



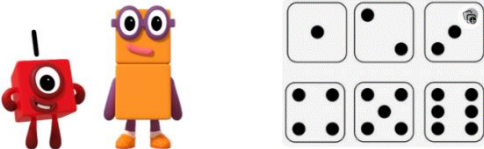
EQUA Mead
Learning Trust
Every Child, Every Chance

SOUTHWICK CE PRIMARY SCHOOL

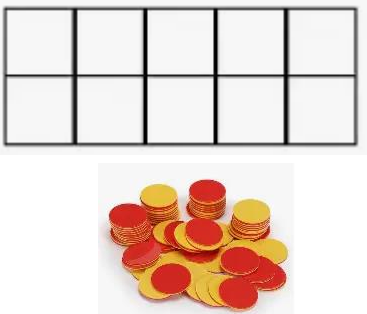
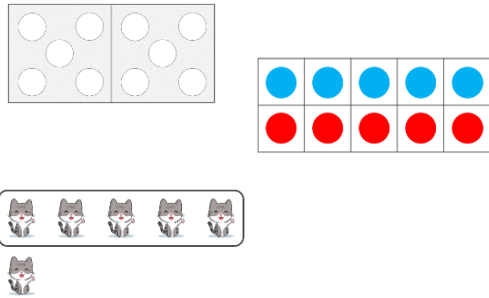
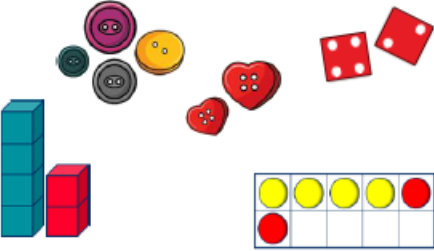
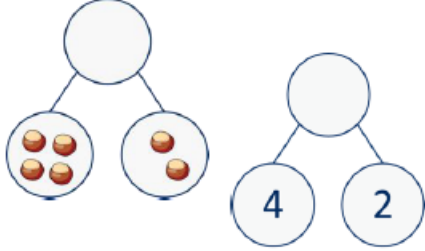
Love, Learn, Grow

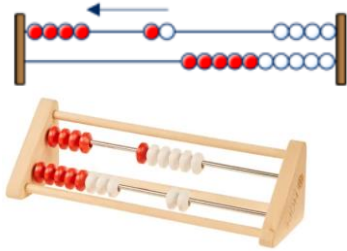
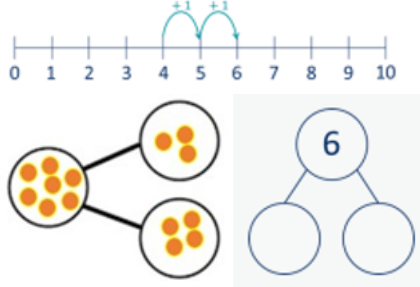
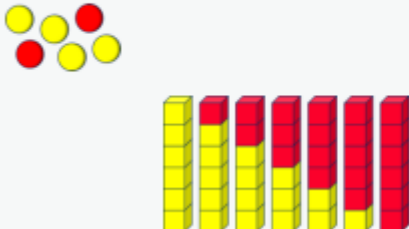
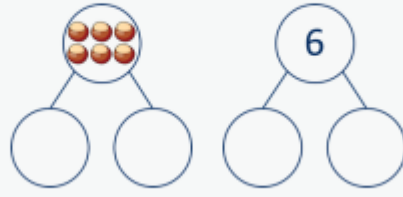
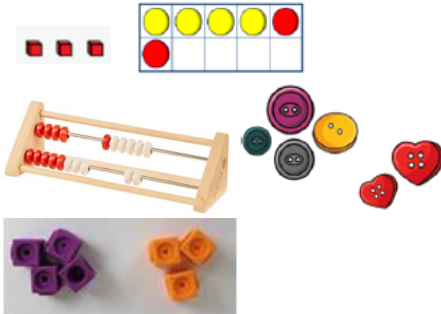
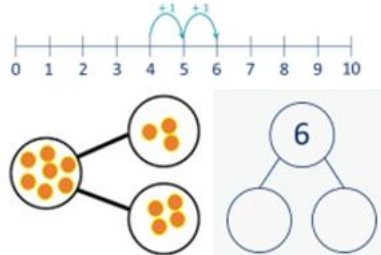
"Do everything in love." 1 Corinthians 16:14

Progression Through Calculation: Addition

Reception	Reception Progression of Skills	Reception - Have a deep understanding of numbers to 10, including the composition of each number. - Subitise (recognise quantities without counting) up to 5 - Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 and some number bonds to 10, including double facts.		
	Subitising Subitising within 3 Subitise objects and sounds Subitise within 5 focusing on die patterns Match numerals to quantities within 5 Subitising – to 6, including in structured arrangements	Key Representations What do you see? How do you see it? 		
		Concrete 	Pictorial 	Abstract 1 2 3 4 5 6 7 8 9 10 (relate numerals to amount of objects)
	Composition Explore how all numbers are made of 1s Focus on composition of 3 and 4 Explore the concept of 'whole' and 'part'	Key Representations 1 and another 1 is 2. 1 and 1 and 1 makes 3. is a part and is a part. The whole is.... and.....make 5 altogether 5 is made from 4 and 1 5 is made from 3 and 2 has more than.....:.....has fewer than..... 7 is made of 5 and 2.		

Focus on the composition of 3,4,5 Focus on 5 Focus on 6 and 7 as '5 and a bit' Compare sets and use language of comparison: more than Focus on 7 Doubles – explore how some numbers can be made with 2 equal parts Composition – '5 and a bit' Composition – of 10	This is a double because (1) is a part and (1) is a part is made of and.....:.....and.....make.....		
	Concrete 	Pictorial 	Abstract

			
Year 1 Progression of Skills	Year 1 • Read, write and interpret mathematical statements involving addition (+) and equals (=) signs. • Represent and use number bonds within 20 • Add 1-digit and 2-digit numbers to 20, including zero. • Solve one-step problems that involve addition, using concrete objects and pictorial representations, and missing number problems such as $7 = _ + 2$		
Add together (aggregation) 2 quantities are combined to find the total.	Key Representations There are ... There are ... There are ... altogether. 	... is a part. ... is a part. ... is the whole. 	... plus ... is equal to is equal to ... + ... $4 + 2 = 6$ $2 + 4 = 6$ $6 = 4 + 2$ $6 = 2 + 4$
	Concrete	Pictorial	Abstract $4 + 1 =$ $3 + 6 =$

	 add more equals		
Bonds within 10 Include bonds for each number within 10 Encourage children to notice patterns.	Key Representations ... is made of ... and and ... make ... 	... can be partitioned into ... and ... 	... plus ... is equal to ... $6 + 0 = 6$ $5 + 1 = 6$ $4 + 2 = 6$ $3 + 3 = 6$ $2 + 4 = 6$ $1 + 5 = 6$ $0 + 6 = 6$
	Concrete 	Pictorial 	Abstract $4 + \underline{\hspace{1cm}} = 10$ $\underline{\hspace{1cm}} + \underline{\hspace{1cm}} = 5 \text{ (how many ways can you find?)}$ $7 + \underline{\hspace{1cm}} + 3$

10 is made of ____ and _____. ____ and ____ make 10.

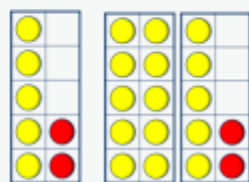
10 can be split into ____ and _____.
____ and ____ combine to make 10.

Related facts within 20, 50 and 100

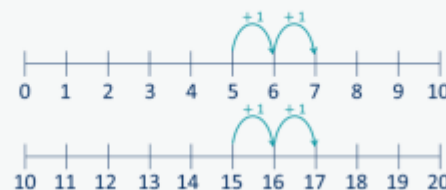
Make links to known facts.

Key Representations

I know that ... and ... = ...
so ... and ... = ...



... more than ... is ...
so ... more than ... is ...



What patterns do you notice?

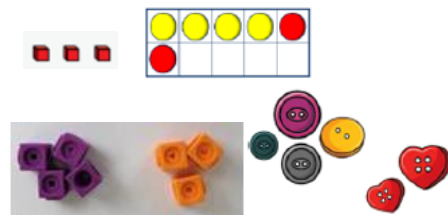
$$5 + 2 = 7$$

$$15 + 2 = 17$$

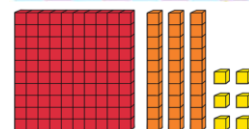
$$7 = 5 + 2$$

$$17 = 15 + 2$$

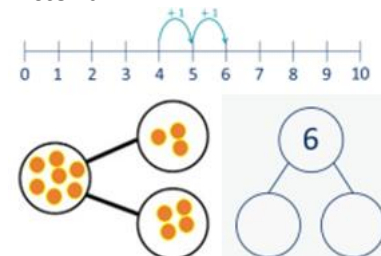
Concrete



1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50



Pictorial



Abstract

____ + ____ = 13 (How many ways can you find?)

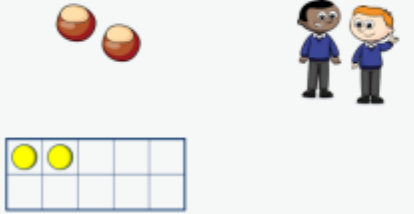
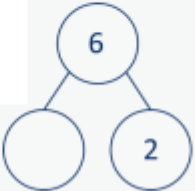
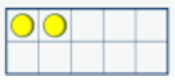
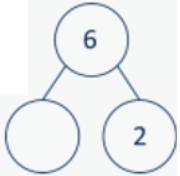
$$4 + 3 = \underline{\quad}$$

$$14 + 3 = \underline{\quad}$$

$$13 + 4 = \underline{\quad}$$

$$1 + 19 = \underline{\quad}$$

$$2 + 15 = \underline{\quad}$$

		___ made of ___ and _____. ___ and _____ make ____. ___ can be split into _____ and _____. _____ and _____ combine to make _____.		
	Missing numbers Make links to known facts.	Key Representations How many more do you need to make ...?  If ... is the whole and ... is a part, the other part must be...  ... plus ... is equal to ... $2 + \square = 6$ $6 = 2 + \square$ 		
	Year 2 Progression of Skills	Concrete  ___ can be split into ___ and _____. ___ and _____ combine to make _____. What does ___ need to make _____? Pictorial  Abstract $2 + \underline{\hspace{1cm}} = 9$ $\underline{\hspace{1cm}} + \underline{\hspace{1cm}} = 14$ (How many ways can you find?) $\underline{\hspace{1cm}} + 5 = 7$		
		Year 2 - Recall and use addition facts to 20 fluently, and derive and use related facts up to 100 - Add numbers using concrete objects, pictorial representations, and mentally, including: - a two-digit number and 1s - a two-digit number and 10s 2 two-digit numbers - adding 3 one-digit numbers		

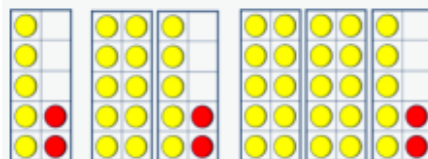
- Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.

Add ones to any number (related facts)

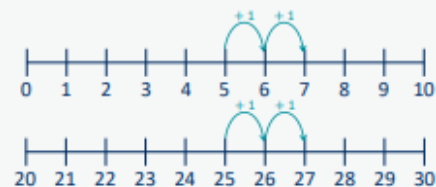
Make links to known facts.

Key Representations

I know that ... and ... = ...
so ... and ... = ...



... more than ... is ...
so ... more than ... is ...



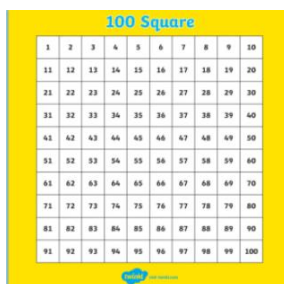
What do you notice?
Can you continue the pattern?

$$5 + 2 = 7$$

$$15 + 2 = 17$$

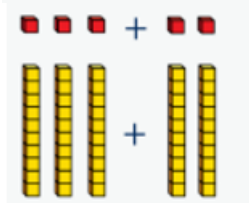
$$25 + 2 = 27...$$

Concrete

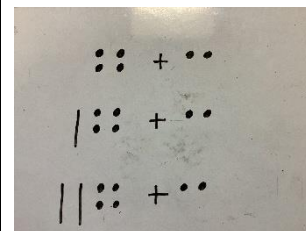


Moving a counter on in 1s

I know that ... and ... = ...
so ... and ... = ...



Pictorial



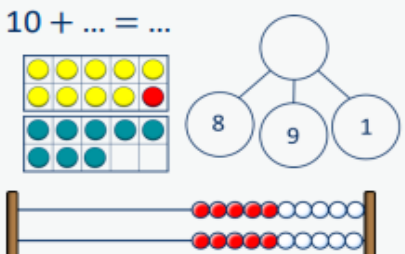
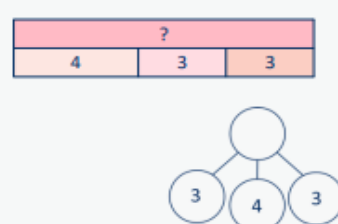
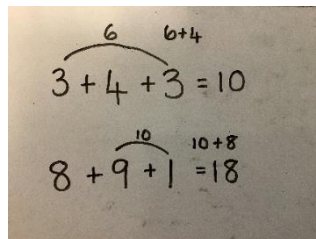
Abstract

What do you notice?
Can you continue the pattern?

$$5 + 2 = 7$$

$$15 + 2 = 17$$

$$25 + 2 = 27...$$

	Add three 1-digit numbers Prompt children to understand that addition can be done in any order and to make links to known facts.	Key Representations ... and ... are a bond to 10 $10 + \dots = \dots$ 	Double ... + ... = ...  What do you notice? Which addition is the easiest to calculate? $8 + 9 + 1 =$ $8 + 1 + 9 =$ $9 + 1 + 8 =$
	Concrete 	Pictorial 	Abstract 
	Add across a 10	Key Representations	

Partition the number being added to make a full ten.

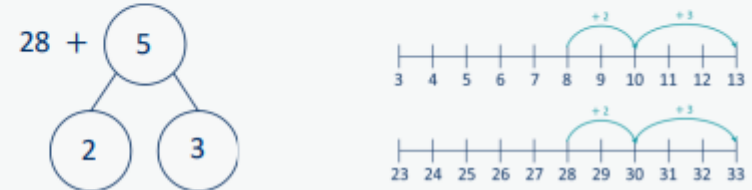
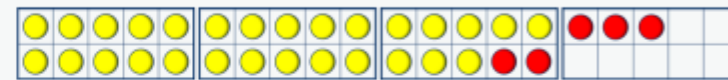
... can be partitioned into ... and ...



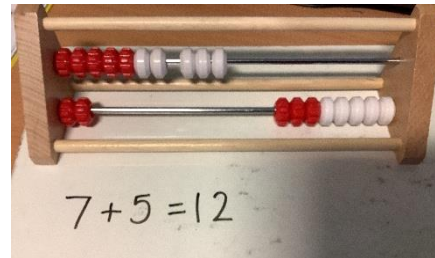
I add ... to get to ... then I add ...

$$8 + 5 = 13$$

$$28 + 5 = 33$$

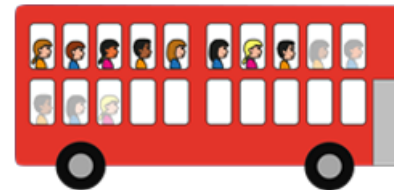


Concrete

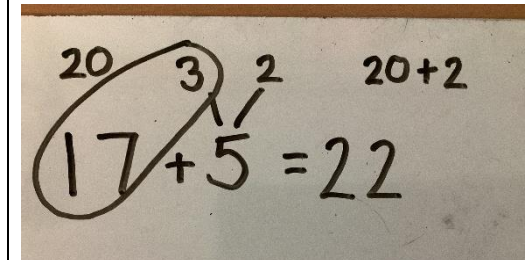


Pictorial

First, there were 8 children on the bus.
Then, 5 more children got on.



Abstract

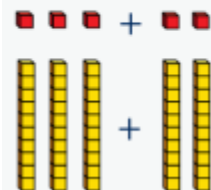


Add multiples of 10

Make links to known facts within ten.

Key Representations

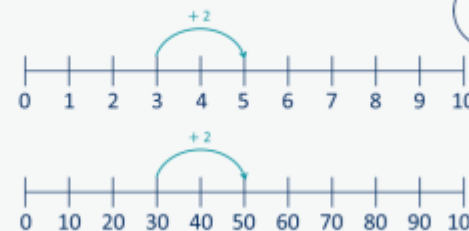
... ones + ... ones = ... ones
so ... tens + ... tens = ... tens



$$3 + 2 = 5$$

$$30 + 20 = 50$$

What is the same?
What is different?

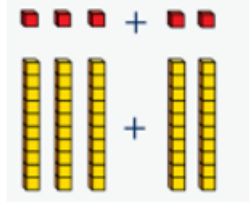
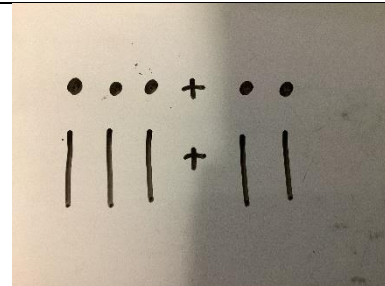
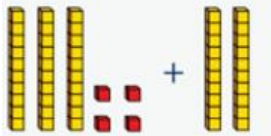
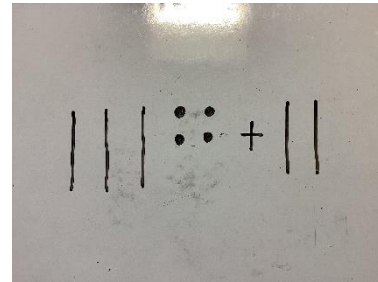


?	?
2	3
?	?
20	30

Concrete

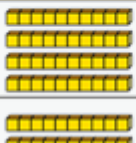
Pictorial

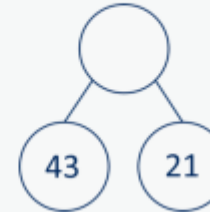
Abstract

			3 + 2 = 5 30 + 20 = 50																																																												
Add 10s to any number Make links to known facts	Key Representations ... tens + ... tens = ... tens ... tens and ... ones = ... 	To add ... I need to add 10 ... times. <table><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr><tr><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td></tr><tr><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td><td>27</td><td>28</td><td>29</td><td>30</td></tr><tr><td>31</td><td>32</td><td>33</td><td>34</td><td>35</td><td>36</td><td>37</td><td>38</td><td>39</td><td>40</td></tr><tr><td>41</td><td>42</td><td>43</td><td>44</td><td>45</td><td>46</td><td>47</td><td>48</td><td>49</td><td>50</td></tr><tr><td>51</td><td>52</td><td>53</td><td>54</td><td>55</td><td>56</td><td>57</td><td>58</td><td>59</td><td>60</td></tr></table>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	I know that ... and ... = ... so ... and ... = ... 30 + 20 = 50 34 + 20 = 54
1	2	3	4	5	6	7	8	9	10																																																						
11	12	13	14	15	16	17	18	19	20																																																						
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41	42	43	44	45	46	47	48	49	50																																																						
51	52	53	54	55	56	57	58	59	60																																																						
	Concrete ... tens + ... tens = ... tens ... tens and ... ones = ... 	Pictorial 	Abstract 3 + 2 = 5 so 30 + 20 = 50 I know that ... and ... = ... so ... and ... = ... 30 + 20 = 50 34 + 20 = 54																																																												
Add 2-digit numbers (not across a ten)	Key Representations																																																														

Lining up ones and tens in columns will support with later written methods.

... ones + ... ones = ... ones
... tens + ... tens = ... tens

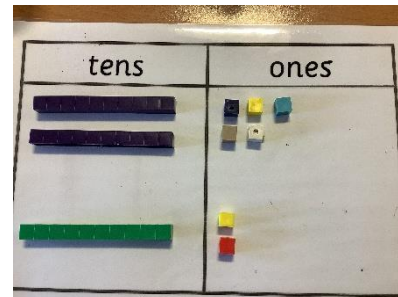
Tens	Ones
	
	



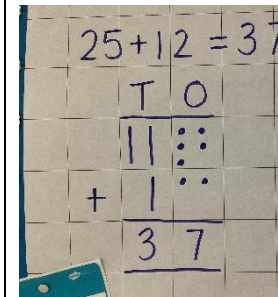
3 ones + 1 one = 4 ones
4 tens + 2 tens = 6 tens
6 tens + 4 ones = 64

?	
43	21

Concrete



Pictorial



Abstract

$$25 + 12 =$$

$$5 + 2 = 7$$

$$20 + 10 = 30$$

$$30 + 7 = 37$$

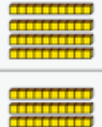
Add 2-digit numbers
(across a ten)

Begin to exchange 10
ones for 1 ten.

Key Representations

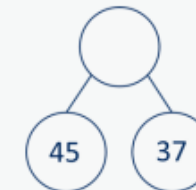
There are ones, so I do/do not need to make an exchange.

... ones = ... ten and ... ones

T	O		T	O
		→		
				

75

?	
45	37

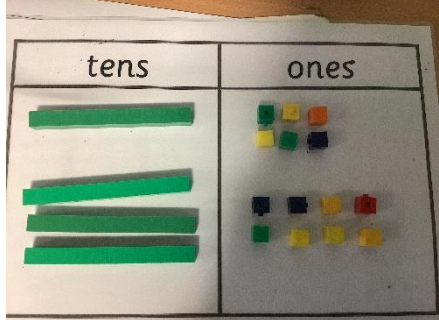
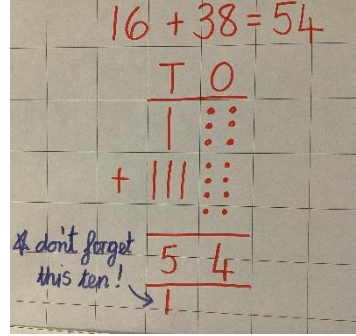
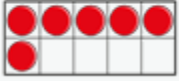
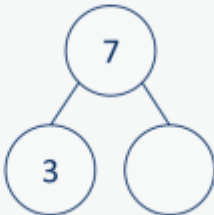
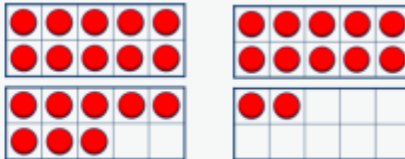
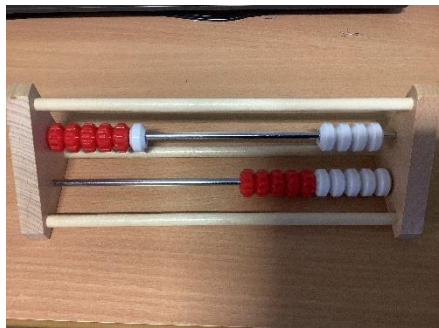
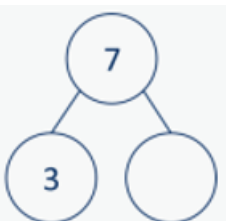


5 ones + 7 ones = 12 ones
12 ones = 1 ten and 2 ones
4 tens + 3 tens + 1 ten = 8 tens
8 tens and 2 ones = 82

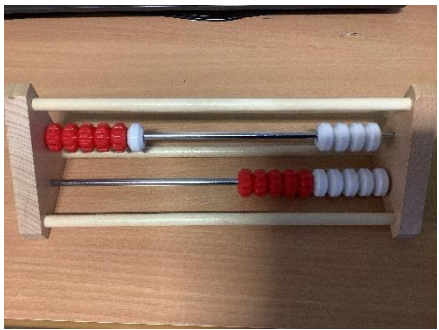
Concrete

Pictorial

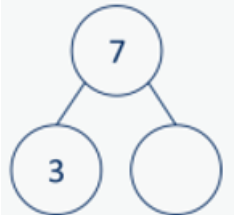
Abstract

			$16 + 38 =$ $6 + 8 = 14$ $14 = 10 + 4$ $10 + 30 + 10 = 50$ $50 + 4 = 54$
Missing numbers Solve missing number problems and use the inverse to check.	Key Representations How many more do you need to make ...?  $6 + \square = 10$ $10 - \square = 6$	If ... is a whole and ... is a part, then ... is the other part. $\square + 3 = 7$ $7 - 3 = \square$ 	... can be partitioned into ... and ... $10 + 8 = 12 + \square$ 
	Concrete 	Pictorial  3 need 4 to make 7	Abstract $3 + \underline{\quad} = 7$
Year 3	Year 3		

Concrete



Pictorial



3 need 4 to make 7

Abstract

 $3 + \underline{\quad} = 7$

Progression of Skills

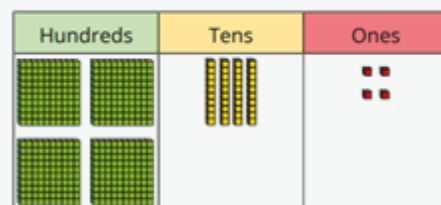
- Add numbers mentally, including: a three-digit number and ones, a three-digit number and tens, a three-digit number and hundreds.
- Add numbers with up to three digits, using formal written methods of columnar addition.
- Add fractions with the same denominator within 1 whole.
- Calculate the time taken by particular events or tasks.

Add 1s, 10s or 100s to a 3-digit number

Emphasis on mental strategies including number bonds and related facts. Prompt children to notice which digit changes

Key Representations

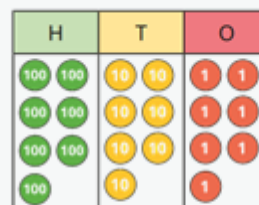
The ones/tens/hundreds column will increase by ...



$$444 + 5 =$$

$$444 + 50 =$$

$$444 + 500 =$$



$$777 + 2 =$$

$$777 + 20 =$$

$$777 + 200 =$$

What patterns do you notice?

$$235 + 3 =$$

$$235 + 30 =$$

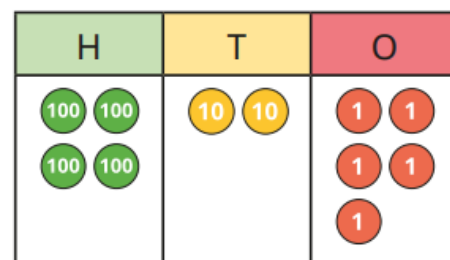
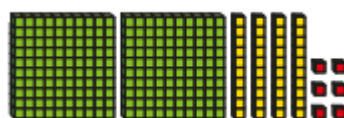
$$235 + 300 =$$

$$111 + \boxed{} = 118$$

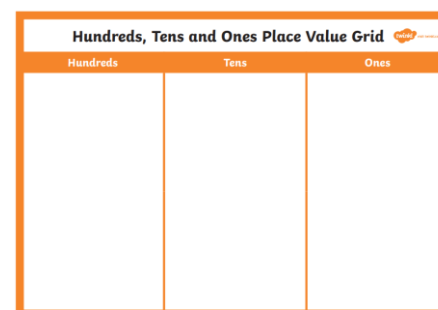
$$111 + \boxed{} = 181$$

$$111 + \boxed{} = 811$$

Concrete



Pictorial



Abstract

100 less	10 less	1 less	Number	1 more	10 more	100 more
			473			
						398
	890					

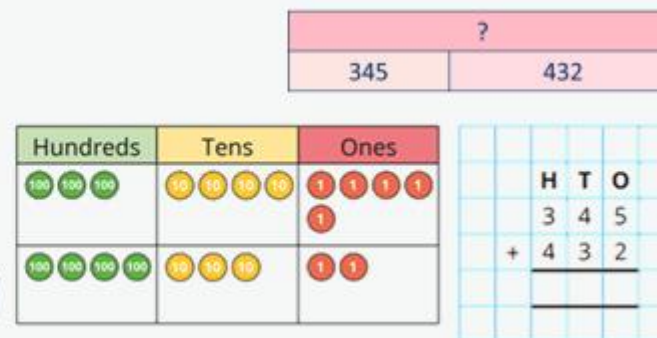
Add two numbers

Key Representations

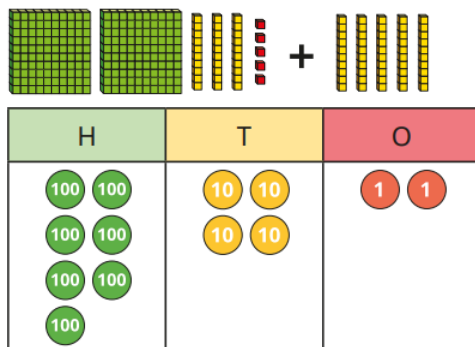
(no exchange)

Mental strategies and introduction of formal written method.

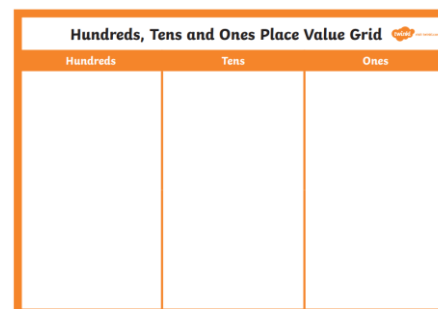
... ones + ... ones = ... ones
 ... tens + ... tens = ... tens
 ... hundreds + ... hundreds = ... hundreds



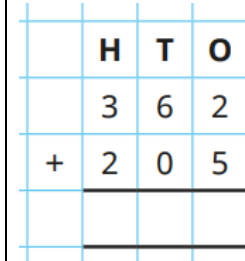
Concrete



Pictorial



Abstract

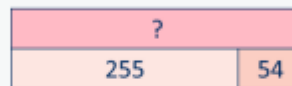
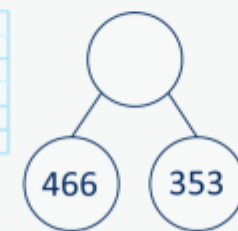


Key Representations

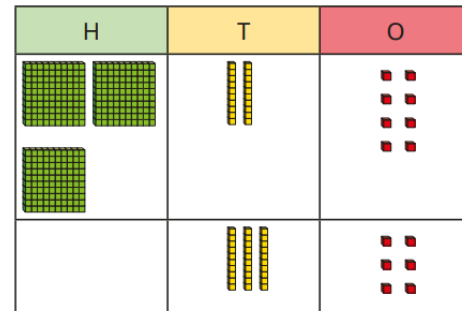
Add two numbers across a 10 or 100

Formal written method involving up to 2 exchanges including 3-digit plus 2-digit numbers.

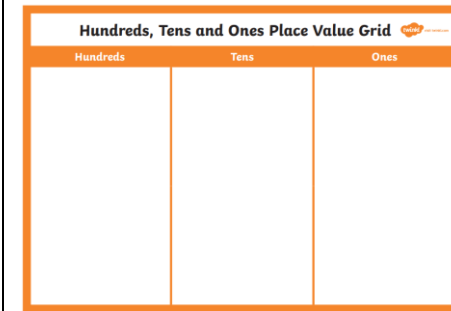
There are ... ones, so I do/do not need to make an exchange.
 There are ... tens, so I do/do not need to make an exchange.
 ... ones = ... ten and ... ones.
 ... tens = ... hundred and ... tens.



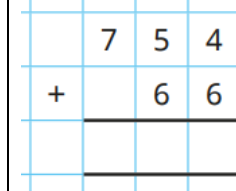
Concrete



Pictorial



Abstract



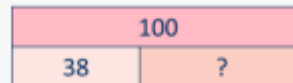
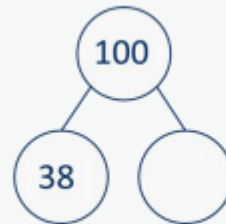
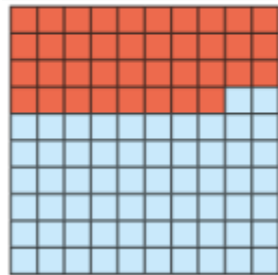
H	T	O
100 100	10 10	1 1
100 100	10 10	
100	10 10	
	10	
	10 10	1 1
	10 10	1 1
		1

Complements to 100

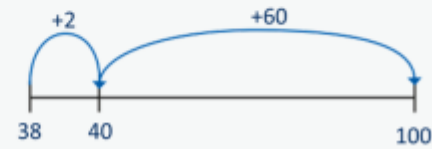
Pairs of numbers which total 100

Key Representations

... plus ... is equal to 100



I add ... to get to the next 10, then ... to get to 100



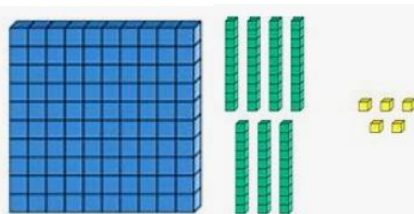
$$38 + 62 = 100$$

$$62 + 38 = 100$$

$$100 = 38 + 62$$

$$100 = 62 + 38$$

Concrete



Pictorial

Abstract

Tick the cards that do **not** show complements to 100

$86 + 16$

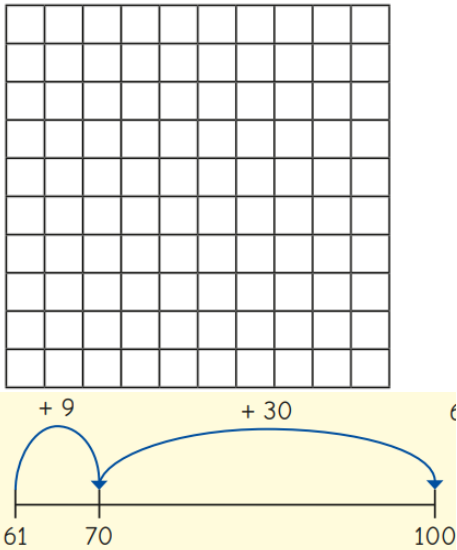
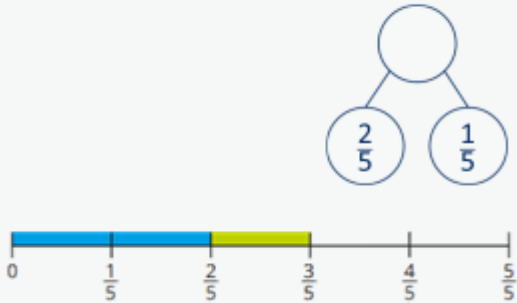
$23 + 77$

$47 + 43$

$91 + 9$

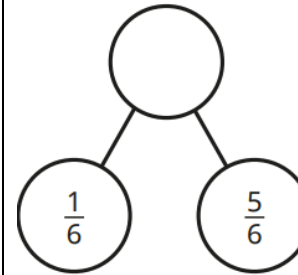
$55 + 55$

$18 + 92$

			
Add fractions with the same denominator within 1 whole Make links with known facts.	When adding fractions with the same denominator, I only add the numerator. ... fifths + ... fifths = ... fifths  $\frac{1}{5} + \frac{1}{5}$  $\frac{1}{5} + \frac{2}{5}$  $\frac{1}{5} + \frac{3}{5}$ Key Representations 		
	Concrete	Pictorial  $\frac{3}{4} + \frac{3}{4} =$	Abstract $\frac{5}{8} + \frac{3}{8} =$



The number line shows $\frac{2}{5} + \frac{1}{5} = \frac{3}{5}$



Calculate the duration of events

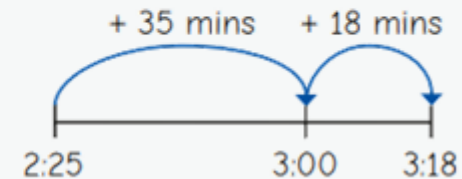
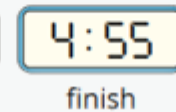
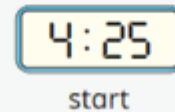
Find durations of time between a given start and end point.
Children will need to calculate complements to 60

Key Representations

From ... to ... o'clock is ... minutes.

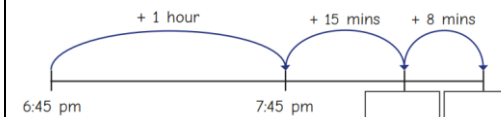
From ... o'clock to ... is ... minutes.

The total time taken is ... minutes.



Concrete

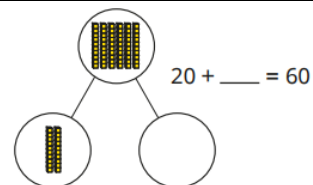
Pictorial



Abstract

It takes Mr Smith 1 hour and 11 minutes to drive to work.
He arrives at work at 7:10 am.
What time did he set off?

											
Year 4 Progression of Skills	Year 4 • Add numbers with up to 4 digits using a formal written method. • Solve simple measure and money problems involving fractions and decimals to 2 decimal places. • Add fractions with the same denominator.										
Add 1s, 10s and 100s to a 4-digit number Emphasis on mental strategies including number bonds and related facts. Prompt children to notice which digit changes.	Key Representations The ones/tens/hundreds/thousands column will increase by ... <table><tr><th>Thousands</th><th>Hundreds</th><th>Tens</th><th>Ones</th></tr><tr><td> 1,000 1,000 1,000 </td><td> 100 100 100 100 </td><td> 10 10 </td><td> 1 1 1 1 1 </td></tr></table> 3,425 + 3 = 3,425 + 30 = 3,425 + 300 = 3,425 + 3,000 = What patterns do you notice? 2,350 + 3 = 2,350 + 30 = 2,350 + 300 = 2,350 + 3,000 = 6,040 + 200 = 6,040 + 500 = 6,040 + 900 = 2,211 + = 2,251 2,211 + = 2,215 2,211 + = 2,511			Thousands	Hundreds	Tens	Ones	1,000 1,000 1,000	100 100 100 100	10 10	1 1 1 1 1
Thousands	Hundreds	Tens	Ones								
1,000 1,000 1,000	100 100 100 100	10 10	1 1 1 1 1								
	Concrete	Pictorial	Abstract								



- $1,364 + 3 = \underline{\hspace{2cm}}$
- $1,364 + 30 = \underline{\hspace{2cm}}$
- $1,364 + 300 = \underline{\hspace{2cm}}$

Add up to two 4-digit numbers

Formal written method with up to 3 exchanges. Encourage children to estimate and use inverse operations to check answers to calculations.

Key Representations

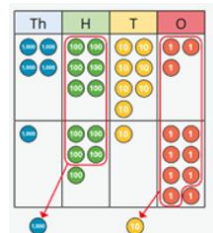
There are ... ones/tens/hundreds so I do/do not need to make an exchange.

I can exchange 10 ... for 1 ...

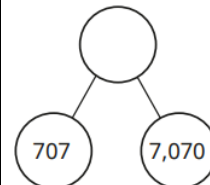


	Th	H	T	O
	4	6	7	3
+	1	5	1	8
	6	1	9	1
	1		1	

Concrete



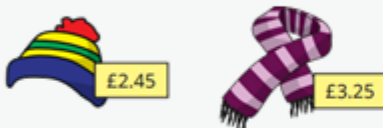
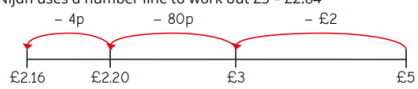
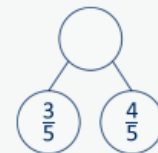
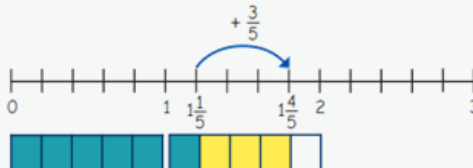
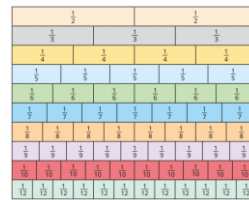
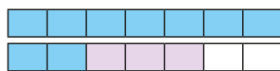
Pictorial

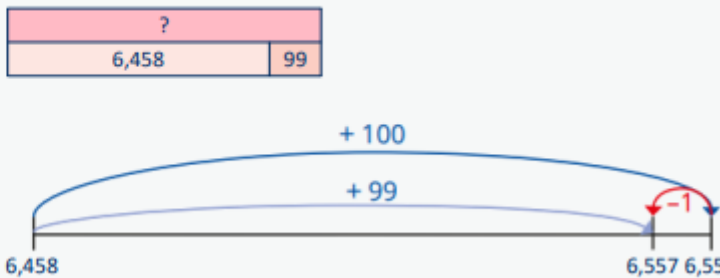
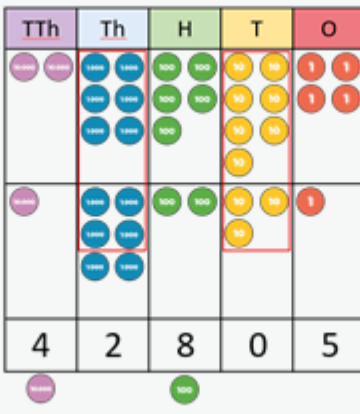
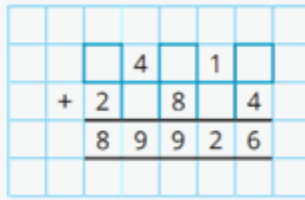


Abstract

	Th	H	T	O
	4	6	7	3
+	1	5	1	8
	6	1	9	1
	1		1	

Key Representations

Add decimal numbers in the context of money Emphasis on partitioning and use of number lines rather than formal written calculations.	... pence + ... pence = ... pence ... pounds + ... pounds = ... pounds  45p + 25p = 70p £2 + £3 = £5 £5 + 70p = £5.70	£3.25 can be partitioned into £3 + 20p + 5p 	
	Concrete Huan pays for a bag with £7. He gets this change. How much does the bag cost? 	Pictorial Nijah uses a number line to work out £5 - £2.84  £5 - £2.84 = £2.16	Abstract Work out the calculations. ▶ £20 × 3 = £<u> </u> ▶ 40p × 4 = <u> </u>p ▶ 5p × 12 = <u> </u>p ▶ 80p ÷ 2 = <u> </u>p ▶ 40p ÷ 4 = <u> </u>p ▶ £1 ÷ 5 = <u> </u>p
Add fractions and mixed numbers with the same denominator beyond 1 whole	Key Representations When adding fractions with the same denominator, I only add the numerator. ... fifths + ... fifths = ... fifths  		
	Concrete 	Pictorial Tommy uses a bar model to work out this addition.  1 2/7 + 3/7 = 1 5/7	Abstract Use your preferred method to work out the additions. 1 7/9 + 8/9 3/9 + 1 8/9 2 4/5 + 3/5 6/10 + 7 7/10

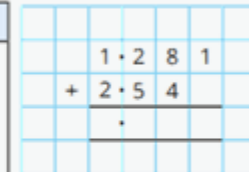
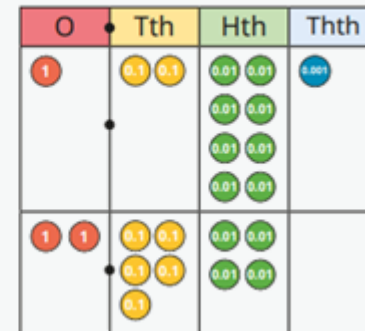
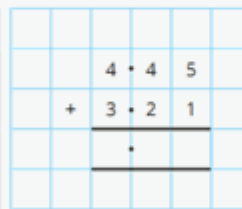
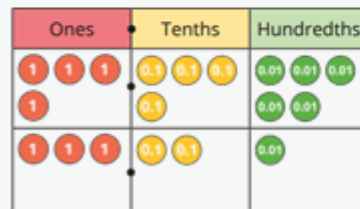
Year 5 Progression of Skills	Year 5 • Add whole numbers with more than 4 digits, including using formal written methods. • Add numbers mentally with increasingly large numbers. • Add decimals, including a mix of whole numbers and decimals, decimals with different numbers of decimal places, and complements of 1 • Add fractions with the same denominator, and denominators that are multiples of the same number.		
Add using mental strategies Add 1s, 10s, 100s, etc. to any number. Use number bonds and related facts.	Key Representations  $48,650 + 300 =$ $48,650 + 30,000 =$ $48,650 + 30 =$ To add ..., I can add ... then subtract ...  Concrete Pictorial Abstract		
Add whole numbers with more than 4 digits Encourage children to estimate and use inverse operations to check answers to calculations.	Key Representations I can exchange 10 ... for 1 ...    Concrete Pictorial Abstract		

Add decimals with up to 2 decimal places

Progress from the same number of decimal places to a different number of decimal places, and from no exchange to exchange.

Key Representations

I do/do not need to make an exchange because ...
I can exchange 10 ... for 1 ...



Concrete

Pictorial

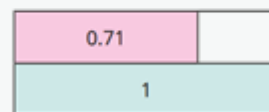
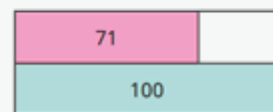
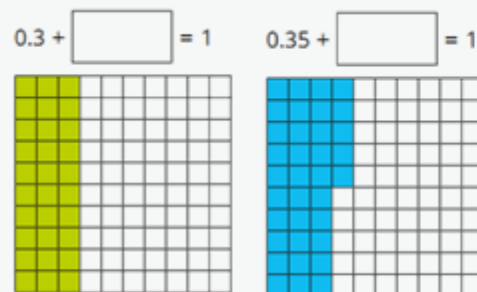
Abstract

Complements to 1

Pairs of numbers with up to 3 decimal places which total 1

Encourage children to make links with bonds to 10 and complements to 100 and 1,000

Key Representations



$$4 + 6 = 10$$

$$44 + 56 = 100$$

$$444 + 556 = 1,000$$

$$0.4 + 0.6 = 1$$

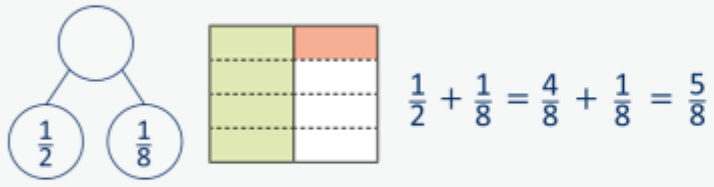
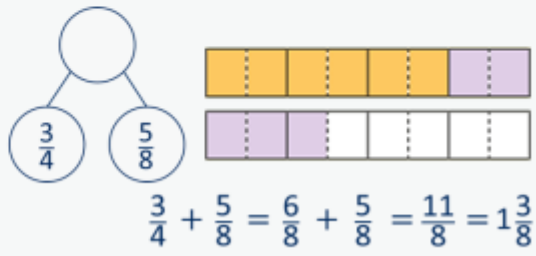
$$0.44 + 0.56 = 1$$

$$0.444 + 0.556 = 1$$

Concrete

Pictorial

Abstract

Add fractions with denominators that are a multiple of one another Encourage children to convert fractions to the same denominator before adding. Progress from adding fractions within 1 whole to adding fractions beyond 1 whole.	Key Representations The denominator has been multiplied by ..., so the numerator needs to be multiplied by... for the fractions to be equivalent.  		
	Concrete	Pictorial	Abstract
Year 6 Progression of Skills	Year 6 • Add larger numbers, using the formal written method of columnar addition. • Use their knowledge of the order of operations to carry out calculations involving the 4 operations. • Calculate intervals across zero. • Add fractions with different denominators and mixed numbers, using the concept of equivalent fractions. Key Representations		

Add integers up to 10 million

Encourage children to estimate and use inverse operations to check answers to calculations.

		3	4	6	2	2	1	
	+	1	8	4	3	2	1	
		5	3	0	5	4	2	
		1	1					

?		
2,354	750	1,500

		8	1		8	5	
	+			0	6		
		9	9	5		8	

Concrete



Pictorial

?				
346,221			184,321	
TTh	Th	H	T	O
3	4	6	2	2
1	8	4	3	2
5	3	0	5	4
1	1			
8	1	9		8

Abstract

$$734,836 + 37,473 =$$

$$\underline{\quad\quad\quad} - 74,382 = 832,495$$

	4			4	7	
+		3	6	8		
	8	1	9		8	

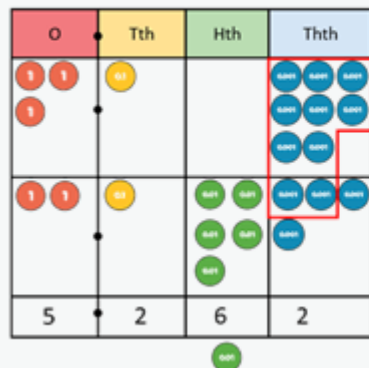
Key Representations

Add decimals with up to 3 decimal places

Progress to numbers with digits in different place value columns.

Encourage children to check that they have lined up the columns correctly

I do/do not need to make an exchange because ...



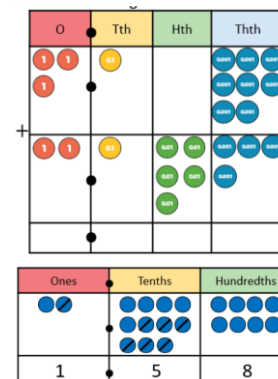
		3	1	0	8
	+	2	1	5	4
		5	2	6	2
				1	

		1	5	0	2
	+		9	5	8
		2	4	6	0
		1	1		

Concrete



Pictorial



Abstract

	O	Tth	Hth	Thth
	3	1	0	8
+	2	1	5	4
	5	2	6	2
				1

$$67.3 - 32.8$$

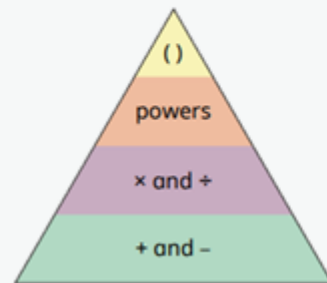
$$+ 75.2 = 92.38$$

Order of operations

Key Representations

Calculations in brackets should be done first.
 Multiplication and division should be performed before addition and subtraction. *When no brackets are shown and the operations have the same priority, work left to right.

... has greater priority than ..., so the first part of the calculation I need to do is ...



$$(3 + 4) \times 2 = 14$$



$$3 + 4 \times 2 = 11$$

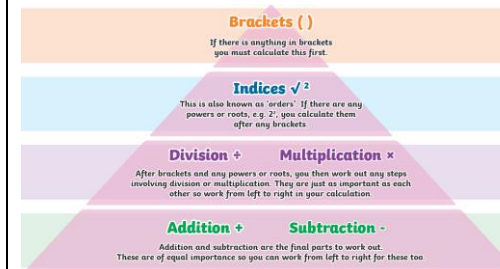


$$3 \times 4 + 2 = 14$$

Concrete



Pictorial



Abstract

$$6 \times (4 + 5) \times 2$$

$$7 \times (5 + 1)$$

$$(4 + 1) \times 3$$

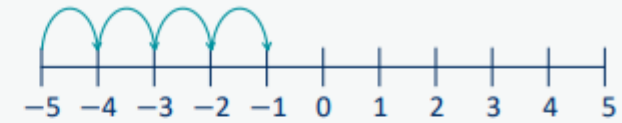
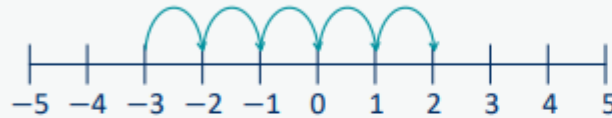
Negative numbers

Key Representations

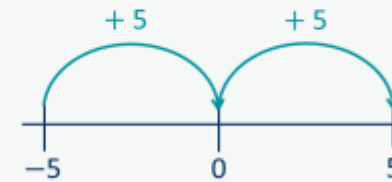
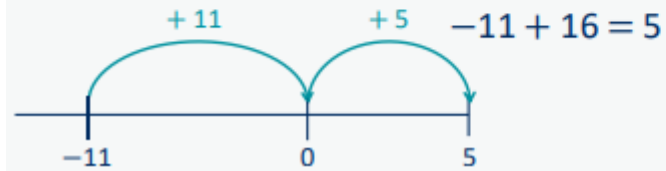
Children add to negative numbers and carry out calculations which cross 0

... plus ... is equal to ...

$$-3 + 5 = 2$$



The difference between -5 and -1 is 4

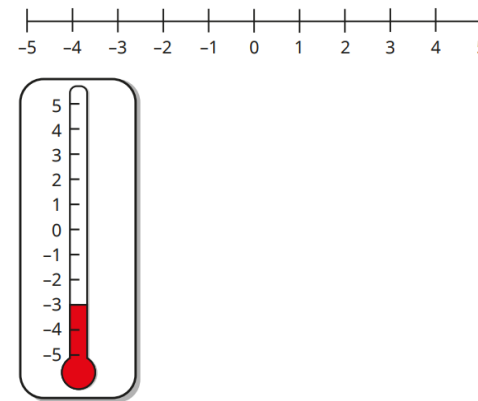


The difference between -5 and 5 is 10

Concrete



Pictorial



Abstract

What is 6 less than 4?

What's the difference between 3 and -3?

$$3 - 8 =$$

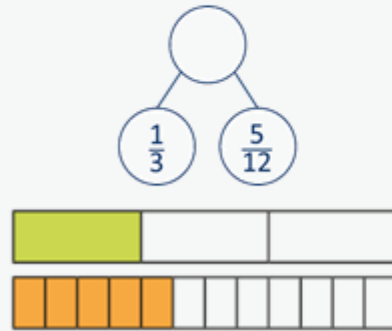
$$-3 + 10 =$$

Add fractions

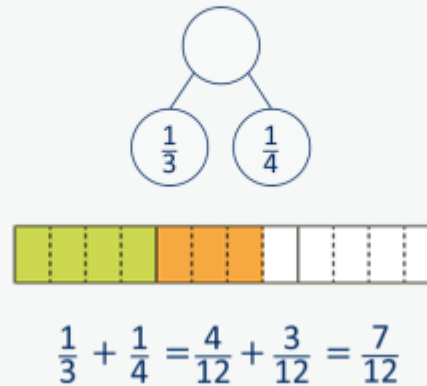
Key Representations

Convert fractions to the same denominator before adding.
Progress from fractions where one denominator is a multiple of the other, to any fractions and then to mixed numbers.

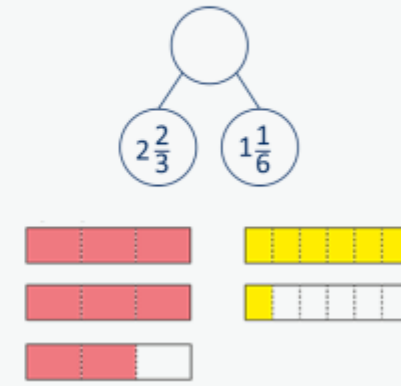
The denominator has been multiplied by ..., so the numerator needs to be multiplied by ...



The lowest common multiple of ... and ... is ...



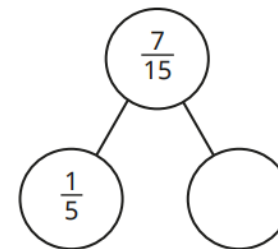
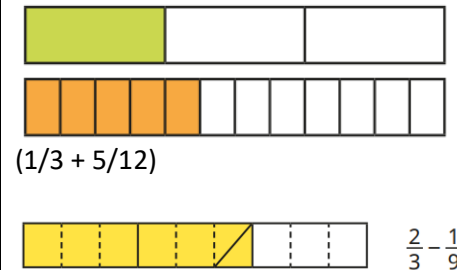
...is made up of ... wholes and ...



Concrete



Pictorial



Abstract

$$\frac{2}{3} - \frac{2}{9}$$

$$\frac{2}{9} + \frac{7}{27}$$

$$\frac{1}{3} - \frac{2}{9}$$

$$\frac{3}{16} + \frac{3}{8} + \frac{1}{4}$$

