Calculation Policy: Reception

<u>Calculation Overview</u>:

Fluency with number and understanding of place value (the position of the digit in the number determines its worth) are essential to understanding calculation. Children need a deep understanding of the way calculation works. In school, this is supported by the use of apparatus and mathematical images which are detailed out in the policy below. Children need to be taught how to select the best method according to the numbers. The hierarchy of thinking is:

- Can I do it in my head?
- Can I use some jottings to help me?
- Do I need to use a formal written method?

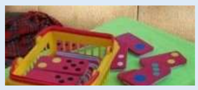
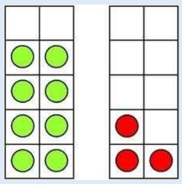
Once children are fluent in a range of strategies in mental calculation, then they are ready to move on to a formal written method if the complexity of the calculation so demands it. Formal methods are only to be used when a calculation is too complex to be achieved mentally.

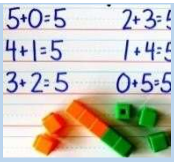
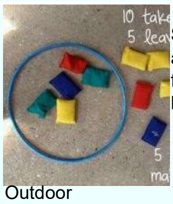
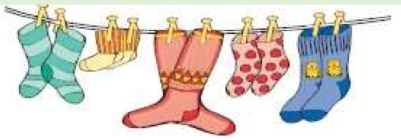
As adults, our school experience may have left us with an overreliance on using repetitious formal written methods. At Tilston, however, we value flexibility and creativity alongside accuracy in calculation to better prepare children for the modern world. We encourage our children to be strategic about their choice of methods and to have a sense of a size of the answer.

<u>Reasons for recording:</u>

- To aid mental calculation by writing down some of the numbers and answers involved. (jottings)
- To help the child explain their mental strategy and solutions
- To provide a record of steps to be followed
- To aid calculation when the problem is too difficult to be done mentally

To develop and refine a set of rules for calculation

R Addition: Mental calculation	Finds one more than a group of up to five and then up to ten objects and then is able to say one more than a given number to 20. Using quantities and objects they can combine two groups together and give the total. Using objects they add two single-digit numbers together and can count on to find the answer. Children understand that five fingers on each hand make a total of ten fingers altogether. Children understand that two rows of three eggs in the box make six eggs altogether. Children verbalise the calculations they are doing. Children start to use the vocabulary of addition. Numicon  Numicon balance for understanding of equals  Objects and wooden numbers  A full range of different objects to count and combine, natural objects, seeds, sticks, pine cones, straws, counters, dice, lego bricks, people, small animals etc.. Songs and rhymes that add on one more each time. Total of spots on dominoes  Adding cubes  Number tracks the objects can be placed in to count up a total  Bead strings for counting on   Ten frames – how many more do I need to add to make 10?
R Addition:	There is no requirement for children to make written recording of their work but children can be encouraged to make their own jottings, drawings to explain what they are doing / have done. Model ways to record using standard notation when appropriate.

Informal Written Recording	 Number sentences modelled  Modelling number sentences next to apparatus
R Subtraction: Mental calculation	Finds one fewer than a group of up to five and then up to ten objects and then is able to say one fewer than a given number to 20. Using quantities and objects they can remove a set of objects and say how many are left. Using objects they can subtract two single-digit numbers and can count back to find the answer. Children verbalise the calculations they are doing. Children start to use the vocabulary of subtraction.  Number tracks the objects can be place in to compare difference. Ten frames to calculate the difference. How many have I taken away, how many are left from 10? Bead strings for counting on an back and comparing difference A full range of different objects to count and remove objects from to find how many are left or to compare how many more if you have two groups, natural objects, seeds, sticks, pine cones, straws, counters, dice, lego bricks, people, small animals etc.. Numberlines to count backwards on such as counting how many days left until Christmas etc.  Outdoor resources Songs and rhymes that take on one away each time.(Five little ducks, five speckled frogs, five current buns, ..)
R Subtraction: Informal Written Recording	There is no requirement for children to make written recording of their work but children can be encouraged to make their own jottings, drawings to explain what they are doing / have done. Model ways to record using standard notation when appropriate.
R Multiplication: Mental Calculation	Double and halve numbers up to 10 Put objects into pairs and count up in two's Children start to use the vocabulary of doubling. Children verbalise the calculations they are doing. Children understand that two rows of three eggs in the box make six eggs altogether.  Counting in twos 2p coins
R Multiplication: Informal Written Recording	There is no requirement for children to make written recording of their work but children can be encouraged to make their own jottings, drawings to explain what they are doing / have done.
R Division: Mental Calculation	Share out objects between two people and count the objects and say how many each person will get. Children verbalise the calculations they are doing. Children extend their thinking to 'suppose there were three people to share the bricks between instead of two. . .' Children start to explore halving as a sharing model. Real life objects, counters etc.
R Division:	There is no requirement for children to make written recording of their work but children can be encouraged to make their own jottings, drawings to explain what they are doing / have done. Model ways to record using exploratory mark making when appropriate. Discuss remainders as and when they occur.

Informal Written Recordin	