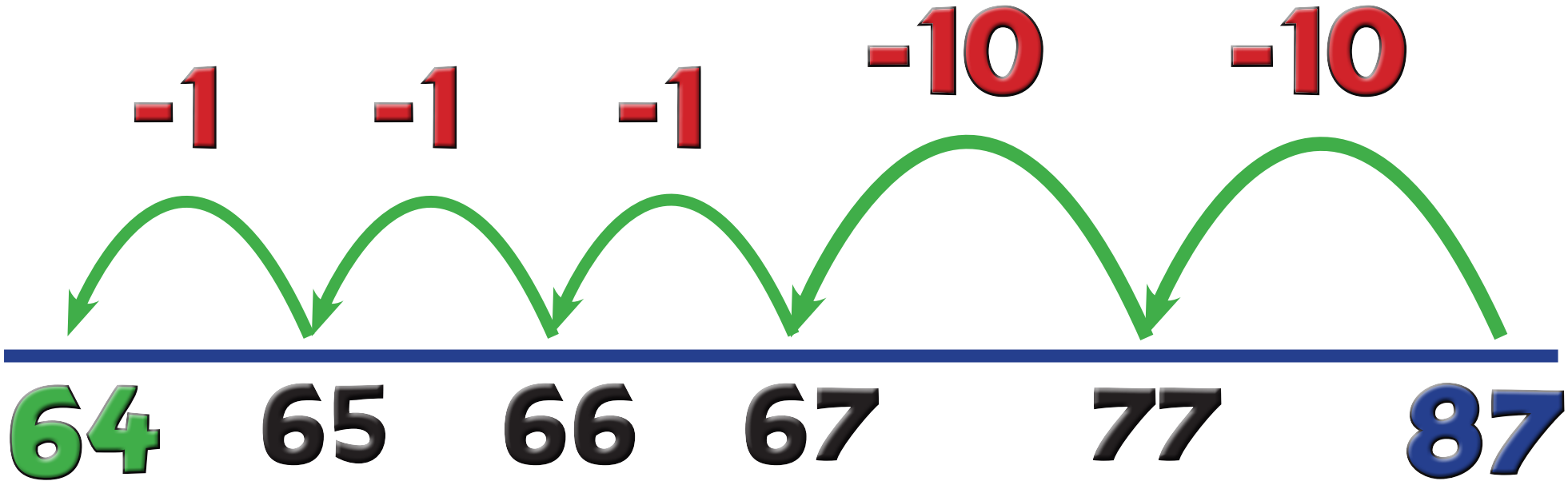
"How many more is 12 than 9? What is the difference?"

S5: Backwards Boing



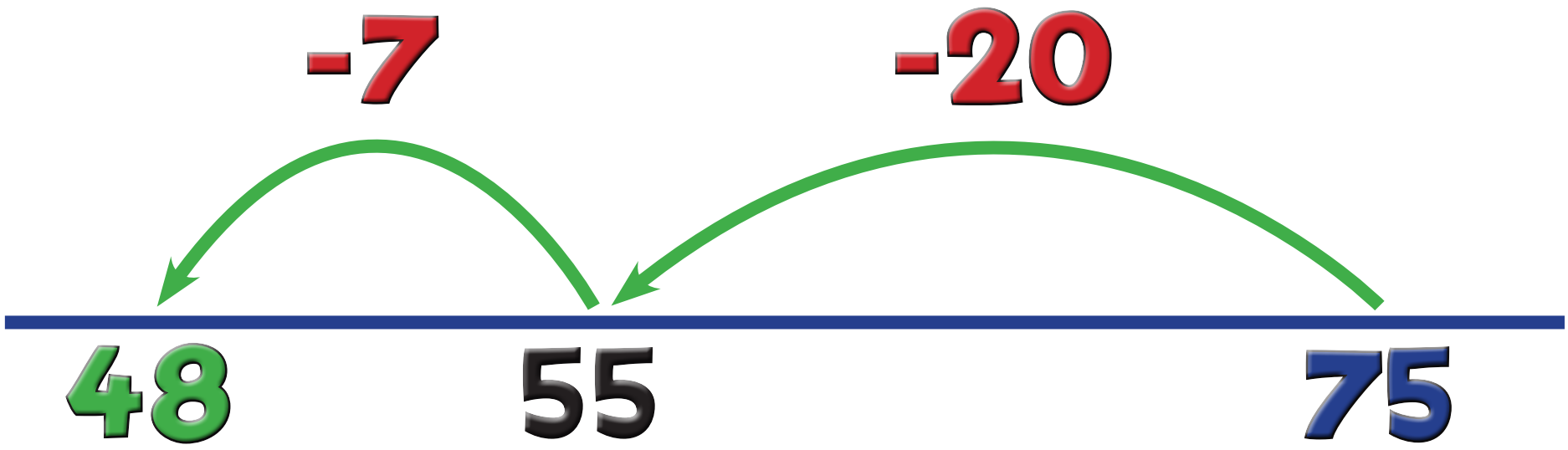
75 - 7 = 68

S6: Backwards Bounce



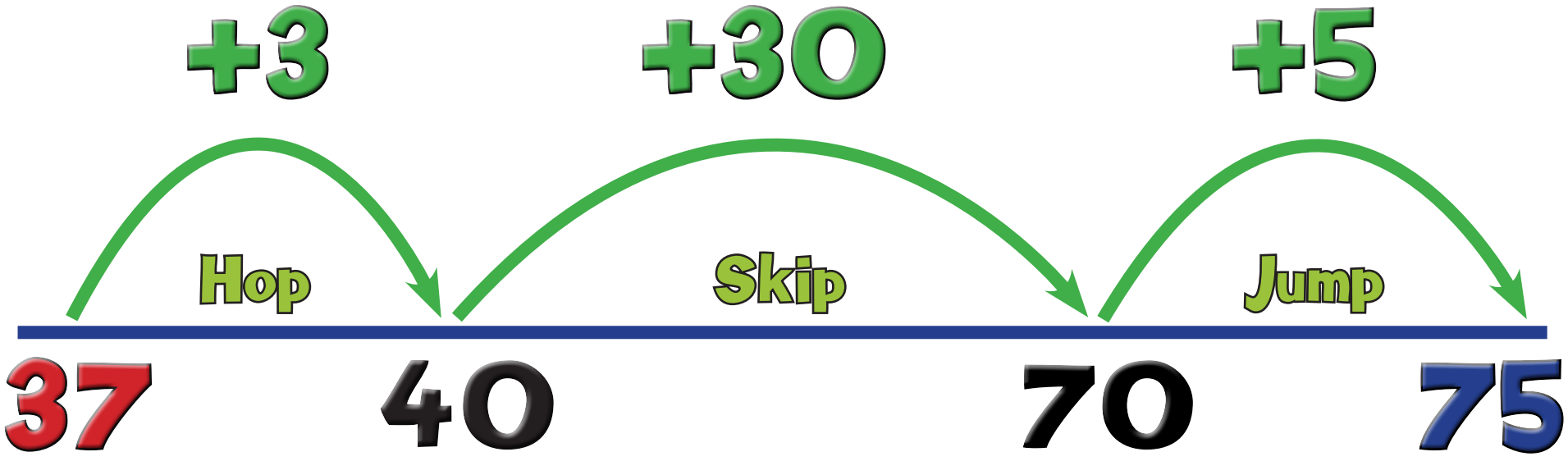
87 - 23 = 64

S7: Backwards Jump



75 - 27 = 48

S8: Triple Jump!



75 - 37 = 38

S9: Expanded Column

Subtraction (100, 10, 1s)

723 - 356 = 367

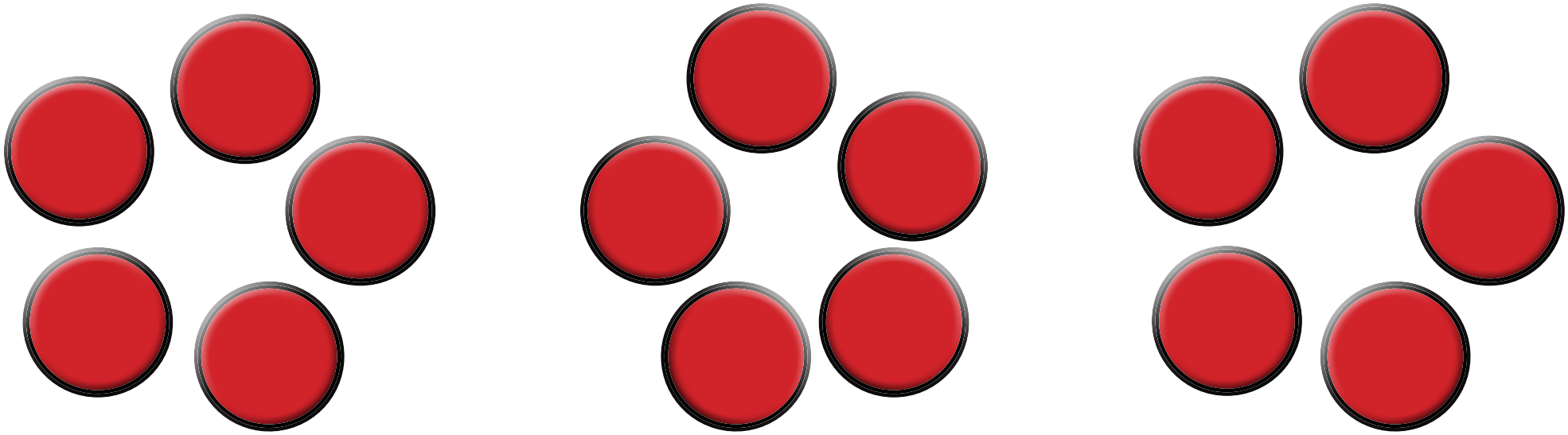
	600	110	1
	~~700~~	~~20~~	3
-	300	50	6
	300	60	7

S10: Column Subtraction

	100	10	1
	6	11	1
	~~7~~	~~2~~	3
−	3	5	6
	3	6	7

M1: Repeated Addition

(Groups)

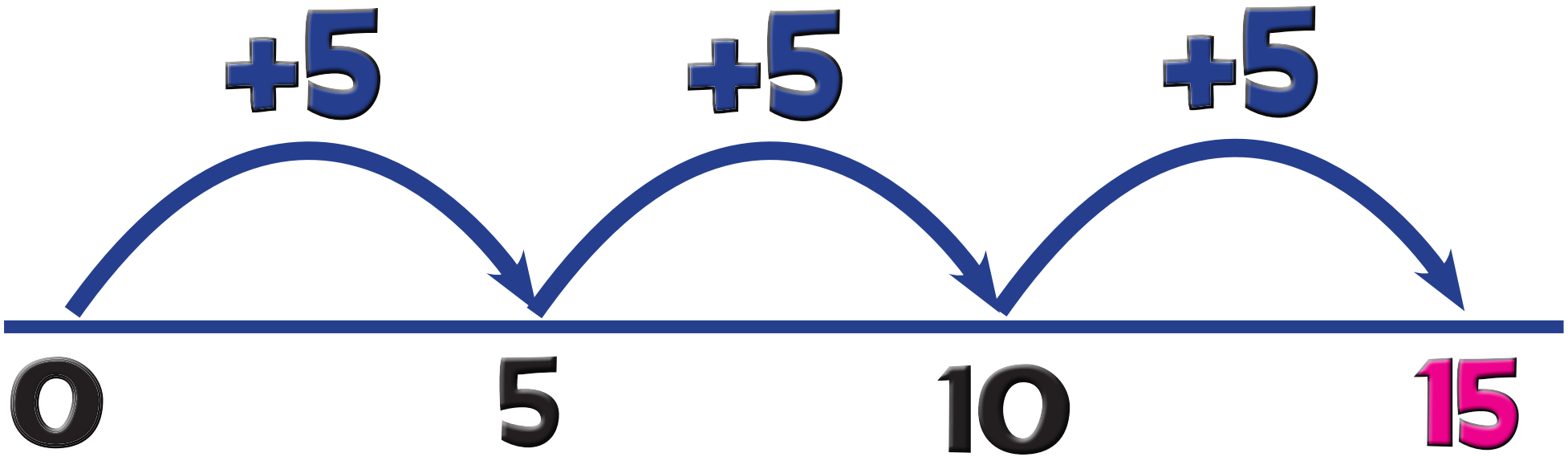


5 x 3 = 5 + 5 + 5 = 15

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

M2: Repeated Addition

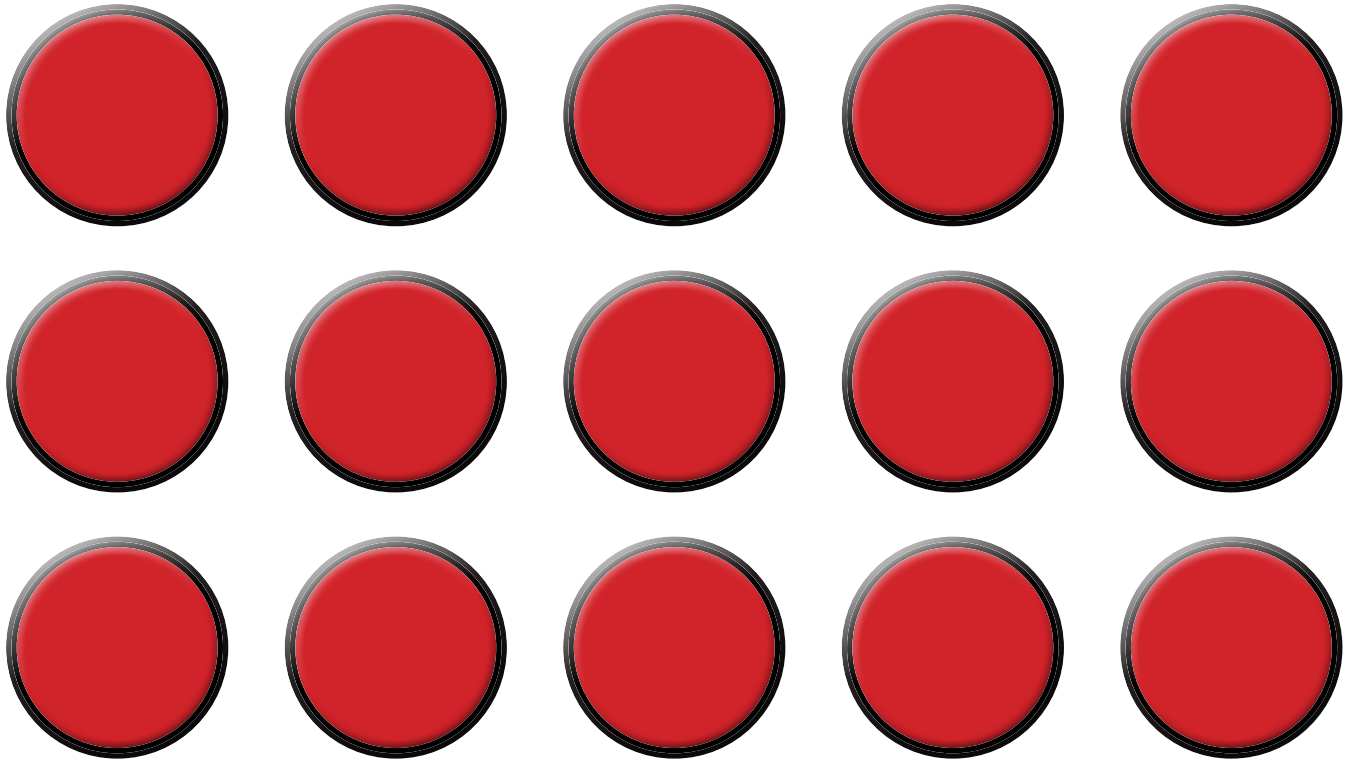
(Number Line)



$5 \times 3 = 5 + 5 + 5 = 15$

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

M3: Arrays



$3 \times 5 = 15$ or $5 \times 3 = 15$

M4: Grid Method

Short Multiplication

123 x 5 = 615

x	5
100	500
20	100
3	15
	625

M5: Column Multiplication

100	10	1
	14	7
x		4
5	8	8
1	2	

M6: Grid Method

Long Multiplication

23 x 12 = 276

x	10	2	
20	200	40	240
3	30	6	36
			276

M7: 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	■	$\frac{1}{10}$	$\frac{1}{100}$
		3	4	0	0	
			3	4	0	
				3	4	
			3	■	4	
			0	■	3	4

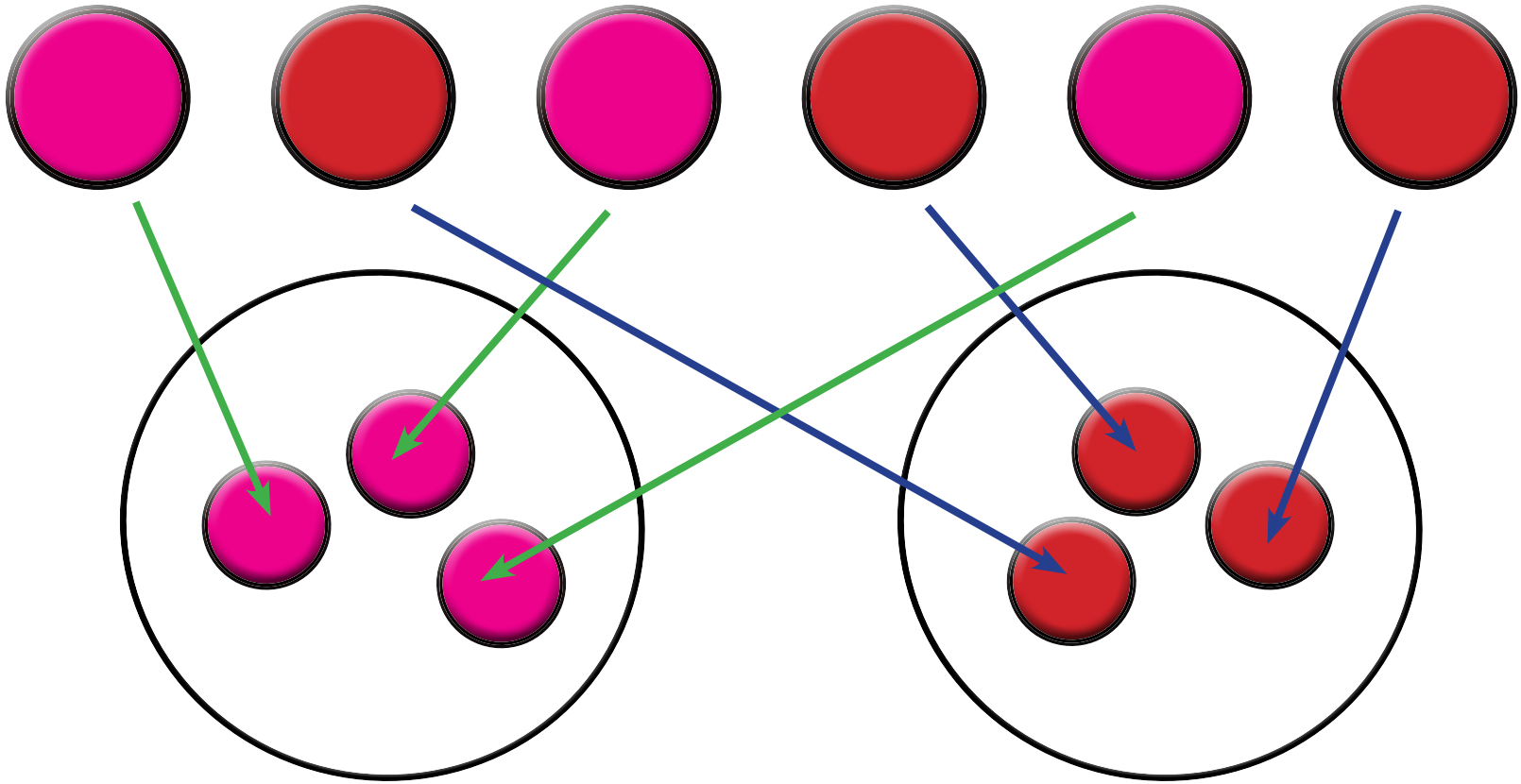
×100

×10

÷10

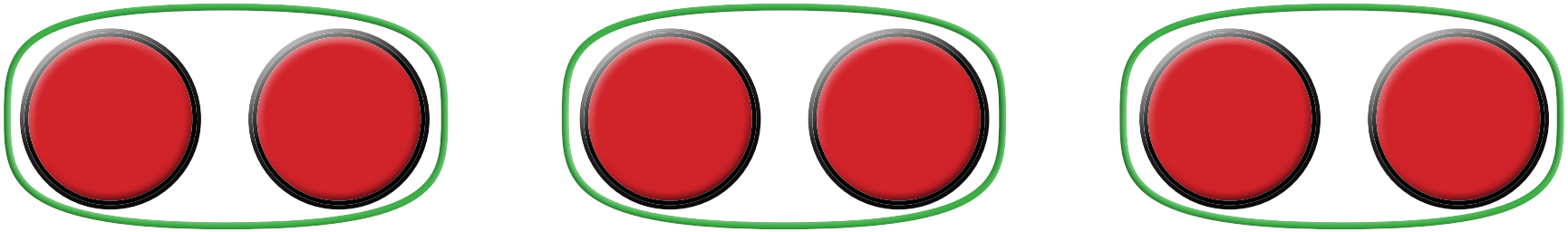
÷100

D1: Sharing (Concept)



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

D2: Grouping (Concept)

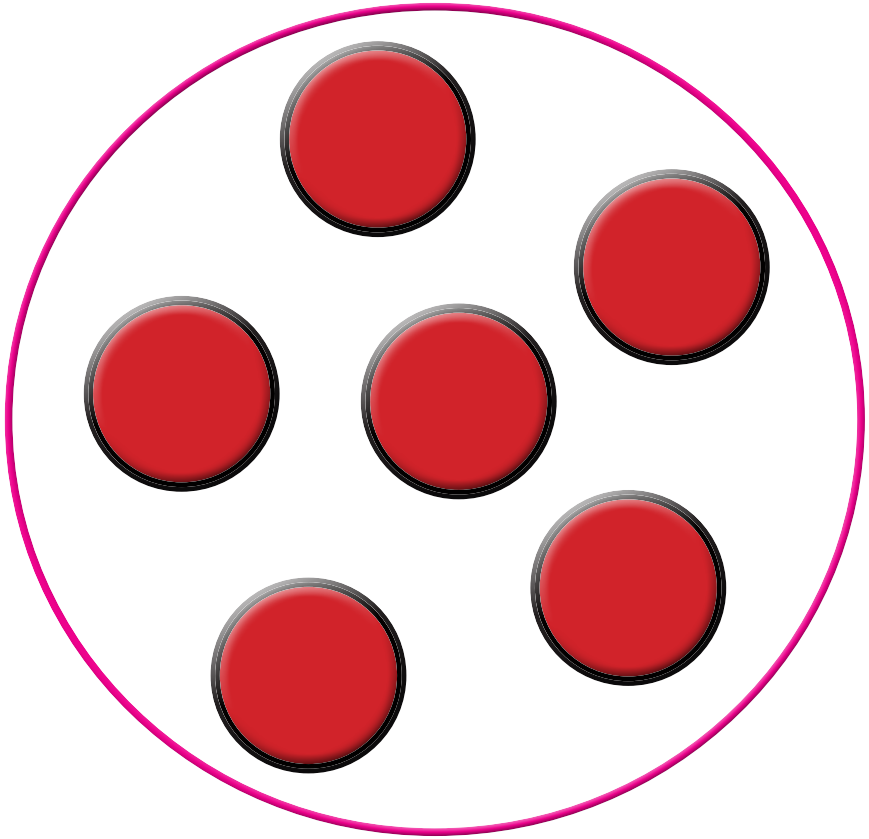


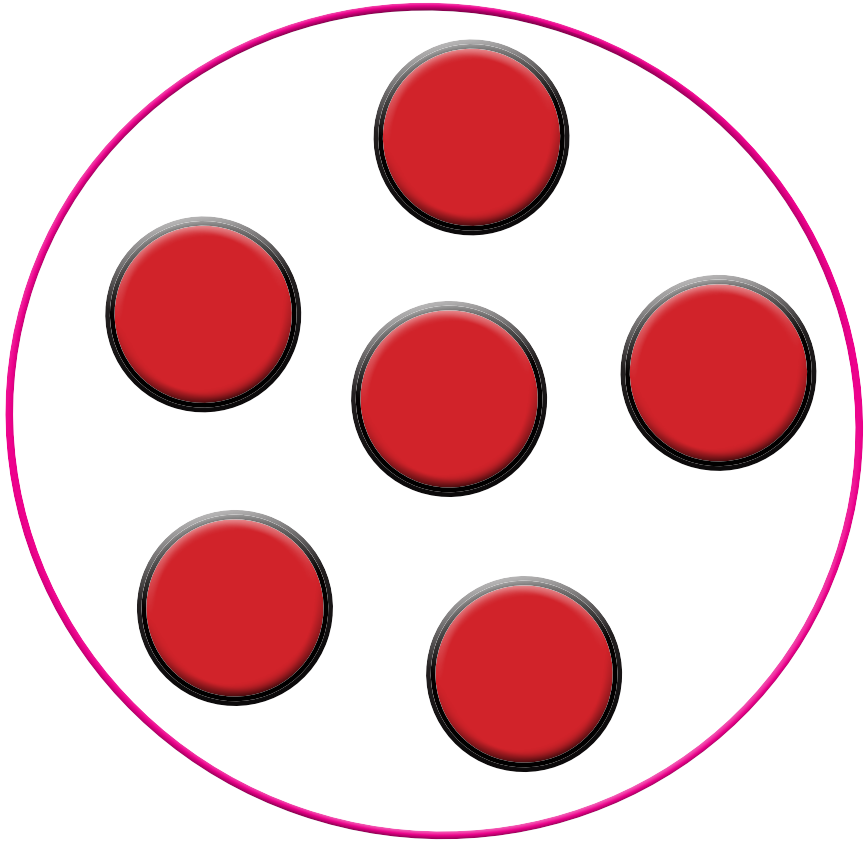
"How many groups of 2 can I make out of 6?
Answer: 3

D3: Division as Sharing

12 ÷ 2 = 6

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

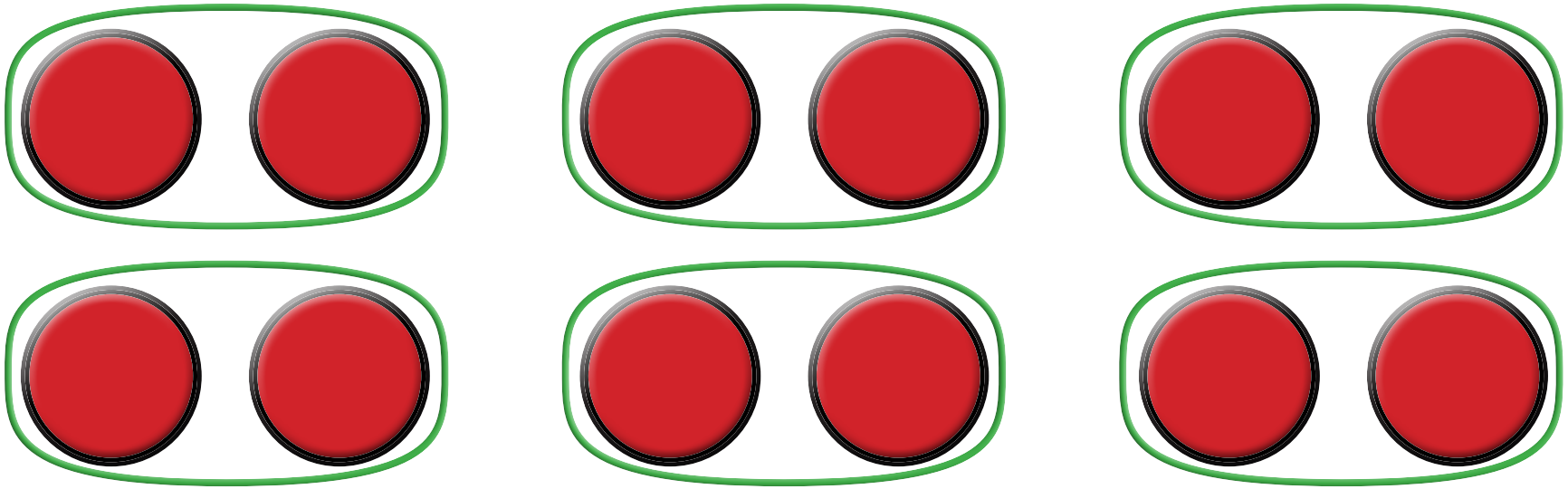




D4: Division as Grouping

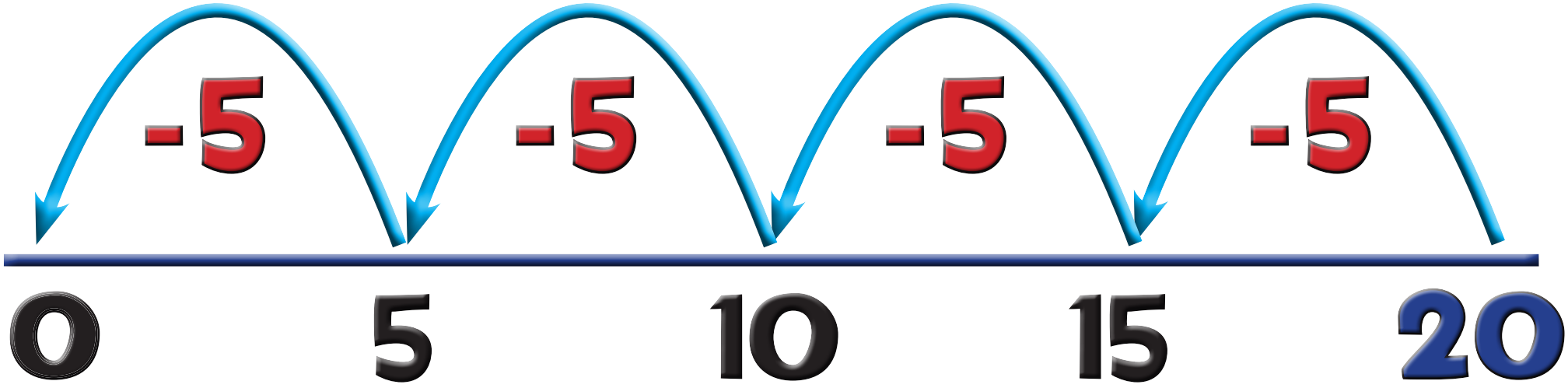
12 ÷ 2 = 6

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

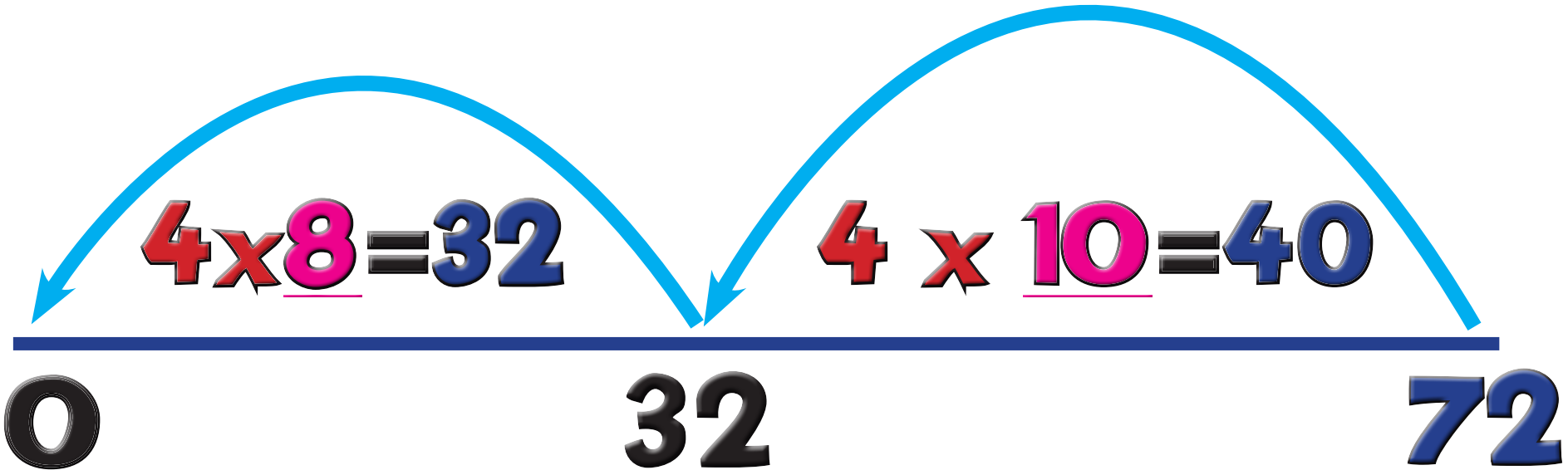


D5: Grouping on a Number Line

20 ÷ 5 = 4



D6: Chunking Jump



$$72 \div 4 = 18$$

D7: Chunking

$$
\begin{array}{r|l}
 & 14 \\
\hline
3 & 42 \\
- & 30 \quad (10 \times 3) \\
\hline
 & 12 \\
- & 12 \quad (4 \times 3) \\
\hline
 & 0
\end{array}
$$

$42 \div 3 = 14$

D8: Short Division

$$136 \div 4 = 34$$

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

D9: Long Division

Short Division Method

$$\begin{array}{r} 26 \text{ r } 21 \\ 37 \overline{)\,983} \\ \end{array}$$

9 24

D10: Long Division

Traditional Method

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

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