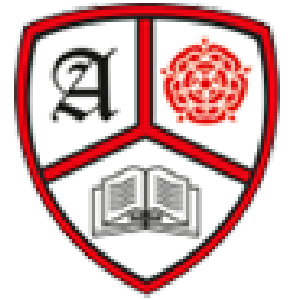
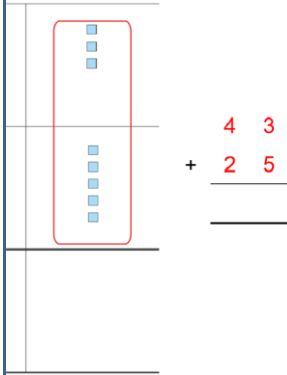
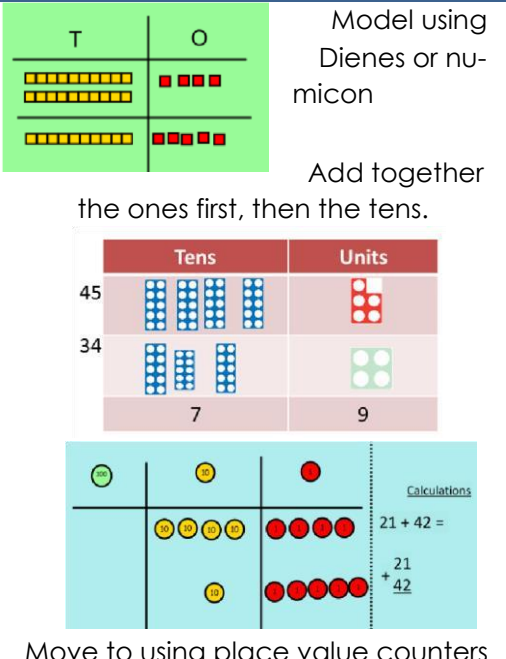
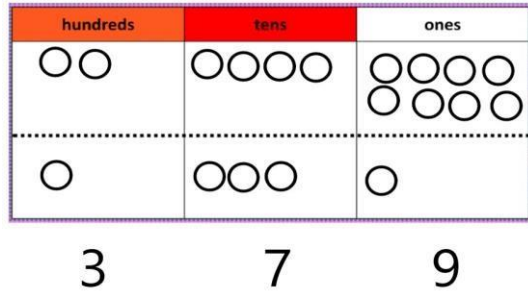


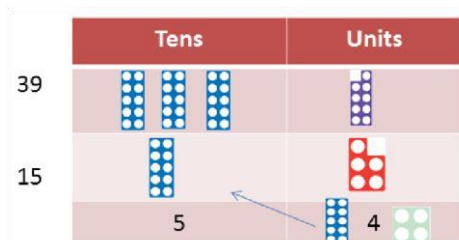
# Year 2 Addition



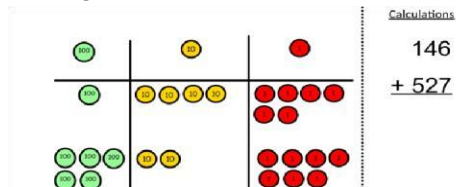
Objective, Strategy Key Vocabulary	Concrete	Pictorial	Abstract
<p>Column Addition—no regrouping (friendly numbers)</p> <p>Add two or three 2 or 3digit numbers.</p> <div data-bbox="94 622 380 997"></div>	<p>When moving from concrete to pictorial, show concrete alongside pictorial. Show pictorial alongside abstract when moving to abstract.</p> <div data-bbox="436 367 940 1029"></div>	<p>Children move to drawing the counters using a tens and one frame.</p> <div data-bbox="1008 462 1534 758"></div>	<div data-bbox="1668 542 1971 917"><math display="block">\begin{array}{r} 248 \\ + 131 \\ \hline 379 \end{array}</math></div> <p>Add the ones first, then the tens, then the hundreds.</p>

Column Addition with regrouping.

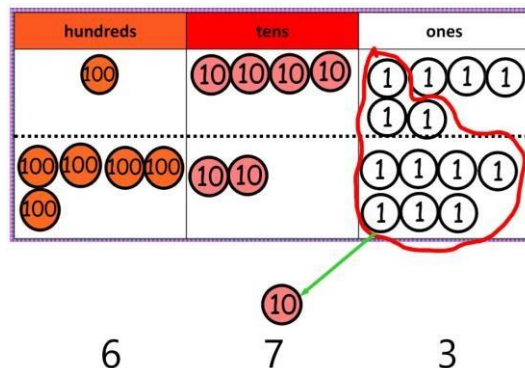
Use language of 'take and make' to describe carrying



Exchange ten ones for a ten. Model using numicon and pv counters.



Children can draw a representation of the grid to further support their understanding, carrying the ten underneath the line

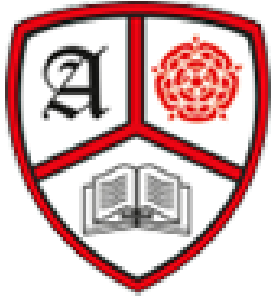


Use expanded method ONLY WHEN NEEDED

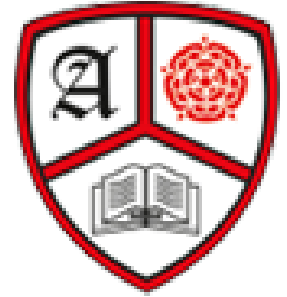
$$\begin{array}{r} 20 + 5 \\ 40 + 8 \\ 60 + 13 = 73 \end{array}$$

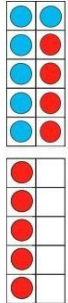
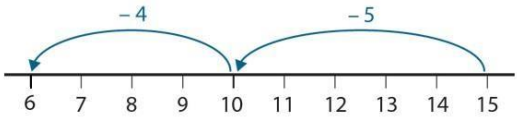
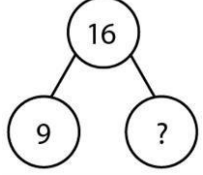
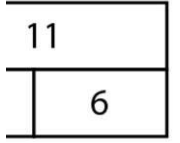
Start by partitioning the numbers before formal column to show the exchange.

$$\begin{array}{r} 536 \\ + 85 \\ \hline 621 \\ 11 \end{array}$$



# Year 2 Subtraction

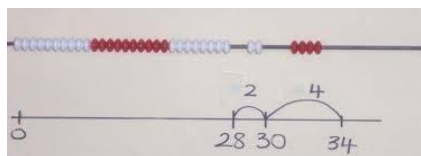


Objective & Strategy	Concrete	Pictorial	Abstract
Subtracting by making 10	<p><b>15 - 9</b></p> <p>=. Make 15 on the ten frame. Take 5 away to make ten, then take 4 more away so that you have taken 9.</p>  <div> <math>15 - 9</math>  <math>\begin{array}{r} 5 \\ 4 \end{array}</math> </div> <div> <math>15 - 5 = 10</math>  <math>10 - 4 = 6</math>  <math>15 - 9 = 6</math> </div>	 <p><math>15 - 9 =</math></p> <p>Jump back 5 first, then another 4. Use ten as the stopping point.</p>	<p>16</p> <p>How many do we take away to get 10?</p> <p>10</p>  <p>How many left to take off?</p> 

Counting on to next ten

Progression should be crossing one ten, crossing more than one ten, crossing the hundreds.

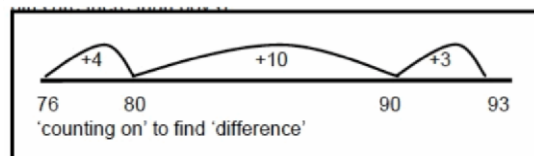
$$34 - 28 =$$



$$34 - 28$$

Use a bead bar or bead strings to model counting to next ten and the rest.

28 to 30 is 2, 30 to 34 is 4. So,  $34 - 28 = 6$



Use a number line to count on to next ten and then the rest.

Begin with bead line, move to landmark line then to ENL.

$$93 - 76 = 17$$

$$76 \rightarrow$$

$$80 = 4$$

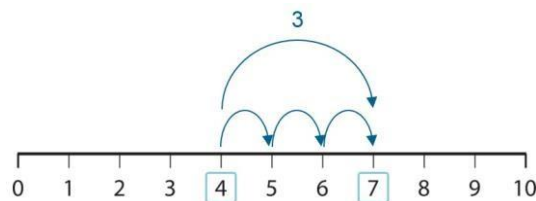
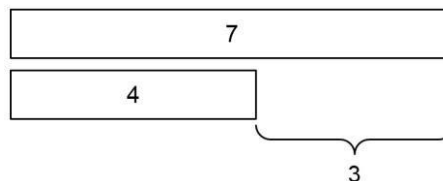
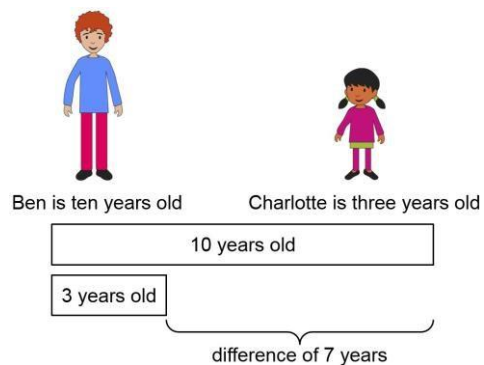
$$80 \rightarrow$$

$$93 = 13$$

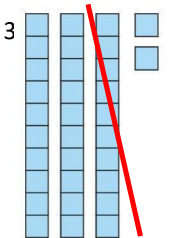
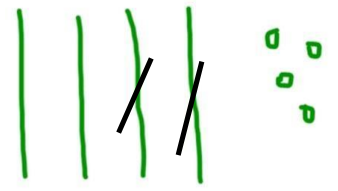
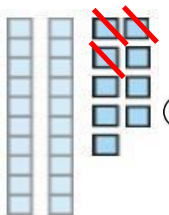
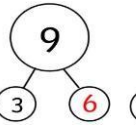
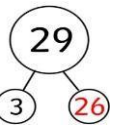
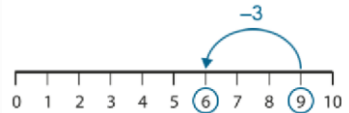
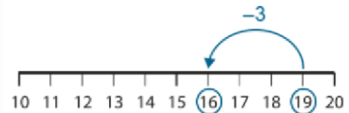
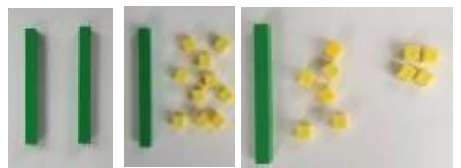
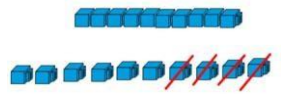
$$13 +$$

$$4 = 17$$

Subtractions as difference



The difference between 24 and 16 is 8.

	Concrete	Pictorial	Abstract
Subtracting a multiple of 10	 <p><math>32 - 10 = 22</math></p> <p>Children use dienes, PV counters or Numicon.</p> <p>They remove the correct number of tens</p>	 <p>Children draw rods and cubes and cross off multiples of ten.</p>	<p><math>64 - 10 = \square</math></p> <p><math>64 - 20 = \square</math></p> <p><math>64 - 30 = \square</math></p> <p><math>64 - \square = 24</math></p> <p><math>\square - 50 = 14</math></p>
Subtract a single digit from a two digit number No regrouping	  	 <p><math>9 - 3 = 6</math></p>  <p><math>19 - 3 = 16</math></p>	<p><math>9 - 3 = 6</math></p> <p><math>19 - 6 = 13</math></p> <p><math>29 - 6 = 23</math> etc</p>
Regroup a ten into ten ones	 <p>Use a PV chart to show how to change a ten into ten ones, use the term 'take and make'.</p>	<p><math>20 - 4 = 16</math></p> 	<p><math>20 - 4 = 16</math></p>

Partitioning to subtract  
without regrouping.  
*'Friendly numbers'*

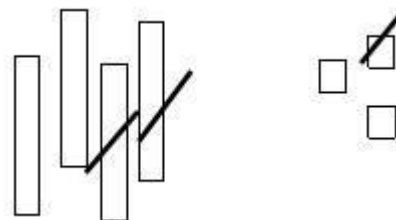
$$34 - 13 = 21$$

Use Dienes to  
show how to  
partition the  
number when  
subtracting  
without  
regrouping.



$$43 - 21 = 22$$

Children draw representations of Dienes  
and cross off.



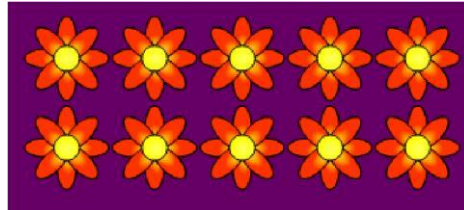
$$43 - 21 = 22$$

# Year 2

# Multiplication

**Objective & Strategy****Concrete**

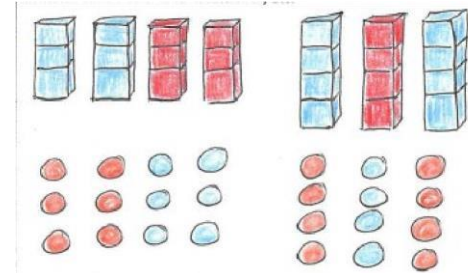
Use objects laid out in arrays to find the answers to 2 lots of 5, 3 lots of 2 etc.



Understand and use arrays

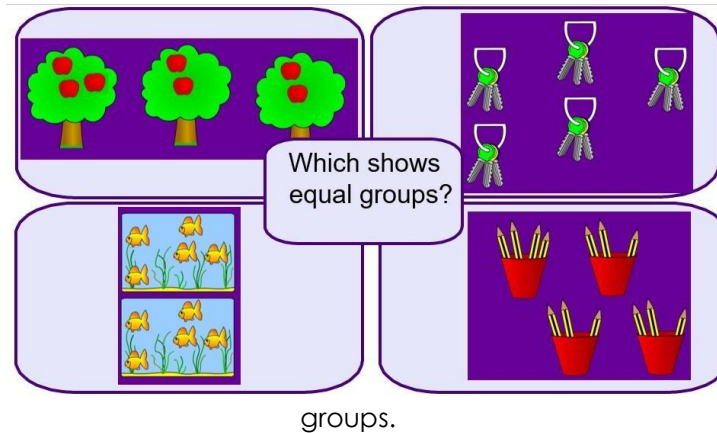
**Pictorial**

Make and draw representations to show understanding

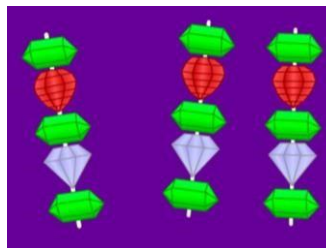


of arrays

Use real life objects and contexts to examine equal and nonequal

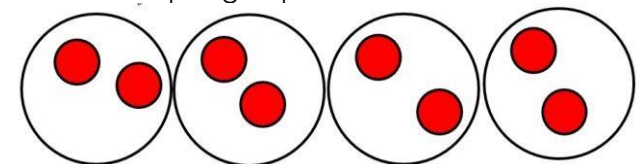


Equal/non equal groups

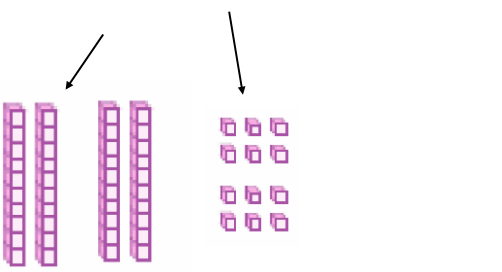
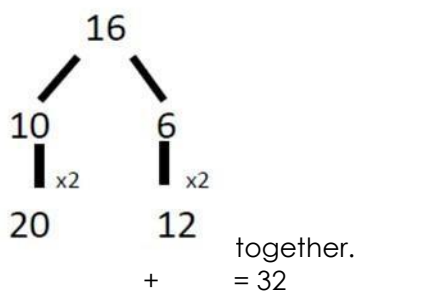


There are 3 equal groups.  
There are 5 in each group.

Children make/match representations of real life problems to show equal groups and find the total.



There are 4 equal groups.  
There are 2 in each group.  
There are 8 altogether.

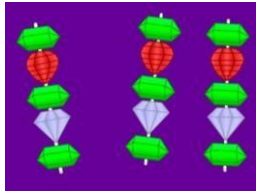
Objective & Strategy	Concrete	Pictorial	Abstract
Double a 2-digit number	<p data-bbox="347 327 846 391">Model doubling using dienes and PV counters.</p> <div data-bbox="347 422 846 758"> <p data-bbox="436 422 638 470"><math>40 + 12 = 52</math></p>  </div>	<p data-bbox="896 327 1467 391">Draw pictures and representations to show how to double numbers</p>	<p data-bbox="1512 406 2027 470">Partition a number and then double each part before recombining it back</p> <div data-bbox="1556 486 1982 790">  </div>

Understand equal and non-equal groups

These are non-equal groups



These are equal groups



There are 5 equal groups.  
Each group has 3 cakes.

Make representations and drawings of



I have 4 groups of 3.  
equal groups

Objective & Strategy

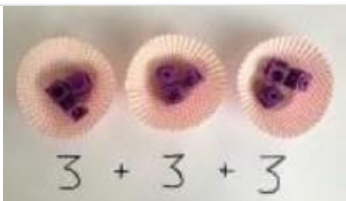
Concrete

Pictorial

Abstract



$$2 + 2 + 2 + 2 + 2 = 10$$



There  
5  
groups  
There  
10 socks

$$3 + 3 + 3$$

Use objects and real life contexts.

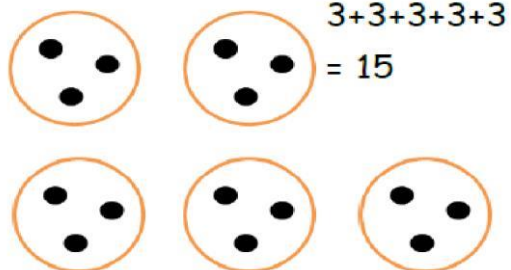
are  
of 2.  
are

altogether.

There are 3 groups of 3.  
There are 9 altogether.

Make and draw representations to show

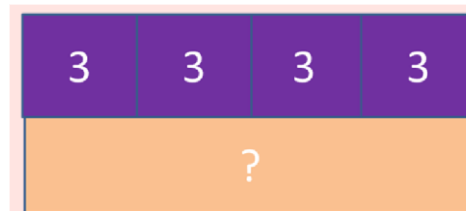
There are 3 sweets in one bag.  
How many sweets are in 5 bags  
altogether?



$$3 + 3 + 3 + 3 + 3 = 15$$

repeated addition

Create number sentences using  
repeated addition to match



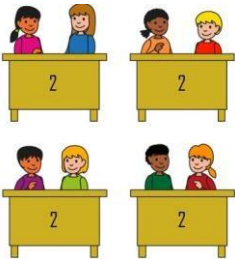


representations.

$$3 + 3 + 3 + 3 = 12$$

Use repeated addition  
for multiplications

Use bar models for representations of repeated additions.



<p>Relate repeated addition to multiplication using the x sign.</p>	<p>Write multiplication sentences to match repeated addition.</p>  <p><math>2 + 2 + 2 + 2</math> <math>4 \times 2</math></p>	<p>Children make and draw representations and record both an addition sentence and a multiplication sentence.</p>  <p><math>1 + 1 + 1 + 1 + 1 + 1 = 6</math></p>  <p><math>\square \times \square = 8</math></p> <p><math>6 \times 1 + 6</math></p>	<p>Write multiplication sentences to match repeated addition, without the support of representations.</p> <p><math>2 + 2 + 2 + 2 + 2 = 10</math> <math>5 \times 2 = 10</math></p>
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Objective & Strategy	Concrete	Pictorial	Abstract
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Use objects and real life contexts for multiples of 2, 5 and 10

6



2      2      2

$$3 \times 2 = 6$$

$$6 = 3 \times 2$$



10

10

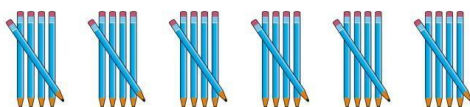
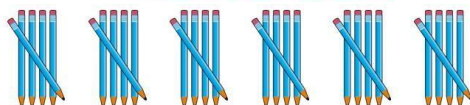
10

10  
ten

20  
twenty

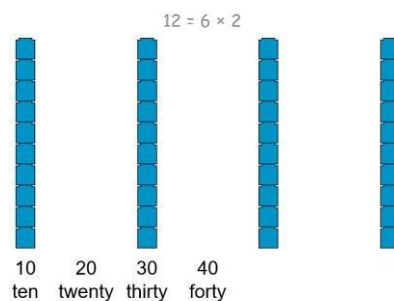
30  
thirty

$$3 \times 10 = 30$$



Understand the 2, 5 and 10 times table

Make and draw representations for 2, 5 and 10 times tables



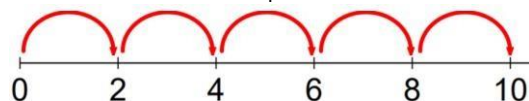
$$12 = 6 \times 2$$

$$4 \times 10 = 40$$

Number lines, bead strings, counting sticks and bar models should be used

to show representation of counting in

multiples.



$$5 \times 2 = 10$$



Understand the terms factor and product

3	×	2	=	6
factor	×	factor	=	product

6	=	3	×	2
product	=	factor	×	factor

Count in multiples of a number aloud.

**Objective & Strategy**

**Concrete**

**Pictorial**

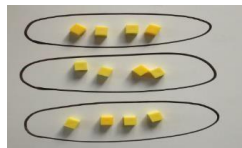
**Abstract**

Multiplication is commutative

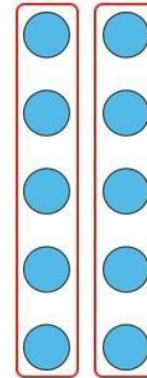
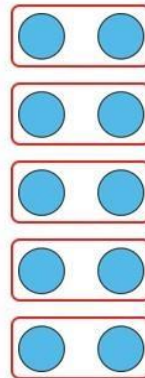
Create arrays using counters and cubes and Numicon.



Pupils should understand that an array can represent different equations and that, as multiplication is commutative, the order of



Use representations of arrays to show different calculations and explore



$$5 \times 2 = 10$$

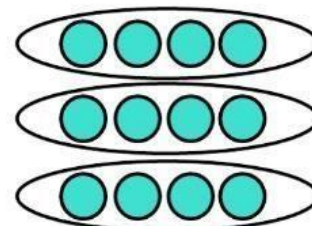
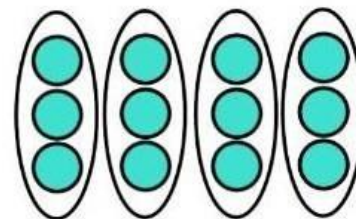
$$5 \times 2 = 10$$

5 groups of 2

2 groups of 5

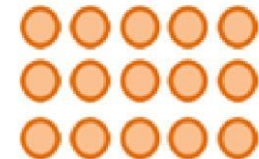
2, five times

5, two times



$$12 = 3 \times 4 \quad 12 = 4 \times 3$$

Use an array to write multiplication sentences and reinforce repeated addition.



$$5 + 5 + 5 = 15$$

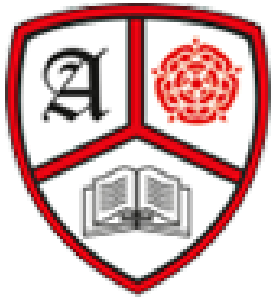
$$3 + 3 + 3 + 3 + 3 = 15$$

$$5 \times 3 = 15$$

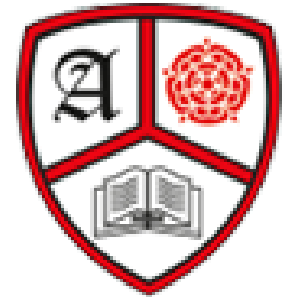
$$3 \times 5 = 15$$

the multiplication does not affect the answer.

commutativity.

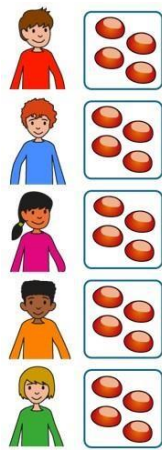


# Year 2 Division



**Objective & Strategy**

**Concrete**



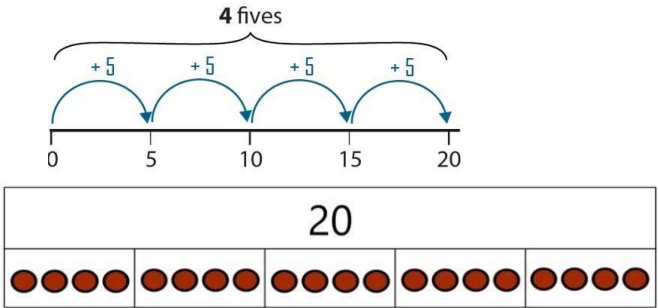
There are 20 conkers shared equally between 5 children.

Each child gets 4 conkers.

Division as sharing (partitive)

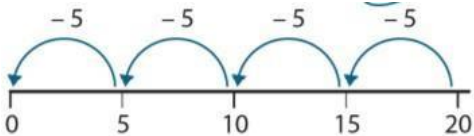
**Pictorial**

Children use pictures or shapes to share quantities. They may use bar modelling to show and support understanding.



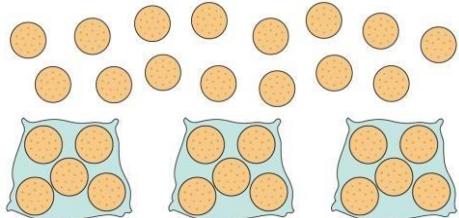
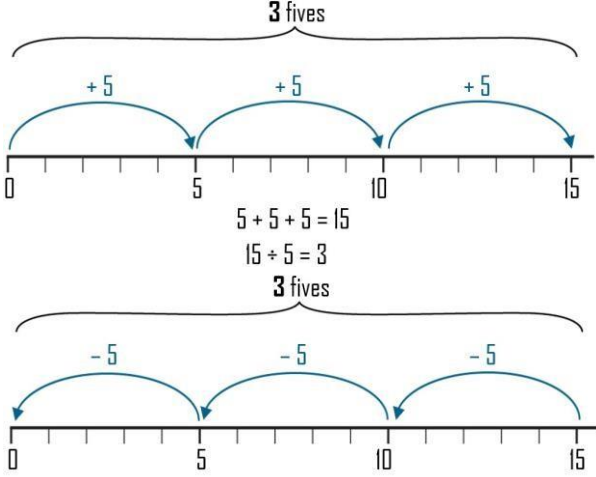
Number lines are used to show skip counting (counting forwards)

and repeated subtraction (counting backwards).

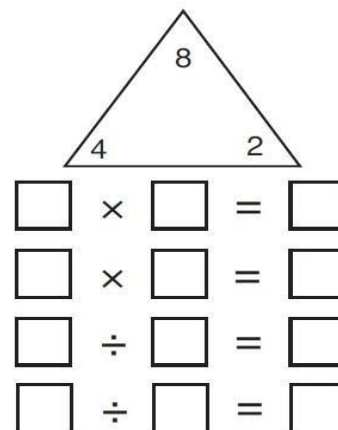
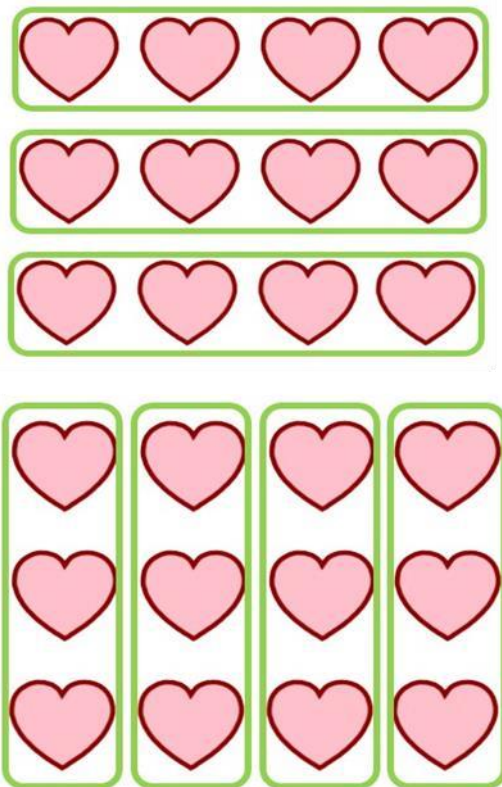


**Abstract**

$20 \div 5 = 4$

<p>Division as grouping (quotitive)</p>	<p>Use cubes, counters or real objects or to aid understanding. There are 15 biscuits, there are 5 in each bag. How many bags?</p> 	 <p>3 fives</p> $5 + 5 + 5 = 15$ $15 \div 5 = 3$ <p>3 fives</p> $15 - 5 - 5 - 5 = 0$ $15 \div 5 = 3$	<p>15 divided into groups of 5 is 3</p> $15 \div 5 = 3$
<p><b>Objective &amp; strategy</b></p>	<p><b>Concrete</b></p>	<p><b>Pictorial</b></p>	<p><b>Abstract</b></p>

Understanding the  
inverse



$$3 \times 4 = 12$$

$$12 \div 4 = 3$$

$$4 \times 3 = 12$$

$$12 \div 3 = 4$$

$$2 \times 4 = 8$$

$$8 \div 2 = 4$$

$$8 = 2 \times 4$$

$$2 = 8 \div 4$$

$$4 \times 2 = 8$$

$$8 \div 4 = 2$$

$$8 = 4 \times 2$$

$$4 = 8 \div 2$$

Show all 8 related fact family sentences.

