## Silsoe Lower School Calculation Policy <br> September 2023



## Addition

| Concrete | Pictorial | Abstract |
| :---: | :---: | :---: |
| Combining two parts to make a whole (use a variety of resources) |  | Use a part, part whole model with numbers (four is a part, three is a part, the whole is seven) |
| Counting on using number lines by using cubes or numicon | A bar model which encourages children to count on <br> ? | The abstract number line: What is 2 more than 4 ? What is the sum of $2+4$ ? What is the total of 4 and 2 ? $4+2$ |
| Regrouping to make 10 by using ten frames and counters / cubes or using numicon: $6+5$ | Children to draw the ten frame and counters / cubes | Children to develop an understanding of equality $\begin{aligned} & \mathrm{Eg} 6+\square=11 \\ & 6+5=5+\square \\ & 6+5=\square+4 \end{aligned}$ |


| Tens and Ones + Ones using base 10. <br> Continue to develop understanding of <br> partitioning and place value <br> $34+5$ | Children to represent the concrete using a <br> drawing of base 10 or place value counters | $34+5=$ |
| :--- | :--- | :--- |
| Tens and ones (TO) + Tens and Ones <br> (T0). Continue to develop <br> understanding of partitioning and place <br> value and use this to support addition. <br> Start with no exchanging 36 + 25 <br> lones |  |  |
| Tens |  |  |





## Subtraction

\begin{tabular}{|c|c|c|}
\hline Concrete \& Pictorial \& Abstract \\
\hline \begin{tabular}{l}
Physically taking away and removing objects from a whole \(4-3=1\) \\
Use a ten frame physically removing what is being taken away
\end{tabular} \& \begin{tabular}{l}
Children to draw the concrete resources they are using and crossing out \\
Use a ten frame crossing out what is being taken away \\
First there were 7 counters. \\
Then \(\underline{2}\) counters were taken away. \\
Now there are 5 counters.
\[
7-2=5
\]
\end{tabular} \& 4-3=

$$
=4-3
$$

| 4 |  |
| :--- | :--- |
| 3 | $?$ | <br>

\hline Counting back (using number lines or number tracks) \& Children to represent what they see pictorially Eg \& Children to use marked or blank number lines <br>
\hline
\end{tabular}


Subtract the ones, subtract the tens,
continue if calculations involve hundreds
or thousands.

|  | Remove the tens and ones from the |
| :--- | :--- | :--- |
| smallest number as above |  |

## Multiplication

| Concrete | Pictorial | Abstract |
| :---: | :---: | :---: |
| Repeated grouping / repeated addition (using different objects) | Children to represent the practical resources in a picture <br> Eg <br> XX XX XX <br> XX XX XX <br> Use a bar model for a more structured method | Repeated addition $4+4+4$ <br> Multiplication $3 \times 4$ |
| - e ere fele |  |  |
|  |  |  |
|  | $\bigcirc \bigcirc$ $\bigcirc$ $\bigcirc$ |  |
| Use a number line to show repeated groups (and to count in different steps) | Represent these steps pictorially along a number track | Abstract number line $3 \times 4=12$ |




## Division

| Concrete | Pictorial | Abstract |
| :---: | :---: | :---: |
| Understand division as sharing using concrete objects | This can also be done in a bar so all 4 operations have a similar structure: | $6 \div 2=3$ <br> What's the calculation? |
| Understand division as grouping $14 \div 2$ means how many twos can go into 14 ? | How many groups of 2 can we make from 14? | This can be shown on a number line |


| Two digit divided by 1 digit using base ten or place value counters (no exchange) <br> If an exchange is required exchange 1 ten for ten ones practically | Children to represent the base 10 or place value counters pictorially | Record the number sentences $48 \div 4=12$ |
| :---: | :---: | :---: |
| Two digit divided by 1 digit using place value counters and a place value chart | $39 \div 3=13$Tens Ones <br> 10  <br> 10  <br> 0  | Use the part part whole model to represent each stage of the calculation $39 \div 3=13$ $10+3=13$ |



