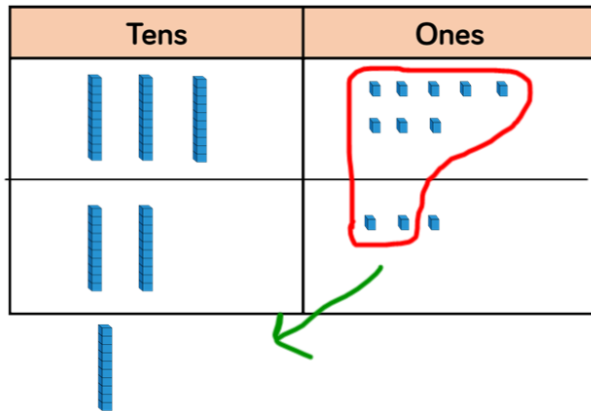
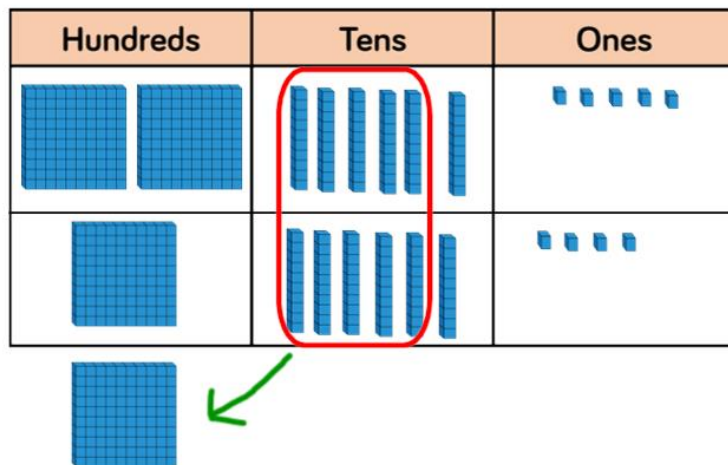


Base 10/Dienes (addition)



$$\begin{array}{r}
 38 \\
 + 23 \\
 \hline
 61 \\
 1
 \end{array}$$



$$\begin{array}{r}
 265 \\
 + 164 \\
 \hline
 429 \\
 1
 \end{array}$$

Benefits

Using Base 10 or Dienes is an effective way to support children's understanding of column addition. It is important that children write out their calculations alongside using or drawing Base 10 so they can see the clear links between the written method and the model.

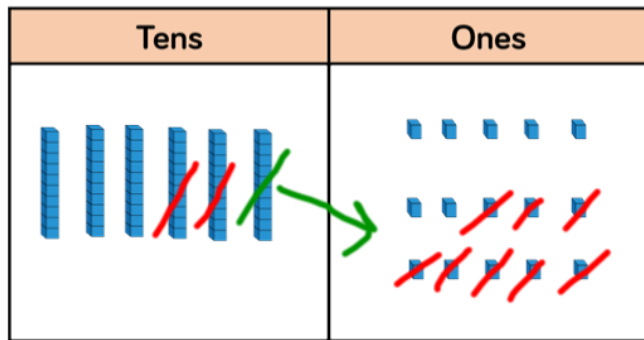
Children should first add without an exchange before moving on to addition with exchange. The representation becomes less efficient with larger numbers due to the size of Base 10. In this case, place value counters may be the better model to use.

When adding, always start with the smallest place value column. Here are some questions to support children.

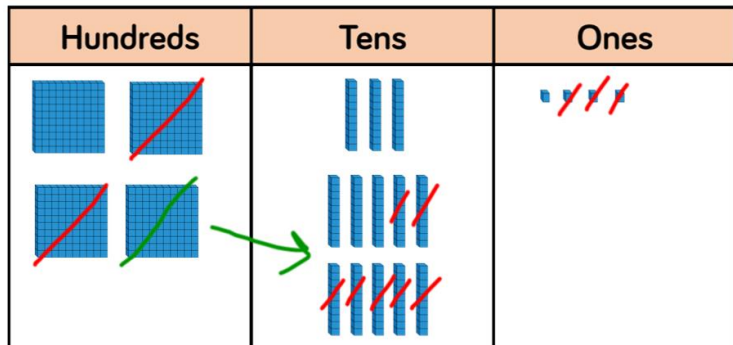
- How many ones are there altogether?
- Can we make an exchange? (Yes or No)
- How many do we exchange? (10 ones for 1 ten, show exchanged 10 in tens column by writing 1 in column)
- How many ones do we have left? (Write in ones column)

Repeat for each column.

Base 10/Dienes (subtraction)



$$\begin{array}{r}
 \overset{5}{\cancel{6}} \overset{1}{\cancel{5}} \\
 - 28 \\
 \hline
 37 \\
 \hline
 \end{array}$$



$$\begin{array}{r}
 \overset{3}{\cancel{4}} \overset{1}{\cancel{3}} 5 \\
 - 273 \\
 \hline
 262 \\
 \hline
 \end{array}$$

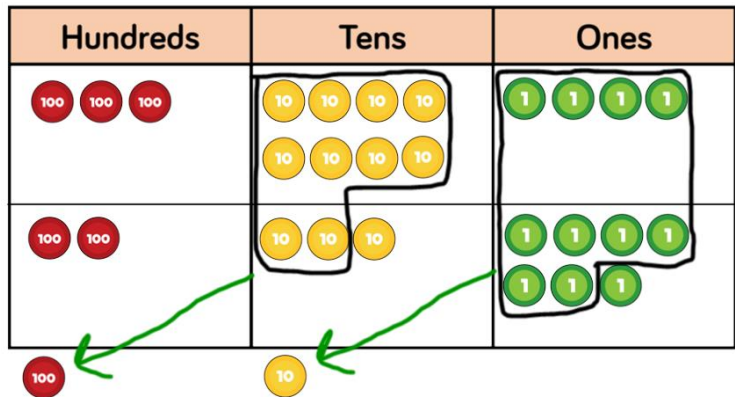
Benefits

Using Base 10 or Dienes is an effective way to support children's understanding of column subtraction. It is important that children write out their calculations alongside using or drawing Base 10 so they can see the clear links between the written method and the model.

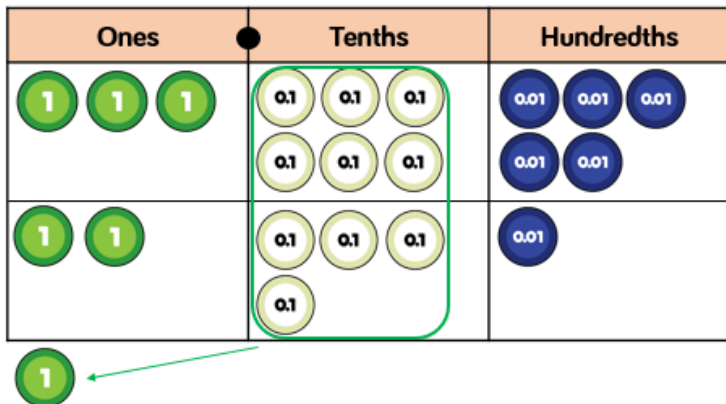
Children should first subtract without an exchange before moving on to subtraction with exchange. When building the model, children should just make the minuend using Base 10, they then subtract the subtrahend. Highlight this difference to addition to avoid errors by making both numbers. Children start with the smallest place value column. When there are not enough ones/tens/hundreds to subtract in a column, children need to move to the column to the left and exchange e.g. exchange 1 ten for 10 ones. They can then subtract efficiently.

This model is efficient with up to 4-digit numbers. Place value counters are more efficient with larger numbers and decimals.

Place Value Counters (addition)



$$\begin{array}{r}
 384 \\
 + 237 \\
 \hline
 621 \\
 11
 \end{array}$$



$$\begin{array}{r}
 3.65 \\
 + 2.41 \\
 \hline
 6.06 \\
 1
 \end{array}$$

Benefits

Using place value counters is an effective way to support children's understanding of column addition. It is important that children write out their calculations alongside using or drawing counters so they can see the clear links between the written method and the model.

Children should first add without an exchange before moving on to addition with exchange. Different place value counters can be used to represent larger numbers or decimals. If you don't have place value counters, use normal counters on a place value grid to enable children to experience the exchange between columns.

When adding money, children can also use coins to support their understanding. It is important that children consider how the coins link to the written calculation especially when adding decimal amounts.

Place Value Counters (Subtraction)

Hundreds	Tens	Ones

$$\begin{array}{r}
 4 \quad 1 \\
 \cancel{6}52 \\
 - 207 \\
 \hline
 445
 \end{array}$$

Thousands	Hundreds	Tens	Ones

$$\begin{array}{r}
 3 \quad 1 \\
 \cancel{4}357 \\
 - 2735 \\
 \hline
 1622
 \end{array}$$

Benefits

Using place value counters is an effective way to support children's understanding of column subtraction. It is important that children write out their calculations alongside using or drawing counters so they can see the clear links between the written method and the model.

Children should first subtract without an exchange before moving on to subtraction with exchange. If you don't have place value counters, use normal counters on a place value grid to enable children to experience the exchange between columns.

When building the model, children should just make the minuend using counters, they then subtract the subtrahend. Children start with the smallest place value column. When there are not enough ones/tens/hundreds to subtract in a column, children need to move to the column to the left and exchange e.g. exchange 1 ten for 10 ones. They can then subtract efficiently.