SHOBNALL PRIMARY SCHOOL

Division Progression Policy

EYFS to Y6

Multiplication- Progression in written method Y1 to Y6

Contextualise the mathematics
WHAT DOES THIS NUMBER REPRESENT?

Expose mathematical structure and work systematically

Expect children to use correct terminology and express reasoning

- Use **stem sentences**.
- Answer in **complete sentence**.

Identify difficult points

- Be aware of common misconceptions.
- Actively seek to uncover these.

Move between concrete, pictorial and the abstract (CPA)

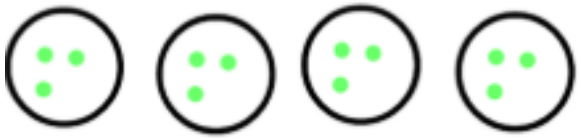
Teach inequality alongside all mathematical concepts.

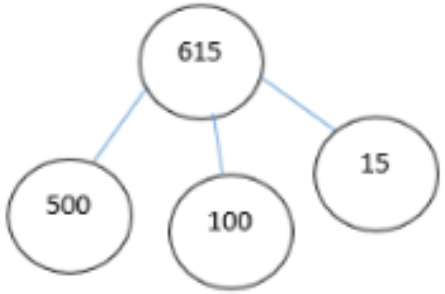
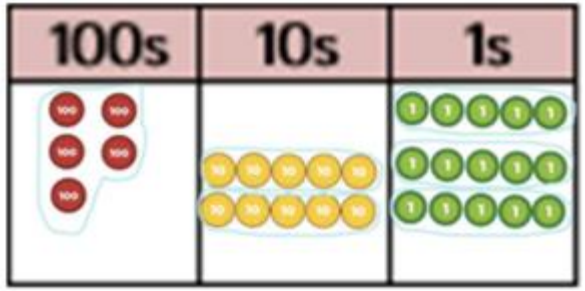
> = <

< and > can also help deep understanding of key concepts.

Grouping:
Grouping is when we know how many are in each group but not how many groups there will be.

Sharing:
Sharing is when we know how many groups there are but not how many are in each group.



Conceptual variation; different ways to ask children to solve 6			
Using the part whole model below, how can you divide 615 by 5 without using short division.  	I have £615 and share it equally between 5 bank accounts. How much will be in each account? 615 pupils need to be put into 5 groups. How many will be in each group?	$5\overline{)615}$ 615 ÷ 5 = ____ = 615 ÷ 5	What is the calculation? What is the answer? 

It is important to use conceptual variation in order for the children to deepen their understanding of the mathematical structure.

Children will find different ways easier or harder to understand than others. We encourage children to work towards looking for the most efficient methods once they have conceptual understanding of the maths.

EYFS Objectives

- Solve problems in real life contexts using concrete object and pictorial representation, including halving and sharing.

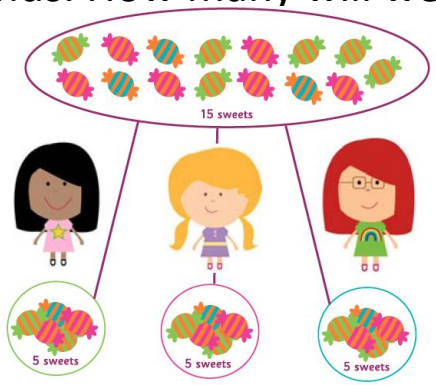
Real life contexts

Grouping

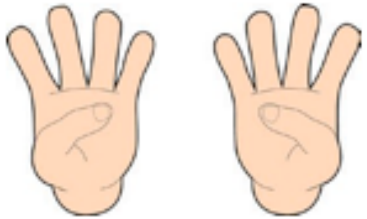
Mum has 6 socks. She grouped them into pairs. How many pairs did she make?

Sharing

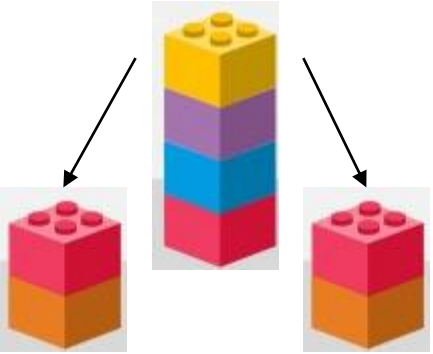
I have 15 sweets. I want to share them with my 3 friends. How many will we have each?

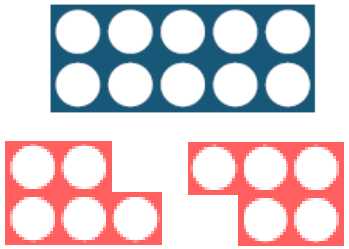


Halving

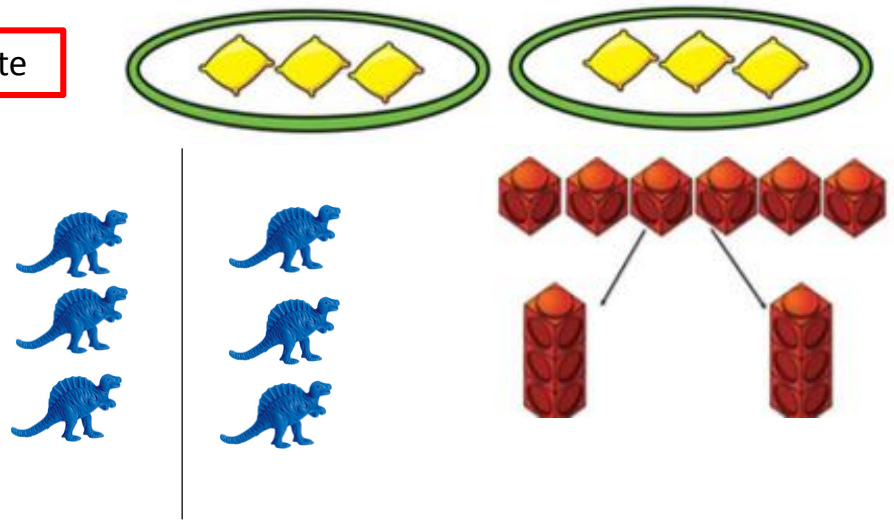


Half of 8 is 4

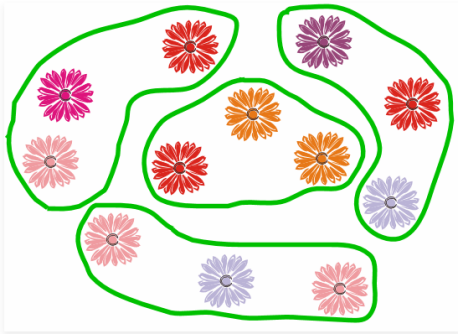


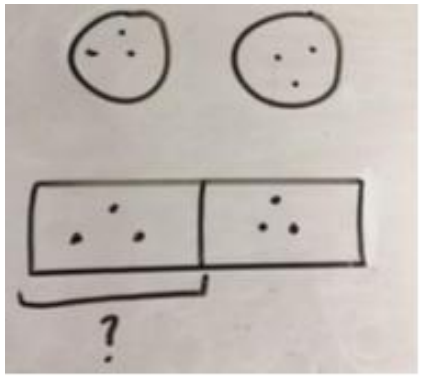


Concrete



Pictorial



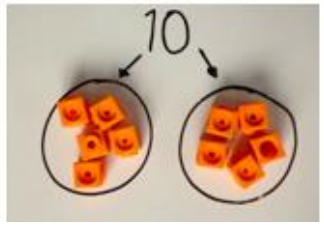


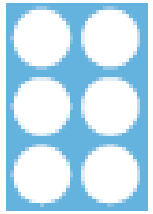
Y1 Objectives

- Calculate the answer using concrete object pictorial representation and arrays, showing repeated addition.
- Halving.

Concrete and pictorial representations

Sharing



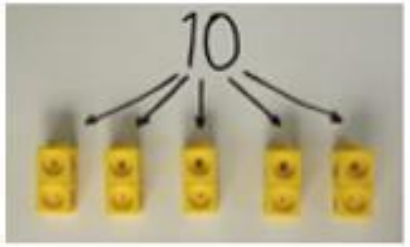


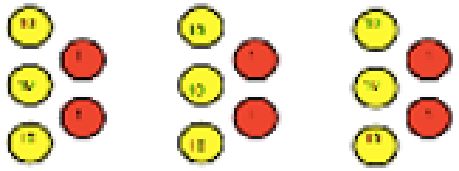
$6 \div 2 = 3$

3	3

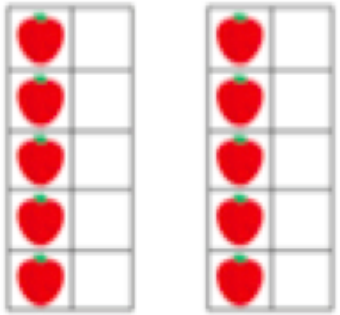
Real life contexts

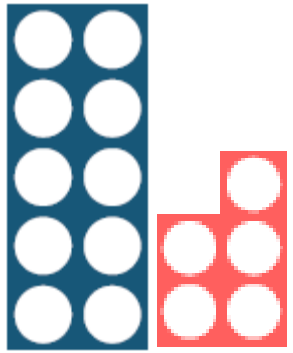
Grouping

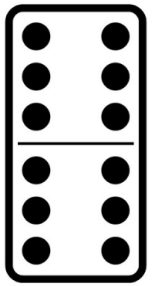




Halving





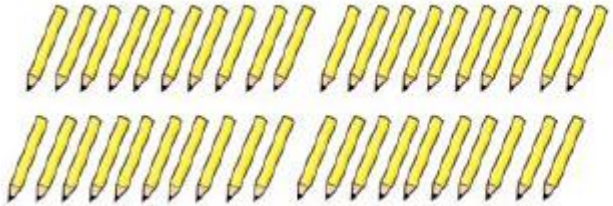


Y2 Objectives

- Sharing and grouping.
- Abstract symbols used.
- Grouping using a number line.
- Missing number problems.

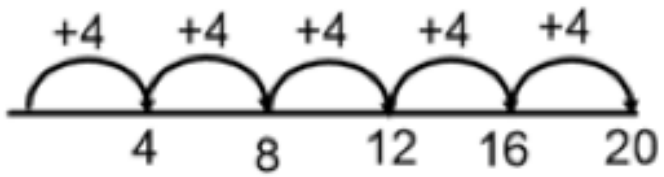
Concrete and pictorial representations

Sharing

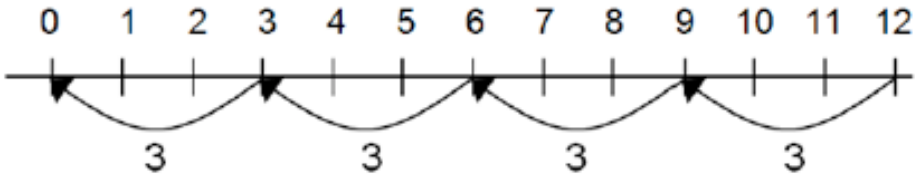


□ ÷ □ = □

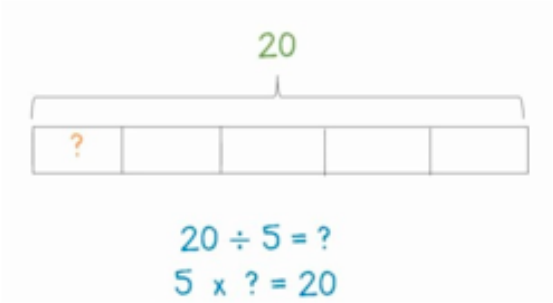
Grouping



Use a number line to show jumps in groups. The number of jumps equals the number of groups.



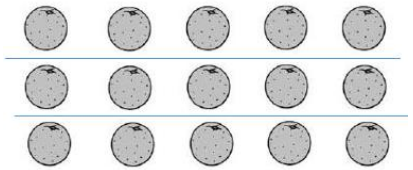
Think of the bar as a whole. Split it into the number of groups you are dividing by and work out how many would be within each group.



Arrays

5 x 3

3 x 5



6 x 3

3 x 6

Missing number problems

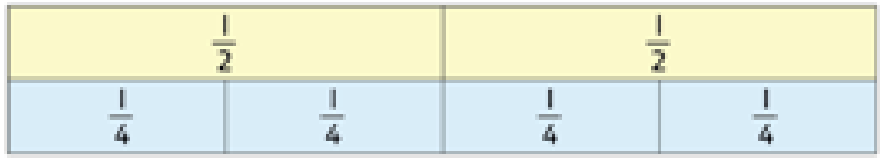
70 ÷ 10 = □

6 tens ÷ 1 ten = □

5 = □ ÷ 10

There are □ tens in 40

Link division to fractions

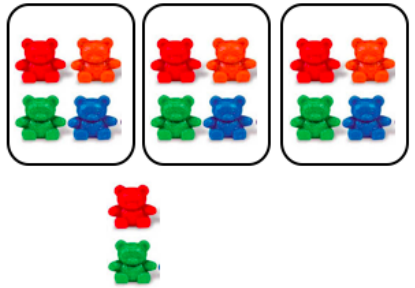


Begin to find half or a quarter if a quantity using sharing.

Y3 Objectives

- Sharing and grouping.
- Abstract symbols used.
- Missing number problems.
- 2 digit number ÷ 1 digit number.
- Missing number problems.
- Remainders.

14 ÷ 3 =
Divide objects between groups and see how much is left over

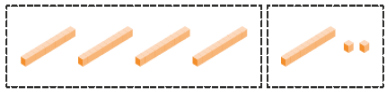


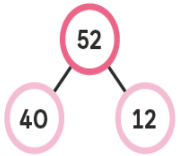
Concrete and pictorial representations

To find the number of ice creams in each box, divide 52 by 4.

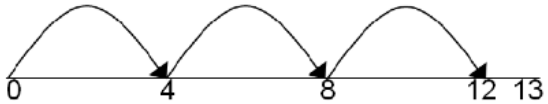
52 ÷ 4 = ☐

Step 1 Split 52 into 40 and 12.



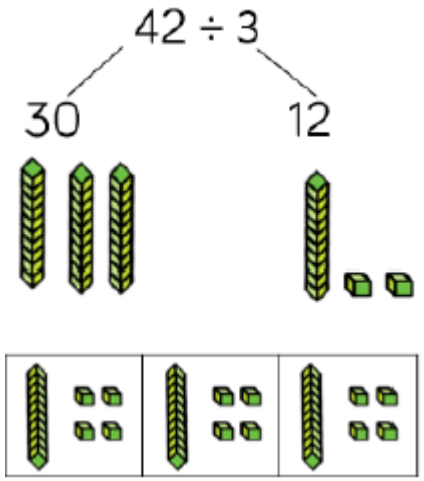


Jump forward in equal jumps on a number line then see how many more you need to jump to find a remainder.



Draw dots and group them to divide an amount and clearly show a remainder.

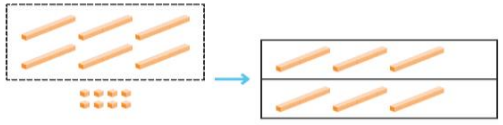
Divide by partitioning

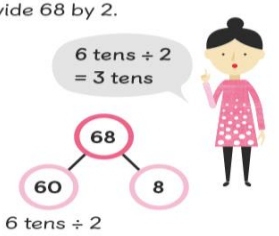


To find the number of sweets each person gets, divide 68 by 2.

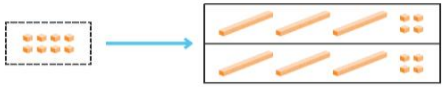
68 ÷ 2 = ☐

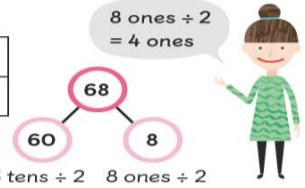
Step 1 Divide 6 tens by 2.





Step 2 Divide 8 ones by 2.

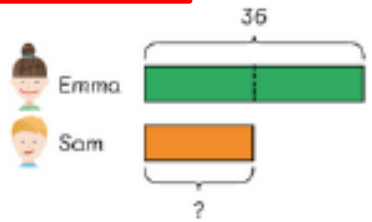




Step 3 Add the results.

68 ÷ 2 = 30 + 4 = 34
Each person gets 34 sweets.

Use bar model



36 ÷ 2 = 18

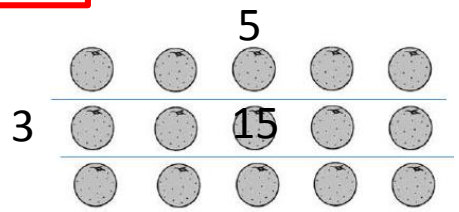
Sam has 18 beads.

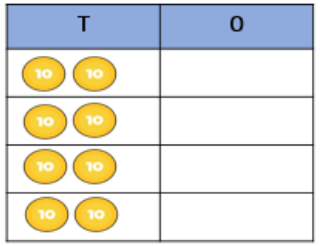
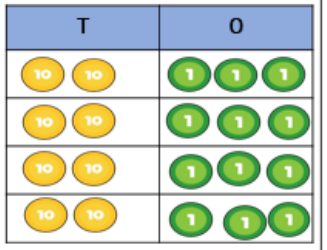
Related multiplication and division facts

Link division to multiplication by creating an array and thinking about the number sentences that can be created.

Eg 15 ÷ 3 = 5 5 x 3 = 15
15 ÷ 5 = 3 3 x 5 = 15

Arrays



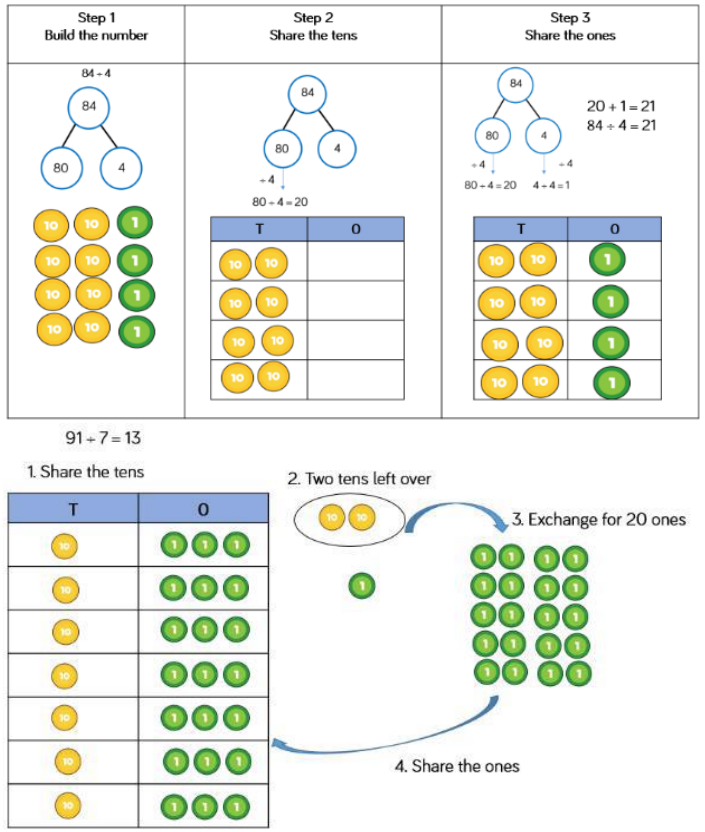
Step 1 Build the number and show the groups on the place value chart	Step 2 Share the tens	Step 3 Exchange the tens into ones and share the ones
94 ÷ 4 =	94 ÷ 4 =	94 ÷ 4 = 23 r 2
	 1 ten left – exchange into ones	 2 ones remaining
T / O	T / O	T / O
		

Y4 Objectives

- Multiplication and division facts up to 12x table.
- Divide by 1.
- Divide up to 3 digit number by 1 digit number.
- Factor pairs.
- Solving problems.

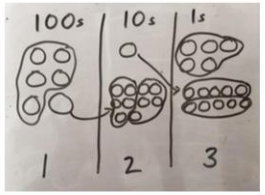
Use table facts with which the children are fluent.

Concrete and pictorial representations



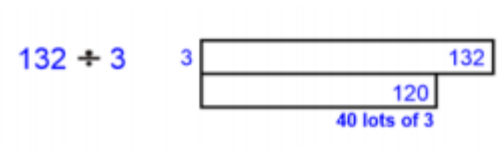
Divide 3 digit number by 1 digit number- no remainder

615 ÷ 5



$$\begin{array}{r} 123 \\ 5\overline{)615} \end{array}$$

Bar model



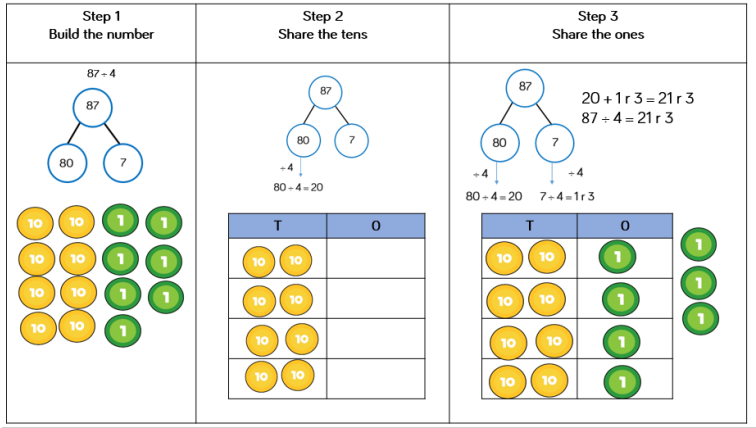
Divide 3 digit number by 1 digit number- with remainder

$$\begin{array}{r} 86 \text{ r } 2 \\ 5\overline{)432} \end{array}$$

$$\begin{array}{r} 36 \text{ r } 5 \\ 7\overline{)257} \end{array}$$

Division and fractions

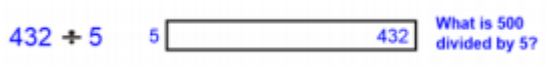
1/6 of ... and ÷ 6 126 ÷ 6 = 21



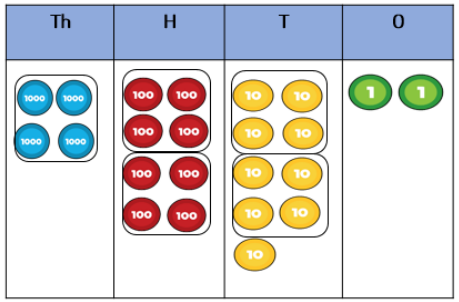
Y5 Objectives

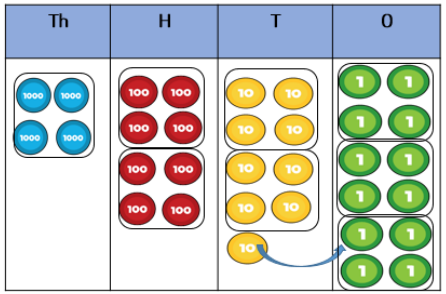
- Divide mentally using known facts.
- 4 digit number ÷ 1 digit number – short division.
- Divide whole and decimal numbers by 10, 100 and 1000.
- Solve problems, including scaling by fractions.

Bar model



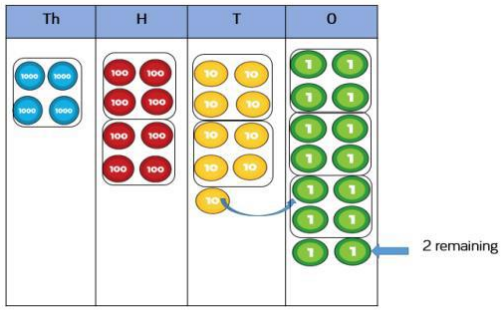
Divide 4 digit number by 1 digit number- no remainder





$$\begin{array}{r} 1223 \\ 4\overline{)4\overset{1}{8}92} \end{array}$$

Divide 4 digit number by 1 digit number- with remainder



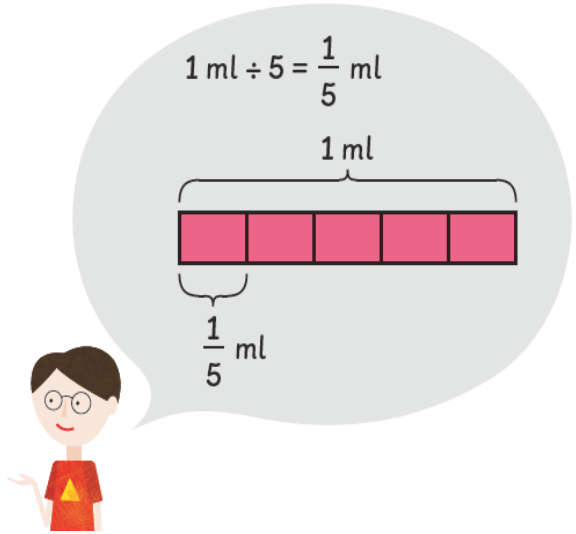
$$\begin{array}{r} 1223 \\ 4\overline{)4\overset{1}{8}94} \text{ r2} \end{array}$$

Solve problems and write remainder as fraction

376 ml of liquid soap is poured into 5 bottles.
Each bottle contains the same amount of soap.
Find the volume of soap in each bottle.

$$\begin{array}{r} 7\ 5 \text{ r } 1 \\ 5\overline{)37^{2}6} \end{array}$$

$$375 \div 5 = 75\frac{1}{5}ml$$



Y6 Objectives

- Divide number up to 4 digit number by a 2 digit number using long division.
- Interpret remainders as a whole number remainders, fractions or by rounding.
- Common factors.
- Order of operations.
- Solve problems.
- Estimation.

Divide 3 digit number by 2 digit number- long division

```
        2 8  4/5
15 | 4 3 2
     3 0 0   (15 x 20)
     1 3 2
     1 2 0   (15 x 8)
       1 2
```

Divide 3 digit number by 2 digit number- short division

496 ÷ 11 becomes

```
          4   5   r 1
1   1 | 4   9   6
        5
```

Decimal numbers divided by 1 digit number

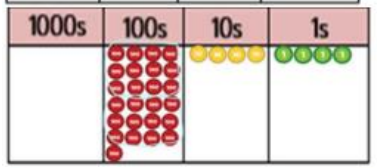
6 . 42 ÷ 3 =

```
     2.1 4
3 | 6.4 2
  - 6.0 0
    0.4 2
  - 0.3 0
    0.1 2
    0.0 0
```

Divide 4 digit number by 2 digit number- long division

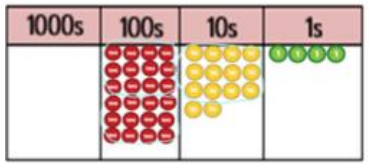
Long division using place value counters
2544 ÷ 12

We can't group 2 thousands into groups of 12 so will exchange them.



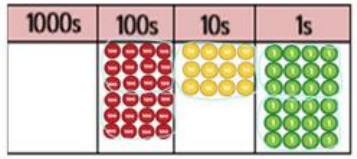
We can group 24 hundreds into groups of 12 which leaves with 1 hundred.

```
     02
12 | 2544
     24
      1
```



After exchanging the hundred, we have 14 tens. We can group 12 tens into a group of 12, which leaves 2 tens.

```
     021
12 | 2544
     24
      14
      12
       2
```



After exchanging the 2 tens, we have 24 ones. We can group 24 ones into 2 group of 12, which leaves no remainder.

```
     0212
12 | 2544
     24
      14
      12
       24
       24
        0
```

```
        2 8 . 8
15 | 4 3 2 . 0
     3 0
     1 3 2
     1 2 0
       1 2 0
       1 2 0
       0 0 0
```

Use times table ladders to help estimation

150 (15 x 10)
•
•
•
•
75 (15 x 5)
•
•
•
15 (15 x 1)

Decimal numbers divided by 2 digit number – short division

```
          1 4 . 6
          16    21
3 5 | 5 1 1 . 0
```