Arithmetic Workshop

Let us have a play with numbers!

Can you complete the puzzle below?

In the multiplication table on the right, the row and column headings are all missing, and only some of the products in the table are filled in.

All the numbers in the table are positive integers.

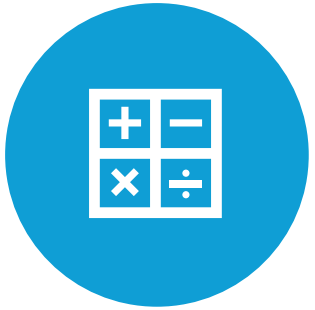
What is the value of $A + B + C + D + E$?

x					
	A	10		20	
	15	B	40		
	18		C	60	
		20		D	24
			56		E

Itinerary

RULES FOR THE SESSION

INTRO – MATHS ANXIETY



ARITHMETIC – FEEDBACK FROM YOU.

MULTIPLICATION AND DIVISION

Rules for the session

Help yourself to snacks.

This is a safe space – you are allowed/encouraged to try things and get them wrong.

This is a confidential space.

Be honest – thumbs up, middle, down.

Feel free to interrupt with a question at any point.

No such thing as a stupid question.

Tell me if I am going too fast - I can go over something repeatedly until you are happy.

If we don't get through everything, that is ok.

Maths Anxiety – affects the whole spectrum of ability

Having a positive role model to teach maths

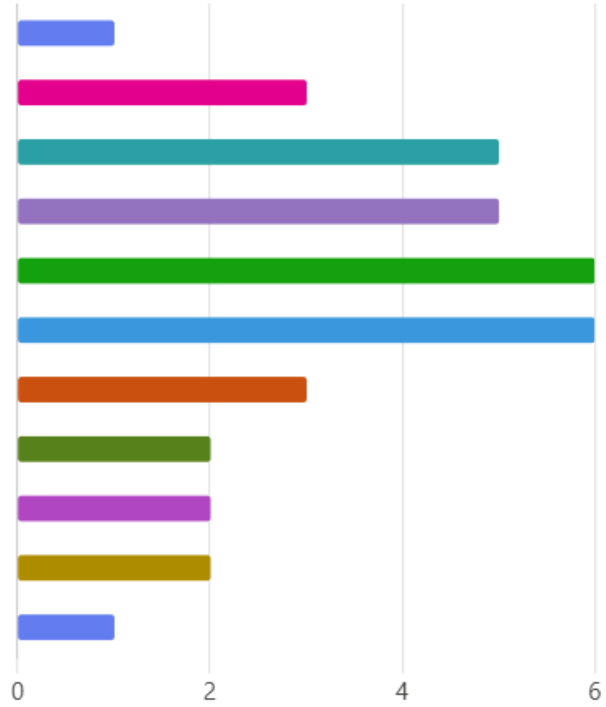
Parental experience/attitude towards maths

General Self-esteem/Confidence

Arithmetic Feedback

4. I would like to cover the following topics (please note that you are able to select more than one) (0 point)

Formal Addition and subtraction	1
Multiplication	3
Short and Long Division	5
Fractions of a number	5
Adding and subtracting Fractions	6
Multiplying and Dividing Fractions	6
Percentages	3
Adding and subtraction with decimals	2
Missing Box problems.	2
BODMAS	2
Other	1



Today:

Multiplication

Division

Multiplication – Y3

- Times Tables – 3,4,8
- Times Tables Bingo!

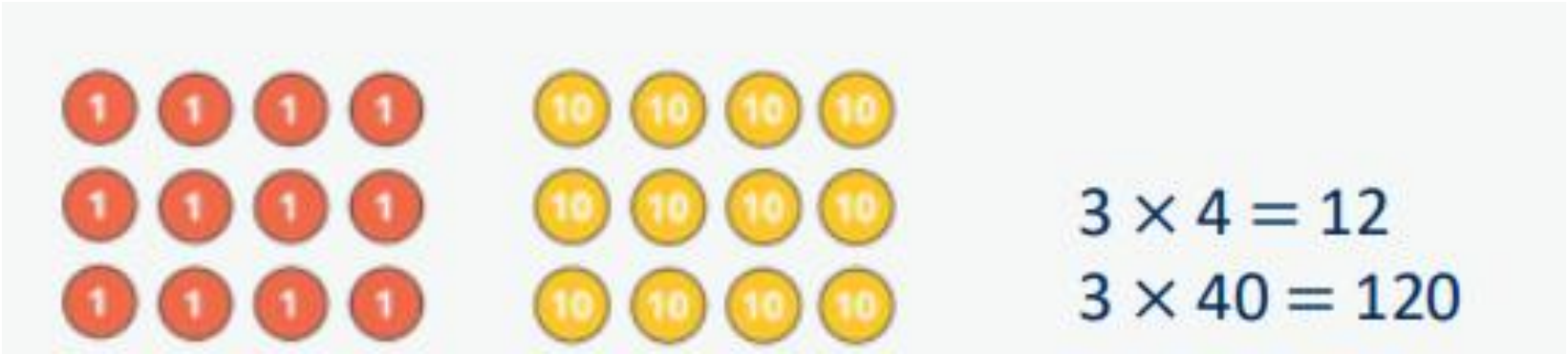
3 times table
1 × 3 = 3
2 × 3 = 6
3 × 3 = 9
4 × 3 = 12
5 × 3 = 15
6 × 3 = 18
7 × 3 = 21
8 × 3 = 24
9 × 3 = 27
10 × 3 = 30
11 × 3 = 33
12 × 3 = 36

4 times table
1 × 4 = 4
2 × 4 = 8
3 × 4 = 12
4 × 4 = 16
5 × 4 = 20
6 × 4 = 24
7 × 4 = 28
8 × 4 = 32
9 × 4 = 36
10 × 4 = 40
11 × 4 = 44
12 × 4 = 48

8 times table
1 × 8 = 8
2 × 8 = 16
3 × 8 = 24
4 × 8 = 32
5 × 8 = 40
6 × 8 = 48
7 × 8 = 56
8 × 8 = 64
9 × 8 = 72
10 × 8 = 80
11 × 8 = 88
12 × 8 = 96

Multiplication – Y3

- Related facts.

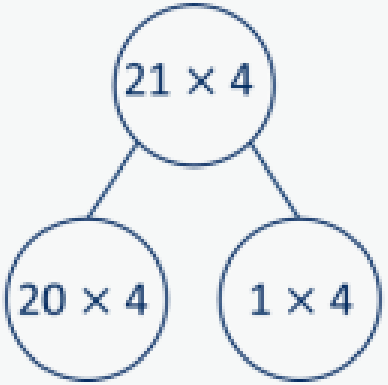


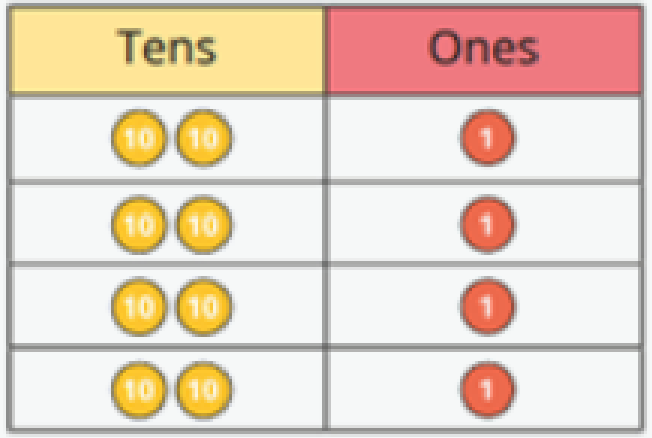
- Multiplication of 1 digit by 2-digit number.

$30 \times 2 = 60$

$2 \times 2 = 4$

$32 \times 2 = 64$

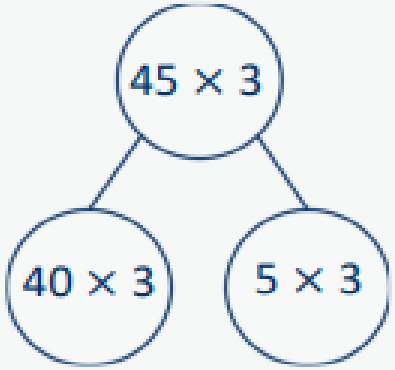


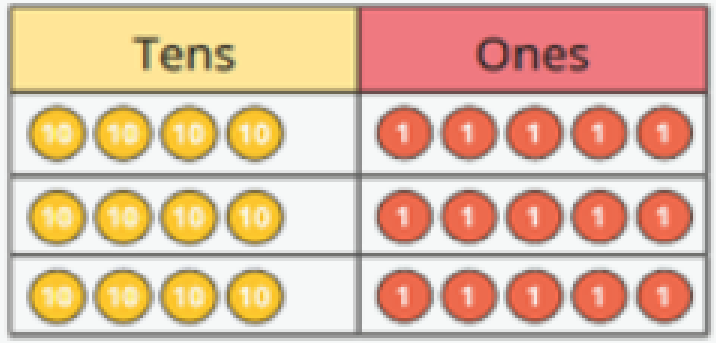


$20 \times 4 = 80$

$4 \times 4 = 16$

$24 \times 4 = 96$





Multiplication – Y3

Multiplication of 1 digit by 2-digit number.

Year 4

- Times Tables – recall all multiplication facts up to 12 x 12.
- Multiply by 1 and 0.
- Multiply 3 numbers.

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
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

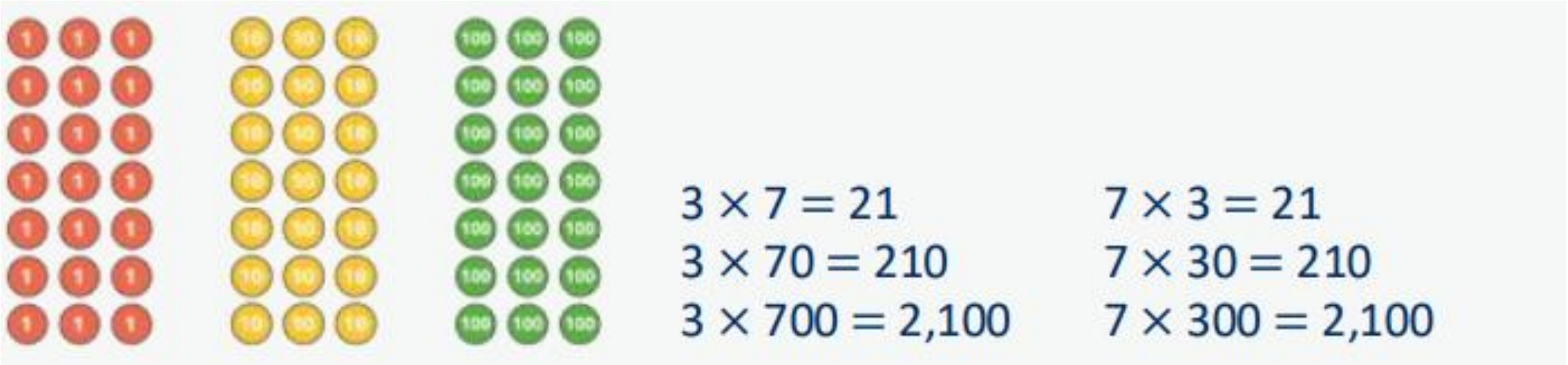
$4 \times 2 \times 3 = 8 \times 3 = 24$

$2 \times 3 \times 4 = 6 \times 4 = 24$

$3 \times 4 \times 2 = 12 \times 2 = 24$

Do not ‘add a zero’!

You are putting a ‘place holding zero’ in.



$3 \times 7 = 21$
$3 \times 70 = 210$
$3 \times 700 = 2{,}100$

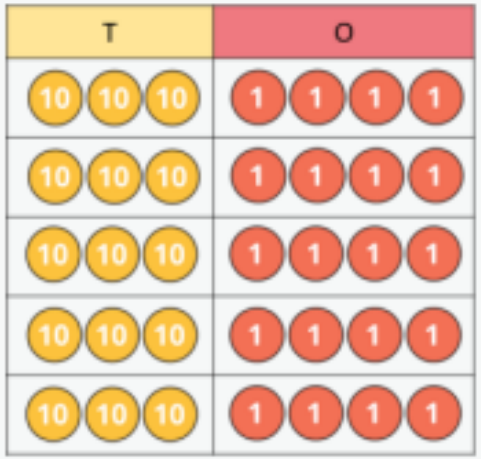
$7 \times 3 = 21$
$7 \times 30 = 210$
$7 \times 300 = 2{,}100$

Year 4 - Multiplying by 10 and 100.

Year 4 – Multiply a 2 digit or 3-digit number by a 1-digit number.

To multiply a 2-digit number by … , I multiply the ones by … and the tens by …

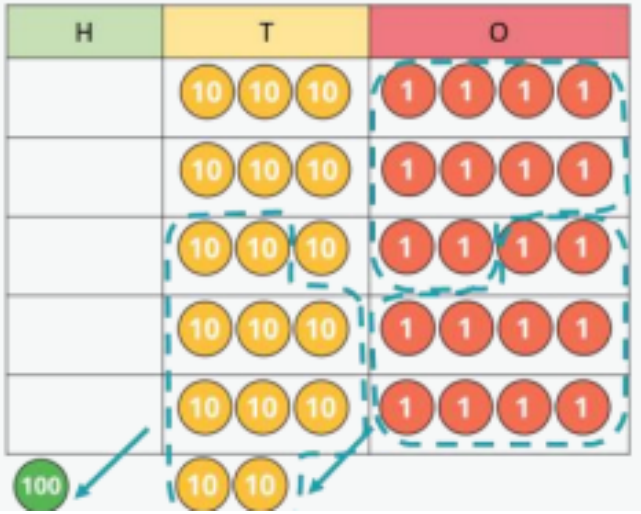
To multiply a 3-digit number by … , I multiply the ones by … , the tens by … and the hundreds by …



	H	T	O
		3	4
×			5
		2	0
	1	5	0
	1	7	0

(4 × 5)
(30 × 5)

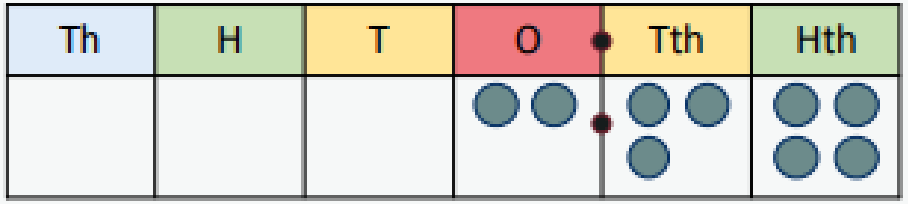
	H	T	O
		3	4
×			5
	1	7	0
	1	2	



Multiplication – Year 5

- Square and Cubed Numbers 2x2 = 4 2x2x2 = 8
- Multiply by 10,100 and 1000.

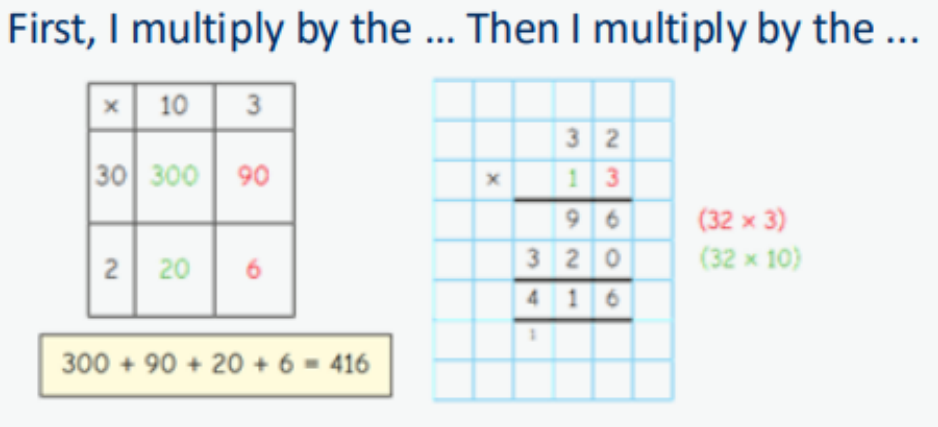
To multiply by 10/100/1,000, I move all the digits … places to the left.
… is 10/100/1,000 times the size of …

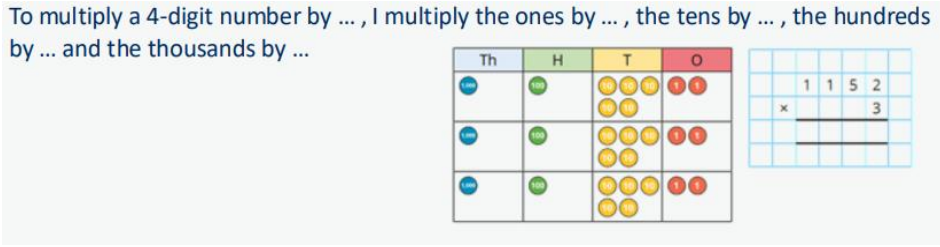


$234 \times 10 = 2{,}340$
$234 \times 100 = 23{,}400$
$234 \times 1{,}000 = 234{,}000$

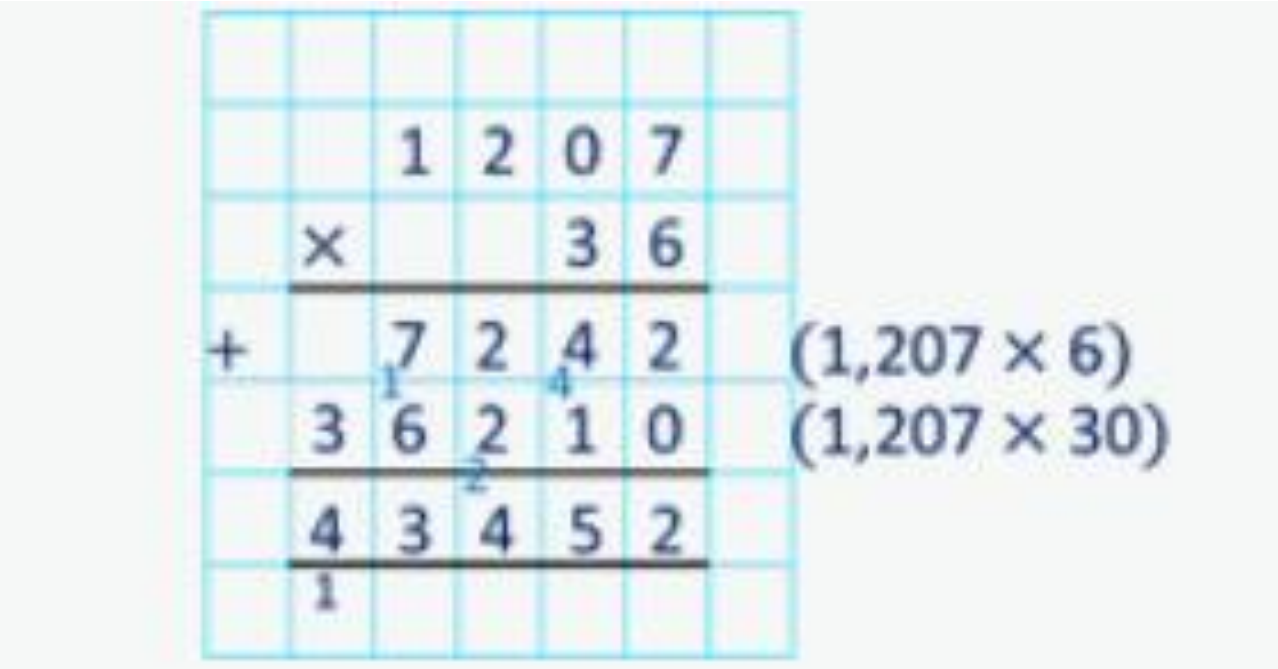
$2.34 \times 10 = 23.4$
$2.34 \times 100 = 234$
$2.34 \times 1{,}000 = 2{,}340$

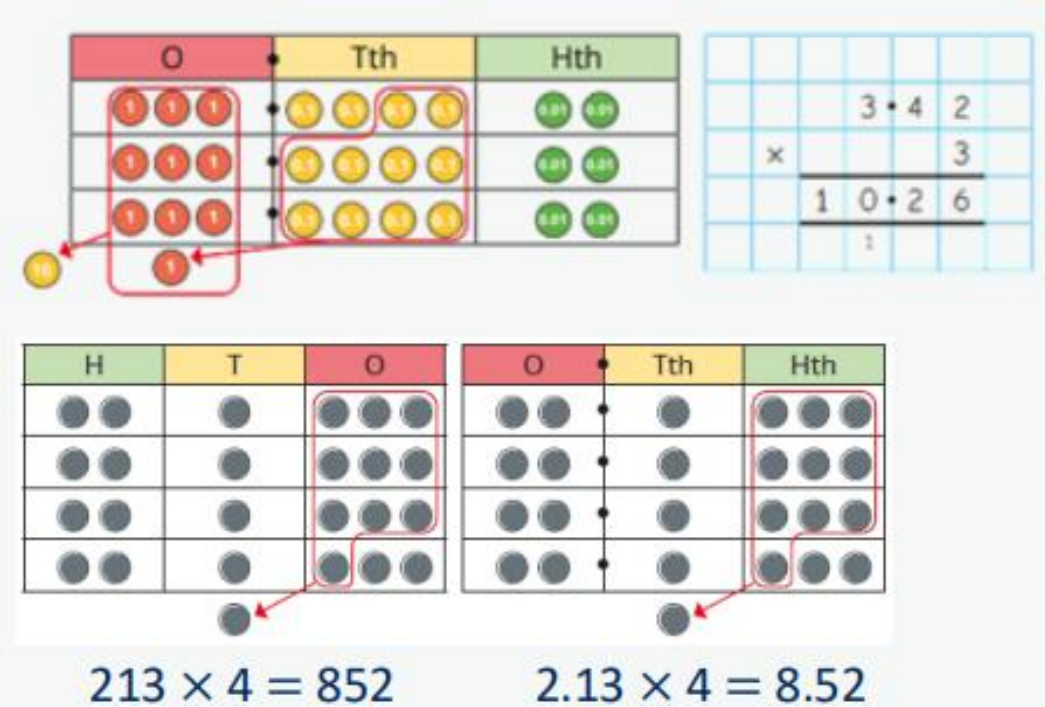
Year 5 – Multiply numbers up to 4 digits by a 2-digit number





Multiplication – Year 6 (Not much new at all!)

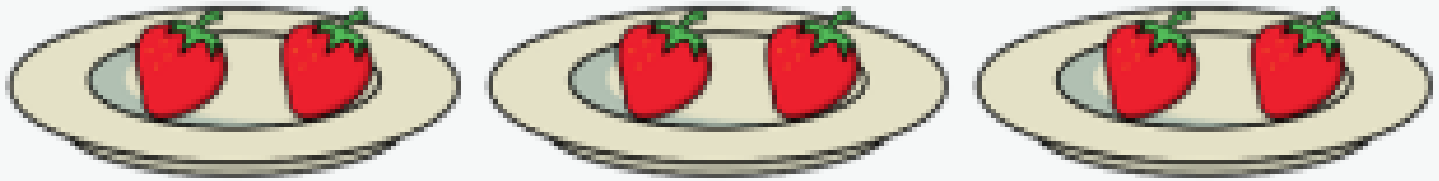




Division – Year 3 3,4,8's

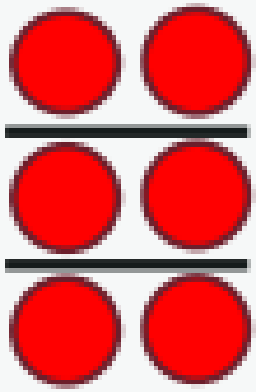
... has been shared equally into 3 equal groups.

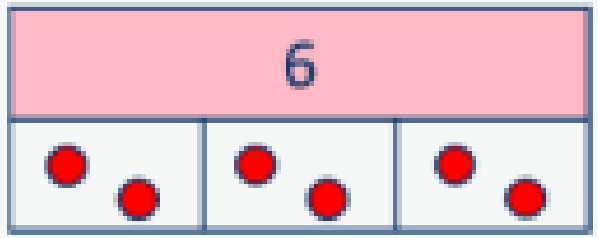
... ÷ 3 =

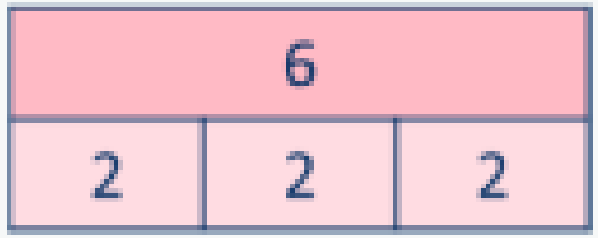


$2 \times 3 = 6$

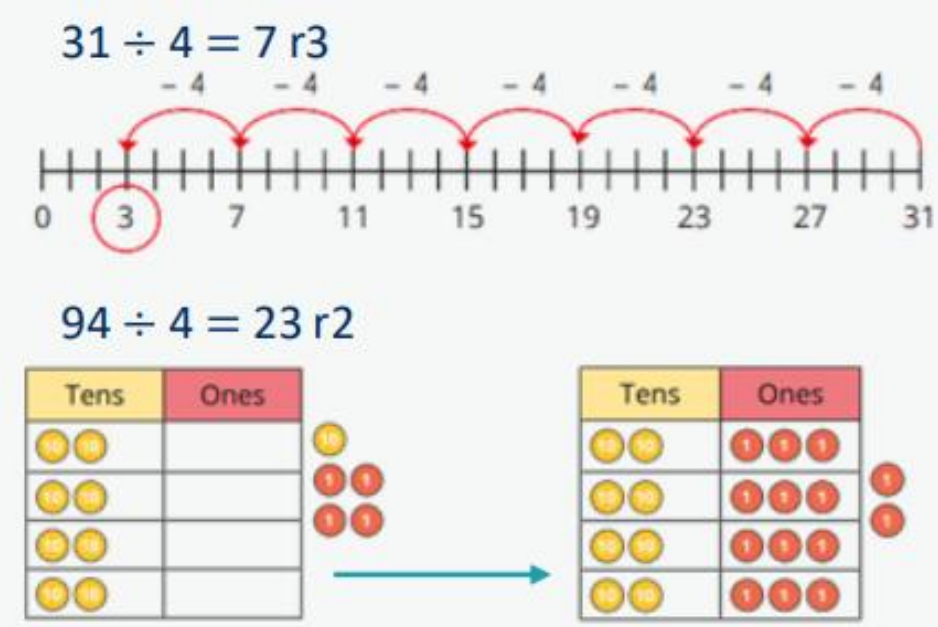
$6 \div 3 = 2$

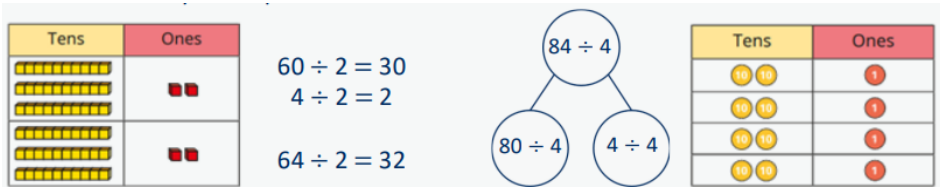






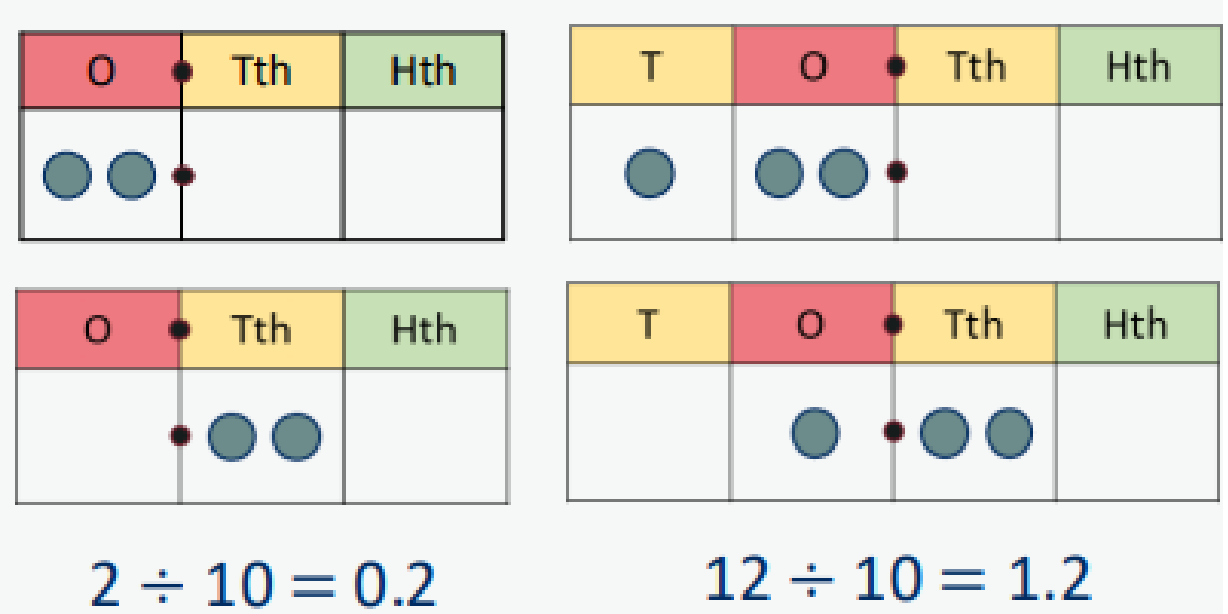
Year 3 – Divide by a 2-digit number by a 1-digit number with/without remainders



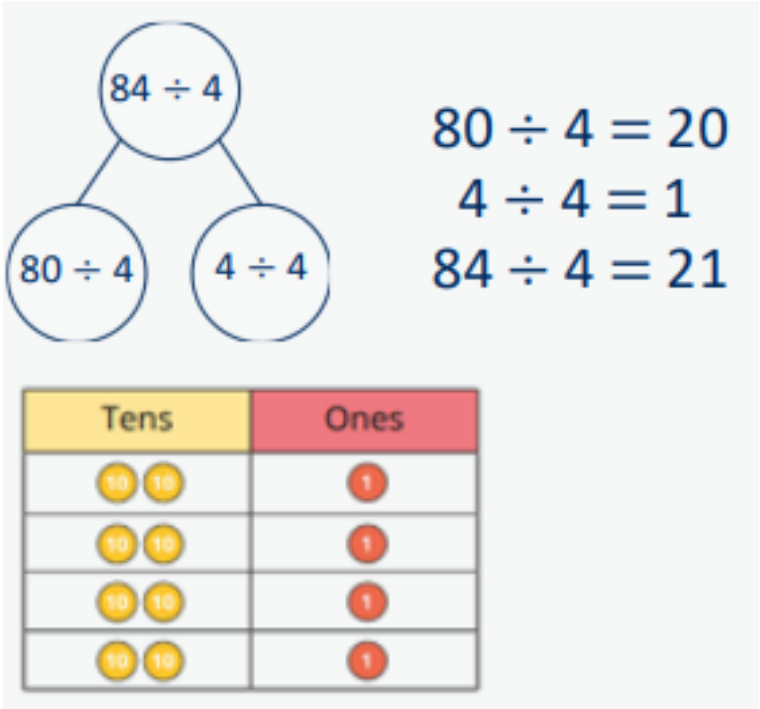


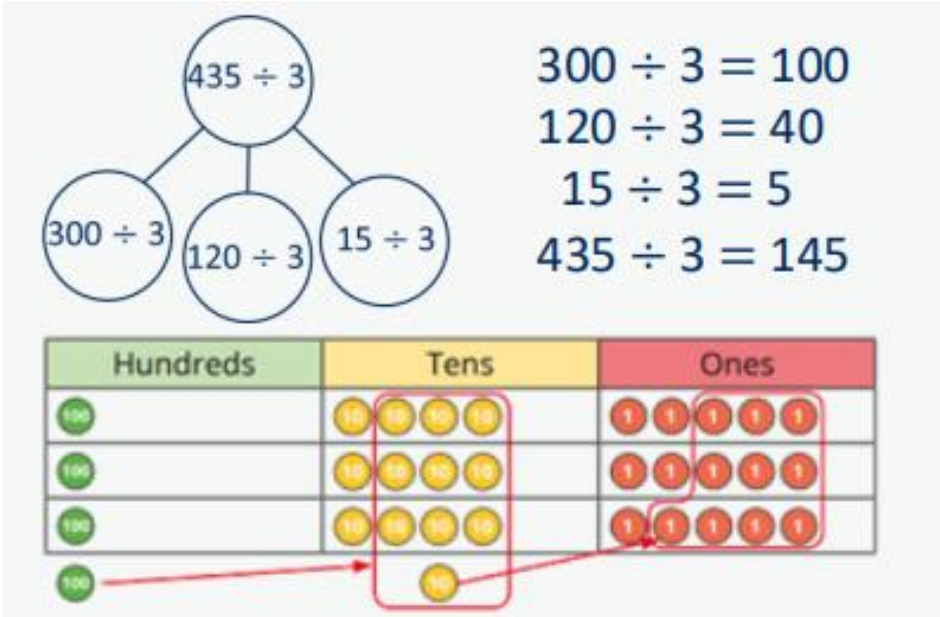
Division – Year 4

- Division facts to 12 x 12 .
- Divide a number by 1 and itself.
- Divide by 10 and 100.



Year 4 – Divide by a 2 or 3-digit number by a 1-digit number.





Division – Year 5

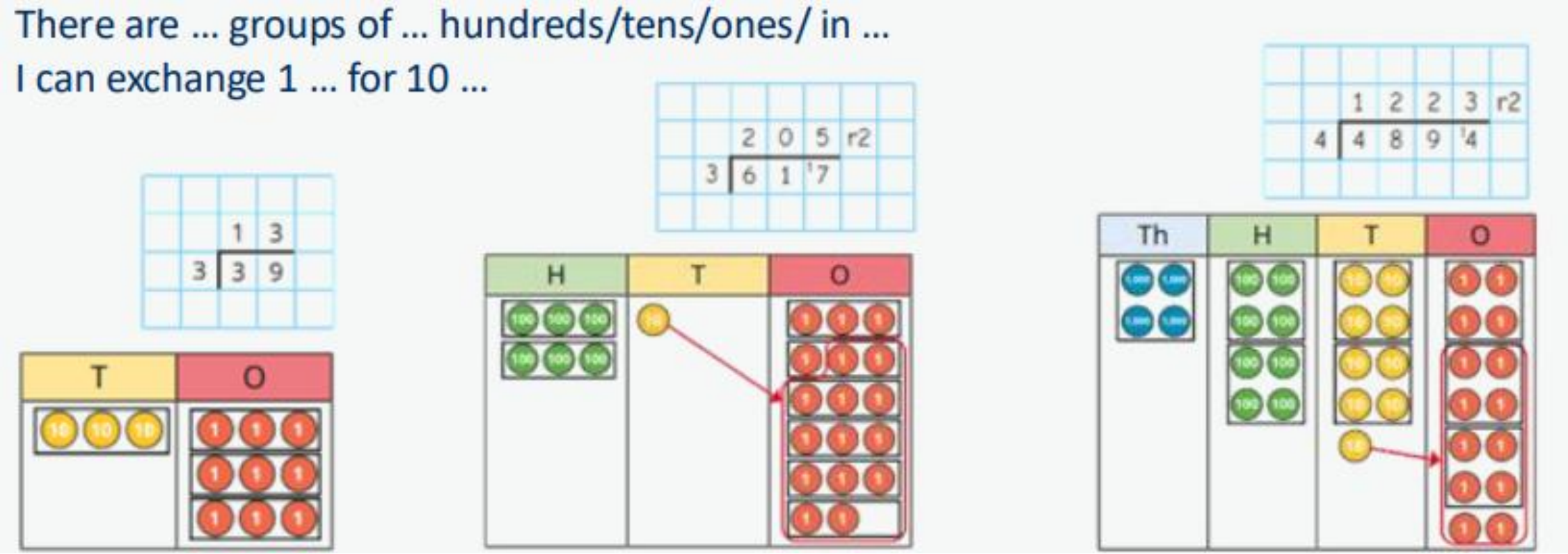
- Divide by 10,100,1000

$120 \div 10 = 12$

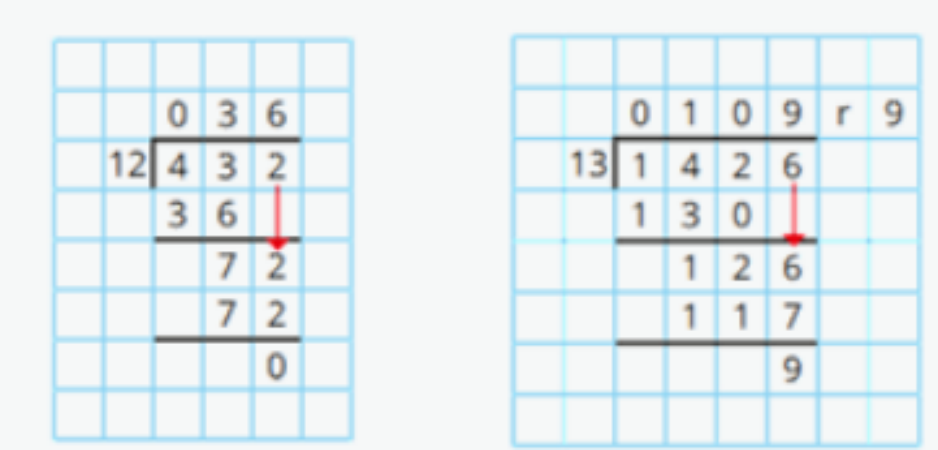
$120 \div 100 = 1.2$

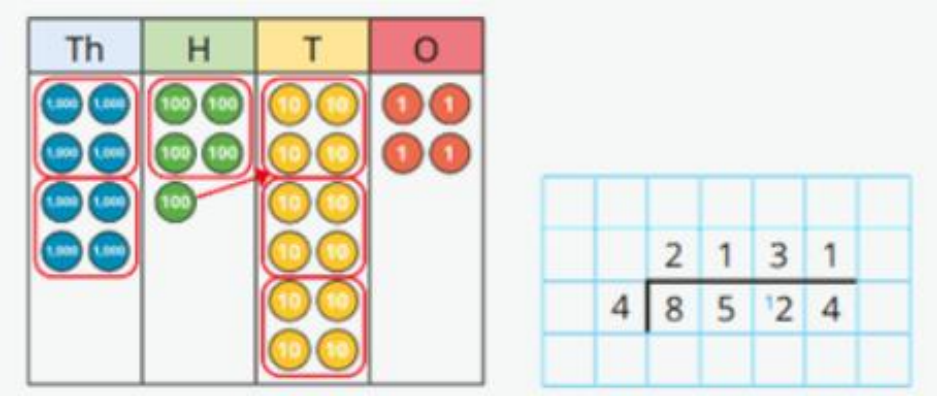
$120 \div 1{,}000 = 0.12$

Year 5 – Divide numbers up to 4 digit by a 1-digit number.



Division – Year 6





Percentages Bonus Slide

Progression of skills	Key representations	
Calculate percentages Children first learn how to find 1%, 10%, 20%, 25% and 50% before using multiples of these amounts to find any percentage.	There are … lots of … % in 100% To find … %, I need to divide by … 50% of … = …÷ 2 25% of … = …÷ 4	… % is made up of … %, and … % To find 30%, I can find 10% and then multiply it by 3 To find 23%, I can use 10% × 2 and 1% × 3 To find 99%, I can find 1%, then subtract from 100%