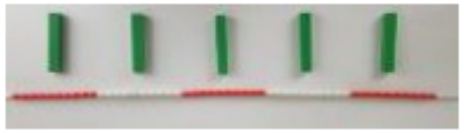
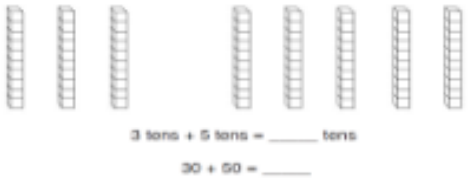
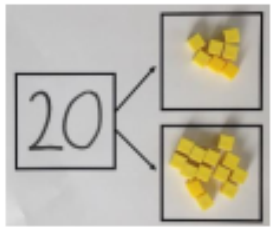
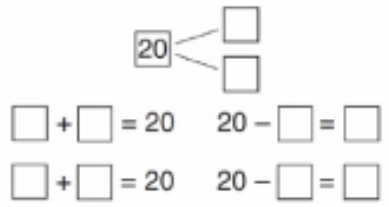
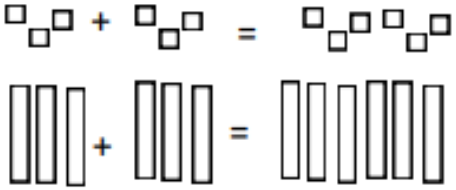
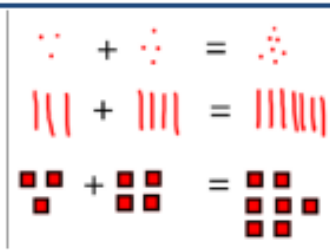
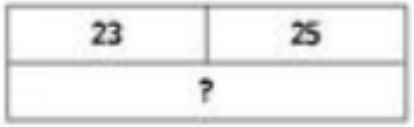
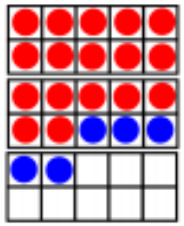
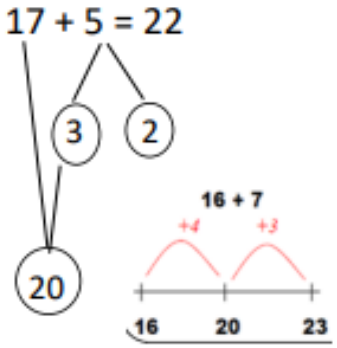
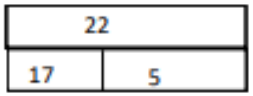
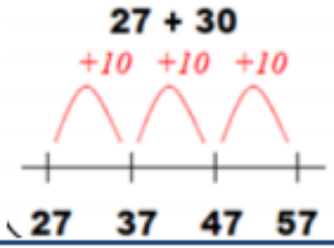
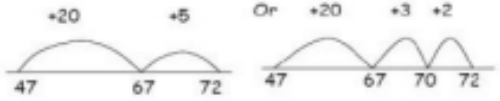
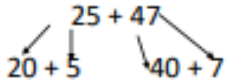
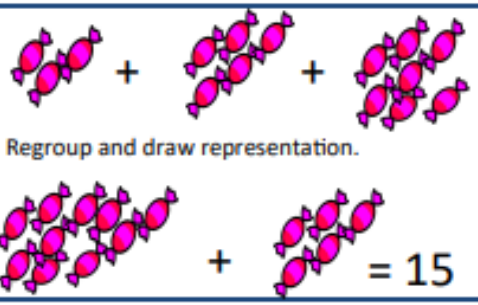
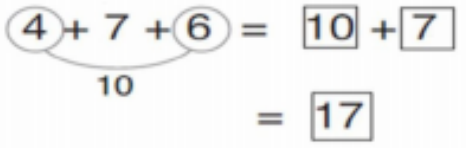
# Chapel St Leonards Primary School Calculation Policy

Y2 ADDITION +

| Objective & Strategy | Concrete | Pictorial | Abstract |
|---|---|---|---|
| Adding multiples of ten | 50= 30 = 20<br>  <br>Model using dienes and bead strings |  <br>3 tens + 5 tens = _____ tens<br>30 + 50 = _____<br>Use representations for base ten. | 20 + 30 = 50<br>70 = 50 + 20<br>40 + □ = 60 |
| Use known number facts<br>Part part whole |  <br>Children explore ways of making numbers within 20 |  <br>20<br>□ + □ = 20 20 – □ = □<br>□ + □ = 20 20 – □ = □ | □ + 1 = 16 16 – 1 = □<br>1 + □ = 16 16 – □ = 1 |
| Using known facts |  |  <br>Children draw representations of H,T and O | 3 + 4 = 7<br>*leads to*<br>30 + 40 = 70<br>*leads to*<br>300 + 400 = 700 |
| Bar model |  <br>3 + 4 = 7 |  <br>7 + 3 = 10 |  <br>23 25 ?<br>23 + 25 = 48 |

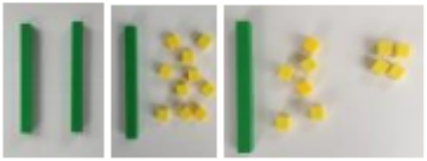
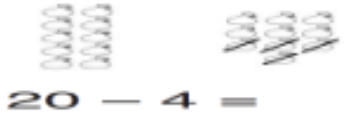
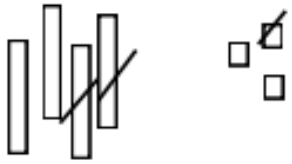
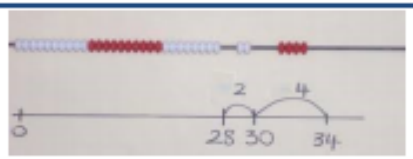
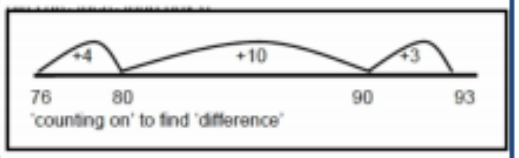
# Chapel St Leonards Primary School Calculation Policy

Y2 ADDITION +

| Objective & Strategy | Concrete | Pictorial | Abstract |
|---|---|---|---|
| Add a two digit number and ones |  17 + 5 = 22<br>Use ten frame to make 'magic ten<br>Children explore the pattern.<br>17 + 5 = 22<br>27 + 5 = 32 | Use part part whole and number line to model.<br>  | 17 + 5 = 22<br>Explore related facts<br>17 + 5 = 22<br>5 + 17 = 22<br>22—17 = 5<br>22—5 = 17<br>  |
| Add a 2 digit number and tens |  25 + 10 = 35<br>Explore that the ones digit does not change |  | 27 + 10 = 37<br>27 + 20 = 47<br>27 + □ = 57 |
| Add two 2-digit numbers |  Model using dienes , place value counters and numicon |  <br>Use number line and bridge ten using part whole if necessary. |  <br>20 + 40 = 60<br>5+ 7 =12<br>60 + 12 = 72 |
| Add three 1-digit numbers |  Combine to make 10 first if possible, or bridge 1o then add third digit |  |  <br>Combine the two numbers that make/ bridge ten then add on the third. |

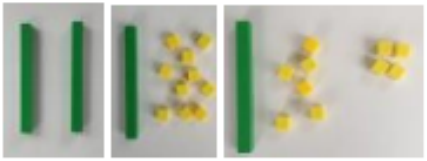
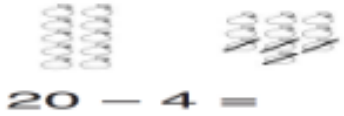
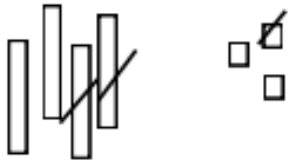
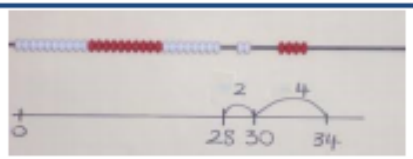
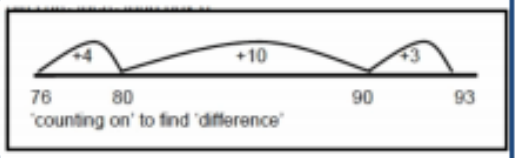
# Chapel St Leonards Primary School Calculation Policy

## Y2 SUBTRACTION

| Objective & Strategy | Concrete | Pictorial | Abstract |
|---|---|---|---|
| Regroup a ten into ten ones |  Use a PV chart to show how to change a ten into ten ones, use the term 'take and make' |   | 20—4 = 16 |
| Partitioning to subtract without re-grouping. *'Friendly numbers'* | 34—13 = 21   Use Dienes to show how to partition the number when subtracting without regrouping.  | Children draw representations of Dienes and cross off.  43—21 = 22 | 43—21 = 22 |
| Make ten strategy *Progression should be crossing one ten, crossing more than one ten, crossing the hundreds.* |   34—28 Use a bead bar or bead strings to model counting to next ten and the rest. |   Use a number line to count on to next ten and then the rest. | 93—76 = 17 |
| | | | |

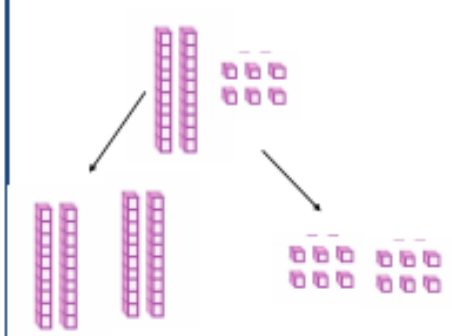
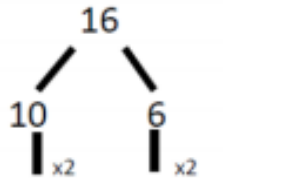
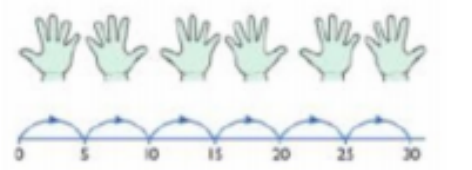
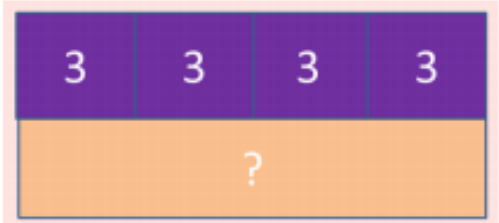
# Chapel St Leonards Primary School Calculation Policy

## Y2 SUBTRACTION

| Objective & Strategy | Concrete | Pictorial | Abstract |
|---|---|---|---|
| Regroup a ten into ten ones |  Use a PV chart to show how to change a ten into ten ones, use the term 'take and make' |   | 20—4 = 16 |
| Partitioning to subtract without re-grouping. *'Friendly numbers'* | 34—13 = 21   Use Dienes to show how to partition the number when subtracting without regrouping.  | Children draw representations of Dienes and cross off.  43—21 = 22 | 43—21 = 22 |
| Make ten strategy *Progression should be crossing one ten, crossing more than one ten, crossing the hundreds.* |   34—28 Use a bead bar or bead strings to model counting to next ten and the rest. |   Use a number line to count on to next ten and then the rest. | 93—76 = 17 |
| | | | |

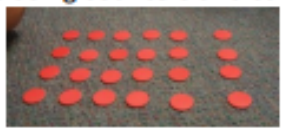
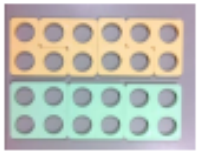
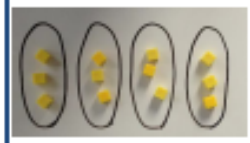
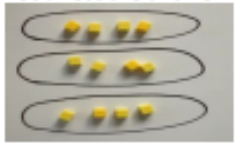
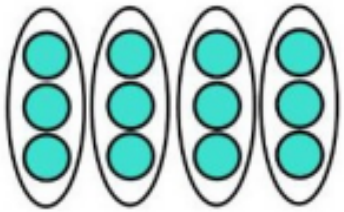
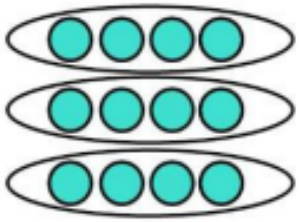
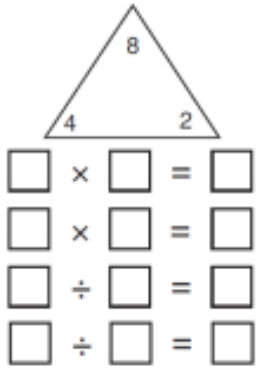
# Chapel St Leonards Primary School Calculation Policy

Y2 MULTIPLICATION X

| Objective & Strategy | Concrete | Pictorial | Abstract |
|---|---|---|---|
| Doubling | Model doubling using dienes and PV counters.<br>  <br>40 + 12 = 52 | Draw pictures and representations to show how to double numbers | Partition a number and then double each part before recombining it back together.<br>  <br><br>20 + 12 = 32 |
| Counting in multiples of 2, 3, 4, 5, 10 from 0<br>(repeated addition) | Count the groups as children are skip counting, children may use their fingers as they are skip counting. Use bar models.<br>  <br>5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 = 40<br>  <br>  <br> | Number lines, counting sticks and bar models should be used to show representation of counting in multiples.<br>  <br>  <br>  <br> | Count in multiples of a number aloud.<br><br>Write sequences with multiples of numbers.<br>0, 2, 4, 6, 8, 10<br>0, 3, 6, 9, 12, 15<br>0, 5, 10, 15, 20, 25 , 30<br><br>$4 \times 3 = \square$ |

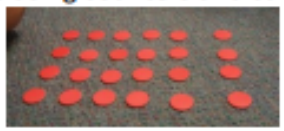
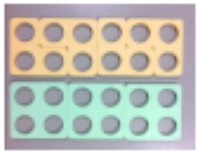
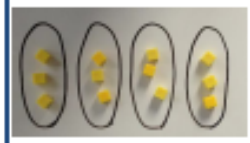
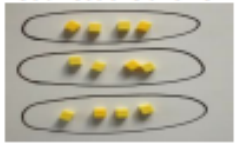
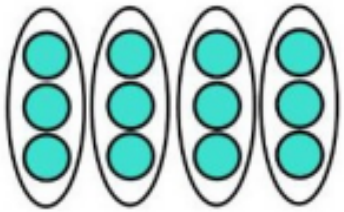
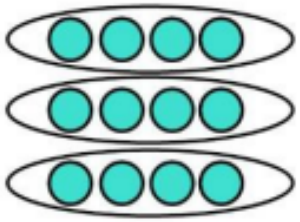
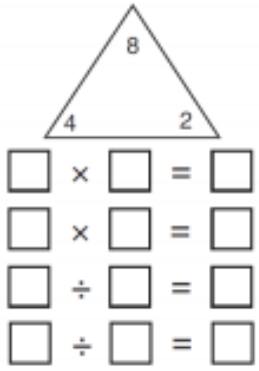
# Chapel St Leonards Primary School Calculation Policy

Y2 MULTIPLICATION

| Objective & Strategy | Concrete | Pictorial | Abstract |
|---|---|---|---|
| Multiplication is commutative | Create arrays using counters and cubes and Numicon.<br>  <br>  <br>  <br>Pupils should understand that an array can represent different equations and that, as multiplication is commutative, the order of the multiplication does not affect the answer.<br>  <br>  | Use representations of arrays to show different calculations and explore commutativity.<br>  <br>  | 12 = 3 × 4<br>12 = 4 × 3<br>Use an array to write multiplication sentences and reinforce repeated addition.<br>  <br>5 + 5 + 5 = 15<br>3 + 3 + 3 + 3 + 3 = 15<br>5 x 3 = 15<br>3 x 5 = 15 |
| Using the Inverse<br>*This should be taught alongside division, so pupils learn how they work alongside each other.* |  |  | 2 x 4 = 8<br>4 x 2 = 8<br>8 ÷ 2 = 4<br>8 ÷ 4 = 2<br>8 = 2 x 4<br>8 = 4 x 2<br>2 = 8 ÷ 4<br>4 = 8 ÷ 2<br>Show all 8 related fact family sentences. |

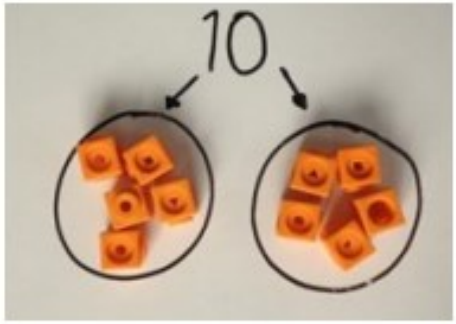
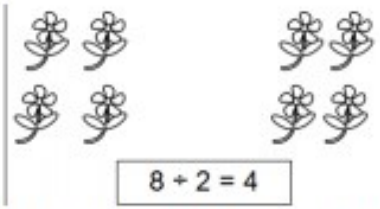
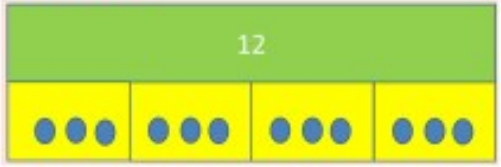
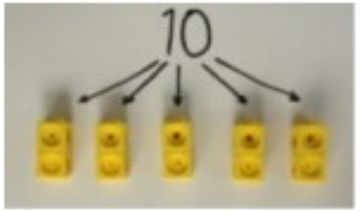
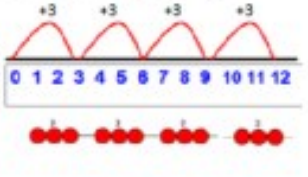
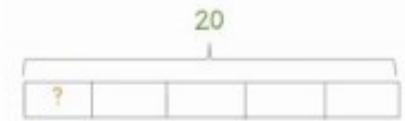
# Chapel St Leonards Primary School Calculation Policy

Y2 MULTIPLICATION

| Objective & Strategy | Concrete | Pictorial | Abstract |
|---|---|---|---|
| Multiplication is commutative | Create arrays using counters and cubes and Numicon.<br>  <br>  <br>  <br>Pupils should understand that an array can represent different equations and that, as multiplication is commutative, the order of the multiplication does not affect the answer.<br>  <br>  | Use representations of arrays to show different calculations and explore commutativity.<br>  <br>  | 12 = 3 × 4<br>12 = 4 × 3<br>Use an array to write multiplication sentences and reinforce repeated addition.<br>  <br>5 + 5 + 5 = 15<br>3 + 3 + 3 + 3 + 3 = 15<br>5 x 3 = 15<br>3 x 5 = 15 |
| Using the Inverse<br>*This should be taught alongside division, so pupils learn how they work alongside each other.* |  |  | 2 x 4 = 8<br>4 x 2 = 8<br>8 ÷ 2 = 4<br>8 ÷ 4 = 2<br>8 = 2 x 4<br>8 = 4 x 2<br>2 = 8 ÷ 4<br>4 = 8 ÷ 2<br>Show all 8 related fact family sentences. |

# Chapel St Leonards Primary School Calculation Policy

Y2 DIVISION ÷

| Objective & Strategy | Concrete | Pictorial | Abstract |
|---|---|---|---|
| Division as sharing |  I have 10 cubes, can you share them equally in 2 groups? | Children use pictures or shapes to share quantities.  8 ÷ 2 = 4 Children use bar modelling to show and support understanding.  12 ÷ 4 = 3 | 12 ÷ 3 = 4 |
| Division as grouping | Divide quantities into equal groups. Use cubes, counters, objects or place value counters to aid understanding.   | Use number lines for grouping  12 ÷ 3 = 4 Think of the bar as a whole. Split it into the number of groups you are dividing by and work out how many would be within each group.  20 ÷ 5 = ? 5 x ? = 20 | 28 ÷ 7 = 4 Divide 28 into 7 groups. How many are in each group? |