Specific Vocabulary for Addition

Key Vocabulary: add, more, plus, make, **addend**, **sum**, total, altogether, quantity, represents, **commutative**, **inverse**, equal, is the same as, equivalent to, parts, whole, calculation, operation, equation, expression

addend

$4 + 3 = 7$

a number to be added to another - each one represents a part

sum

$4 + 3 = 7$

the result of one or more additions

commutative law

$5 = 4 + 1$ $\quad$ $5 = 4 + 1$

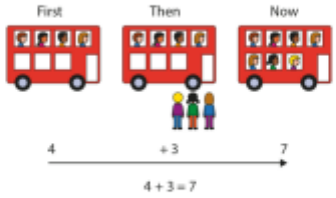
$5 = 1 + 4$ $\quad$ $5 = 1 + 4$

if the order of the addends changes, the sum still says the same

aggregation

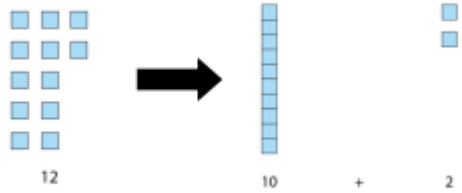
the combining of two (or more) parts to make a whole

augmentation



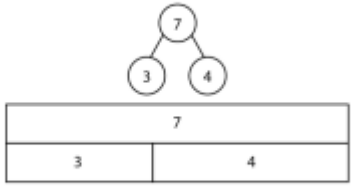
one quantity is increased by another quantity

regrouping



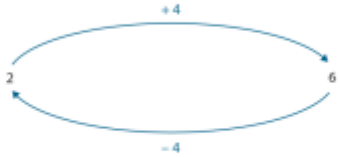
combining ten or more to make one of equal value

part whole models



models that can help children see additive structures clearly

inverse



the opposite operation

partitioning - mental strategy

$87 + 56 = 130 + 13 = 143$

$80 \quad 7 \quad 50 \quad 6$

'breaking' a number into parts to make calculating easier, then recombining

Specific Vocabulary for Subtraction

Key Vocabulary: difference between, subtract, take away, minus, fewer, least, fewest, less, smallest, **minuend**, **subtrahend**, quantity, represents, equals, **partitioning**, part, whole, **inverse**, calculation, operation, equation, expression

minuend

7 - 2 = 5

a number from which another is to be subtracted

subtrahend

7 - 2 = 5

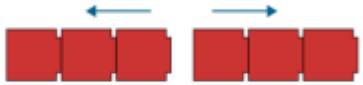
a number to be subtracted from another

difference

7 - 2 = 5

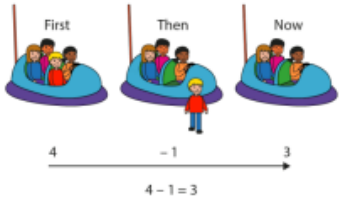
the difference between two numbers found by comparing the quantities

partitioning



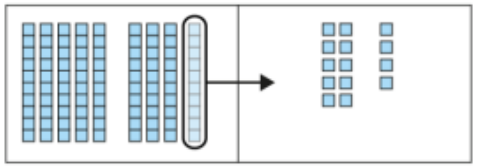
the whole has been separated into parts

reduction



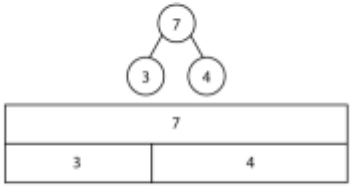
one quantity is decreased by another quantity

exchanging



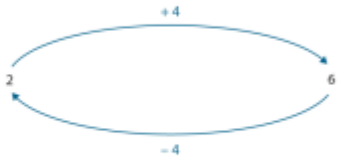
splitting up one unit to make ten of equal value

part whole models



models that can help children see additive structures clearly

inverse



the opposite operation

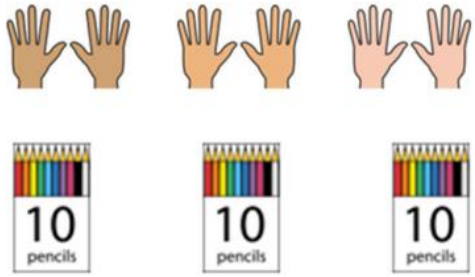
Specific Vocabulary for Multiplication

Year 1 Key Vocabulary: skip counting, lots of, groups of, times, count in twos, fives, tens, once, twice, five times, ten times

Year 2 Key Vocabulary: skip counting, count in twos, threes, fives, tens, once, twice, three times, five times, represent, equal group(s), unequal group(s), lots of, groups of, **repeated addition**, multiplication, multiply, multiply by, **multiples**, equation, **commutativity**, times, **factor**, **product**, **array**, row, column, double.

Unitising

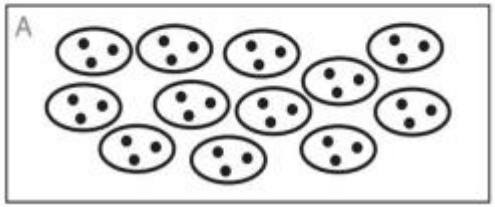
seeing 'many as 1'.



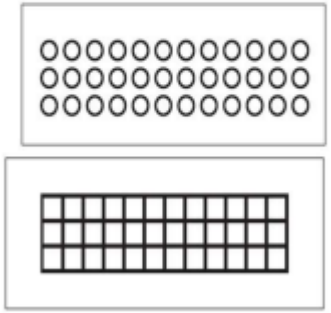
three times ten *3 × 10*

three tens

Multiplication as *repeated addition* – a set model



Multiplication as an *array*



In forming the concept of multiplication, there are 3 stages of learning.
First, being able to consider many as one, such as one group, one class and one basket of things. **Unitising.** **(Equal Group)**

Second, being able to imagine several many-as-one units, such as several groups, classes or baskets of things (all of the same size).

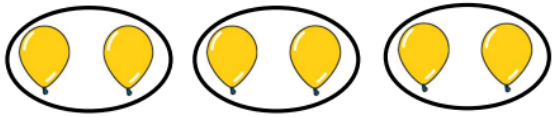
Third, when analysing quantitative relationships, being able to manage the two types of units at the same time.

Specific Vocabulary for Division (Year 2)

Key Vocabulary: share, share equally, equal groups of, quantity, divide, divided by, divided into, divided between, left, left over, share, split, separate, **remainder**, repeated subtraction, group of, pairs, odd, even, half, **quotitive**, **partitive**, **dividend**, **divisor**, **quotient**

6 balloons

divided into groups of 2.



6 ÷ 2 = 3

dividend — *total quantity*

divisor — *group size*

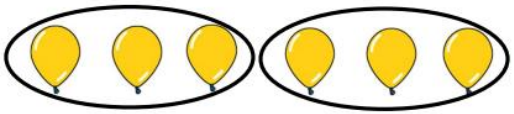
quotient — *number of groups*

	Quotitive division contexts	Partitive division contexts	Division calculations with no associated context
Example problem	*'There are fifteen biscuits. If I put them into bags of five, how many bags will I need?'*	*'I have twenty conkers and I share them equally between five children. How many conkers does each child get?'*	30 ÷ 10 = ☐
Key language	***'...divided into groups of...'*** *e.g.* *'Fifteen divided into groups of five is equal to three.'*	***'...divided between...'*** *e.g.* *Twenty divided between five is equal to four each.'*	***'...divided by...'*** *e.g.* *'Thirty divided by ten is equal to three.'*

Partitive division (sharing)

6 balloons

divided between 2.



6 ÷ 2 = 3

total quantity — *number of groups* — *group size*

Connecting multiplication and division

factor × factor = product dividend ÷ divisor = quotient

The value of the **product** in a multiplication equation becomes the value of the **dividend** in the corresponding division equation.

The values of the **factors** in a multiplication equation become the values of the **divisor** and **quotient** in the corresponding division equation.