## X Multiplication X

Counting in equal steps: $2 \mathrm{~s}, 3 \mathrm{~s}, 5 \mathrm{~s}, 10 \mathrm{~s}$


Repeated addition of groups:

$00-00-00-0000000000$
$3+3=6$
Double 3 is 6
$2+2+2+2+2=10$
$2 \times 5=10$
2 multiplied by 5 5 pairs
$2 \times 3$ or 3 groups of 2
$10 p+10 p+10 p+10 p+10 p=50 p$ $10 p \times 5=50 p$
5 jumps of 10


Describing an array: taught with division facts


$$
3 \times 5=15 \quad 5 \times 3=15
$$

$15 \div 5=3$
$15 \div 3=5$

Partitioning: to
mentally multiply
$17 \times 3=$
$10 \times 3=30$
$7 \times 3=21$
$30+21=51$

Splitting arrays:

$13 \times 4$
$10 \times 4$
$3 \times 4$

Expanded grid:

$13 \times 4$
$10 \times 4$
$3 \times 4$

Compact grid method:

| $X$ | 40 | 3 |
| :---: | :---: | :---: |
| 6 | 240 | 18 |

## Compact Vertical multiplication:

|  | 2 | 5 | 6 | $x$ | 1 | 8 | $=$ |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
|  |  | 2 | 5 | 0 | $x$ | 5 | 0 | $=$ | 5 | 0 | 0 | 0 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  | 2 | 5 | 6 |  |  |  |  |  |  |  |  |
|  | $\times$ |  | 1 | 8 |  |  |  |  |  |  |  |  |
| 2 | 5 | 6 | 0 |  |  |  |  |  |  |  |  |  |
| 2 | 0 | 4 | 8 |  |  |  |  |  |  |  |  |  |
| 4 | 6 | 0 | 8 |  |  |  |  |  |  |  |  |  |
|  |  | 1 |  |  |  |  |  |  |  |  |  |  |

Vertical multiplication:

$$
\begin{array}{|l|l|l}
\hline 3 & 2 & 8 \\
\hline & & 5 \\
\hline 9 & 8 & 5 \\
\hline & 2 & 5 \\
\hline & 2 & 1.9 \\
\hline
\end{array} \quad \begin{aligned}
& 1.9 \\
& \hline 7
\end{aligned}
$$

Long multiplication: grid and vertical



