Year 2 Maths talks calculation progression

ADDITION

6 + 7 Near doubles 6 x 2 = 12 + 1 = 13 Bridging ten (bonds to 10) 7 + 3 = 10 + 3 = 13

Partitioning 6 = 5 + 1 7 = 5 + 2 5 + 5 = 10 1 + 2 = 3 10 + 3 = 13

Discuss odd and even pattern, e.g. odd + even = odd / use numicon to aid this visually

6 + 9 Adjusting the piles (rounding) 6 + 10 = 16—1 = 15 or

Take 1 from the 6 and add to the 9 so 5 + 10 = 15

Expect similar strategies to be used throughout

60 + 70

6 + 7 + 3 (could link to 60 + 70 + 30 and discuss most efficient order)

36 + 7 Expect strategies to add ones then add tens could use rounding eg 40 + 7 = 47—4 = 43

24 + 32 No renaming strategies to add ten and ones separately (model upstairs downstairs)

37 + 46 Renaming

44 + 58 Expect to see rounding and adjusting the piles.(so much more efficient to take 2 from 44 and give to 58)

SUBTRACTION

9 - 5 counting on - show number line to explain strategy 5 to 9 is jump of 4

Bonds - 9 splits into 5 and 4 so 9 - 5 must be 4

10 - 5 using times tables to subtract

90 - 50 place value knowledge

17 - 9 adjust the piles 17 - 10 = 7 + 1 = 8

Difference the same (add or take same number from each) eg, add 1 to each 18—10 = 8

Bonds 9 = 7 + 2 so 17—7 = 10 10— 2= 8

Counting on

38 - 24 Partitioning - tens and ones 8 - 4 = 4 30 - 20 = 10 so 10 + 4 = 14

Counting on

Adjust the piles take 4 from each so 34 - 20 = 14

43 - 28 Expect similar strategies

Year 2 Maths talks calculation progression

MULTIPLICATION

3 x 5 - 3 lots of 5 or 5 lots of 3—which is the easier times tables?

9 x 5 - build on from counting by doing 10 multiplied by 5 then jumping back a 5. Use the term 'checkpoint'

6 x 4 - split it to 5 x 4 and 1 x 4. Then using their 5x table knowledge and adding the 1 lot of 4 to reach the product

Do 6 x 2 first then double it.

12 x 2 split into 10 x 2 and 2 x 2 then add these.

DIVISION

Halve 14 Link to 7 x 2 14 is 2 lots of 7 partition - halve 10 halve the 4 so 5 + 2 = 7

Halve 48 partition

25/5 counting up in 5's partition 10 = 2 lots of 5 so 20 = 4 lots of 5 + 1 lot = 5 lots

70/5 partition 70 = 50 (10 lots of 5) and 20 (4 lots of 5) 10 + 4 = 14

(for quickest mathematicians Divide by 10 = 7 double it = 14)

27 / 3 rounding and adjust know 30 = 10 lots of 3 so take 1 lots off = 9 lots

Find 1/4 of 24 half a half - use part part whole half the tens = 10 half again = 5

Halve the ones = 2 halve again = 1

Or half 24 = 12 half 12 = 6

Find 1/3 of 12 circles to share

3/4 of 48 circles - share tens then ones

Year 3 Maths Talks Calculation Progression

ADDITION

6 + 7 linked to 60 + 70

Near doubles 6 x 2 = 12 + 1 = 13 Bridging ten (bonds to 10) 7 + 3 = 10 + 3 = 13

Partitioning 6 = 5 + 1 7 = 5 + 2 5 + 5 = 10 1 + 2 = 3 10 + 3 = 13

Discuss odd and even pattern, e.g. odd + even = odd / use numicon to aid this visually

6 + 9 linked to 60 + 90

Adjusting the piles (rounding) 6 + 10 = 16—1 = 15 or

Take 1 from the 6 and add to the 9 so 5 + 10 = 15

6 + 7 + 3 (could link to 60 + 70 + 30 and discuss most efficient order)

6 + 38 expect strategies to add tens and ones , adjust piles, rounding

35 + 27 expect partitioning adding tens and ones separately

306 + 98 expect to add the 6 to 98 then the 300

60 + 240 move to 80 + 350

99 + 453 rounding or adjust the piles move to **356 + 198 -** skill of rounding

SUBTRACTION

80 - 50

17 - 9 move to 36 -7 etc

adjust the piles 17 - 10 = 7 + 1 = 8

Difference the same (add or take same number from each) eg, add 1 to each 18—10 = 8

Bonds 9 = 7 + 2 so 17—7 = 10 10— 2= 8

Counting on

120 - 30 use of 3x times tables (e.g. 12—3 = 9) then PV knowledge

38 - 24 Partitioning - tens and ones 8 - 4 = 4 30 - 20 = 10 so 10 + 4 = 14

Counting on

Adjust the piles take 4 from each so 34 - 20 = 14—discuss rounding skill

43 - 28 Expect similar strategies

100 - 6 Partitioning split the 100 into 90 and 10 take 6 off the 10 = 4 so 90 + 4 = 94

300 - 199 Adjust piles add 1 to both so 301 - 200 = 101 or rounding 300 - 200 = 100 + 1

Year 3 Maths Talks Calculation Progression

MULTIPLICATION

3 x 5 - 3 lots of 5 or 5 lots of 3—which is the easier times tables?

Build to 30 x 5

Build to 31 x 5—partitioning

9 x 4 - build on from counting by doing 10 multiplied by 4 then jumping back a 4. Use the term 'checkpoint'

8 x 6 - 8 lots of three then double it

6 x 4 - split it to 5 x 4 and 1 x 4. Then using their 5x table knowledge and adding the 1 lot of 4 to reach the product.

Use 5 x 4 as another 'checkpoint' then add a four.

Do 6 x 2 first then double it.

16 x 5 - partitioning to 10 x 5 and 6 x 5 then add these.

Do 16 x 10 then halve it using the fact 16 / 2 or half of 16.

Partition to 8 lots of 5 add 8 lots of 5.

19 x 5—round to 20 x 5 then subtract a five

DIVISION

60 / 2 = half it

Use 6 / 2 = 3 then place value knowledge

Halve 68 partitioning

Halve 246 partitioning

18 / 3 = counting up in 3s

Using factors so 3 x 3 then 3 x 3 again.

95 / 5 95 splits into 50 and 45– 50 = 10 lots and 45 = 9 lots

Find 1/5 of 30

Year 4 Maths Talks Calculation Progression

ADDITION

6 + 7 linked to 60 + 70

Near doubles 6 x 2 = 12 + 1 = 13 Bridging ten (bonds to 10) 7 + 3 = 10 + 3 = 13

Partitioning 6 = 5 + 1 7 = 5 + 2 5 + 5 = 10 1 + 2 = 3 10 + 3 = 13

Discuss odd and even pattern, e.g. odd + even = odd / use numicon to aid this visually

6 + 9 linked to 60 + 90

Adjusting the piles (rounding) 6 + 10 = 16—1 = 15 or

Take 1 from the 6 and add to the 9 so 5 + 10 = 15

6 + 7 + 3 (could link to 60 + 70 + 30 and discuss most efficient order)

26 + 20 + 50

35 + 27 expect partitioning adding tens and ones separately

506 + 309

45 + 4064

2435 + 98 take 2 from 2435 and add to 98 - skill of rounding

SUBTRACTION

80 - 50

17 - 9 move to 36 -7 etc

adjust the piles 17 - 10 = 7 + 1 = 8

Difference the same (add or take same number from each) eg, add 1 to each 18—10 = 8

Bonds 9 = 7 + 2 so 17—7 = 10 10— 2= 8

130 - 60

38 - 24 Partitioning - tens and ones 8 - 4 = 4 30 - 20 = 10 so 10 + 4 = 14

Counting on

Adjust the piles take 4 from each so 34 - 20 = 14

43 - 28 Expect similar strategies

100 - 6 move to 300 - 6

*2artitioning split the 100 into 90 and 10 take 6 off the 10 = 4 so 90 + 4 = 94

300 - 199 Adjust piles add 1 to both so 301 - 200 = 101 or rounding 300 - 200 = 100 + 1

Year 4 Maths Talks Calculation Progression

MULTIPLICATION

3 x 5 - 3 lots of 5 or 5 lots of 3—which is the easier times tables?

Build to 30 x 5 and 300 x 5

Build to 31 x 5—partitioning

9 x 4 - build on from counting by doing 10 multiplied by 4 then jumping back a 4. Use the term 'checkpoint'

8 x 6 - 8 lots of three then double it

6 x 4 - split it to 5 x 4 and 1 x 4. Then using their 5x table knowledge and adding the 1 lot of 4 to reach the product.

Use 5 x 4 as another 'checkpoint' then add a four.

Do 6 x 2 first then double it.

60 x 4—use the times table fact 6 x 4 then PV knowledge

Same as 120 x 2 (half one side, double the other)

Build to 45 x 6 and see it as 90 x 3

16 x 5 - partitioning to 10 x 5 and 6 x 5 then add these.

Do 16 x 10 then halve it using the fact 16 / 2 or half of 16.

Partition to 8 lots of 5 add 8 lots of 5.

19 x 5—round to 20 x 5 then subtract a five

3 x 4 x 3—choose the most efficient order, 3 x 3 first or 3 x 4 first?

Build to 6 x 4 x 8 and use factors to solve it

DIVISION

Halve 286 move to 374 (could be separate session)

63 / 7 - use 'checkpoint' idea from multiplying and think 70 / 10 = 7 so 63 is one less jump back on our number stick so it = 9

80 / 4—half it and half it again

Use the fact 8 / 4 then PV knowledge

160 / 2—use the division fact 16 / 2 = 8 then PV knowledge to answer this.

use half 16 as a fact then PV knowledge

42 / 3—chunking...partition to 30 / 10 and 12 / 3 then add these.

Find 1/5 of 45 move to 3/5 of 45 for example

Year 5 Maths Talks Calculation Progression (year 6 to use too):

ADDITION

6 + 7 linked to 60 + 70 and 600 + 700

Near doubles 6 x 2 = 12 + 1 = 13 Bridging ten (bonds to 10) 7 + 3 = 10 + 3 = 13

Partitioning 6 = 5 + 1 7 = 5 + 2 5 + 5 = 10 1 + 2 = 3 10 + 3 = 13

Discuss odd and even pattern, e.g. odd + even = odd / use numicon to aid this visually

6 + 9 linked to 60 + 90 and 600 + 900

Adjusting the piles (rounding) 6 + 10 = 16—1 = 15 or

Take 1 from the 6 and add to the 9 so 5 + 10 = 15

6 + 7 + 3 (could link to 60 + 70 + 30 then 600 + 700 + 300 and discuss most efficient order)

35 + 27 expect partitioning adding tens and ones separately /adjusting piles/rounding

6506 + 4009

45 + 4068

25435 + 298 take 2 from 2435 and add to 98—skill of rounding

SUBTRACTION

80 - 50 use 8—5

17 - 9 move to 36 - 7 etc

adjust the piles 17 - 10 = 7 + 1 = 8

Difference the same (add or take same number from each) eg, add 1 to each 18—10 = 8

Bonds 9 = 7 + 2 so 17—7 = 10 10— 2= 8

130 - 60

273—6 popular arithmetic Q—discuss there being no point in column method

38 - 24 Partitioning - tens and ones 8 - 4 = 4 30 - 20 = 10 so 10 + 4 = 14

Counting on

Adjust the piles take 4 from each so 34 - 20 = 14

43 - 28 Expect similar strategies—discuss the term 'bridging' therefore a different strategy may be more efficient, e.g. adjusting 28 to 30 first of all.

100 - 6 move to 300—6 and 1,000 - 6

*Partitioning split the 100 into 90 and 10 take 6 off the 10 = 4 so 90 + 4 = 94. Emphasise number bonds

300 - 199 Adjust piles add 1 to both so 301 - 200 = 101 or rounding 300 - 200 = 100 + 1 - use rounding skills

Year 5 Maths Talks Calculation Progression (year 6 to use too):

MULTIPLICATION

6 x 7 - 6 lots of 7 or 7 lots of 6—which is the easier times tables?

Build to 60 x 7, 600 x 7, 60 x 70, 0.6 x 70 etc using PV knowledge

Build to 61 x 7 partitioning to 60 x 7 and 1 x 7

9 x 4 - build on from counting by doing 10 multiplied by 4 then jumping back a 4. Use the term 'checkpoint.' Use this for 9x on any tricky times table.

6 x 4 - split it to 5 x 4 and 1 x 4. Then using their 5x table knowledge and adding the 1 lot of 4 to reach the product.

Use 5 x 4 as another 'checkpoint' then add a four.

Do 6 x 2 first then double it.

60 x 4—use the times table fact 6 x 4 then PV knowledge

Same as 120 x 2 (half one side, double the other)

Build to 45 x 6 and see it as 90 x 3

19 x 5—round to 20 x 5 then subtract a five

Partition to 10 x 5 add 9 x 5

Build to 69 x 7 etc.

16 x 40 – partition it

Do 8 x 80 - adjust the piles evenly in terms of multiplicative rule

2 x 9 x 15 - choose the most efficient order—e.g. 2 x 15 first then multiply by 9 using known facts of times tables.

Build to 6 x 4 x 8 using factors, e.g. 6 x 4 x 2 x 2 x 2 or the most appropriate method for that number

DIVISION

Halve 364 partitioning

Halve 255 moving into decimals

Halve 36.57

120 / 4 - use the triangle and the fact of 12 / 4 = 3 to solve it using PV knowledge

Half it and half it again

568 / 4 Half it and half again

132 / 6 - chunking….partition to 120 / 6 and 12 / 6 then add these answers

Build to 4 digit numbers, e.g. 4012 etc.

4500 / 10 or 100 or 1000 - use place value understanding