Brandesburton Primary School Calculation Policy
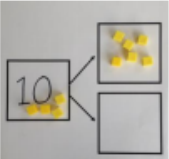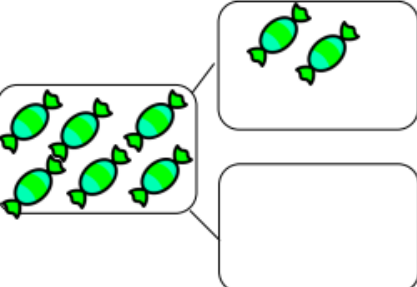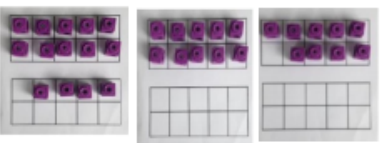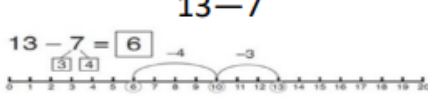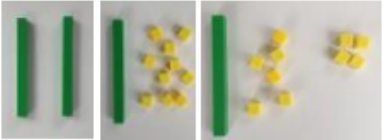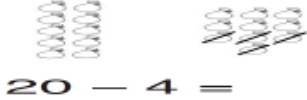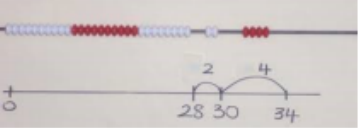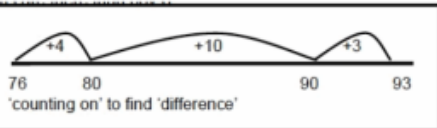
Objective & Strategy	Concrete	Pictorial	Abstract
Taking away ones.	Use physical objects, counters, cubes etc to show how objects can be taken away. $6-4 = 2$ $4-2 = 2$	$15 - 3 = \boxed{12}$ Cross out drawn objects to show what has been taken away.	$7-4 = 3$ $16-9 = 7$
Counting back	Move objects away from the group, counting backwards. Move the beads along the bead string as you count backwards.	-1 -1 -1 $5 - 3 = 2$ Count back in ones using a number line.	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. $+6$ 0 1 2 3 4 5 6 7 8 9 10 11 12	Hannah has12 sweets and her sister has 5. How many more does Hannah have than her sister.?
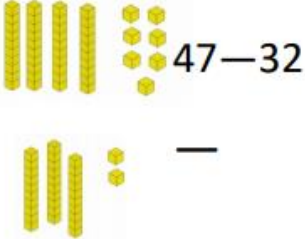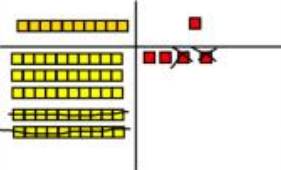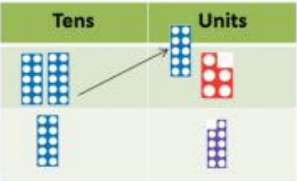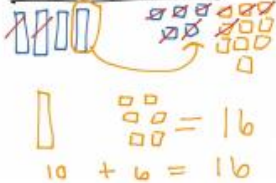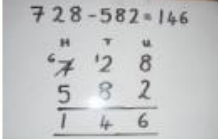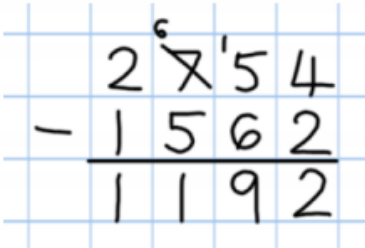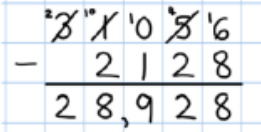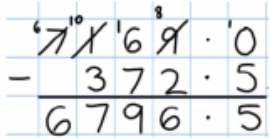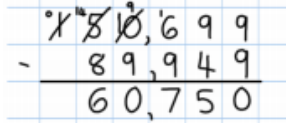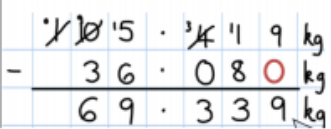
Objective & Strategy	Concrete	Pictorial	Abstract
Represent and use number bonds and related subtraction facts within 20 Part Part Whole model	Link to addition. Use PPW model to model the inverse. If 10 is the whole and 6 is one of the arts, what s the other part? 10—6 = 4	Use pictorial representations 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 $13 - 7 = 6$ 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

Y1 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'	$20 - 4 =$	$20 - 4 = 16$
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.	$76 \quad 80 \qquad 90 \quad 93$ '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	Calculations $$\begin{array}{r}54\\-22\\\hline 32\end{array}$$ 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. $$\begin{array}{r}32\\-12\\\hline 20\end{array}$$
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.	$836-254=582$ $$\begin{array}{cccc} & H & T & U\\ & 800 & 130 & 6\\- & 200 & 50 & 4\\\hline & 500 & 80 & 2\end{array}$$ Begin by partitioning into pv columns $728-582=146$ $$\begin{array}{cccc} & H & T & U\\ & 7 & 2 & 8\\ & 5 & 8 & 2\\\hline & 1 & 4 & 6\end{array}$$ Then move to formal method.

Y3 SUBTRACTION -

Objective & Strategy	Concrete	Pictorial	Abstract
Subtracting tens and ones Year 4 subtract with up to 4 digits. *Introduce decimal subtraction through context of money*	234 - 179 Model process of exchange using Numicon, base ten and then move to PV counters.	Children to draw pv counters and show their exchange—see Y3	 Use the phrase 'take and make' for exchange
Year 5- Subtract with at least 4 digits, including money and measures. *Subtract with decimal values, including mixtures of integers and decimals and aligning the decimal*	As Year 4	Children to draw pv counters and show their exchange—see Y3	$$31,056 - 2,128 = 28,928$$ Use zeros for placeholders. $$7169.0 - 372.5 = 6796.5$$
Year 6—Subtract with increasingly large and more complex numbers and decimal values.			$$150,699 - 89,949 = 60,750$$ $$105.419 \text{ kg} - 36.080 \text{ kg} = 69.339 \text{ kg}$$

Y4-6 SUBTRACTION.