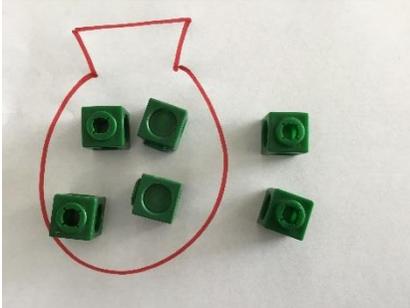
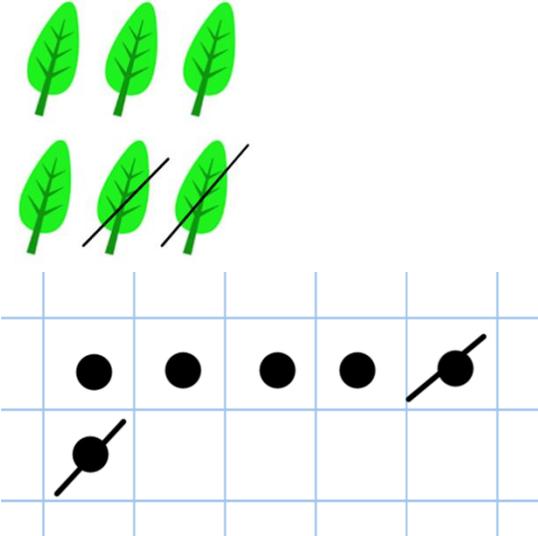


Subtraction

1. **Partitioning structure of subtraction.** This refers to a situation in which a quantity is portioned off in some way and subtraction is required to calculate how many or how much remains. Language used includes: take away, how many left? How many are not?
2. **Reduction structure of subtraction.** This refers to a situation where a quantity is reduced by an amount and the operation of subtraction is required to find the reduced value. It is the reverse process of augmentation in addition. Language used includes: start at and reduce by, count back by, go down by.
3. **Comparison structure of subtraction.** This refers to where subtraction is required to make a comparison between two quantities. Language used includes: What is the difference? How many more? How many less? How much greater? How much smaller?
4. **Inverse of addition.** This refers to situations where we have to determine what must be added to a given quantity in order to reach some target. Language used includes: What must be added? How many more is needed to make?

	Concrete	Pictorial	Abstract
<p>1. Partitioning structure of subtraction</p> <p><i>Take away How many left? How many are not? How many are?</i></p>	<p><i>Using objects and physically taking them away.</i></p> <p>There are 6 marbles in a bag. 2 are removed. How many are left?</p> 	<p><i>Cross out representations of objects to show them being taken away.</i></p> 	<p>Move on to written calculation.</p> $6 - 2 = 4$

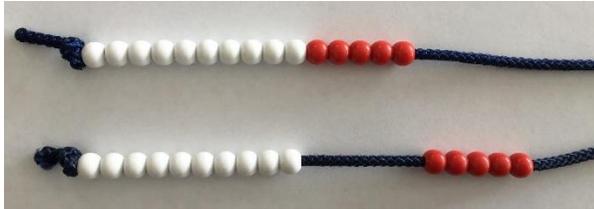
2. Reduction structure of subtraction

start at and reduce by

go down by

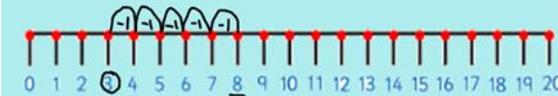
Counting back to show a reduction. Use counters or beads and move them away from the group. As they are taken away, you should count backwards.

$$14 - 4 =$$



Use a number line to count backwards in ones. Underline the start number and circle the answer.

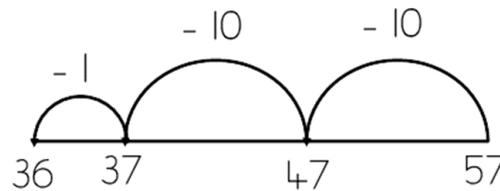
$$8 - 5 =$$



Progress to (in year 2) jumping in numbers rather than counting backwards in ones:

Start with the bigger number and count back the smaller number. The number needs to be suitably partitioned.

$$57 - 21 = 36$$



Put 'start' (largest) number in your head and count back the smallest number. What number are you at?

Move on to written calculation.

3. Comparison structure of subtraction

*What is the difference?
How many more?
How many less?
How much greater?*

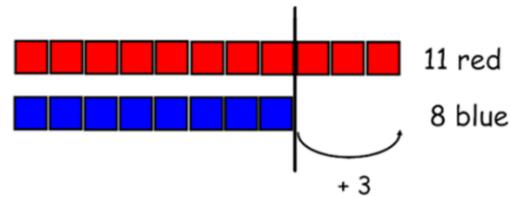
Compare amounts or objects to find the difference.

*What is the difference between the number of red cubes and the number of blue cubes?
Use cubes or bars to compare amounts.*



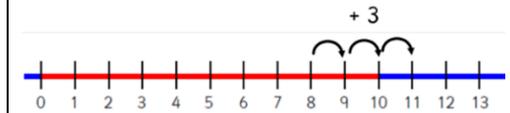
red = 11
blue = 8
There are 3 more red

Count on to find the difference. Look at what is the same and count on from there.



Count on to find the difference. Look at what is the same and count on from there using a number line.

$$11 - 8 = 3$$

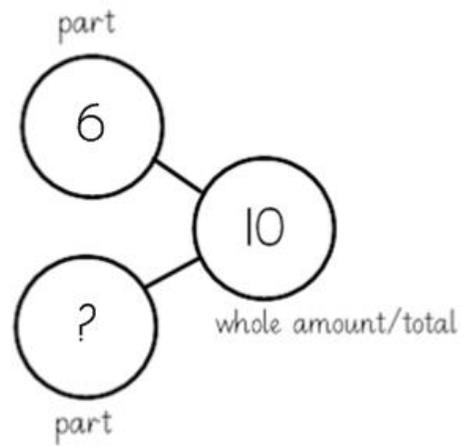
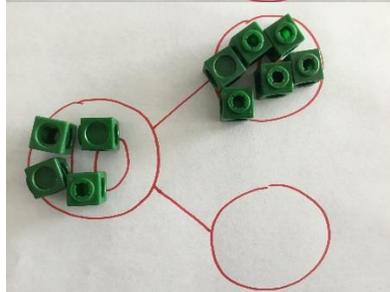
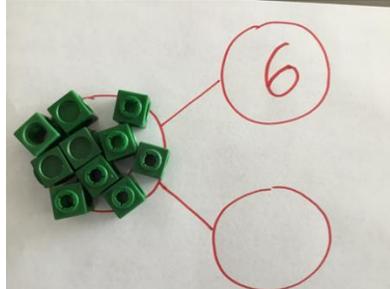
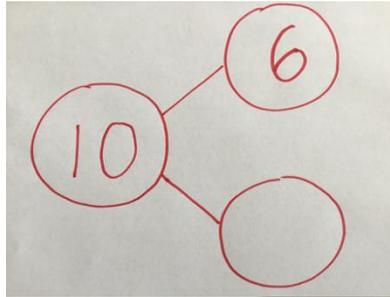


4. Inverse of addition

What must be added?
How much more is needed to make the total?

If 10 is the whole amount/total and 6 is a part. What is the other part?

Start with,



Move on to written calculation.

$$6 + ? = 10$$

$$10 - 6 = 4$$

$$6 + 4 = 10$$