Progression in Calculations.   Y4

Division.

| Year 4	
Divide 2-digits by 1-digit (1) Children build on their knowledge of dividing a 2-digit number by a 1-digit number from Year 3 by sharing into equal groups. Presenting the problem: *'Eighty-one marbles are shared equally between three children. How many marbles does each child get?'* $81 \div 3 = ?$ Children use examples where the tens and the ones are divisible by the divisor. They then move on to calculations where they exchange between tens and ones.	Jack is dividing 84 by 4 using place value counters. First, he divides the tens. Then, he divides the ones. $84 \div 4 =$ $80 \div 4 = 20$ $84 \div 4 = 21$ $80 \div 4 = 20$ $4 \div 4 = 1$
Divide 2-digits by 1-digit (2) Children explore dividing 2-digit numbers by 1-digit numbers involving remainders. They continue to use the	
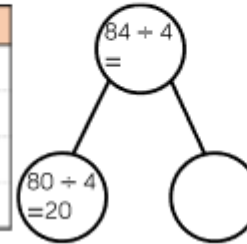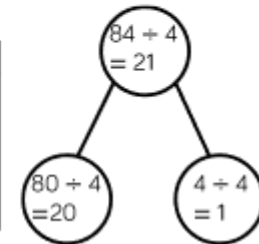
Progression in Calculations.   Y4

Division.

place value counters to divide in order to explore why there are remainders.

Short division

```
    2  1
4) 8  4
```

- 8 tens ÷ 4 = 2 tens
  'Write "2" in the tens column.'
- 4 ones ÷ 4 = 1 one
  'Write "1" in the ones column.'

- 'First write the divisor: "4".'
- 'Then draw the frame.'
- 'Then write the dividend: "84".'
- 'Now divide, starting with the tens: eight tens divided by four is equal to two tens; write "2" in the tens column.'
- 'Then move to the ones: four ones divided by four is equal to one one; write "1" in the ones column.'
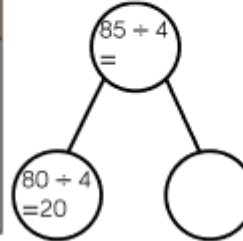
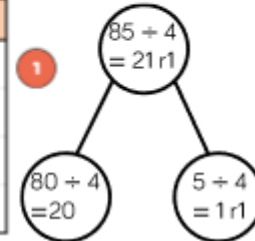Teddy is dividing 85 by 4 using place value counters.

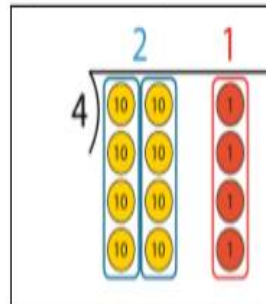First, he divides the tens.   Then, he divides the ones.

$85 \div 4 =$

$80 \div 4 = 20$

$85 \div 4 = 21 r1$

$80 \div 4 = 20$

$5 \div 4 = 1 r1$

Algorithm with place-value counters – summary:
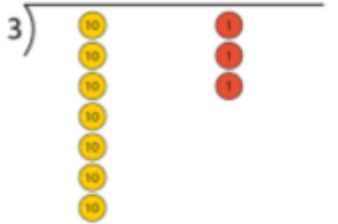
```
   2    1
4)
```

8 tens ÷ 4 = 2 tens

4 ones ÷ 4 = 1 one
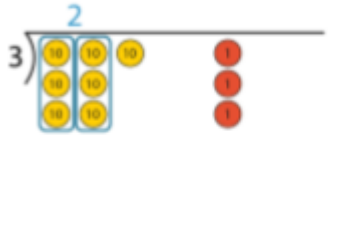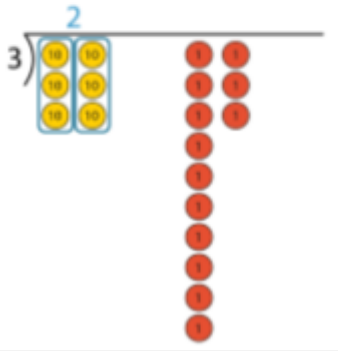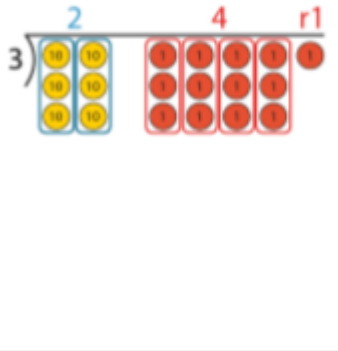
- 'Eight tens and four ones divided between four is equal to two tens and one one.'
- 'Each child gets twenty-one sticks.'

'*Seventy-three* sticks are shared equally between *three* children. How many sticks does each child get?'

$73 \div 3 = ?$

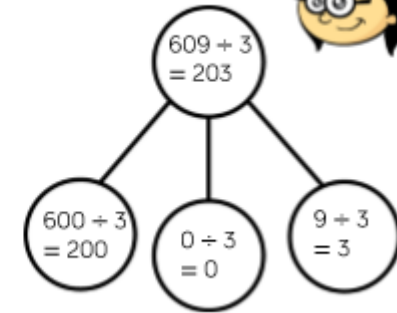| Step 1 – write the divisor and dividend		Step 2 – sharing the tens…	
	$3\overline{)7\ \ 3}$	**2**	$3\overline{)7\ \ 3}$ **2**
'*Seventy-three divided by three.*'		7 tens ÷ 3 = 2 tens r 1 ten '*Write "2" in the tens column…*'	
Step 3 –…and exchanging		Step 4 – sharing the ones	
2	$3\overline{)7\ ^13}$ **2**	**2 4 r1**	$3\overline{)7\ ^13}$ **2 4r1**
1 ten = 10 ones '*…and write "1" to the left of the ones digit of the dividend to make thirteen ones.*'		13 ones ÷ 3 = 4 ones r 1 one '*Write "4 r 1" in the ones column.*'	

Division.

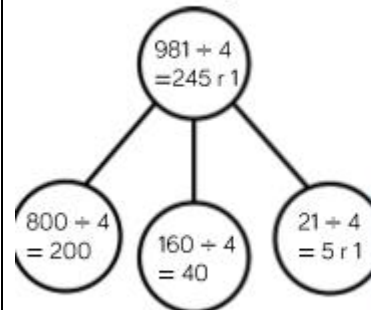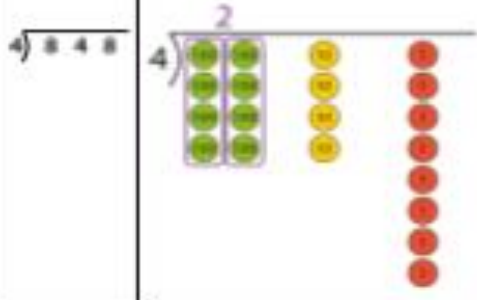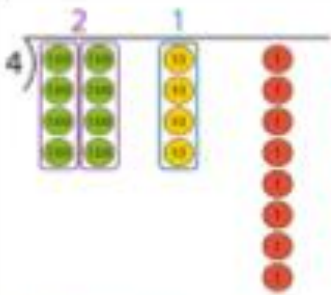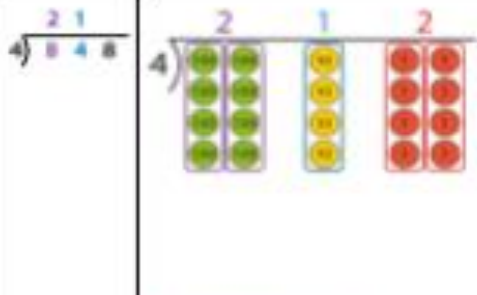|	
Divide 3-digits by 1-digit Children apply their previous knowledge of dividing 2-digit numbers to divide a 3-digit number by a 1-digit number. They use place value counters and part-whole models to support their understanding. Children divide numbers with and without remainders.	Annie is dividing 609 by 3 using place value counters. **Hundreds / Tens / Ones** table with counters $609 \div 3 = 203$ $600 \div 3 = 200$, $0 \div 3 = 0$, $9 \div 3 = 3$ Rosie is using flexible partitioning to divide 3-digit numbers. She uses her place value counters to support her. $981 \div 4 = 245 \, r \, 1$ $800 \div 4 = 200$, $160 \div 4 = 40$, $21 \div 4 = 5 \, r \, 1$ Use Rosie's method to solve: $726 \div 6$ $846 \div 6$ $846 \div 7$

Progression in Calculations.   Y4

Division.

'Eight hundred and forty-eight pencils are shared equally between four year groups. How many pencils does each year group get?'

$848 \div 4 = ?$

Step 1 – write the divisor and dividend	Step 2 – sharing the hundreds
'Eight-hundred and forty-eight divided by four.'	8 hundreds ÷ 2 = 2 hundreds 'Write "2" in the hundreds column.'
Step 3 – sharing the tens	Step 4 – sharing the ones
4 tens ÷ 4 = 1 ten 'Write "1" in the tens column.'	8 ones ÷ 4 = 2 ones 'Write "2" in the ones column.'

Progression in Calculations.   Y4

Division.

- 'First write the divisor: "5".'
- 'Then draw the frame.'
- 'Then write the dividend: "705".'
- 'Now divide, starting with the hundreds: seven hundreds divided by five is equal to one hundred, _with a remainder of two hundreds_; write "1" in the hundreds column...'
- '_and exchange the remainder: two hundreds is equal to twenty tens; write "2" to the left of the tens digit of the dividend to make twenty tens._'
- 'Then move to the tens: twenty tens divided by five is equal to four tens; write "4" in the tens column.'
- 'Then move to the ones: five ones divided by five is equal to one one; write "1" in the ones column.'

'_Seven hundred and five_ exercise books are shared equally between _five_ year groups. How many books doe each year group get?'

$$705 \div 5 = ?$$

Sharing the hundreds:

7 hundreds ÷ 5 = 1 hundred r 2 hundreds

'Write "1" in the hundreds column...'

Exchanging:

2 hundreds = 20 tens

'...and write "2" to the left of the tens digit of the dividend to make twenty tens.'

Progression in Calculations.   Y4

Division.

Short Division	$$1\ 5\ 3$$ $$4\overline{)\ 6\ {}^21\ {}^12}$$