Lesson 1: Short division
Lesson 2: Short division including decimals
Lesson 3: Long division
Lesson 4: Long division
Lesson 5: Reasoning

Lesson 1

Short Division

8 Times Table

8 × 1 =	8 × 2 =	8 × 3 =
8 × 4 =	8 × 5 =	8 × 6 =
8 × 7 =	8 × 8 =	8 × 9 =
8 × 10 =	8 × 11 =	8 × 12 =

Now try completing the corresponding division facts

21 divided by 7 =
210 divided by 7 =
2100 divided by 7 =
Is there a pattern emerging?

How many twelves make 120?

Nine times the value of a coin is 45p. What is the value of the coin?

Zain saves £9 a week. He wants to save a total of £135. How long will it take him?

Oral Mental Starter- Multiplying whole numbers by 10, 100 and 1000

	X 10	X 100	X 1000
9			
203			
100,235			
12,345			
300,000			

Which numbers are part of the 6 times table?

66 123 180 16

Zain says, " If a number is divisible by 4 then it is also divisible by 12." Is he correct? Give your reasons.

Learning intention

To multiply and divide

Success criteria

On fire: I can use the inverse to check my answer.

Hotter: I can use the bus stop method for short division.

Hot: I can use times table knowledge to divide.

Let us recap the key mathematical vocabulary for division:

$$120 \div 4 = 30$$

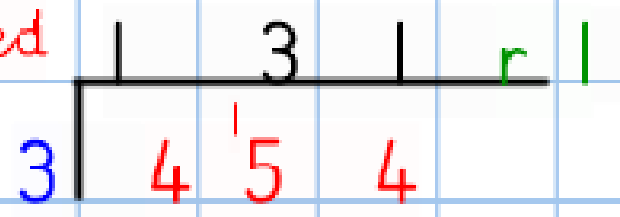
dividend divisor quotient

Dividend - number to be divided

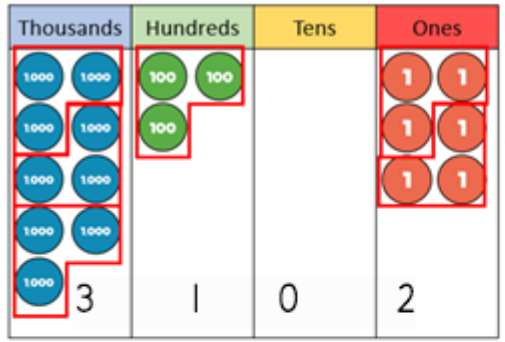
Divisor - divided by

Quotient - solution

Remainder - number 'left over'



9,306 ÷ 3



$$3\overline{)9306} = 3102$$

9000 ÷ 3 = 3000

300 ÷ 3 = 100

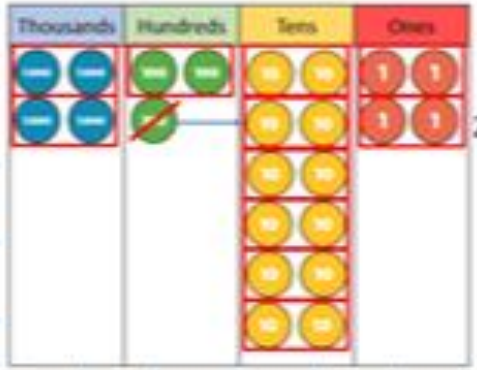
6 ÷ 3 = 2

There are 4,884 crayons and they come in packs of 4
How many packs are there?

$$4\overline{)4884} = 1221$$

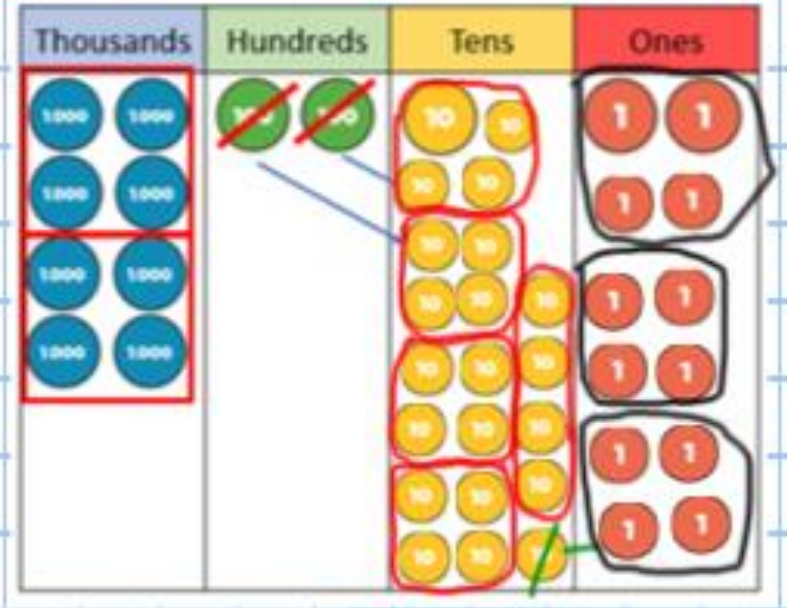
1,221 packs

4,324 ÷ 2



$$2\overline{)4324} = 2162$$

8,212 ÷ 4



$$4\overline{)8212} = 2053$$

Today we are going to start division and use the bus stop method. We will also use our place value chart to help us.

I do:

$84 \div 4 =$

$$4\overline{)84}$$

How many 4s go into 84?

4
8
12
16
20
24
28
32
36
40

$84 \div 4 =$

$$\begin{array}{r} 2\ \ 1 \\ 4\overline{)84} \end{array}$$

How many 4s go into 84?

We do

78 ÷ 6 =

$$6\overline{)78}$$

6
12
18
24
30
36
42
48
54
60

We do

78 ÷ 6 =

$$\begin{array}{r} 1\ \ 3 \\ 6\overline{)7\ 8} \end{array}$$

6
12
18
24
30
36
42
48
54
60

You do:

96 ÷ 8 =

8

16

24

8 | 9 6

98 ÷ 7 =

7

14

7 | 9 8

Complete the calculations in your book. Use your place value chart to help you.

84 ÷ 3 =

3 | 8 4

72 ÷ 6 =

6 | 7 2

52 ÷ 4 =

4 | 5 2

65 ÷ 5 =

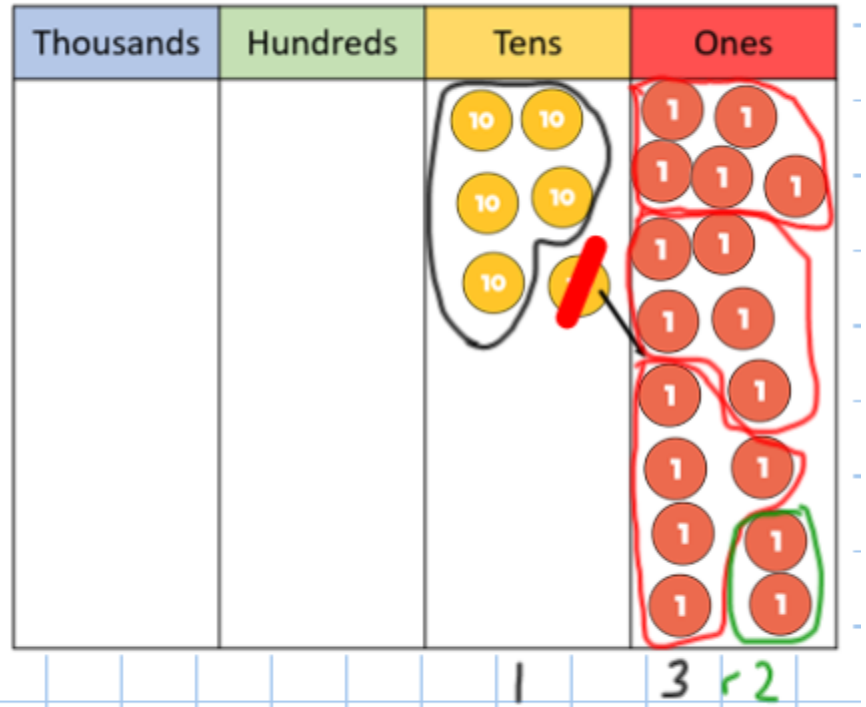
5 | 6 5

Division with remainders

67 ÷ 5 =

1 3 r 2

5 | 6 7



Hassan shares out 67 sweets between 5 people.

Each person gets 13 sweets. There are 2 sweets left over.

Complete the calculations in your book

67 ÷ 5 =

5 | 6 7

92 ÷ 8 =

8 | 9 2

97 ÷ 9 =

9 | 9 7

106 ÷ 7 =

7 | 1 0 6

Further division

1. Eggs are sold in boxes of 8. How many boxes can Shan fill with 276 eggs. How many eggs are left over?

$8\overline{)276}$

2. Enya is making straw triangles. How many can she make with 803 straws? How many are left over?

$3\overline{)803}$

3. Christmas crackers are packed in 4s. How many packs can be filled using 1352 crackers? Are there any left over?

$4\overline{)1352}$

Copy and complete in your book

Hot

$9\overline{)43}$

$7\overline{)68}$

$5\overline{)83}$

$9\overline{)51}$

$8\overline{)47}$

$4\overline{)95}$

$3\overline{)71}$

$5\overline{)79}$

Hotter

$8\overline{)123}$

$9\overline{)138}$

$4\overline{)143}$

$7\overline{)176}$

$8\overline{)147}$

$3\overline{)195}$

$6\overline{)171}$

$5\overline{)179}$

On Fire

$9\overline{)2264}$

$8\overline{)1938}$

$6\overline{)3645}$

$5\overline{)6821}$

$9\overline{)8624}$

$7\overline{)6481}$

$8\overline{)9553}$

$4\overline{)7937}$

Problem solving - Calculate the missing numbers

$$\begin{array}{r} 14 \\ \square\overline{)98} \end{array} \qquad \begin{array}{r} 16 \\ 6\overline{)\square 6} \end{array} \qquad \begin{array}{r} 26 \\ \square\overline{)7\square} \end{array}$$

$$\begin{array}{r} 2\square \\ \square\overline{)48} \end{array} \qquad \begin{array}{r} 23 \\ \square\overline{)6\square} \end{array} \qquad \begin{array}{r} 2\square \\ \square\overline{)56} \end{array}$$

Here are two division problems with missing numbers in the questions. Find out the missing numbers by using the numbers that are part of the answer as clues.

a

$$\begin{array}{r} 1\ 2\ \square \\ \square\overline{)4\ \square\ 4} \end{array}$$

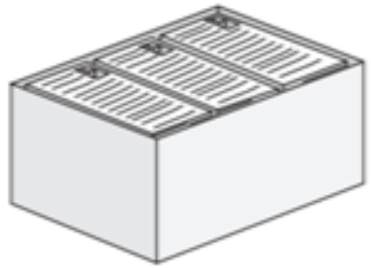
b

$$\begin{array}{r} 3\ \square\ \square \\ 3\overline{)\square\ 3\ 6} \end{array}$$

Now try these:

$$\begin{array}{r} \square\ 4\ 1 \\ 3\overline{)7\ 2\ \square} \end{array} \qquad \begin{array}{r} 0\ \square\ \square\ 3 \\ 2\overline{)\square\ 3\ 0\ \square} \end{array}$$

16



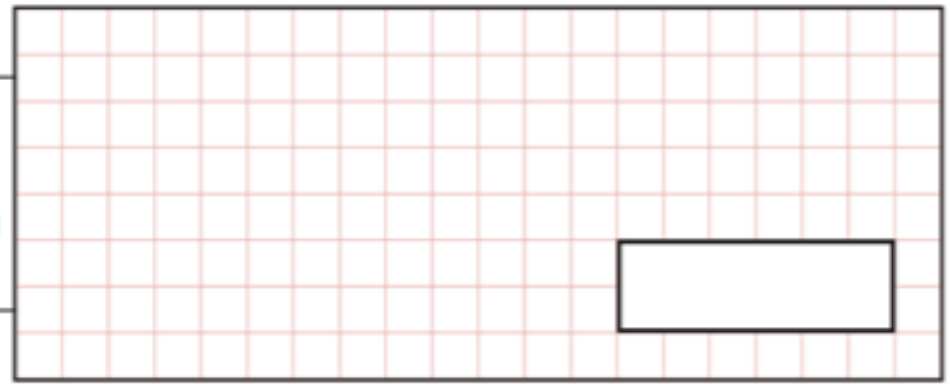
There are 2,400 leaflets in a box.

William and Ally take 450 leaflets each.

Adam and Chen share the rest of the leaflets equally.

How many leaflets does Adam get?

Show your method



2 marks

Lesson 2

Short Division- Reasoning

9 × 1 =	9 × 2 =	9 × 3 =
9 × 4 =	9 × 5 =	9 × 6 =
9 × 7 =	9 × 8 =	9 × 9 =
9 × 10 =	9 × 11 =	9 × 12 =

Now try completing the corresponding division facts

72 divided by 9 =
54 divided by 9 =
81 divided by 9 =

1. How many times larger is 45km than 5km?
2. How many times smaller is 4 than 32?
3. Annie's granddad gives her some money for her birthday.
   He gives her between £15 and £40

   The amount Annie receives is a multiple of 3 and 6
   The amount Annie receives is one more than a multiple of 5
   How much money does Annie receive?
4. What must 4 be multiplied by to give 28?
5. How many stickers can be bought for 63p if a box of 4 stickers cost 7p?

OMS - dividing whole numbers by 10, 100 and 1000

Divide by 10:	Divide by 100:	Divide by 1000:
1123	34519	1
3497	5671	99910
12000	1003	789013
	99	450013

Learning intention

To multiply and divide

Success criteria

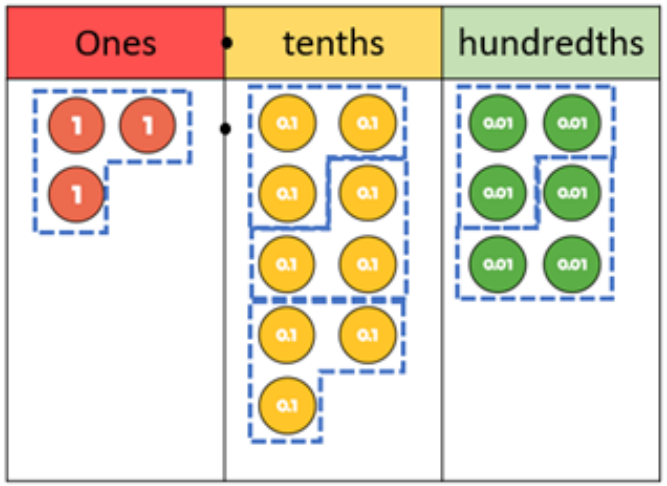
On fire: I can round the answer according to the context.

Hotter: I can interpret remainders according to the context.

Hot: I can use the bus stop method for short division.

Mr. Woods is building some garden furniture.

His plank of wood is 3.96m long. He needs to cut it into 3 equal pieces. How long is each piece?



$$3 \overline{)\,3.96} = 1.32$$

Jan has 445m of cloth. She cuts 4 equal lengths. What is the measurement of each peice?

$$4 \overline{)\,445.00} = 111.25\text{m}$$

Each is piece is 111m and 25cm

Amir has cut 4964m of plastic into 7 equal pieces. What is the length of each piece?

$$7\overline{)4964}$$

$$\begin{array}{r} 709.142 \\ 7\overline{)\cancel{4}^{4}9\cancel{6}^{6}4.{}^{1}0{}^{3}0{}^{2}0} \end{array}$$

We need to round the answer to the nearest cm.

The thousandths digit is 4 or less so the hundredths digit stays as 4.

The answer is 709.14m

Independent tasks

1. Complete these divisions

a) £31.80 ÷ 3 =

b) £26.40 ÷ 4 =

c) £28.50 ÷ 5 =

d) £14.40 ÷ 8 =

e) £95.40 ÷ 9 =

f) £52.80 ÷ 8 =

2.

a). Four friends share £6.52 equally. How much do they each receive?

b) The cost of a stone boarder around a square patio is £22.40. Work out the cost of one of the equal sides.

b) Michelle is organising a trip to a museum. The total price of the trip is £170.10 If nine people are going on the trip, how much should they pay each?

I'm thinking of a 3-digit number.

When I divide it by 5, I am left with a remainder of 3

When I divide it by 10, I am left with a remainder of 8

It rounds to 200 to the nearest 100

It has one hundred.

What could my number be?

Shop A sells 5 tins of paint for £23.40

Shop B sells 3 tins of the same paint for £14.01

Which shop should Aisha buy her paint from? _____

Explain your reasoning.

Reasoning and SATs style questions

Complete the divisions.

a)

		0	4	8		
	6					

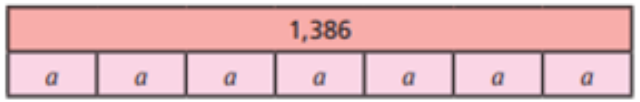
b)

		2	4	8	r1	
	4	9		3		

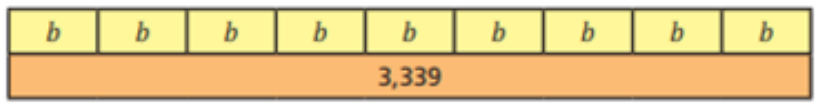
c)

		0	9	1	r7	
		7	3			

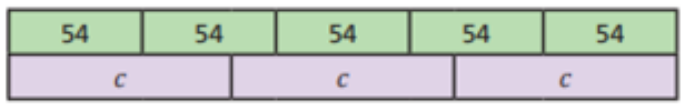
Work out the values of a, b, c and d.



$a =$ ☐



$b =$ ☐



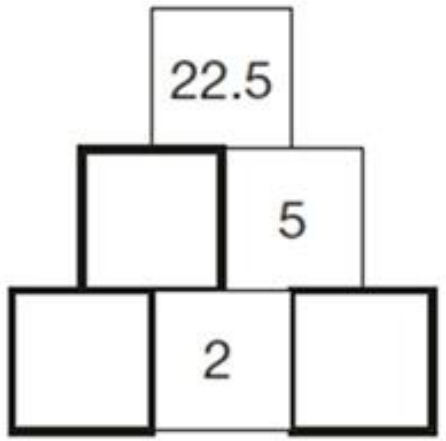
$c =$ ☐

$72 \times 24 = d \times 6$

Here is a number pyramid.

The number in a box is the **product** of the two numbers below it.

Write the missing numbers.



6 pencils cost **£1.68**

3 pencils and 1 rubber cost **£1.09**

What is the cost of **1 rubber**?

Show your method.	☐

Lesson 3

Long division

10 Times tables

10 × 1 =	10 × 2 =	10 × 3 =
10 × 4 =	10 × 5 =	10 × 6 =
10 × 7 =	10 × 8 =	10 × 9 =
10 × 10 =	10 × 11 =	10 × 12 =

Now try completing the corresponding division facts

80 divided by 10 =
800 divided by 10 =
8000 divided by 10 =

Quick recall-

6 x 6

7 multiplied by itself

? x ? = 64

A number multiplied by itself equals 100.

What is the number?

Continue the sequences

13 26 39

14 28

15 30

18 36

17 34

OMS Multiplying decimals by 10, 100 and 1000

Multiply by 10

10.003

23.034

120.009

0.003

Multiply by 100

0.009

1.108

236.901

Multiply by 1000

0.001

986.231

990.005

Learning intention

To multiply and divide

Success criteria

On Fire: I can accurately carry out long division and interpret remainders.

Hotter: I can use written divsion methods for long division.

Hot: I can follow the procedure for long divion.

Long Division

During today's lesson, we will be rehearsing the written calculation method for Long Division.

Long Division can be TRICKY but follow the following steps correctly and you will soon get the hang of it!

Let's start with something really basic...

How would you work this sum out?

$$14\overline{)58}$$

In order to help solve Long Division sums, use the following acronym:

Divide
Multiply
Subtract
Bring down

Let's have a look at an example:

1. DIVISION

How many 14's go into 1?
1 ÷ 14 =

2. MULTIPLY

0 X 14 =

3. SUBTRACTION

How much is left?
1 - 0 =

4. BRING DOWN

Bring the number down - forming a new number: 18

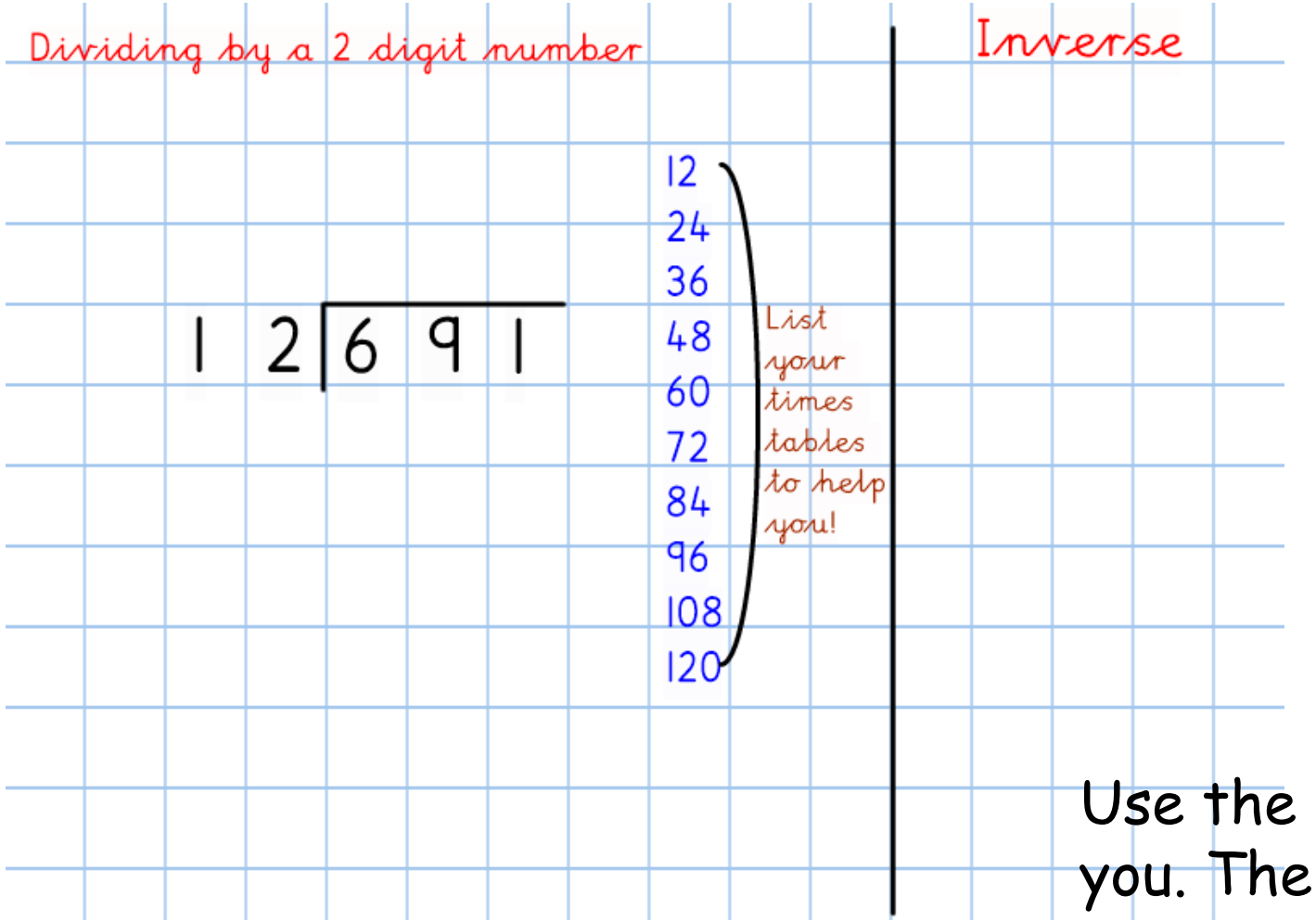
REPEAT

$$\begin{array}{r} 0\ 1\ 2 \text{ r } 4 \\ 14\overline{)1\ 7\ 2} \\ -\ 0\ 1\ \ \ \\ \hline 1\ 7\ \ \ \\ -\ 1\ 4\ \ \ \\ \hline 0\ \overset{2}{\cancel{3}}\ \overset{1}{2} \\ -\ 2\ 8 \\ \hline 0\ 4 \end{array}$$

Remainder

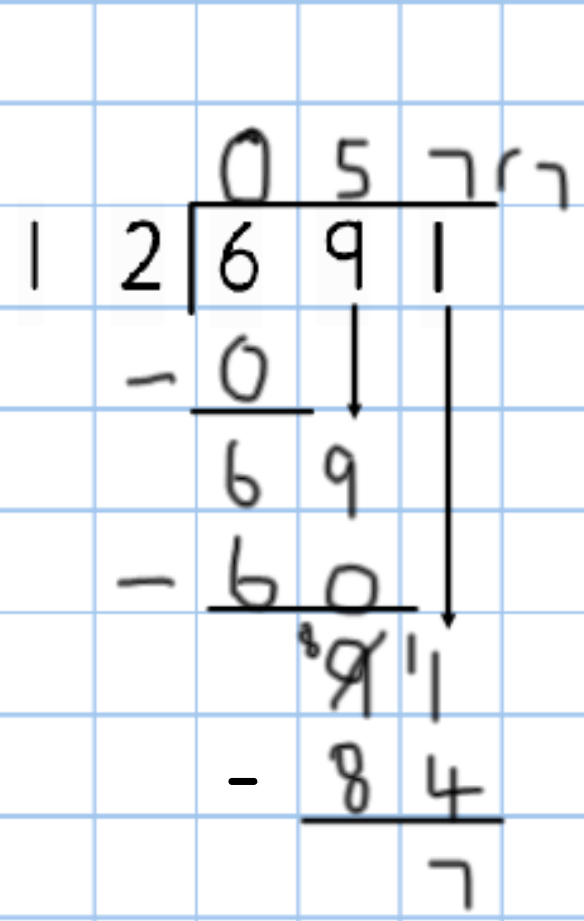
14
28
42
56
70
84
98
112
126
140

List your times tables to help you!



Use the worked out example to help you. The answer is on the next page.

Dividing by a 2 digit number



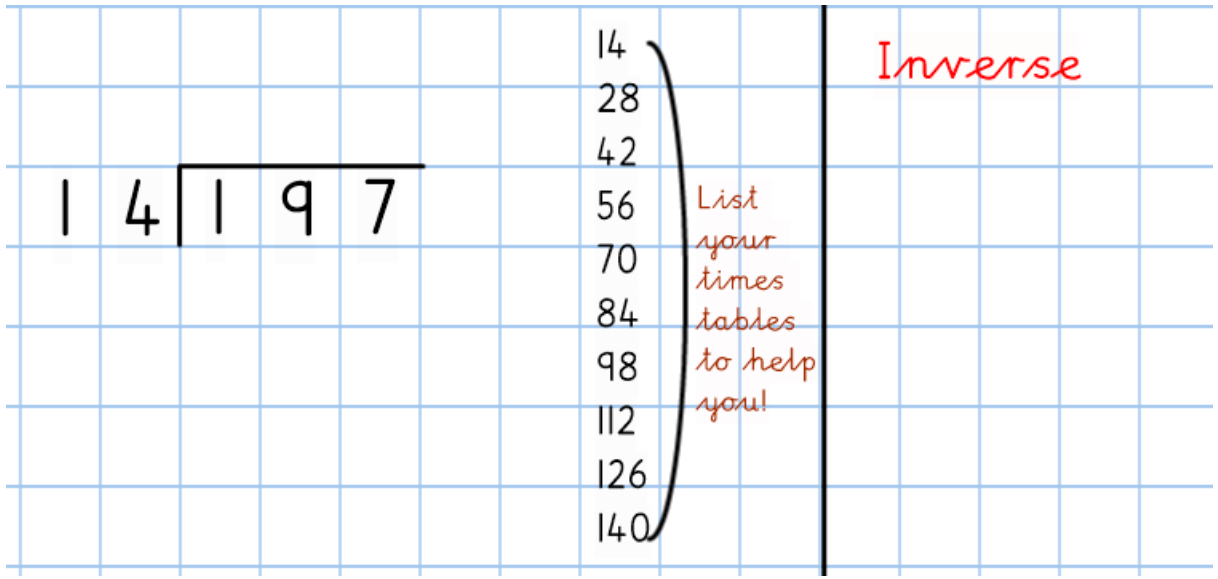
12
24
36
48
60
72
84
96
108
120

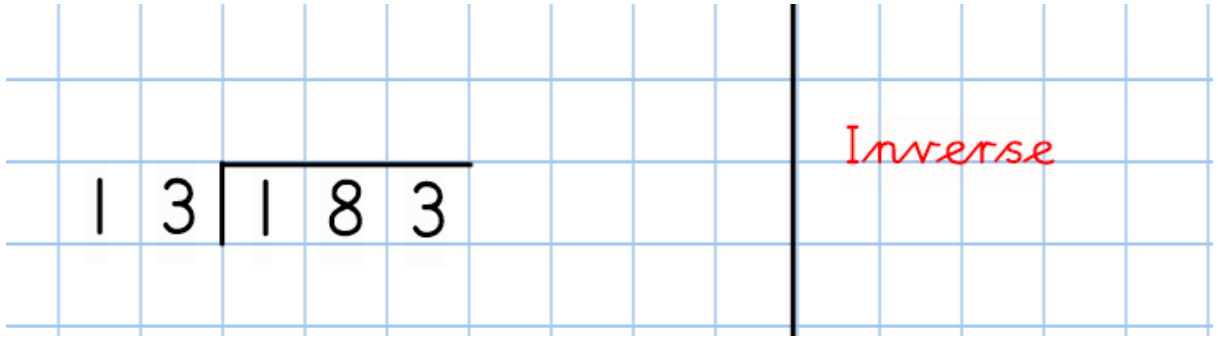
List your times tables to help you!

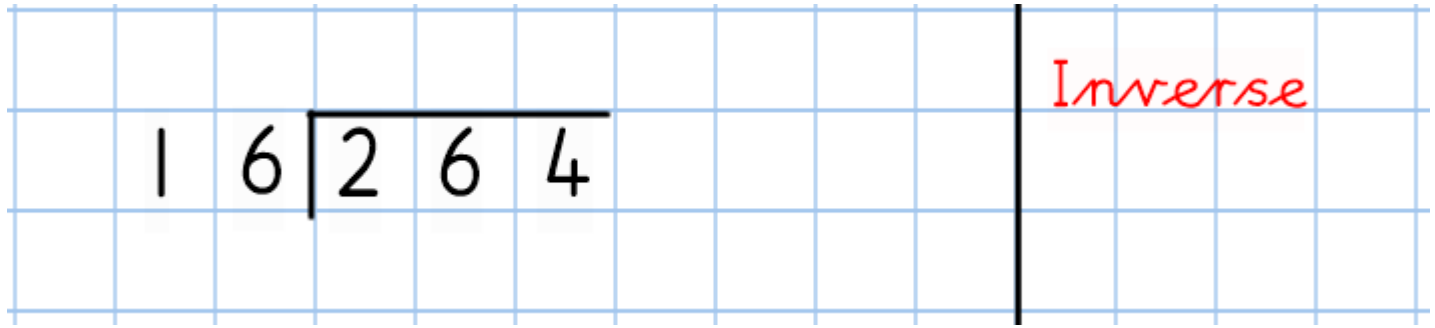
Inverse

57 X 12 = 684

684 + 7 = 691







Don't forget to write out the times table for each question to help you.

Use the inverse to check your answer!

In your books independently:

$11\overline{)253}$ $13\overline{)945}$ $14\overline{)583}$

$12\overline{)785}$ $15\overline{)461}$ $17\overline{)555}$

$14\overline{)537}$ $19\overline{)608}$ $25\overline{)772}$

Dividing by 4 digit numbers.

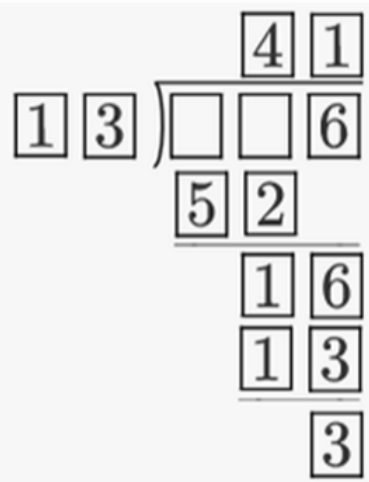
17 | 3642

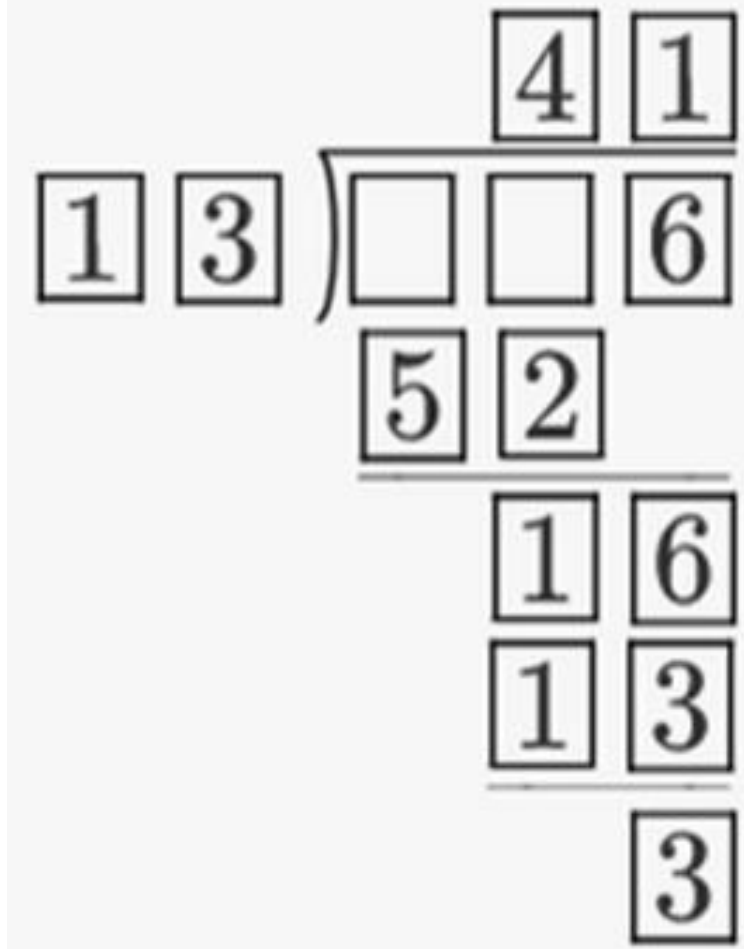
Inverse

19 | 8915

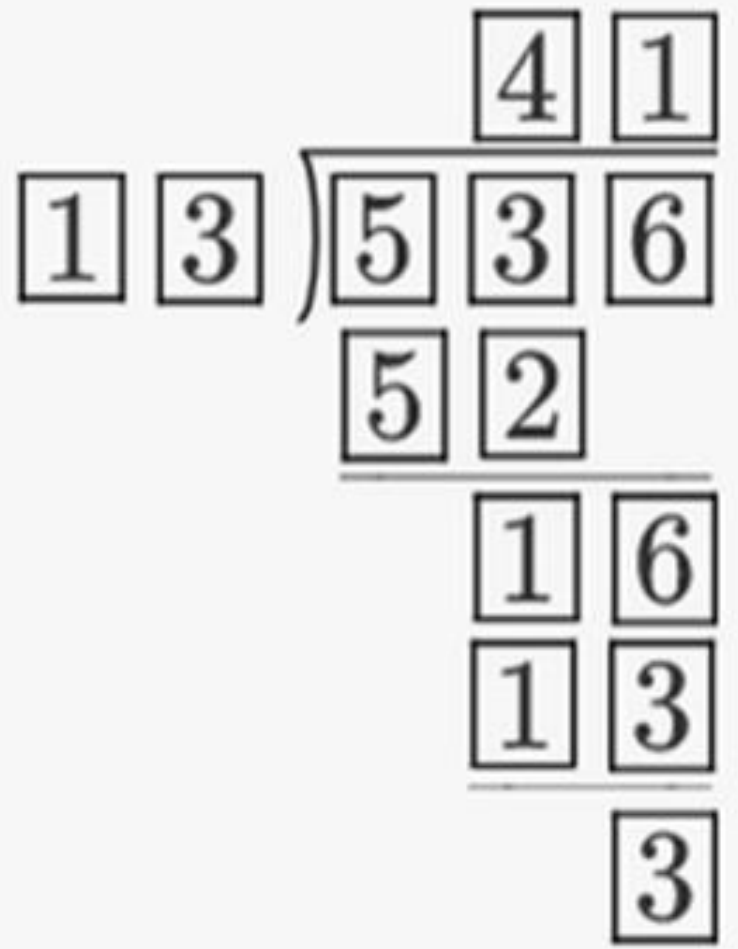
Inverse

Calculate the missing digits:





$52+1=53$



Lesson 4

Long division

11 Times Table

11 × 1 =	11 × 2 =	11 × 3 =
11 × 4 =	11 × 5 =	11 × 6 =
11 × 7 =	11 × 8 =	11 × 9 =
11 × 10 =	11 × 11 =	11 × 12 =

Now try completing the corresponding division facts

66 divided by 11 =
110 divided by 11 =
121 divided by 11 =

---

5 X 5 X 5 = 5 + 5 true or false?

Make up your own examples.

OMS - Dividing decimals by 10, 100 and 1000

Divide by 10	Divide by 100	Divide by 1000
234.12	9123.10	10.0
0.12	1200.200	100.0
123.01	9900.9	1000.0
		122.0

Learning intention:

To multiply and divide

Success criteria:

On fire: I can solve long division word problem and use the context to interpreting remainders according to context.

Hotter: I can solve long division problems.

Hot: I use written methods for long division.

Let us recap:

1. DIVISION

How many 14's go into 1?

1 ÷ 14 =

2. MULTIPLY

0 X 14 =

3. SUBTRACTION

How much is left?

1 - 0 =

4. BRING DOWN

Bring the number down - forming a new number: 18

REPEAT

Remainder

```
      0 1 2 r 4
  x
14 | 1 7 2
   - 0 1
     1 7
   - 1 4
     0 ²3̸ ¹2
     - 2 8
       0 4
```

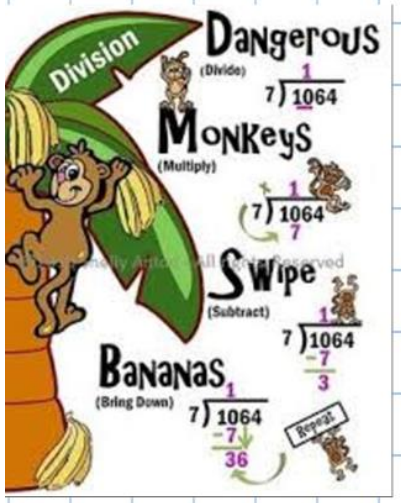
14
28
42
56
70
84
98
112
126
140

List your times tables to help you!

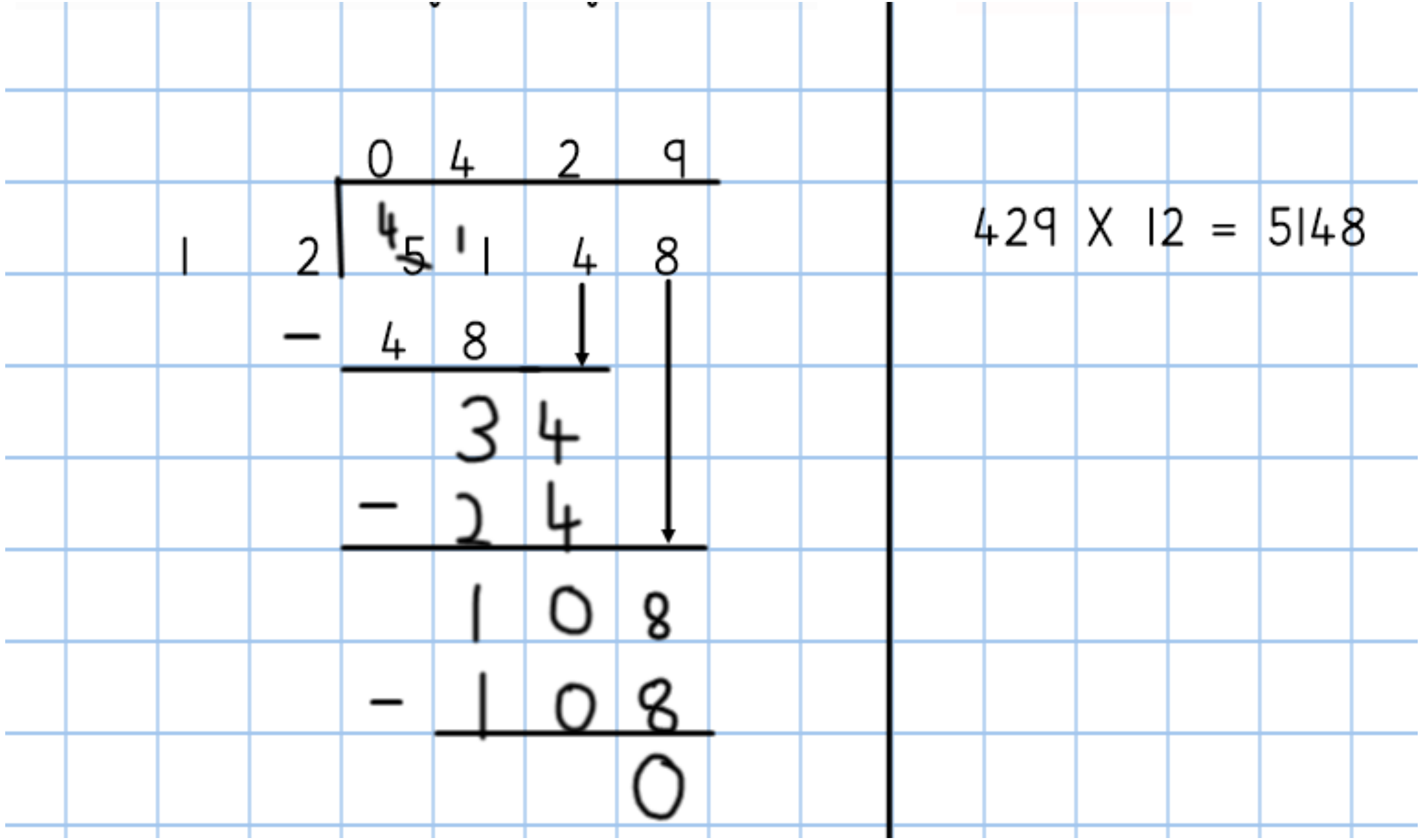
Inverse:

12 X 14 = 168

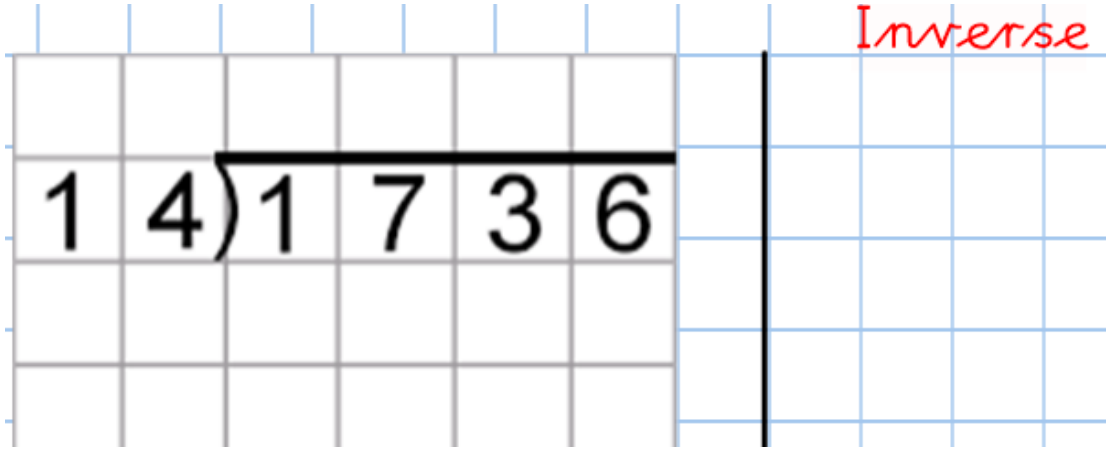
168 + 4 =172

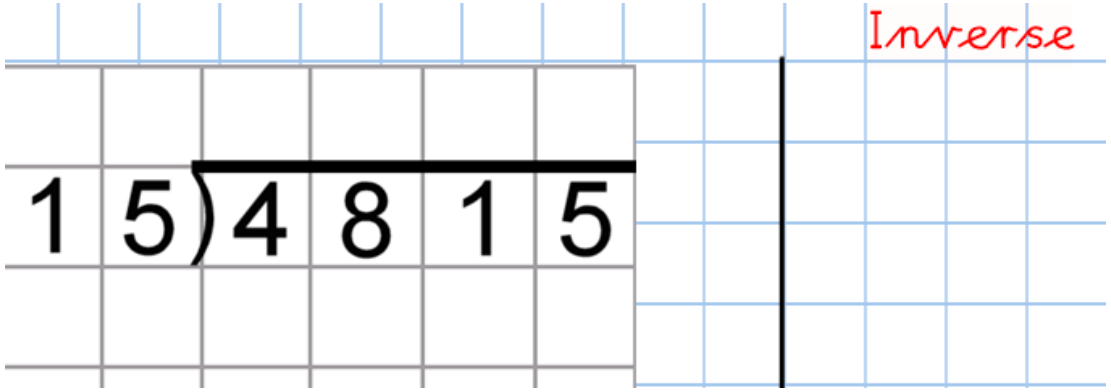


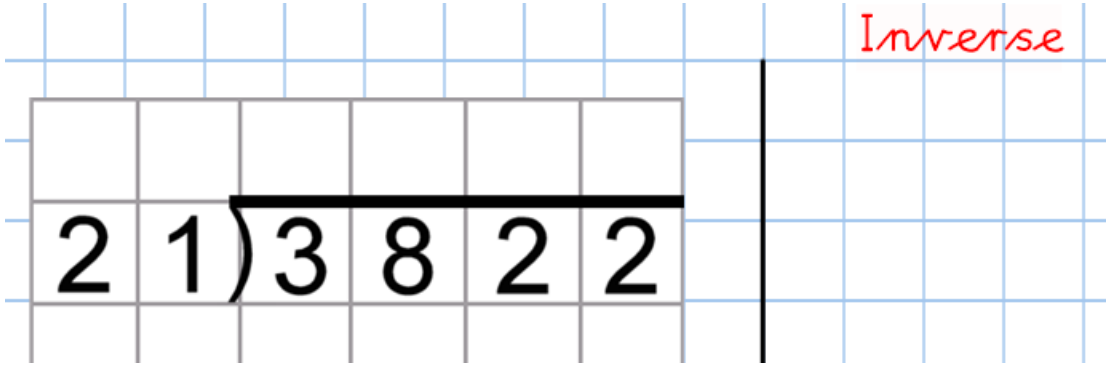
Divide
Multiply
Subtract
Bring down



429 X 12 = 5148







Write out your times table for each question.

Keeping checking the procedure.

Check your answer using the inverse.

Seb goes on a sponsored walk to collect money for charity.

His aunt promises to pay 75p for each kilometre he walks.

She pays him £6.75 at the end of the walk.

How many kilometres does Seb walk?

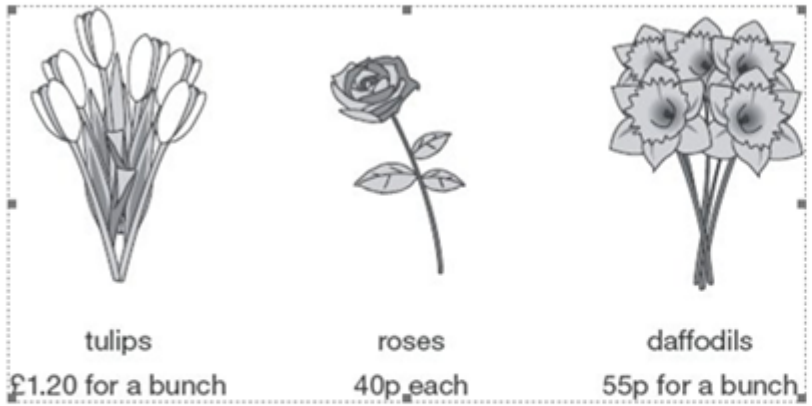
km

Convert £6.75 to pence

Then continue as before:

$$7\,5\overline{)6\,7\,5}$$

These are some prices in a flower shop.



How many roses can you buy for exactly £2?

1 mark

Shenaz buys a pack of **24 cans** of cola for **£6.00**

What is the cost of **each can**?

Independent Task

1) $14\overline{)364}$ 2) $21\overline{)357}$ 3) $33\overline{)627}$

4) $25\overline{)625}$ 5) $17\overline{)510}$ 6) $24\overline{)816}$

7) $42\overline{)588}$ 8) $34\overline{)170}$ 9) $18\overline{)324}$

10) $54\overline{)324}$ 11) $24\overline{)672}$ 12) $31\overline{)682}$

1. A plank of wood is 21.42 m long.
For 17 days Mo chops the same amount of wood off until there's none left.
Calculate the length of the wood Mo chops off each day.

21.42 m ÷ 17 2,142 cm ÷ 17

× 100

2. How many boxes of 40 matches can be filled from 2,688 matches?

boxes

3.

Small peaches 15p each

Large peaches 25p each

Emily has £5 to spend on peaches.

She decides to buy only small peaches or only large peaches.

How many **more** small peaches than large peaches can she buy for £5?

4. A bag of guinea pig food holds 2.375 kg of food.

It needs to last for 19 days.

How much food can the guinea pig have each day?

6. A group of friends earns £80 by washing cars.

They share the money **equally**.

They get £16 each.

How many friends are in the group?

1 mark

Lesson 5

Long Division Reasoning

12 Times Table

12 × 1 =	12 × 2 =	12 × 3 =
12 × 4 =	12 × 5 =	12 × 6 =
12 × 7 =	12 × 8 =	12 × 9 =
12 × 10 =	12 × 11 =	12 × 12 =

Now try completing the corresponding division facts

99 divided by 12 =
132 divided by 12 =
144 divided by 12 =

A number when made 10 times larger is 120.

What is the original number?

Arran says, If I count in 4s, I will also say some of the numbers in the 8 times table. Is he correct? Prove it.

OMS - Dividing and multiplying numbers by 10,100 and 1000

H	T	O	Tths	Hths
	1	5		

15 ÷ 10 = ☐

H	T	O	Tths	Hths
		3	8	

3.8 ÷ 10 = ☐

H	T	O	Tths	Hths	Thths
		9	4		

9.4 ÷ 100 =

H	T	O	Tths	Hths	Thths
	3	2	5		

32.5 ÷ 100 = ☐

H	T	O	Tths	Hths	Thths
1	3	6			

Complete the calculation.

136 ÷ 1,000 = ☐

Now do the reverse to get back to the original answer!

Learning intention:

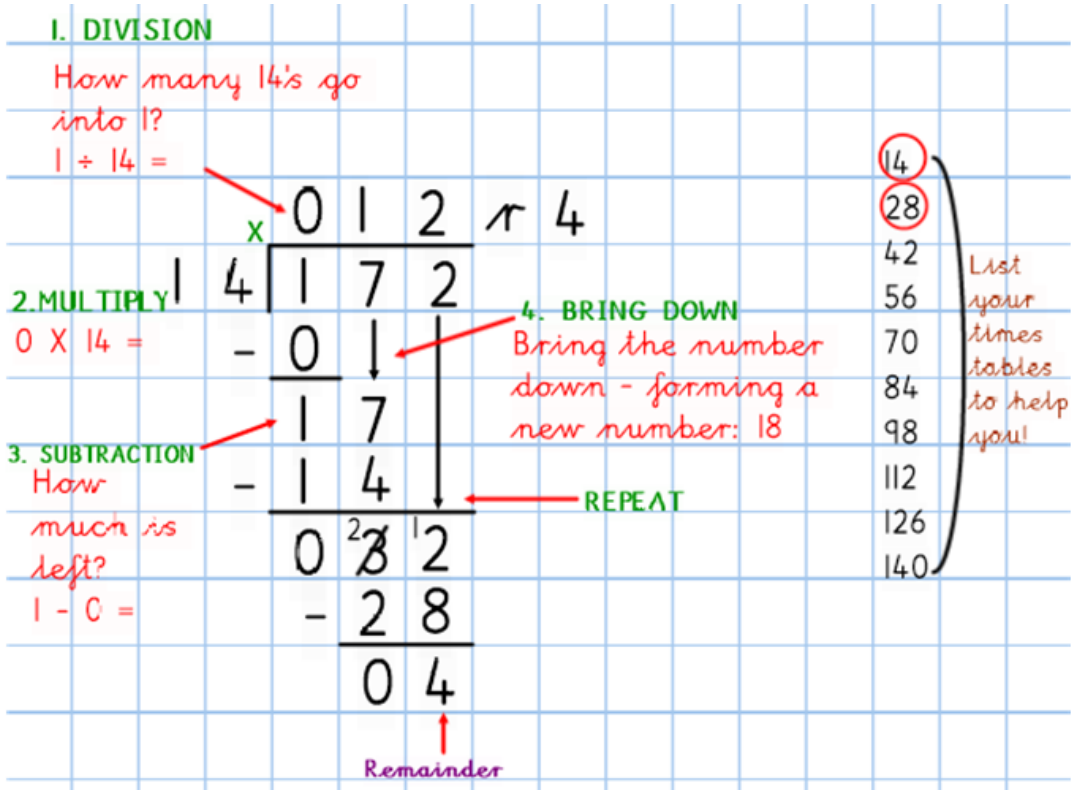
To multiply and divide

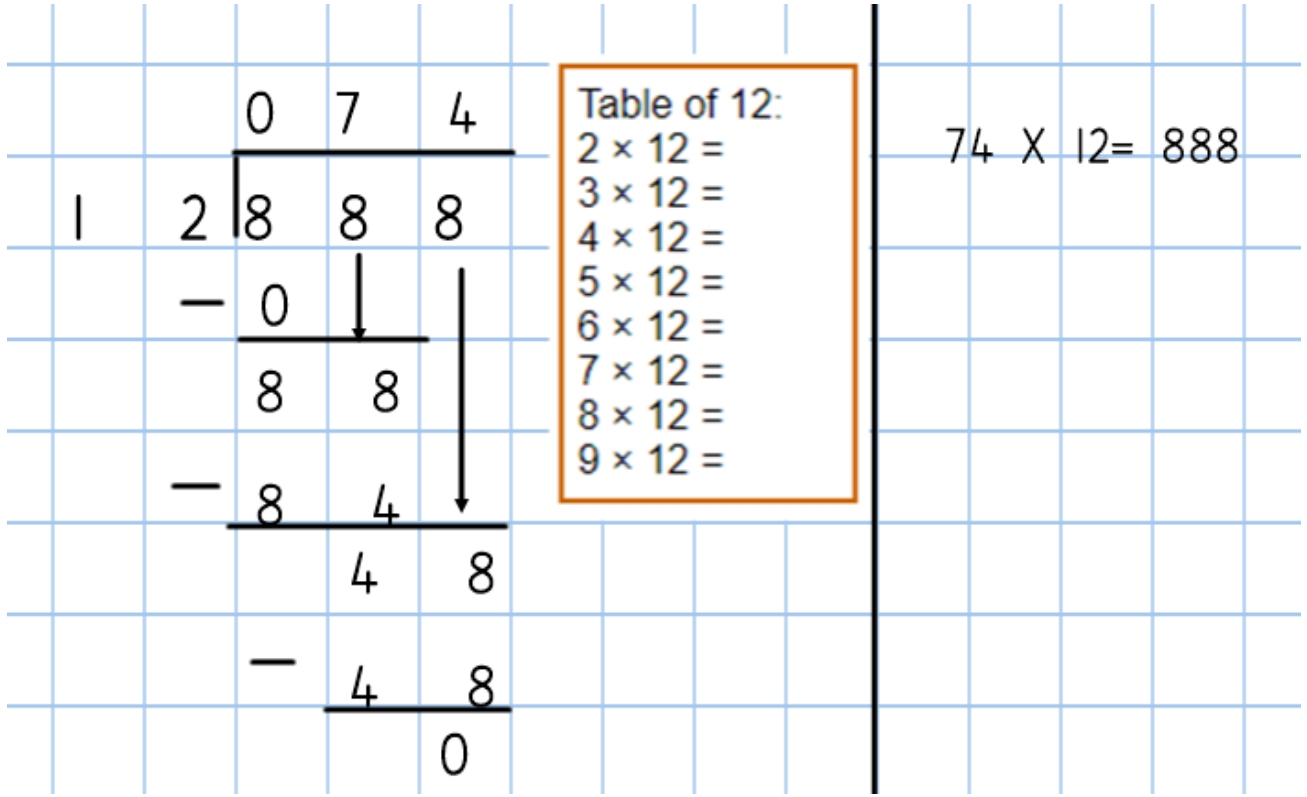
Success criteria:

On fire: I can use and apply reasoning and problems solving skills to long division.

Hotter:I can reason to solve problems

Hot: I can interpret division problems


1. DIVISION
How many 14's go into 1?
1 ÷ 14 =
0 1 2 r 4
14 | 1 7 2
X
2. MULTIPLY
0 X 14 =
- 0
1 7
3. SUBTRACTION
How much is left?
1 - 0 =
- 1 4
0 2 8 12
- 2 8
0 4
Remainder
4. BRING DOWN
Bring the number down - forming a new number: 18
REPEAT
14
28
42
56
70
84
98
112
126
140
List your times tables to help you!


0 7 4
1 2 | 8 8 8
- 0
8 8
- 8 4
4 8
- 4 8
0
Table of 12:
2 × 12 =
3 × 12 =
4 × 12 =
5 × 12 =
6 × 12 =
7 × 12 =
8 × 12 =
9 × 12 =
74 X 12= 888

Inverse

14)1736

Table of 14:
2 × 14 =
3 × 14 =
4 × 14 =
5 × 14 =
6 × 14 =
7 × 14 =
8 × 14 =
9 × 14 =

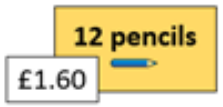
There are 146 adults and 69 children attending a wedding.
During the meal each table seats 14 people.
How many tables are needed?

146 + 69 = 215 people

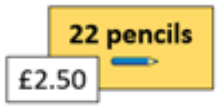
14)215

Eva needs 540 pencils for all her art lessons this year.

Arts & Crafts



Pencil Palace



How much would it cost to buy the pencils from each shop?

Which shop is the best shop for Eva to get her pencils from?

Your turn!

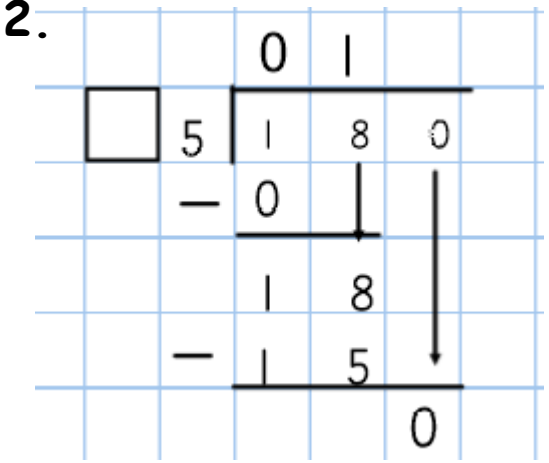
1. Tommy needs to buy 650 balloons for a festival.

Party Supplies

Fun Stores

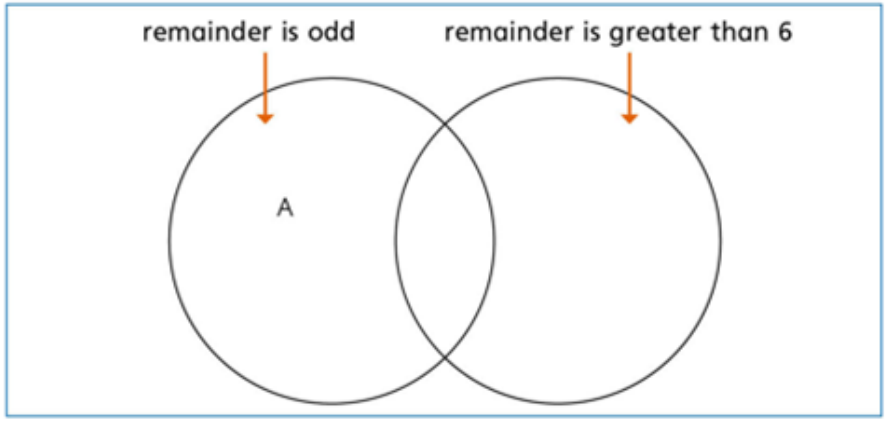
How much would it cost to buy the balloons from each shop?

2.



3. Label the sorting diagram with the divisions. The first one has been done for you.

A 901 ÷ 16	C 910 ÷ 16	E 901 ÷ 17	G 910 ÷ 17
B 902 ÷ 16	D 920 ÷ 16	F 902 ÷ 17	H 920 ÷ 17



4.

Use each digit card once to complete the division in different ways.

□ □ □ ÷ □ □

5.

75 = 6,600 ÷

9,251 ÷ = 29

What is the value of × ?

× = ☐