
Singapore Math

Developing conceptual understanding of mathematics

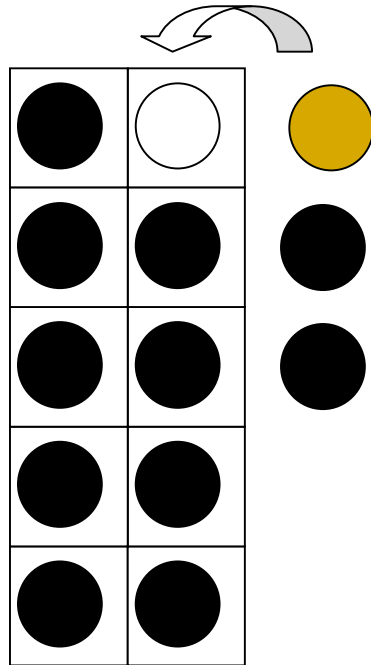
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Addition with regrouping (grade 1)

$$9 + 3 = 10 + 2$$

Take 1 from
the 3 and add
it to 9 to make
10.



Composing a
higher value
unit is the
basis for
regrouping in
addition.

Addend decomposition method (grade 1)

Add $9 + 4$ by making 10 first.

Students learn to manipulate numbers to their advantage, internalize mathematical properties, and go beyond counting.

$$9 + 4$$

1 3

$$9 + 1 = 10$$

$$10 + 3 = 13$$

$$7 + 8$$

5 2

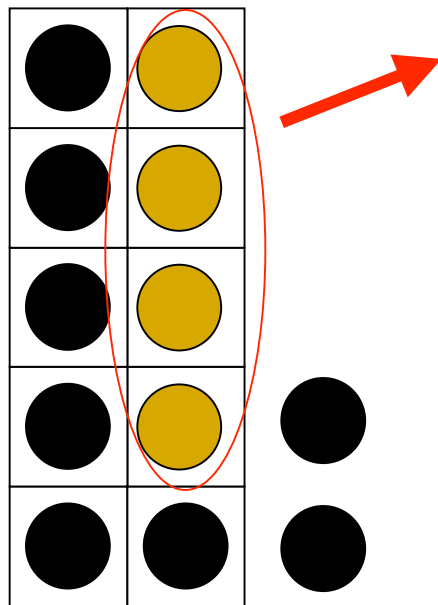
$$2 + 8 = 10$$

$$10 + 5 = 15$$

Subtraction with regrouping (grade 1)

$$12 - 4 = 6 + 2$$

Decompose the 12 into 10 and 2, subtract 4 from the 10 and then add the 2.



Decomposing a higher value unit is the basis for subtraction with regrouping.

Minuend decomposition method (grade 1)

When subtracting with regrouping, think of the complement of the subtrahend (to make 10) and then add the ones from the minuend.

$$\begin{array}{r} \text{minuend} \quad \text{subtrahend} \\ 12 - 4 \\ \swarrow \searrow \\ 10 \quad 2 \end{array}$$

$$15 - 6 \quad 4 + 5 = 9$$

$$13 - 8 \quad 2 + 3 = 5$$

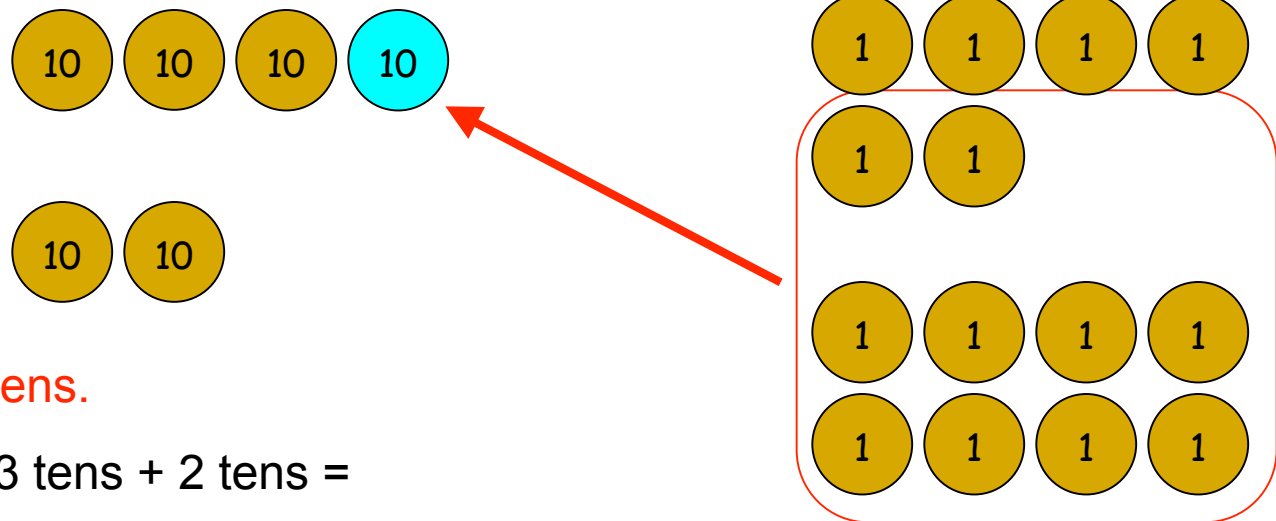
$$11 - 3 \quad 7 + 1 = 8$$

$$10 - 4 = 6$$

$$6 + 2 = 8$$

Addition with renaming

$$36 + 28$$



Add the tens.

1 tens + 3 tens + 2 tens =
6 tens

Add the ones.

6 ones + 8 ones = 14
ones

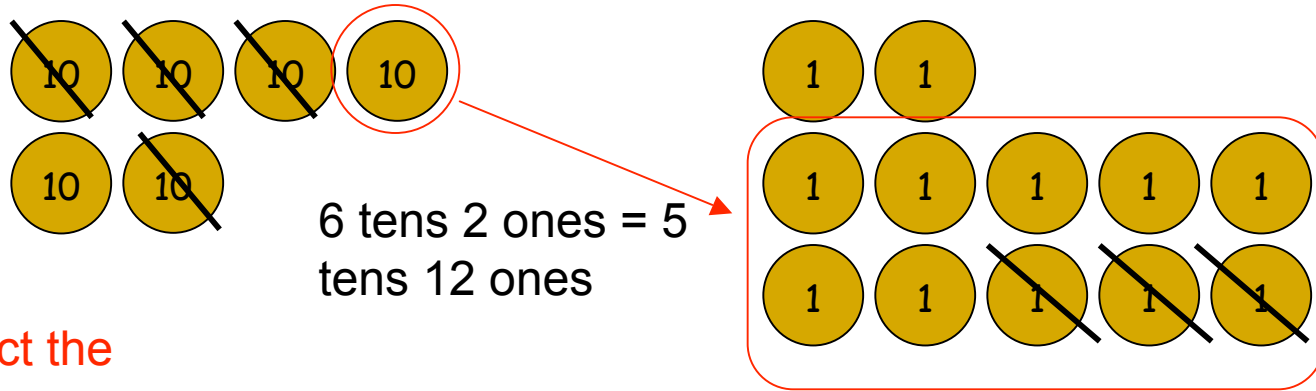
14 ones = 1 ten and 4
ones

$$\begin{array}{r} 1 \\ 36 \\ + 28 \\ \hline 64 \end{array}$$

$$\begin{array}{r} 1 \\ 36 \\ + 28 \\ \hline 64 \end{array}$$

Subtraction with renaming

$$62 - 43$$



6 tens 2 ones = 5
tens 12 ones

Subtract the
tens.

5 tens - 4 tens =
1 ten

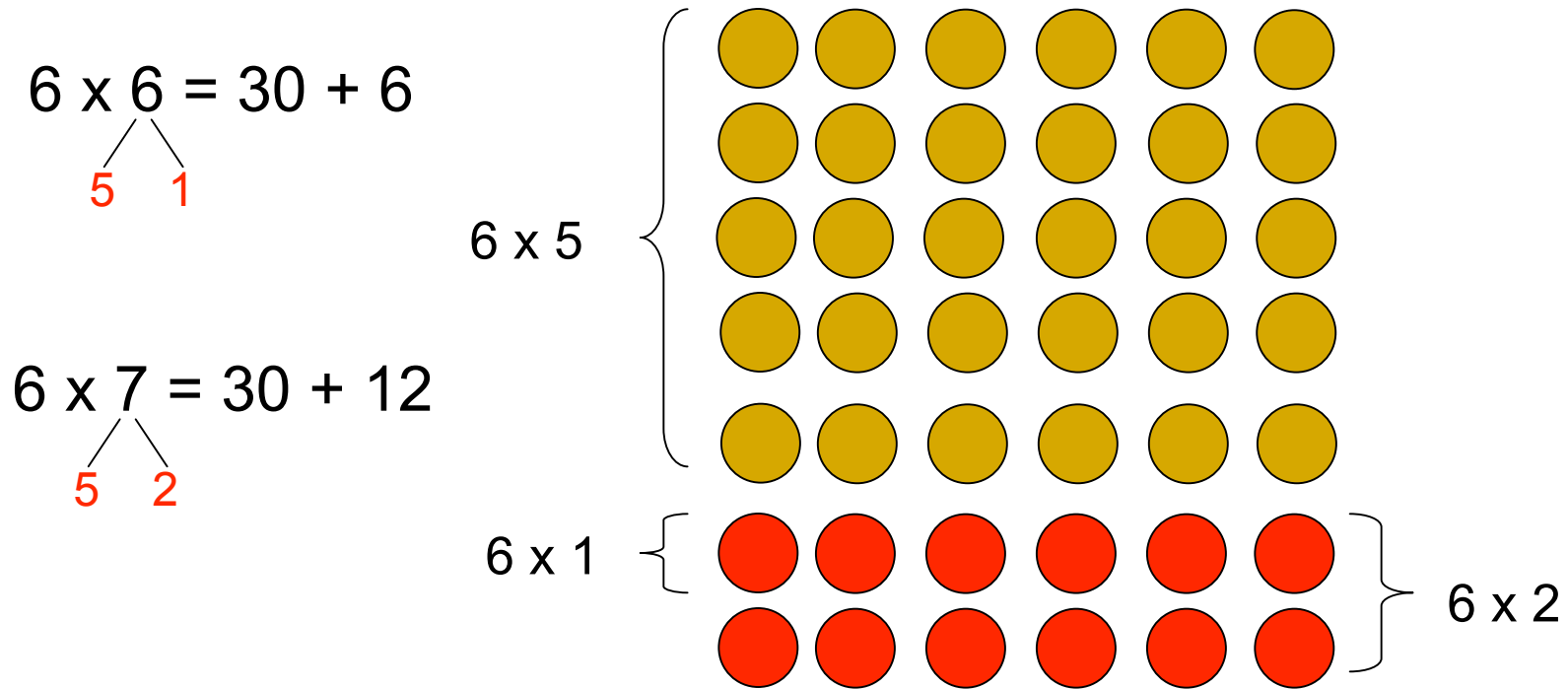
$$\begin{array}{r} 5 \ 12 \\ \cancel{6}2 \\ - 43 \\ \hline 19 \end{array}$$

Subtract the
ones.

12 ones - 3
ones = 9 ones

$$\begin{array}{r} 5 \ 12 \\ \cancel{6}2 \\ - 43 \\ \hline 9 \end{array}$$

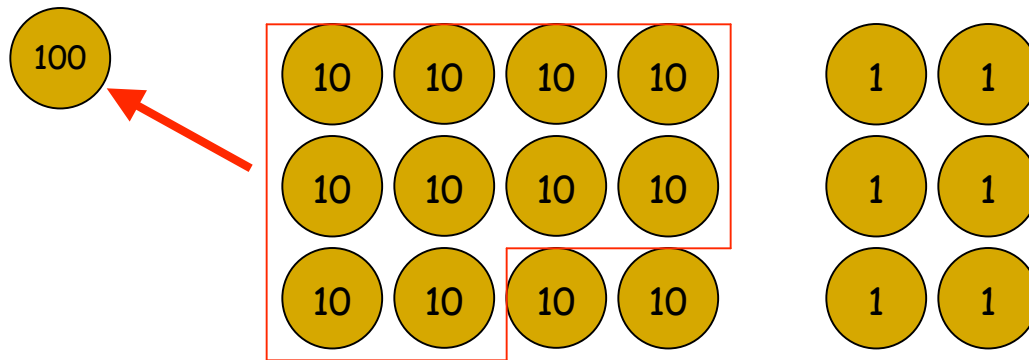
Multiplication facts



Important mathematical properties and algebraic manipulation are taught informally.

Multiplication algorithm

$$\begin{array}{|c|} \hline 40 \\ \hline \end{array} \begin{array}{|c|} \hline 2 \\ \hline \end{array} \times 3$$



$$42 \times 3$$

$$= 40 \times 3 + 2 \times 3$$

Multiply the ones by 3.

$$\begin{array}{r} 42 \\ \times 3 \\ \hline 6 \end{array}$$

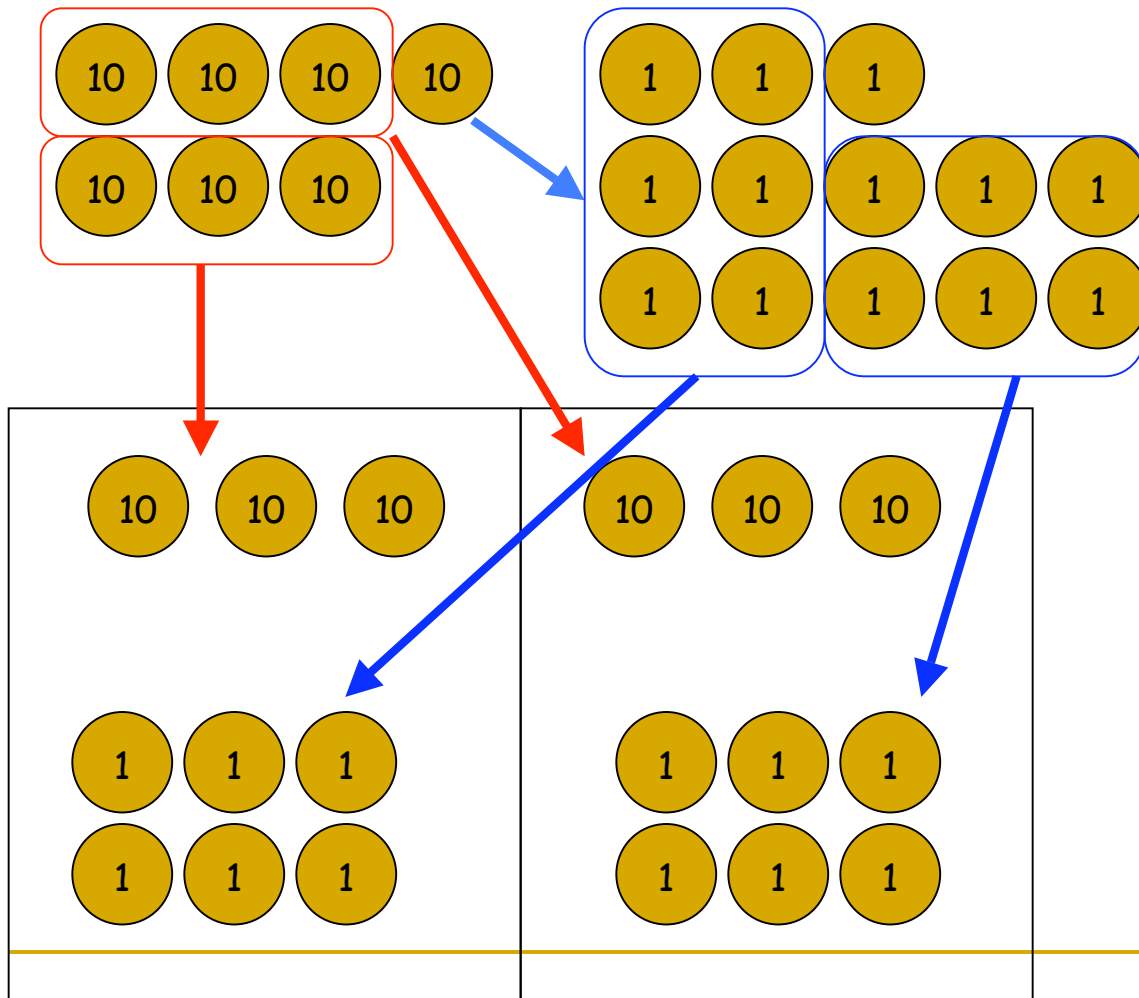
Multiply the tens by 3.

$$\begin{array}{r} 42 \\ \times 3 \\ \hline 126 \end{array}$$

Division algorithm

Partitive (equal share) division

$$73 \div 2 = 70 \div 2 + 3 \div 2$$



Divide the
tens by 2.

Divide the
ones by 2.

$$\begin{array}{r} 36 \text{ R } 1 \\ \underline{2) 73} \\ 6 \\ \underline{13} \\ 12 \\ \underline{12} \\ 1 \end{array}$$

Methods for mental addition

- Make a 10.

$$176 + 8 = 180 + 4$$

The diagram illustrates the 'Make a 10' method for mental addition. It shows the equation $176 + 8 = 180 + 4$. A blue oval highlights the 6 in 176 and the 4 in 8. A black line connects the 6 and the 4, with two red 4s below it, indicating that 6 + 4 = 10. This shows that 8 is split into 4 and 4, and 4 is added to 176 to reach 180.

Methods for mental addition

- Use addition facts and rename.

$$176 + 8 = 170 + 14$$

The diagram illustrates the decomposition of 176 into 170 and 6. A blue oval highlights the 6 and the 8 in the original equation, and a red oval highlights the 6 in the decomposed form.

Methods for mental addition

- Add the tens then the ones.

$$53 + 34 = 53 + 30 + 4$$



Methods for mental addition

- Make 100 (numbers close to 100)


$$457 + 98 = 455 + 100$$

The diagram illustrates the mental addition strategy. It shows the equation $457 + 98 = 455 + 100$. A bracket is drawn under the number 457, with a line pointing down to the number 455. A blue oval is drawn around the number 98, with a red number 2 written below it, indicating that 2 is subtracted from 98 to reach 100.

Methods for mental addition

- Add 100 and subtract the difference.

$$457 + 98 = 457 + 100 - 2$$


$$100 - 2$$



Methods for mental subtraction

- Subtract the same place values (no renaming)

$$155 - 40 = 110 + 5$$

The diagram shows the equation $155 - 40 = 110 + 5$. A blue oval encircles the $155 - 40$ part of the equation. Below the 155, a black line branches to the left and right, pointing to a red 5 and a red 150 respectively. The red 5 and the 110 in the result are also circled in blue.

Methods for mental subtraction

- Subtract from a 10 (renaming)

$$176 - 8 = 162 + 6$$

The diagram illustrates the renaming method for mental subtraction. It shows the equation $176 - 8 = 162 + 6$. A bracket is drawn above the number 176. Below the 6 in 176, a red 6 is written. Below the 7 in 176, a red 170 is written. A blue oval encircles the 170 and the 8 in the equation. A black line connects the red 6 to the red 170.

Methods for mental subtraction

- Rename a 10 as ones and recall the fact (renaming).

$$176 - 8 = 160 + 8$$

The diagram illustrates the renaming process for the subtraction $176 - 8$. The number 176 is decomposed into 160 and 16. A blue oval highlights the 160 and 16 terms. A black line connects the 7 in 176 to the 160 and 16 below it.

Multiplication table of 3



$$3 \times 1 = 3$$



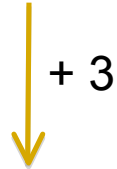
Multiplication table of 3



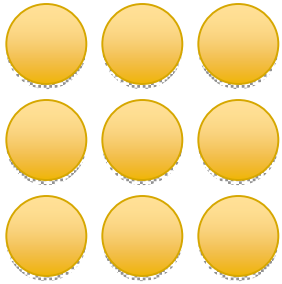
$$3 \times 1 = 3$$



$$3 \times 2 = 6$$



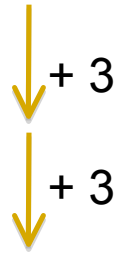
Multiplication table of 3



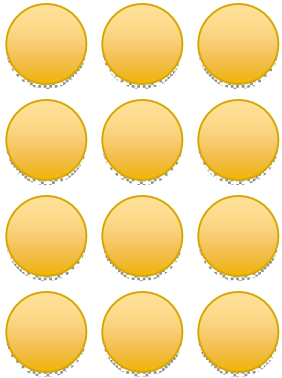
$$3 \times 1 = 3$$

$$3 \times 2 = 6$$

$$3 \times 3 = 9$$



Multiplication table of 3



$$3 \times 1 = 3$$

$$3 \times 2 = 6$$

$$3 \times 3 = 9$$

$$3 \times 4 = 12$$

x 2

Multiplication table of 3



$$3 \times 1 = 3$$



$$3 \times 2 = 6$$



$$3 \times 3 = 9$$



$$3 \times 4 = 12$$



$$3 \times 5 = 15$$

Multiplication table of 3



$3 \times 1 = 3$



$3 \times 2 = 6$



$3 \times 3 = 9$



$3 \times 4 = 12$



$3 \times 5 = 15$



$3 \times 6 = 18$



$3 \times 7 = ?$



$3 \times 8 = ?$



$3 \times 9 = ?$



$3 \times 10 = ?$

x 2

Multiplication table of 3



$$3 \times 1 = 3$$



$$3 \times 2 = 6$$



$$3 \times 3 = 9$$



$$3 \times 4 = 12$$



$$3 \times 5 = 15$$



$$3 \times 6 = ?$$



$$3 \times 7 = ?$$



$$3 \times 8 = ?$$



$$3 \times 9 = ?$$



$$3 \times 10 = ?$$

Multiplication table of 3 is easy!



$3 \times 1 = 3$



$3 \times 2 = 6$



$3 \times 3 = 9$



$3 \times 4 = 12$



$3 \times 5 = 15$



$3 \times 6 = ?$



$3 \times 7 = 21$



$3 \times 8 = ?$



$3 \times 9 = ?$



$3 \times 10 = ?$

$3 \times 2 + 3 \times 5$

Multiplication table of 6 is easy!



$$3 \times 1 = 3$$



$$3 \times 2 = 6$$



$$3 \times 3 = 9$$



$$3 \times 4 = 12 \longrightarrow 6 \times 4 = 12 + 12$$



$$3 \times 5 = 15$$



$$3 \times 6 = 18$$



$$3 \times 7 = 21 \longrightarrow 6 \times 7 = 21 + 21$$



$$3 \times 8 = 24 \longrightarrow 6 \times 8 = 24 + 24$$



$$3 \times 9 = 27$$



$$3 \times 10 = 30$$
