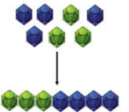
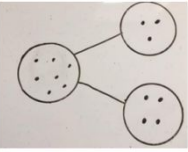
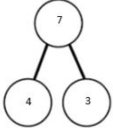
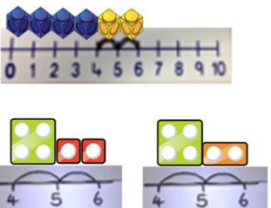
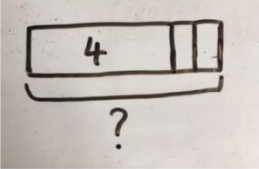

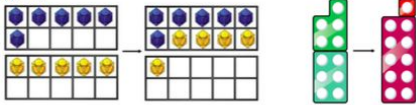
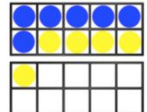

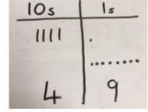
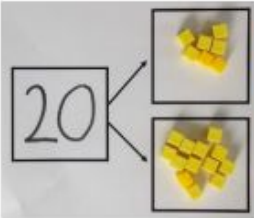
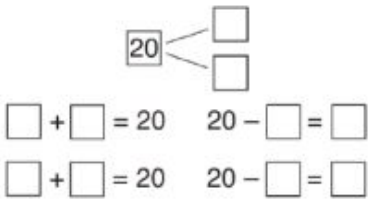

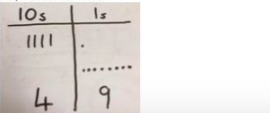
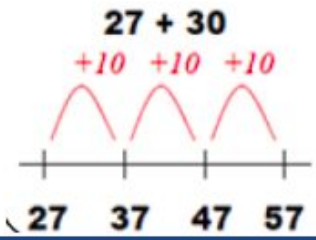

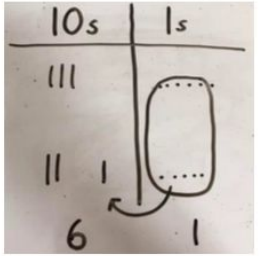
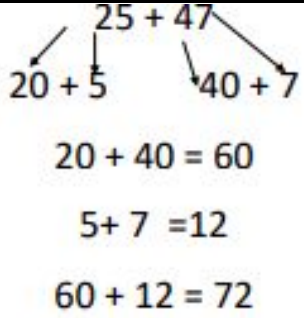


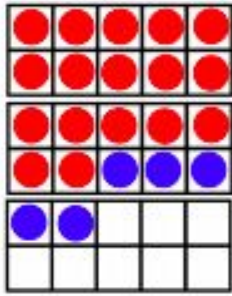
Year 1 Addition

| National Curriculum objective | Concrete | Pictorial | Abstract |
|---|--|---|--|
| <p>add and subtract one digit and two-digit numbers to 20, including zero</p> | <p>Combining two parts to make a whole (use other resources too e.g. eggs, shells, teddy bears, cars).</p>  | <p>Children to represent the cubes using dots or crosses. They could put each part on a part whole model too.</p>  | <p>$4 + 3 = 7$ Four is a part, 3 is a part and the whole is seven.</p>  |
| <p>Represent and use number bonds and related subtraction facts within 20</p> | <p>Counting on using number lines using cubes or Numicon.</p>  | <p>A bar model which encourages the children to count on, rather than count all.</p>  | <p>The abstract number line: What is 2 more than 4? What is the sum of 2 and 4? What is the total of 4 and 2? $4 + 2$</p>  |
| <p>solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations,</p> | <p>Regrouping to make 10; using ten frames and counters/cubes or using Numicon.</p> <p>$6 + 5$</p>  | <p>Children to draw the ten frame and counters/cubes.</p>  | <p>Children to develop an understanding of equality e.g.</p> <p>$6 + \square = 11$ $6 + 5 = 5 + \square$ $6 + 5 = \square + 4$</p> |
| <p>and missing number problems such as $7 = \square - 9$.</p> | <p>T0 + 0 using base 10. Continue to develop understanding of partitioning and place value.</p> <p>$41 + 8$</p>  | <p>Children to represent the base 10 e.g. lines for tens and dot/crosses for ones.</p>  | |

| | | | |
|--|---|--|---|
| |  <p style="text-align: center;">$3 + 4 = 7$</p> |  <p style="text-align: center;">$7 + 3 = 10$</p> |  |
|--|---|--|---|

| Year 2 Addition (+ refer to previous year group expectations) | | | |
|--|--|--|---|
| National Curriculum objective | Concrete | Pictorial | Abstract |
| <p>recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100</p> <p>add and subtract numbers using concrete objects, pictorial representations, and mentally, including: ♣ a two-digit number and</p> |  <p>Children explore ways of making numbers within 20</p> |  <p style="text-align: center;"> $\begin{array}{c} \square \\ \diagdown \\ 20 \\ \diagup \\ \square \end{array}$ </p> <p> $\square + \square = 20$ $20 - \square = \square$ $\square + \square = 20$ $20 - \square = \square$ </p> | <p> $\square + 1 = 16$ $16 - 1 = \square$ $1 + \square = 16$ $16 - \square = 1$ </p> |

| | | | |
|---|---|---|---|
| <p>ones ♣ a two-digit number and tens ♣ two two-digit numbers ♣ adding three one-digit numbers</p> <p>show that addition of two numbers can be done in any order (commutative)</p> |  <p>$25 + 10 = 35$</p> <p>Explore that the ones digit does not change</p> | <p>Children to represent the base 10 e.g. lines for tens and dot/crosses for ones.</p>  | <p>$27 + 10 = 37$</p> <p>$27 + 20 = 47$</p> <p>$27 + \square = 57$</p>  |
| <p>recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.</p> |  <p>Model using dienes , place value counters and numicon</p> | <p>Children to represent the base 10 in a place value chart.</p>  |  |



$$17 + 5 = 22$$

Use ten frame
make 'magic te

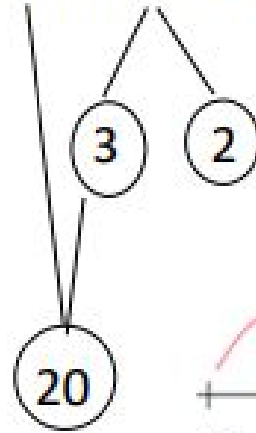
Children explore the pattern.

$$17 + 5 = 22$$

$$27 + 5 = 32$$

Use part
part whole
and number
line to
model.

$$17 + 5 = 22$$



$$17 + 5 = 22$$

Explore related facts

$$17 + 5 = 22$$


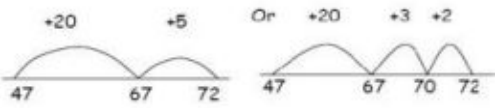
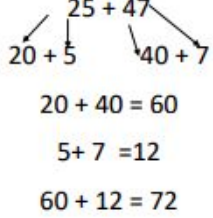
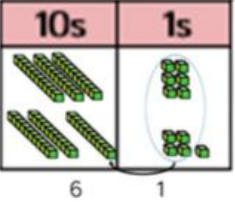
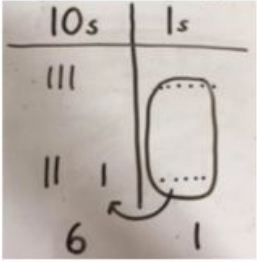
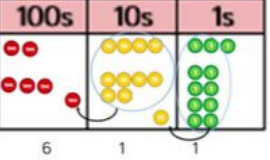
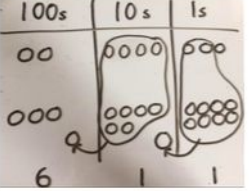
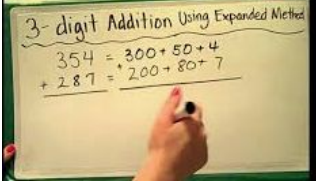

$$5 + 17 = 22$$

$$22 - 17 = 5$$

$$22 - 5 = 17$$

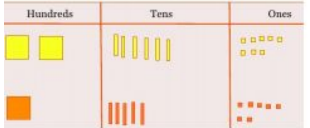
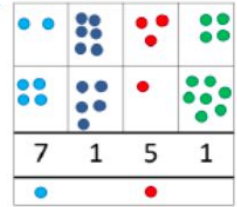
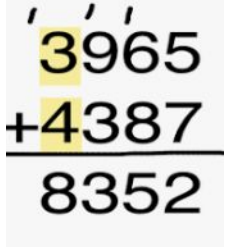
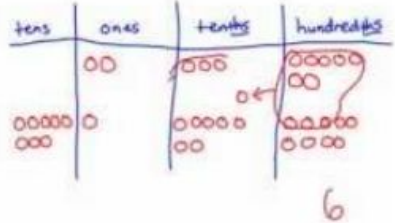
| | |
|----|---|
| 22 | |
| 17 | 5 |

Year 3 Addition (+ refer to previous year group expectations)

| National Curriculum objective | Concrete | Pictorial | Abstract | | | | | | | | | | | | |
|---|--|---|---|------|--|------|---|---|---|---|---|---|---|--|---|
| <p>Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction</p> |  <p>Model using dienes, place value counters and Numicon</p> |  <p>Use number line and bridge ten using part whole if necessary.</p> |  $25 + 47$ $20 + 40 = 60$ $5 + 7 = 12$ $60 + 12 = 72$ | | | | | | | | | | | | |
| <p>solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.</p> | <p>TO + TO using base 10. Continue to develop understanding of partitioning and place value. $36 + 25$</p>  | <p>Children to represent the base 10 in a place value chart.</p>  | <p>Looking for ways to make 10.</p> $36 + 25 =$ $30 + 20 = 50$ $5 + 5 = 10$ $50 + 10 + 1 = 61$ <p>Formal method:</p> <table border="1"> <thead> <tr> <th colspan="2">Tens</th> <th>Ones</th> </tr> </thead> <tbody> <tr> <td>3</td> <td>6</td> <td>2</td> </tr> <tr> <td>+</td> <td>2</td> <td>5</td> </tr> <tr> <td colspan="2">8</td> <td>7</td> </tr> </tbody> </table> | Tens | | Ones | 3 | 6 | 2 | + | 2 | 5 | 8 | | 7 |
| Tens | | Ones | | | | | | | | | | | | | |
| 3 | 6 | 2 | | | | | | | | | | | | | |
| + | 2 | 5 | | | | | | | | | | | | | |
| 8 | | 7 | | | | | | | | | | | | | |
| | <p>Use of place value counters to add HTO + TO, HTO + HTO etc. When there are 10 ones in the 1s column- we exchange for 1 ten, when there are 10 tens in the 10s column- we exchange for 1 hundred.</p>  | <p>Children to represent the counters in a place value chart, circling when they make an exchange.</p>  |   | | | | | | | | | | | | |

|  <p>Missing digit problems:</p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr style="background-color: #f8d7da;"> <th style="padding: 5px;">10s</th> <th style="padding: 5px;">1s</th> </tr> </thead> <tbody> <tr> <td style="text-align: center; padding: 5px;">● ●</td> <td style="text-align: center; padding: 5px;">●</td> </tr> <tr> <td style="text-align: center; padding: 5px;">● ● ●</td> <td style="text-align: center; padding: 5px;">?</td> </tr> <tr> <td style="text-align: center; padding: 5px;">?</td> <td style="text-align: center; padding: 5px;">5</td> </tr> </tbody> </table> | 10s | 1s | ● ● | ● | ● ● ● | ? | ? | 5 | |  <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <tr> <td colspan="2" style="text-align: center; padding: 5px;">?</td> </tr> <tr> <td style="padding: 5px;">21</td> <td style="padding: 5px;">34</td> </tr> </table> | ? | | 21 | 34 |
|--|-----|----|-----|---|-------|---|---|---|--|---|---|--|----|----|
| 10s | 1s | | | | | | | | | | | | | |
| ● ● | ● | | | | | | | | | | | | | |
| ● ● ● | ? | | | | | | | | | | | | | |
| ? | 5 | | | | | | | | | | | | | |
| ? | | | | | | | | | | | | | | |
| 21 | 34 | | | | | | | | | | | | | |

Year 4- 6 Addition (+ refer to previous year group expectations)

| National Curriculum objective | Concrete | Pictorial | Abstract | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|--|---|---|--------|------------|--|-----|-----|---------|---|--|----------------------------|-------|------------------|--|--------|--|--|---------|--|--|--------|--|-------|--------------------------------|---------|--|--------|--|-------|
| Year 4 add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate Y5—add numbers with more than 4 | <p><small>Children continue to use dienes or pv counters to add, exchanging ten ones for a ten and ten tens for a hundred and ten hundreds for a thousand.</small></p>  |  <p style="font-size: small;">Draw representations using pv grid.</p> |  | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | <p>As year 4</p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr> <th style="padding: 5px;">tens</th> <th style="padding: 5px;">ones</th> <th style="padding: 5px;">tenths</th> <th style="padding: 5px;">hundredths</th> </tr> </thead> <tbody> <tr> <td></td> <td style="text-align: center;">● ●</td> <td style="text-align: center;">● ●</td> <td style="text-align: center;">● ● ● ●</td> </tr> </tbody> </table> <p style="text-align: center;">Introduce decimal place value counters and model exchange for addition.</p> | tens | ones | tenths | hundredths | | ● ● | ● ● | ● ● ● ● | <p style="text-align: center;">2.37 + 81.79</p>  | <h3 style="text-align: center; color: red;">Adding Decimals</h3> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid #ccc; padding: 5px; background-color: #fff9e6;"> <p style="text-align: center; color: red; font-weight: bold;">Example:</p> <p style="text-align: center;">0.32 + 12.965 + 1.1</p> <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="font-size: x-small; color: red;">Line up the decimal points</td> <td style="text-align: right; padding-right: 10px;">0.320</td> <td style="font-size: x-small; color: blue;">'Pad' with zeros</td> </tr> <tr> <td></td> <td style="text-align: right;">12.965</td> <td></td> </tr> <tr> <td></td> <td style="text-align: right;">+ 1.100</td> <td></td> </tr> <tr> <td></td> <td style="text-align: right; border-top: 1px solid black;">14.385</td> <td></td> </tr> </table> </div> <div style="border: 1px solid #ccc; padding: 5px; background-color: #fff9e6;"> <p style="text-align: center; color: red; font-weight: bold;">Example:</p> <p style="text-align: center;">51 + 14.02 + 2.1</p> <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: right; padding-right: 10px;">51.00</td> <td style="font-size: x-small; color: blue;">Change whole number to decimal</td> </tr> <tr> <td style="text-align: right;">+ 14.02</td> <td></td> </tr> <tr> <td style="text-align: right; border-top: 1px solid black;">+ 2.10</td> <td></td> </tr> <tr> <td style="text-align: right; border-top: 1px solid black;">67.12</td> <td></td> </tr> </table> </div> </div> | Line up the decimal points | 0.320 | 'Pad' with zeros | | 12.965 | | | + 1.100 | | | 14.385 | | 51.00 | Change whole number to decimal | + 14.02 | | + 2.10 | | 67.12 |
| tens | ones | tenths | hundredths | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | ● ● | ● ● | ● ● ● ● | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Line up the decimal points | 0.320 | 'Pad' with zeros | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 12.965 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | + 1.100 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 14.385 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 51.00 | Change whole number to decimal | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| + 14.02 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| + 2.10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 67.12 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| | | | |
|---|--|--|--|
| <p>digits. Add decimals with 2 decimal places, including money.</p> <p>Y6—add several numbers of increasing complexity Including adding money, measure and decimals with different numbers of decimal points.</p> | | | |
|---|--|--|--|