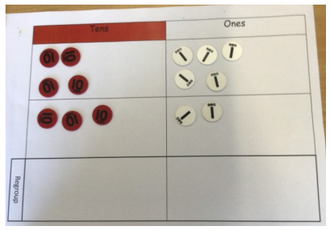
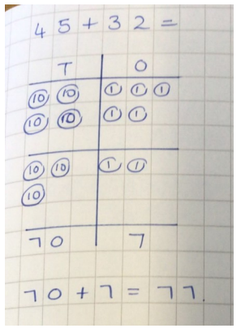
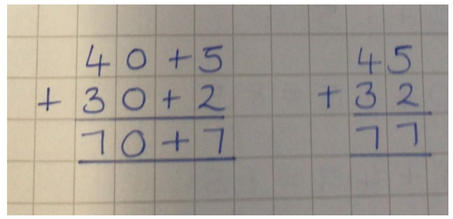
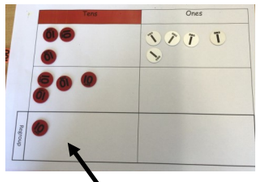
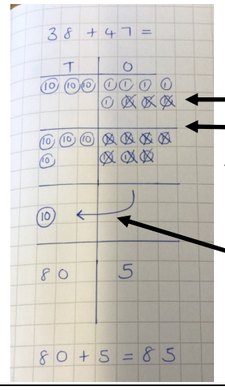
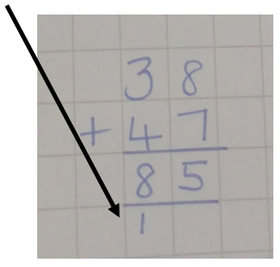
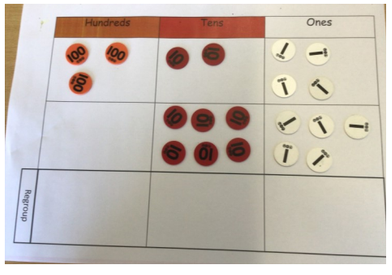
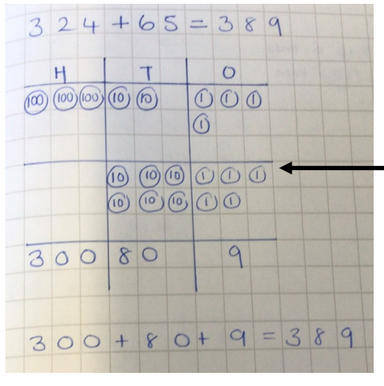
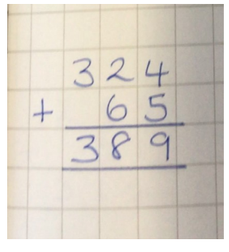
# The Discovery School Calculation Policy - **Year 3 Addition**

Additional Notes

Bar models must be used as a tool for problem solving as this ensures the children understand the structure of the problem.

**National Curriculum Objectives**
Pupils should be taught to:  add and subtract numbers mentally, including:  a three-digit number and ones  a three-digit number and tens  a three-digit number and hundreds  add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction  estimate the answer to a calculation and use inverse operations to check answers  solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.

| Objective | Concrete | Pictorial | Abstract |
|---|---|---|---|
| Add 2 digit and 2 digit (no regroup)<br><br>Y2 recap | By this stage children should be progressing onto using place value counters for concrete representations. Dienes should still be incorporated into teacher demonstration to re-enforce conceptual understanding.<br>45 + 32 = 77<br>  |  <br>Although this is Y2 recap, children may have just represented with dienes previously so will need to spend a lesson getting familiar with the place value counters. | Some children may need to see it in the expanded form first before representing it as formal column method.<br>  |
| Add 2 digit and 2 digit (with regroup) | 38 + 47 =<br>  <br>There are to many ones we need to exchange!<br><br>Children to lay out counters<br>  <br>Ensure children place the 'new' ten in the regroup row. This will support the abstract later on. |  <br>Children MUST put an x through each counter to show that they are exchanging them.<br>Ensure children use a ruler to separate their grid.<br>The arrow shows that this counter has moved from one column to another. Children must drawn the arrow! | You can now show where the extra ten being carried has come from.<br>  <br>Mo cycles 38km and Ben cycles 47km. How many km do they cycle in total? |
| Add 3 digit and 2 digit (no regroup)<br><br>Then on to 3 digit add 3 digit (no regroup) | 324 + 65 = 389<br>  |  <br>Ensure children use a ruler to separate their grid. | Nijah scores 324 points in a game. Scott scores 65 more points than Nijah. How many points do they score altogether?<br>  |

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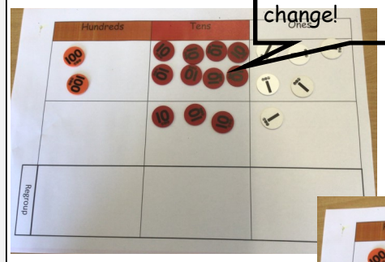
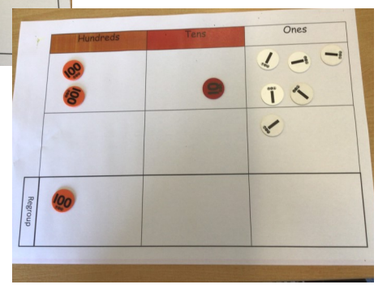
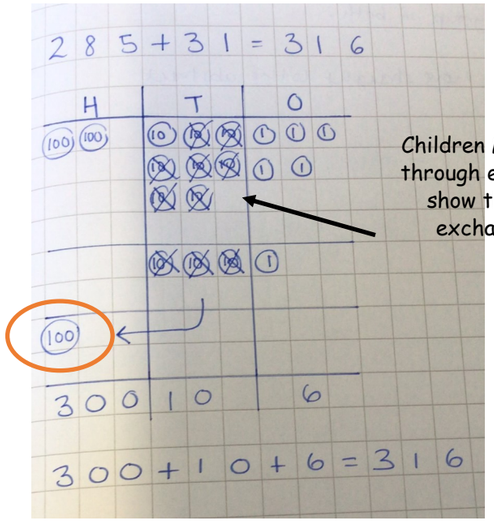
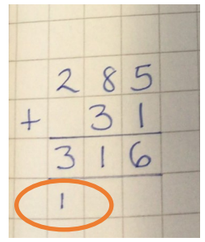
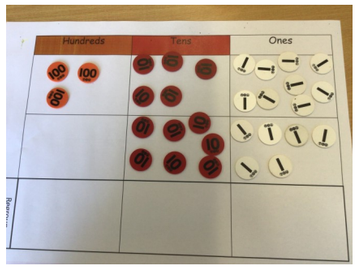
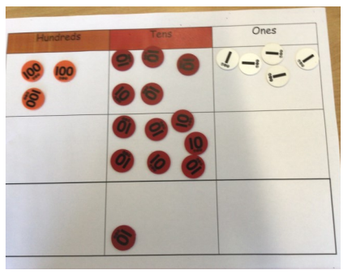
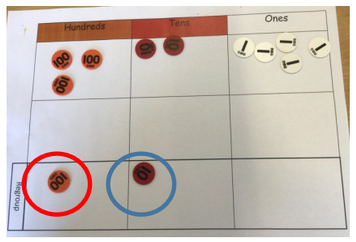
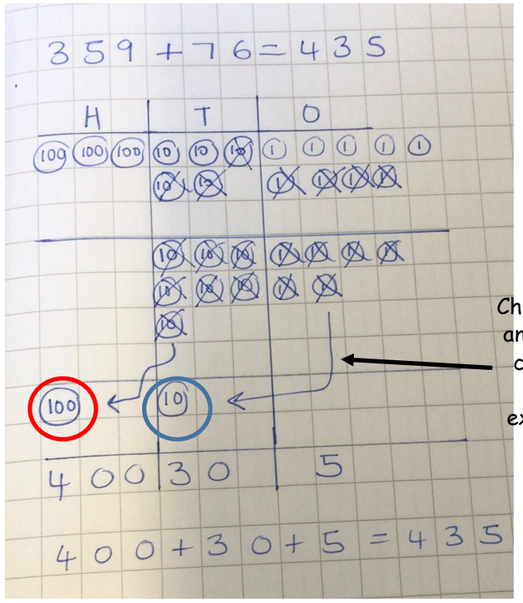
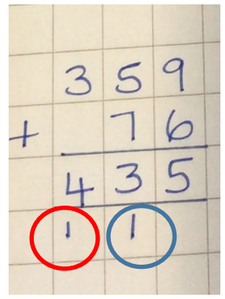
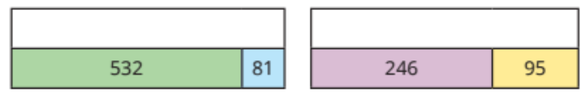
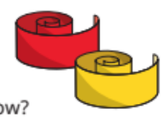
|---|---|---|---|
| Add 3 digit and 2 digit (with regroup)<br><br>Children are already familiar with regrouping in the ones column. Now show them a regroup in the tens. | 285 + 31 =<br><br>  <br><br>There are to many tens we need to exchange!<br><br>Once exchanged, children MUST place the new hundred in the regroup column.<br><br>  <br> |  <br><br>Children MUST put an x through each counter to show that they are exchanging them. | It is now easy to show where the new 100 has come from.<br><br>  <br> |
| Add 3 digit and 2 digit (with **two** regroups)<br><br>Children will need to be explicitly taught how two regroups in one calculation works. | 359 + 76 = 435<br><br>  <br><br>First exchange the ones for a ten and place in the regroup column.<br><br>  <br><br>  <br><br>Then exchange the tens for a hundred and place in the regroup column. |  <br><br>Children MUST put an x through each counter to show that they are exchanging them. | It is now clear to show where the extra ten and hundred have come from.<br><br>  <br><br>Complete the bar models.<br><br>  <br><br>Kim has 132 cm of ribbon.<br>Her teacher gives her another 83 cm.<br>What total length of ribbon does Kim have now?<br><br>  |
| 3 digit add 3 digit (with regroup)<br><br>Shouldn't exceed 999 | Follow the same process as above but for 3 digit and 3 digit e.g:<br><br>466 + 258 = | Children to represent as above but for 3 digit add 3 digit. | Mrs Trent has £588 and Ms Rose has £136 How much money do they have altogether? |