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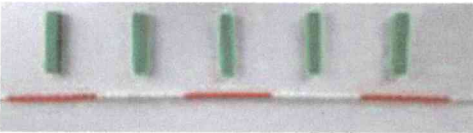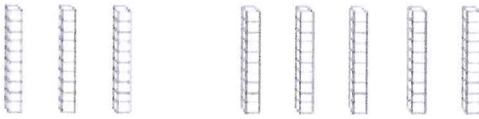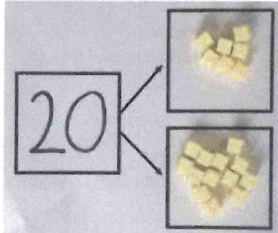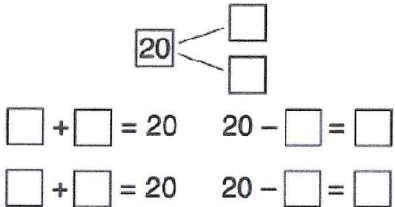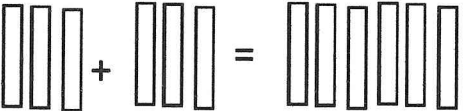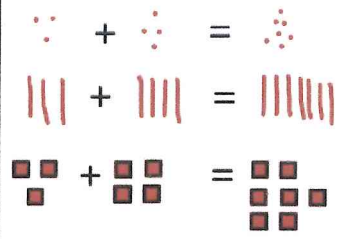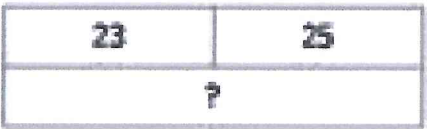
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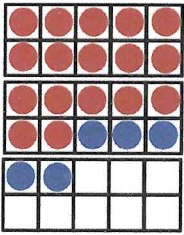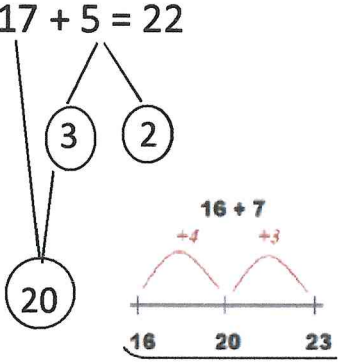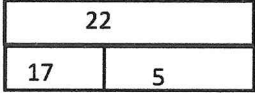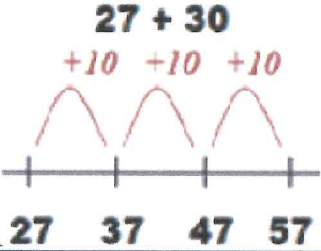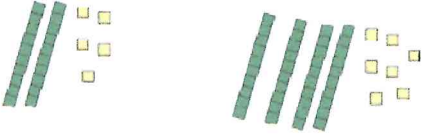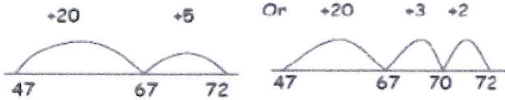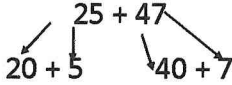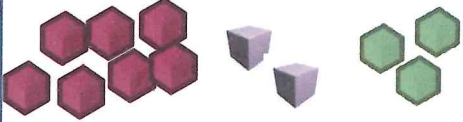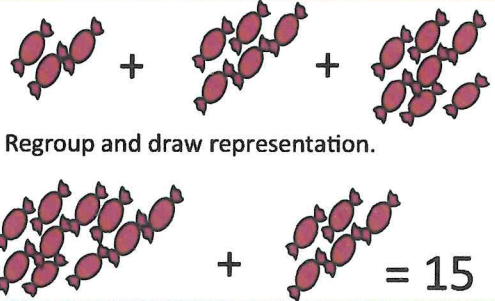
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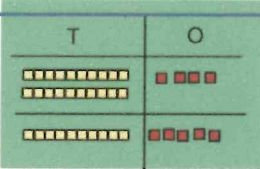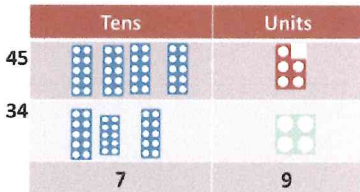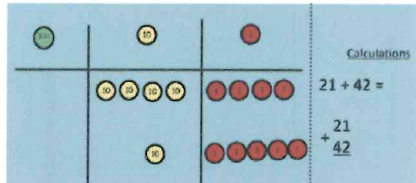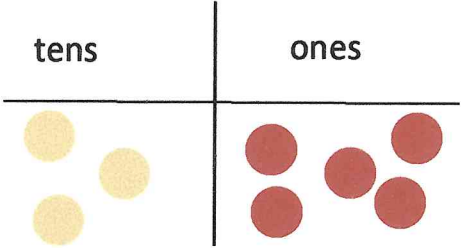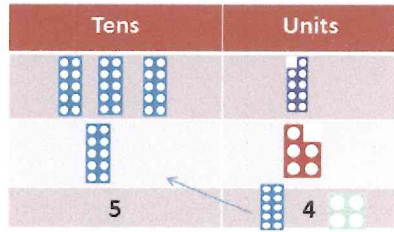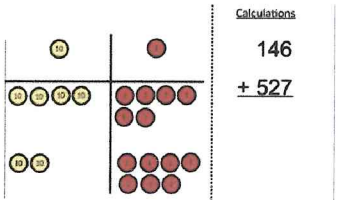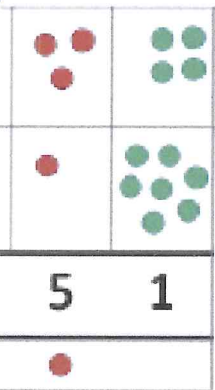
This policy has been largely adapted from the White Rose Maths Hub Calculation Policy.
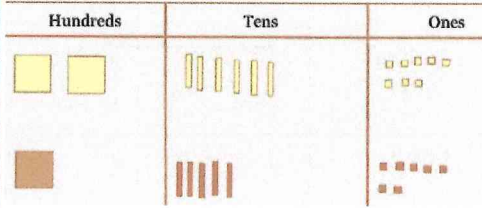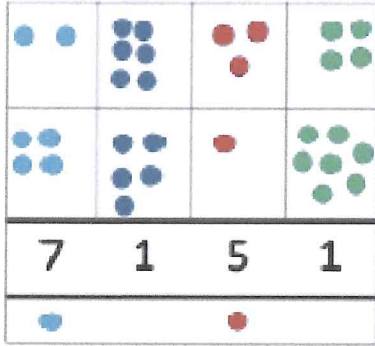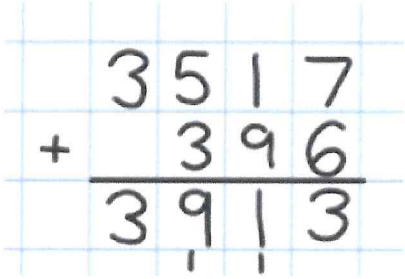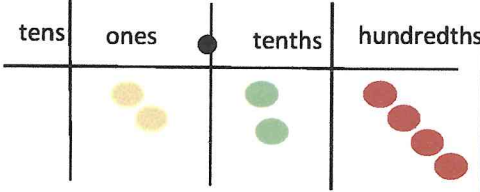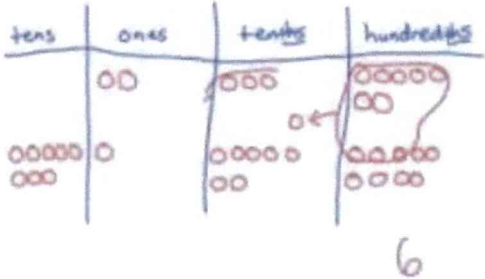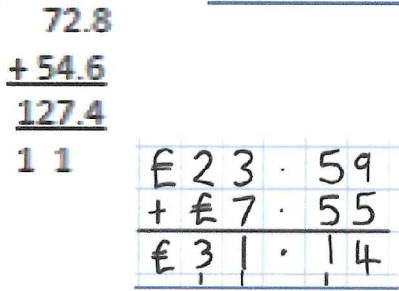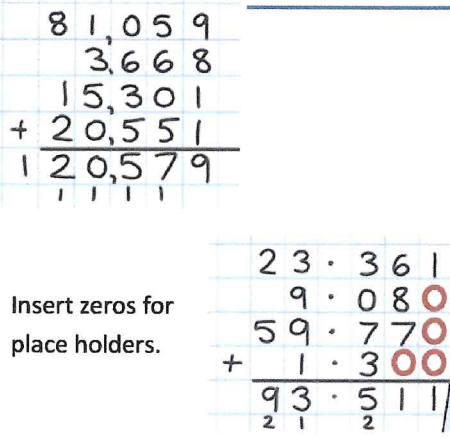
It is a working document and can be revised and amended as necessary.

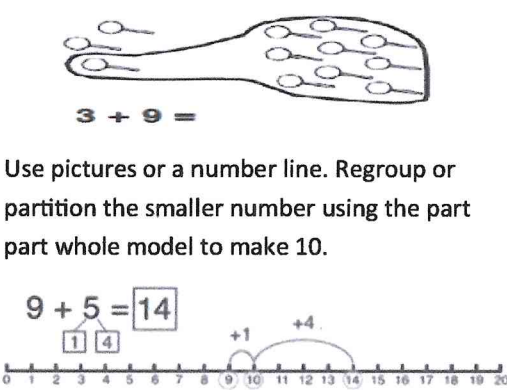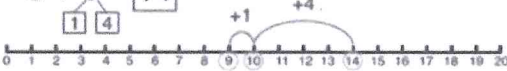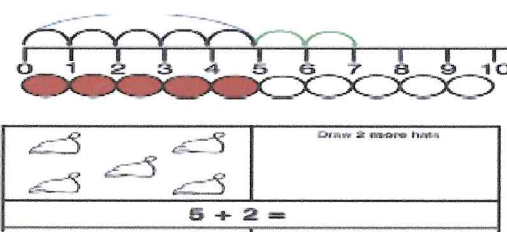| Objective & Strategy	Concrete	Pictorial	Abstract
Combining two parts to make a whole: part-whole model	Use part part whole model. Use cubes to add two numbers together as a group or in a bar.	Use pictures to add two numbers together as a group or in a bar. 3 Balls 2 Balls 8 1	$4 + 3 = 7$ 5 3 $10 = 6 + 4$ Use the part-part whole diagram as shown above to move into the abstract.
Starting at the bigger number and counting on	Start with the larger number on the bead string and then count on to the smaller number 1 by 1 to find the answer.	$12 + 5 = 17$ 10 11 12 13 14 15 16 17 18 19 20 Start at the larger number on the number line and count on in ones or in one jump to find the answer.	$5 + 12 = 17$ Place the larger number in your head and count on the smaller number to find your answer.
Regrouping to make 10. *This is an essential skill for column addition later.*	$6 + 5 = 11$ Start with the bigger number and use the smaller number to make 10. Use ten frames.	$3 + 9 =$ Use pictures or a number line. Regroup or partition the smaller number using the part part whole model to make 10. $9 + 5 = \boxed{14}$ $\boxed{1}\ \boxed{4}$ $+1$ $+4$ 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	$7 + 4 = 11$ If I am at seven, how many more do I need to make 10. How many more do I add on now?
Represent & use number bonds and related subtraction facts within 20	2 more than 5.	0 1 2 3 4 5 6 7 8 9 10 Draw 2 more hats $5 + 2 =$	Emphasis should be on the language *'1 more than 5 is equal to 6.'* *'2 more than 5 is 7.'* *'8 is 3 more than 5.'*

Y1 ADDITION +

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

Y2 ADDITION +
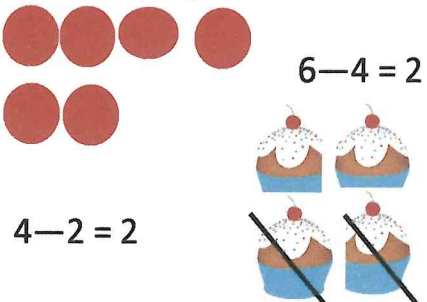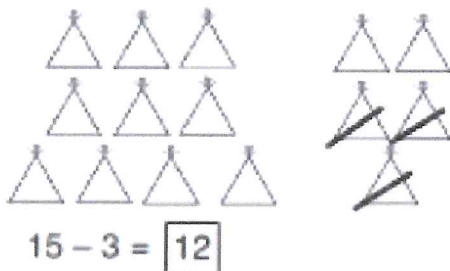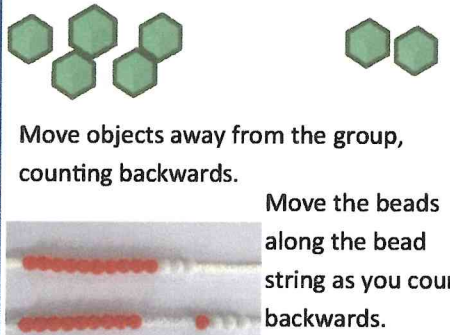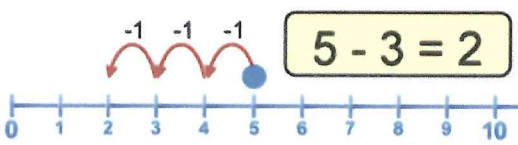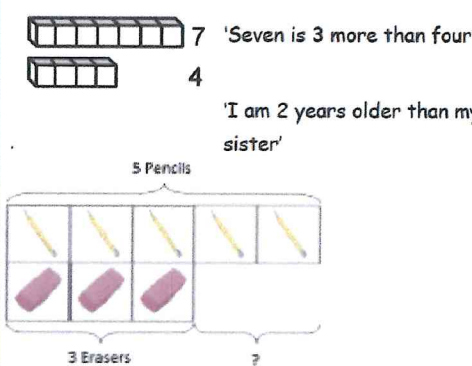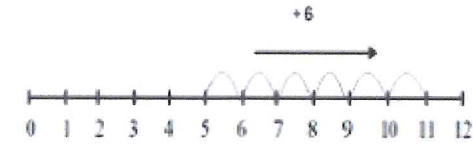
Objective & Strategy	Concrete	Pictorial	Abstract
Add a two digit number and ones	17 + 5 = 22 Use ten frame to make 'magic ten Children explore the pattern. 17 + 5 = 22 27 + 5 = 32	17 + 5 = 22 Use part part whole and number line to model. 3 2 20 16 + 7 +4 +3 16 20 23	17 + 5 = 22 Explore related facts 17 + 5 = 22 5 + 17 = 22 22 — 17 = 5 22 — 5 = 17 22 17 | 5
Add a 2 digit number and tens	25 + 10 = 35 Explore that the ones digit does not change	27 + 30 +10 +10 +10 27 37 47 57	27 + 10 = 37 27 + 20 = 47 27 + □ = 57
Add two 2-digit numbers	Model using dienes, place value counters and numicon	+20 +5 Or +20 +3 +2 47 67 72 47 67 70 72 Use number line and bridge ten using part whole if necessary.	25 + 47 20 + 5 40 + 7 20 + 40 = 60 5 + 7 = 12 60 + 12 = 72
Add three 1-digit numbers	Combine to make 10 first if possible, or bridge 1o then add third digit	Regroup and draw representation. + + = 15	4 + 7 + 6 = 10 + 7 10 = 17 Combine the two numbers that make/ bridge ten then add on the third.
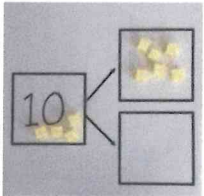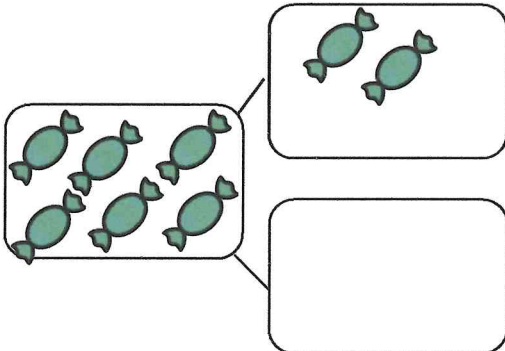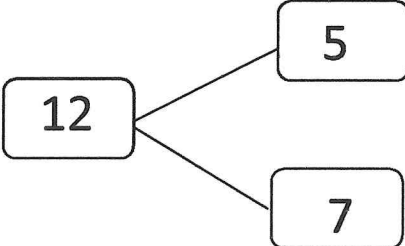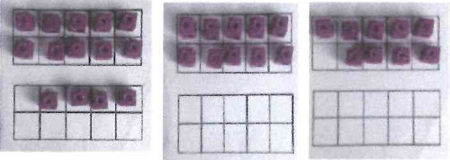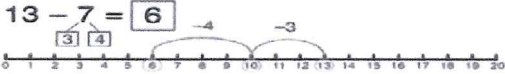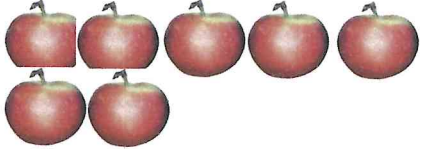
Objective & Strategy	Concrete	Pictorial	Abstract
Column Addition—no regrouping (friendly numbers) Add two or three 2 or 3-digit numbers.	Model using Dienes or numicon Add together the ones first, then the tens. Move to using place value counters	Children move to drawing the counters using a tens and one frame. tens ones	$2\ 2\ 3$ $+\ 1\ 1\ 4$ _____ $3\ 3\ 7$ Add the ones first, then the tens, then the hundreds.
Column Addition with regrouping.	Exchange ten ones for a ten. Model using numicon and pv counters. Calculations 146 + 527	Children can draw a representation of the grid to further support their understanding, carrying the ten **underneath** the line 5 1	$20\ +\ 5$ $40\ +\ 8$ $60\ +\ 13\ =\ 73$ Start by partitioning the numbers before formal column to show the exchange. 536 $+\ 85$ _____ 621 $1\ 1$
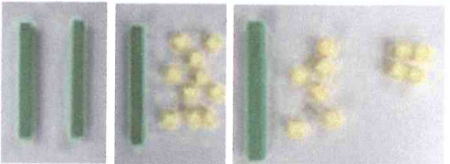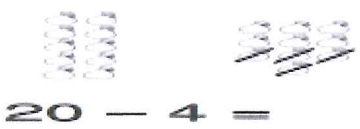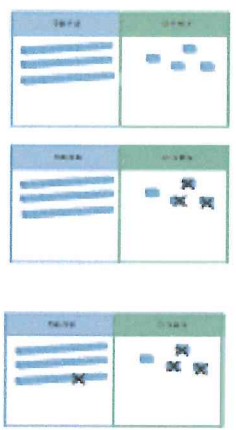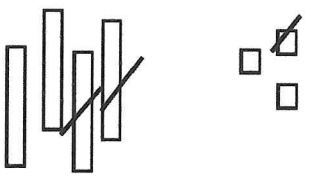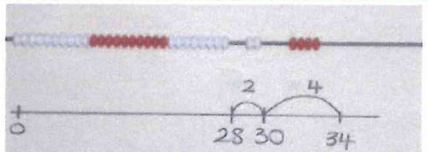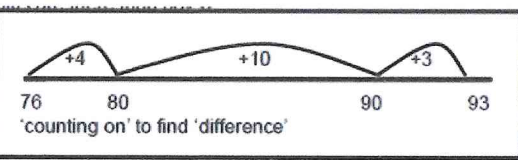
Objective & Strategy	Concrete	Pictorial	Abstract
Y4—add numbers with up to 4 digits	Children continue to use dienes or pv counters to add, exchanging ten ones for a ten and ten tens for a hundred and ten hundreds for a thousand. Hundreds / Tens / Ones	 Draw representations using pv grid.	3517 + 396 3913 Continue from previous work to carry hundreds as well as tens. Relate to money and measures.
Y5—add numbers with more than 4 digits. Add decimals with 2 decimal places, including money.	As year 4 tens / ones / tenths / hundredths Introduce decimal place value counters and model exchange for addition.	2.37 + 81.79 tens / ones / tenths / hundredths 6	72.8 + 54.6 127.4 1 1 £23.59 + £7.55 £31.14
Y6—add several numbers of increasing complexity Including adding money, measure and decimals with different numbers of decimal points.	As Y5	As Y5	81,059 3,668 15,301 + 20,551 120,579 Insert zeros for place holders. 23.361 9.080 59.770 + 1.300 93.511
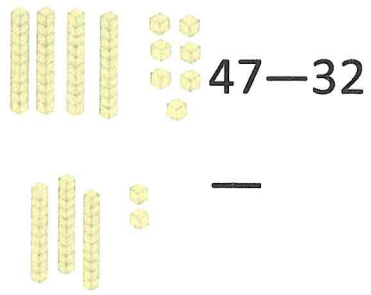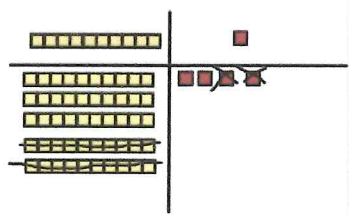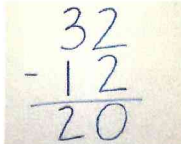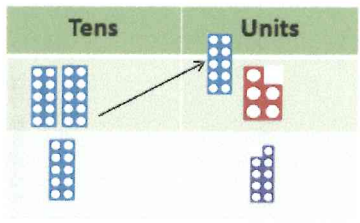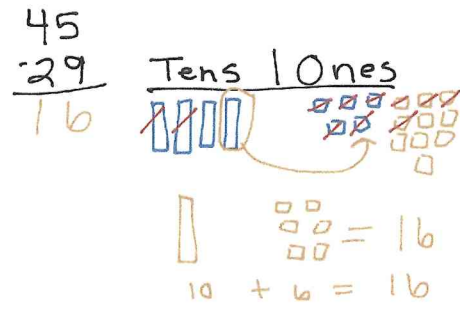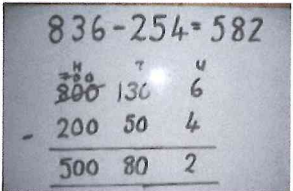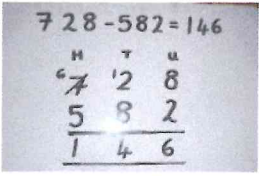
Objective & Strategy	Concrete	Pictorial	Abstract
Taking away ones.	Use physical objects, counters , cubes etc to show how objects can be taken away. $6-4 = 2$ $4-2 = 2$	Cross out drawn objects to show what has been taken away. $15 - 3 = \boxed{12}$	$7-4 = 3$ $16-9 = 7$
Counting back	Move objects away from the group, counting backwards. Move the beads along the bead string as you count backwards.	Count back in ones using a number line. $5 - 3 = 2$	Put 13 in your head, count back 4. What number are you at?
Find the Difference	Compare objects and amounts 7 'Seven is 3 more than four' 4 'I am 2 years older than my sister' 5 Pencils 3 Erasers ? Lay objects to represent bar model.	Count on using a number line to find the difference. +6	Hannah has12 sweets and her sister has 5. How many more does Hannah have than her sister.?

Objective & Strategy	Concrete	Pictorial	Abstract
Represent and use number bonds and related subtraction facts within 20 Part Part Whole model	Link to addition. Use PPW model to model the inverse. If 10 is the whole and 6 is one of the arts, what s the other part? 10—6 = 4	Use pictorial representations to show the part.	Move to using numbers within the part whole model. 12 — 5, 7
Make 10	**14—9** Make 14 on the ten frame. Take 4 away to make ten, then take one more away so that you have taken 5.	**13—7** $13 - 7 = \boxed{6}$ Jump back 3 first, then another 4. Use ten as the stopping point.	**16—8** How many do we take off first to get to 10? How many left to take off?
Bar model	5—2 = 3		8, 2 10 = 8 + 2 10 = 2 + 8 10—2 = 8 10—8 = 2

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 =	20—4 = 16
Partitioning to subtract without regrouping. *'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.	 'counting on' to find 'difference' Use a number line to count on to next ten and then the rest.	93—76 = 17

Y2 SUBTRACTION

Objective & Strategy	Concrete	Pictorial	Abstract
Column subtraction without regrouping (friendly numbers)	$47-32$ Use base 10 or Numicon to model	Darw representations to support understanding	$47-24=23$ $\begin{array}{r} 40+7 \\ -\ 20+4 \\ \hline 20+3 \end{array}$ Intermediate step may be needed to lead to clear subtraction understanding.
Column subtraction with regrouping	Tens Units Begin with base 10 or Numicon. Move to pv counters, modelling the exchange of a ten into tten ones. Use the phrase 'take and make' for exchange.	$\begin{array}{r} 45 \\ -29 \\ \hline 16 \end{array}$ Tens | Ones $10 + 6 = 16$ Children may draw base ten or PV counters and cross off.	$836-254=582$ Begin by partitioning into pv columns $728-582=146$ Then move to formal method.

Y3 SUBTRACTION .