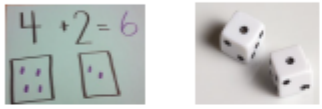
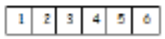
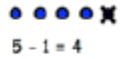
Mathematics in the Early Years / Foundation Stage

Mathematics for young children should be meaningful and concepts should be taught in the context of real life.
In our Early Years, we use a concrete – pictorial – cycle of learning.

ADDITION	SUBTRACTION
GUIDANCE / MODELS / IMAGES	GUIDANCE / MODELS / IMAGES
If available, Numicon shapes are introduced straight away and be used to: • identify 1 more/less • combine pieces to add • find number bonds • add without counting  Children can record this by printing or drawing around Numicon pieces. Children can begin to combine groups of objects using concrete apparatus:  Construct number sentences verbally or using cards to go with practical activities.  Children are encouraged to read number sentences aloud in different ways "Three add two equals 5" "5 is equal to three and two" "5 is the same as three and two" Children make a record in pictures, words or symbols of addition activities.   Solve simple problems using fingers  Number tracks can be introduced to count up on and to find one more: What is 1 more than 4? 1 more than 13?  Number lines can be used alongside number tracks and practical apparatus to solve addition calculations and word problems:  **Children will need opportunities to look at and talk about different models and images as they move between representations.**	Children begin with mostly pictorial representations or real contexts.  Concrete apparatus is used to relate subtraction to taking away and counting how many objects are left.  Concrete apparatus models the subtraction of 2 objects from a set of 5. Construct number sentences verbally or using cards to go with practical activities.  Children are encouraged to read sentences aloud in different ways "five subtract one leaves four" "four is equal to five subtract one" "four is the same as five subtract one" Children make a record in pictures, words or symbols of subtraction activities.  Solve simple problems using fingers   Number tracks can be introduced to count back and to find one less: What is 1 less than 9? 1 less than 20? Number lines can then be used alongside number tracks and practical apparatus to solve subtraction calculations and word problems. Children count back showing hops back on the number back.   **Children will need opportunities to look at and talk about different models and images as they move between representations.**
KEY VOCABULARY	**KEY VOCABULARY**
Games and Songs used to introduce vocabulary and concept. Add, Plus, Estimate, More, Sum, And, Total, Altogether, Score, Double, Total, One more, ten more, How many more make..? How many more is … than…?, Same as, count on.	*Games and Songs used to introduce vocabulary and concept. Take (away), leave, estimate, how many … left, over, have gone) One less, fewer, difference between, the same…Counting back.*

MULTIPLICATION	DIVISION
GUIDANCE / MODELS / IMAGES	GUIDANCE / MODELS / IMAGES
The link between addition and multiplication can be introduced through doubling. If available, numicon is used to visualise the repeated adding of the same number. These can be drawn around or printed as a way of recording. Children being with mostly pictorial representations:  How many groups of 2 are there? *2 + 2 + 2 + 2 + 2, so 5 groups of 2* Real life contexts and use of practical equipment to count in repeated groups of the same size:   How many wheels are there altogether? How much money do I have? Count in twos, fives, tens both aloud and with objects.   Children are given multiplication problems set in a real life context. Child are encouraged to visualise the problem. How many fingers on two hands? How many sides on three triangles? How many legs on four ducks? 	The ELG states that children solve problems including doubling, halving and sharing. Children need to see and hear representations of division as both grouping and sharing. Division can be introduced through halving. Children begin with mostly pictorial representations linked to real life contexts.  Mum has 6 socks. She grouped them into pairs – how many pairs did she make? How many socks did she have altogether?  Sharing model: I have 10 sweets. I want to share them with my friend. How many will we have each?  Although not explicit in the development matters document, the sharing model is a useful way of introducing young children to fractions and calculating with fractions. Setting the problems in a real life context and solving them with concrete apparatus will support children's understanding. "I have got a whole pizza to share between two people. Can you cut the pizza in half?" Children make a record in pictures, words or symbols of division activities. 
KEY VOCABULARY	**KEY VOCABULARY**
Lots of, groups of, times, Multiply, once, twice, three times as (big as, long as, wide as etc.)Repeated addition, double, estimate, add again and again.	*Halve, share, equally, one each, two each….. Groups in pairs, three, tens, equal groups, divide, left, left over, estimate, half, fraction, whole, quarter.*