Sense of Number
Visual Calculation Policy

Basic Edition for
Spring Bank Primary School
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For sole use within Spring Bank Primary School.

‘A picture is worth 1000 words!’
www.senseofnumber.co.uk
Guide to using a Visual Calculation Policy

The Sense of Number Visual Calculation Policy provides a visual representation of a school’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) 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

“What the difference between 8 and 2 is 6”
**KC2: Key Concepts!**

**Multiplication**

8 \times 2 = 16

“8 multiplied by 2” means “8, 2 times” or “2 groups of 8”

**Division**

8 \div 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”)
MA1: Partitioning

45 + 82 = 127

120 + 7 = 127

In my head?

Need a jotting?

Need a calculator?

Formal method?

A3b: Forwards Jump

86 + 48 = 134

86

+ 40

+ 8

126

134

A7d: Column Addition

4873

+ 3762

8635
Can I do this in my head?
Do I need to use a drawing or a jotting?
3

Do I need an expanded or a standard method?
Do I need a calculator?
Calculation Vocabulary

equivalent to

same value as

balance

equals

Operations

Addition

Subtraction

Multiplication

Division

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Addition Vocabulary

- increase
- add
- total
- plus
- addition
- count on
- altogether
- more
- sum
Subtraction Vocabulary

- count back
- decrease
- minus
- subtract
- count on
- take away
- difference between
- less
- fewer
- decrease
- less
- fewer
- take away
- difference between
- less
- fewer
- take away
- difference between
Multiplication Vocabulary

groups of

product

times

multiple

double

lots of

multiply

repeated addition

x
Addition Calculation

4 + 2 = 6

(add) (equals)

addend + addend = total

Sum
Subtraction Calculation

$$6 - 2 = 4$$

(subtract) (equals)

minuend subtrahend difference
Multiplication Calculation

4 \times 2 = 8

(multiplied by) (equals)

multiplicand product multiplier

x
Division Calculation

8 ÷ 2 = 4

(divided by) (equals)

dividend divisor quotient

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"If I have 3 and then 5 more, how many altogether? Answer: 8"
A2: Counting On

8 + 1 = 9
9 + 1 = 10
10 + 1 = 11

8 + 3 = 11
A3: Forwards Jump

43 + 24 = 67
A4: Partitioning

43 + 24 = 67

40 + 20 = 60

3 + 4 = 7

67

67
A5: Partition Jot

43 + 24 = 67

60 + 7
A6: Expanded Column

Addition

\[ \begin{align*}
100 & \quad 10 & \quad 1 \\
6 & \quad 8 & \quad 7 \\
+ & \quad 2 & \quad 4 & \quad 8 \\
\hline
15 & \quad 12 & \quad 0 \\
\hline
9 & \quad 3 & \quad 5
\end{align*} \]
A7: Column Addition

\[
\begin{array}{c}
687 \\
\downarrow + 248 \\
\hline 935
\end{array}
\]
MA1: Partitioning

\[45 + 82 = 127\]

\[120 + 7 = 127\]
MA2: Counting On

43 + 20 = 63

43

+20

63
MA4: Double & Adjust

45 + 46 = 91

45 + 45 + 1

90 + 1 = 91
MA5: Round & Adjust

45 + 39 = 84

45 + 40 - 1

85 - 1 = 84
"What do I get if I take 3 away from 7?  Answer: 4"
S2: What’s the Difference?

“How many more is 7 than 5? What is the difference?”

7 - 5 = 2
"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?”
S5: Backwards Bounce

\[ 87 - 23 = 64 \]
S6: Triple Jump!

37 + 3 = 40
40 + 30 = 70
70 + 5 = 75

75 - 37 = 38
S7: 10s Jump, 1s Jump!

37 +30 67 +8 75

75 - 37 = 38
S8: Expanded Column

\[723 - 356 = 367\]

\[
\begin{array}{ccc}
600 & 110 & 1 \\
700 & 20 & 3 \\
300 & 50 & 6 \\
\hline
300 & 60 & 7 \\
\end{array}
\]
S9: Decomposition

\[
\begin{array}{ccc}
100 & 10 & 1 \\
6 & 11 & 1 \\
\hline
723 \\
\hline
- 356 \\
\hline
367
\end{array}
\]
M1: Repeated Addition

(Groups)

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

“5 multiplied by 3” means “5, 3 times”, which gives “3 lots of 5”!
M2: Repeated Addition

(Number Line)

0 +5 5 +5 10 +5 15

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

“5 times 3” means “5, 3 times!”
M3: Arrays

\[ 3 \times 5 = 15 \text{ or } 5 \times 3 = 15 \]
M4: Grid Method

23 \times 5 = 115

\[
\begin{array}{ccc}
\times & 20 & 3 \\
5 & 100 & 15 \\
\end{array}
\]

100 + 15 = 115
M5: Expanded Column

100 10 1

1 4 7

x 4

2 8

1 6 0

4 0 0

5 8 8

(4 × 7)

(4 × 40)

(4 × 100)
M6: Column Multiplication

100 10 1

147

x 4

588

1 2
M7: **Grid Method**

**Long Multiplication**

\[ 43 \times 65 = 2795 \]

\[
\begin{array}{c|c|c}
\times & 40 & 3 \\
60 & 2400 & 180 \\
5 & 200 & 15 \\
\end{array}
\]

\[ 2400 + 180 + 200 + 15 = 2795 \]
M8: Long Multiplication

Column

\[
\begin{array}{c}
\times \\
65
\end{array}
\]

\[
\begin{array}{c}
215 \\
+2580
\end{array}
\]

\[
\begin{array}{c}
2795
\end{array}
\]

\[
\frac{(5 \times 43)}{(60 \times 43)}
\]
MM1: Jump!

\[ \times 100 \]

\[ \times 10 \]

\[ \div 10 \]

\[ \div 100 \]
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

$12 \div 2 = 6$

“If I share 12 into 2 equal amounts, how many in each group?” Answer: 6
D4: Division as Grouping

\[ 12 \div 2 = 6 \]

“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

$20 \div 5 = 4$
D6: Grouping Grid

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

$27 \div 4 = 6r3$
D7: Chunking Jump

72 ÷ 4 = 18

“How many 4s in 72?”

Answer: 18
D8: Find the Hunk!

\[ 72 \div 4 = 18 \]

The Hunk! + Chunk

\[ 40 + 32 = 72 \]

\[ \downarrow \quad \downarrow \quad \div 4 \]

\[ 10 + 8 = 18 \]
D9: Mega Hunk!

136 ÷ 4 = 34

Mega Hunk!

120 + 16

↓ ↓

30 + 4

÷ 4

= 34

Chunk
D10: Short Division

\[ 136 \div 4 = 34 \]
D11: **Chunking**

\[
\begin{array}{c}
4) 136 \\
-120 \quad (4 \times 30) \\
\hline
16 \\
-16 \quad (4 \times 4) \\
\hline
0
\end{array}
\]

\[136 \div 4 = 34\]
D12: Long Division

Traditional Method

\[
\begin{array}{c}
37 \overline{)983} \\
- 74 \\
243 \\
- 222 \\
21
\end{array}
\]

\[
983 + 37 = 26 \frac{21}{37}
\]

\[
983 + 37 = 26 \text{r}21
\]