



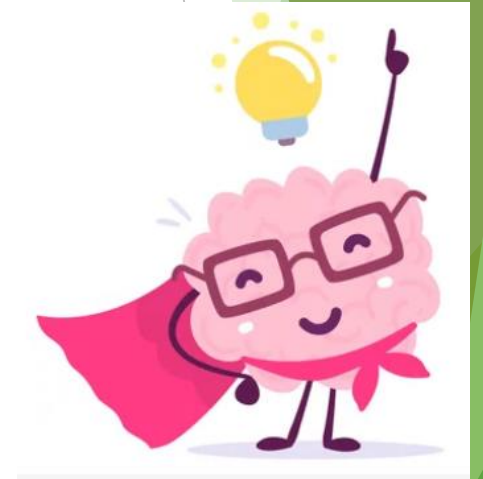
PARENTS MATHS WORKSHOP

Year 5



Aims of the Session:

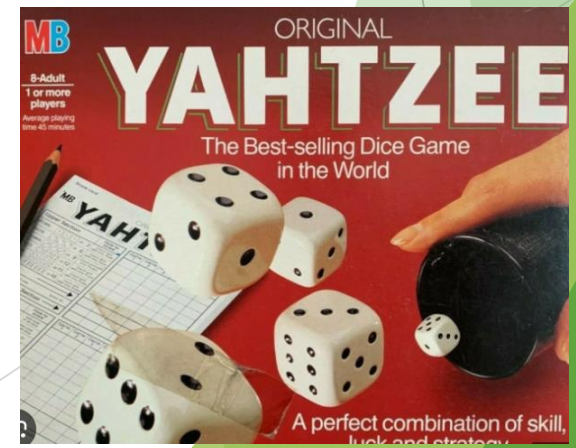
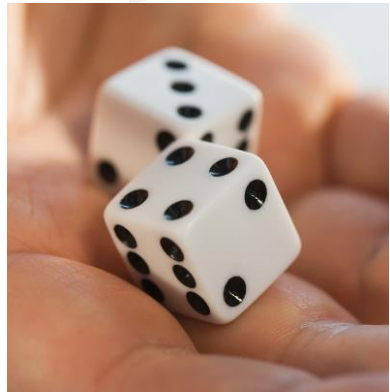
- Share with you some of the things your child will be learning in school
- Improve your confidence in helping your child with maths
- Explore some games and activities you can play with your child at home to help them develop fluency and become more automatic with number facts.



Why engage with your child's learning?

Research evidence suggests that when parents are engaged in their children's learning, outcomes for children can be improved.

Games you can play at home!



Measurement...

Telling the time!



Measuring capacity, weighing ingredients, measuring lengths/ heights...

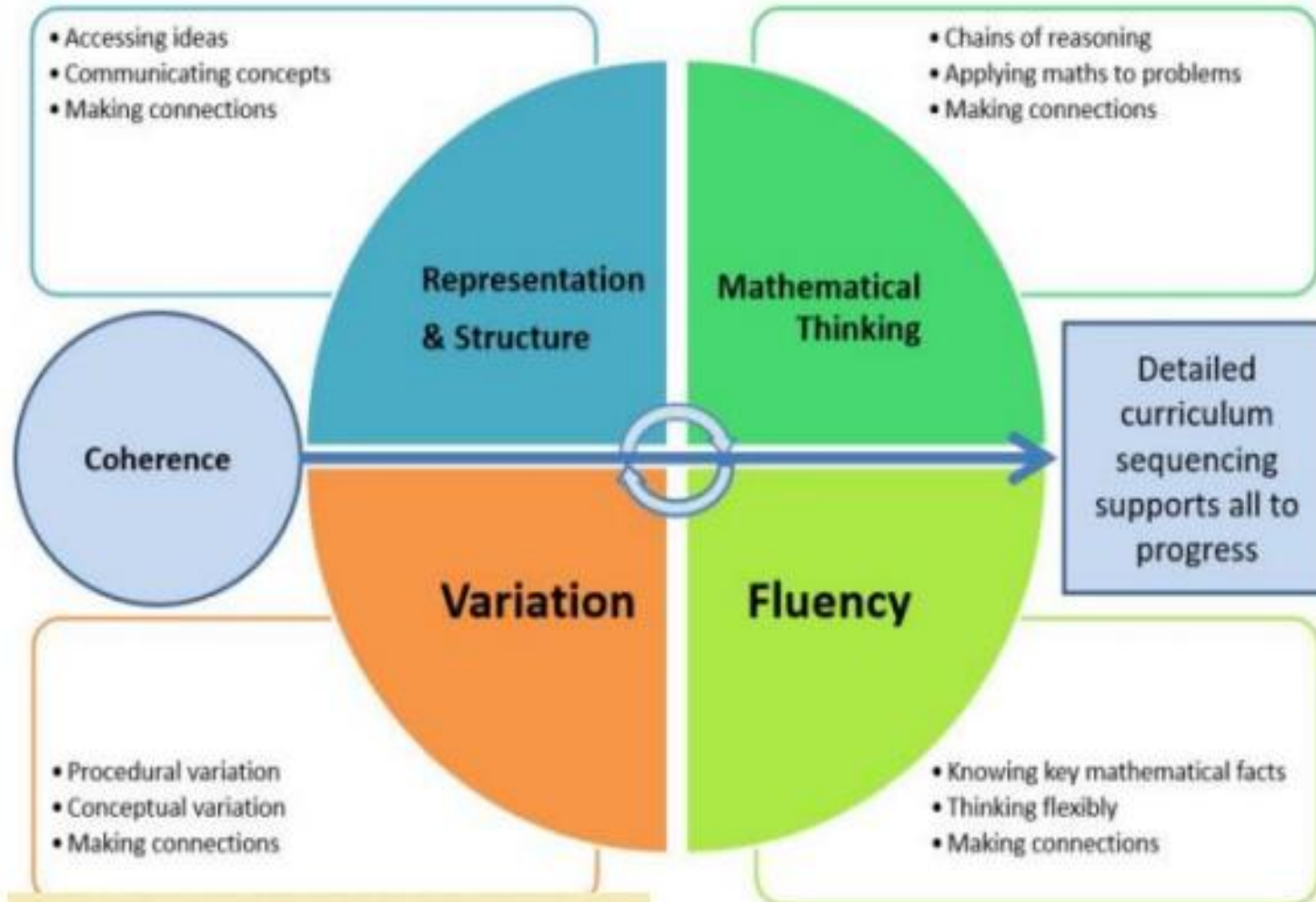


100cm - 1 metre
1000m - 1km
1000ml - 1 litre
1000g - 1kg

Watches From £22



Teaching for Mastery



In Year 5, we continue to build on previous knowledge.

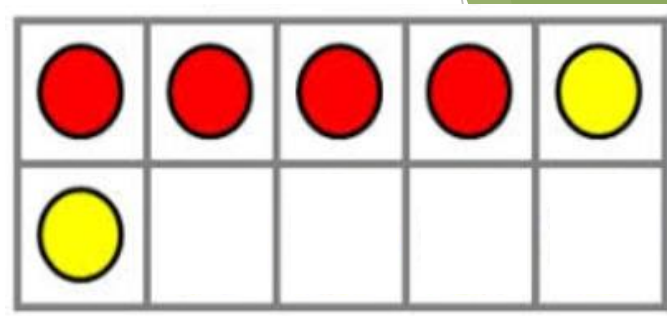
I know that 6 is made of 4 and 2 so I will also know...



$$40 + 20$$

$$400 + 200$$

$$2458 + 5216 = 7674$$

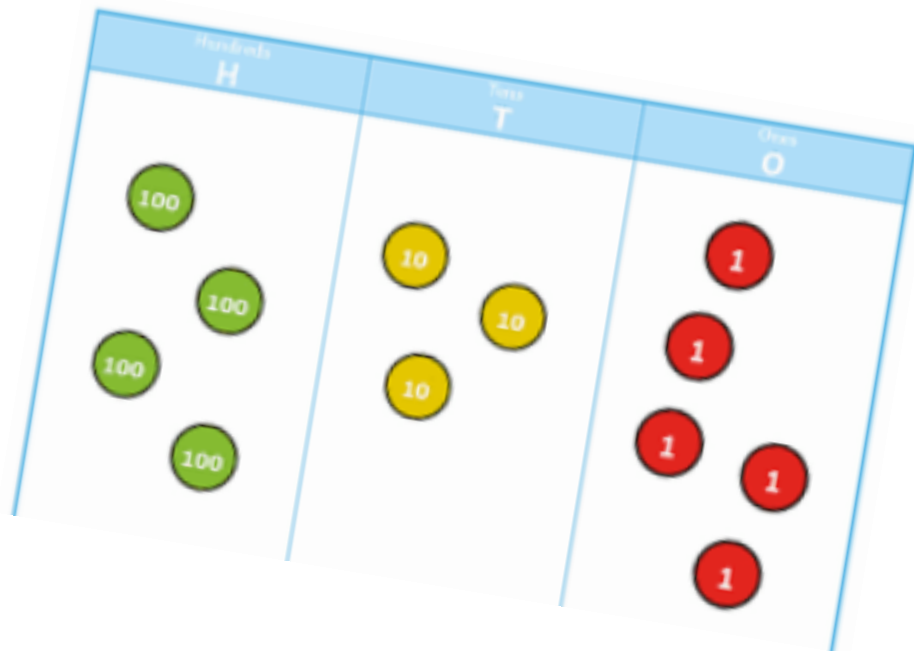
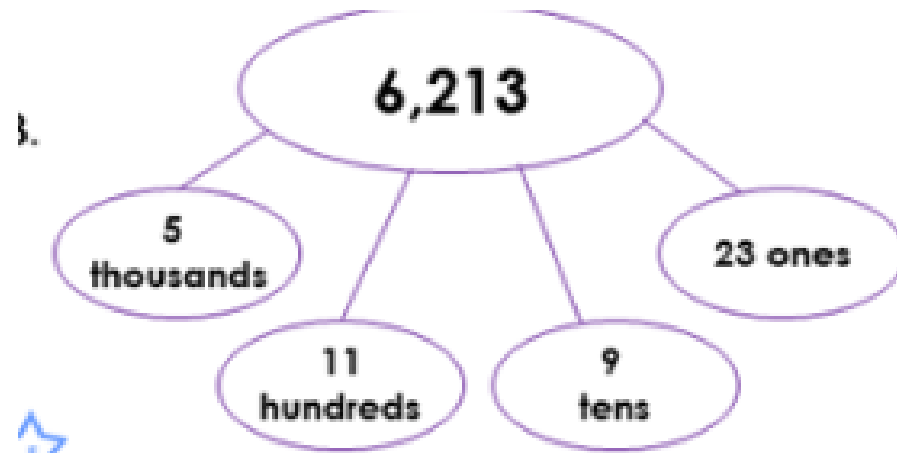
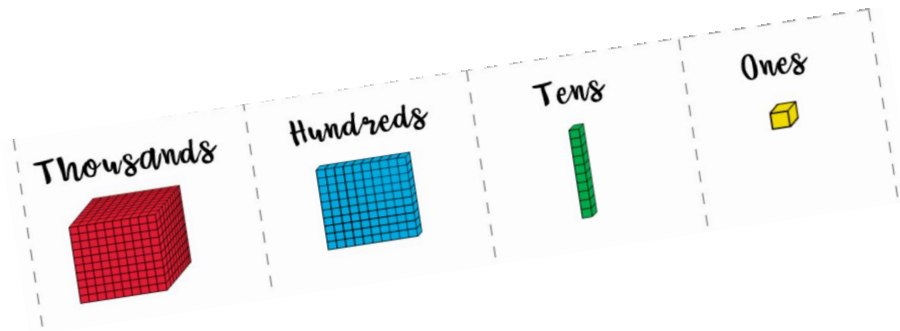


$$6 - 2$$

$$60 - 20$$

$$0.4 + 0.2$$

We use partitioning...

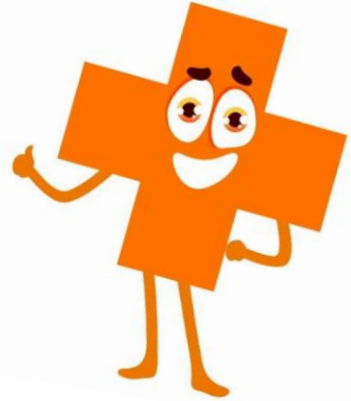


$$4.6$$

4 0.6

The number 4.6 is written at the top. A line connects the digit 4 to a circled '4' below it. Another line connects the decimal part .6 to a circled '0.6' below it.

Developing Fluency:



Year 5	Autumn	<ul style="list-style-type: none">* multiply and divide whole numbers by 10, 100 and 1000.* recall all the prime numbers to 19.* find factor pairs for numbers up to 100.* recognise roman numerals to 1000.* know my multiplication and division facts for the 6, 9 and 7 times tables* Count on and back in multiples of 10, 25, 500, 100 and 1000.
	Spring	<ul style="list-style-type: none">* know decimal and fraction equivalents* count on and back in 100ths as decimals.* know my multiplication and division facts for the 11 and 12 times tables
	Summer	<ul style="list-style-type: none">* round decimals to up to 2 decimal places to the nearest whole number or 1 decimal place.* multiply and divide decimals by 10, 100 and 1000.* know decimal number bonds to 1 and 10.* recall all multiplication and division facts up to 12x12* count up in sixths, sevenths, ninths, elveneths, and twelfths



CPA - approach to maths!

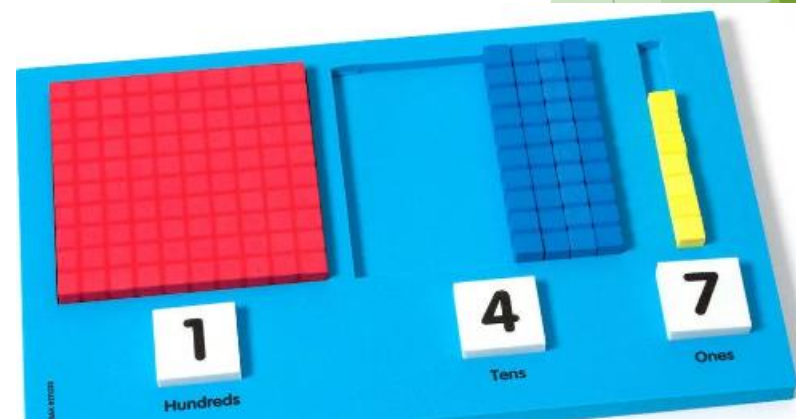
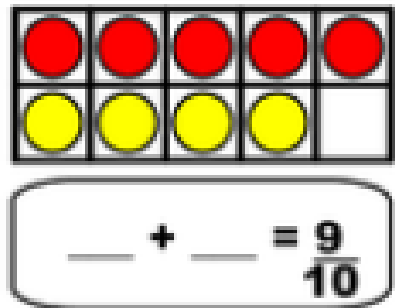
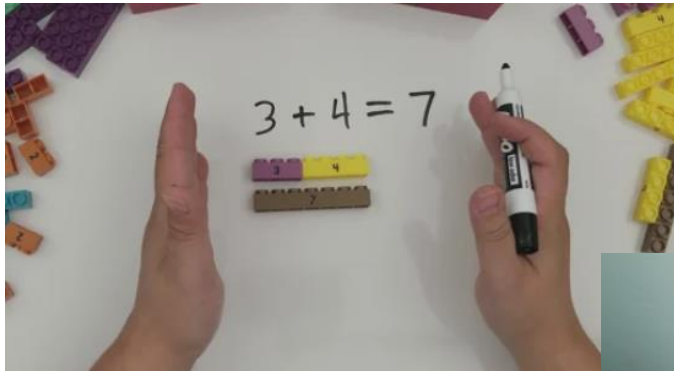
Concrete

Pictorial

Abstract

CPA - approach to maths!

Concrete



Tenths and Hundredths Place Value Grid



Hundreds

Tens

Ones

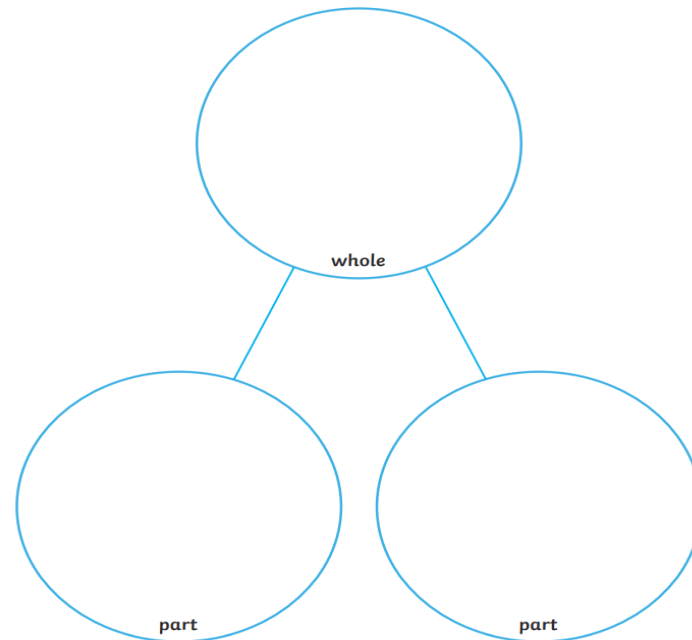
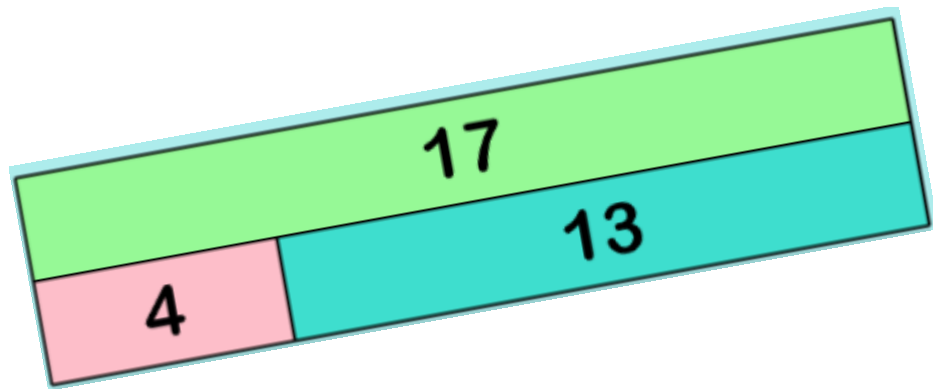


Tenths

Hundredths

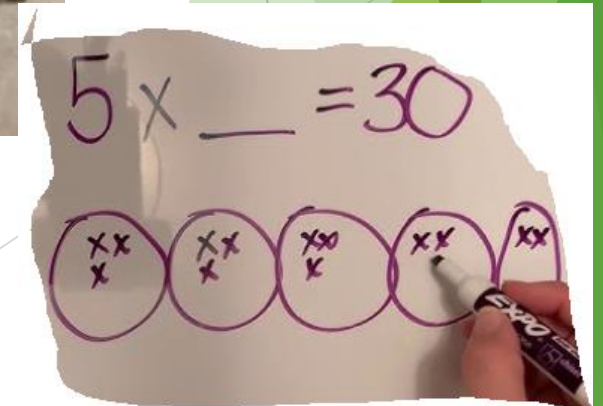
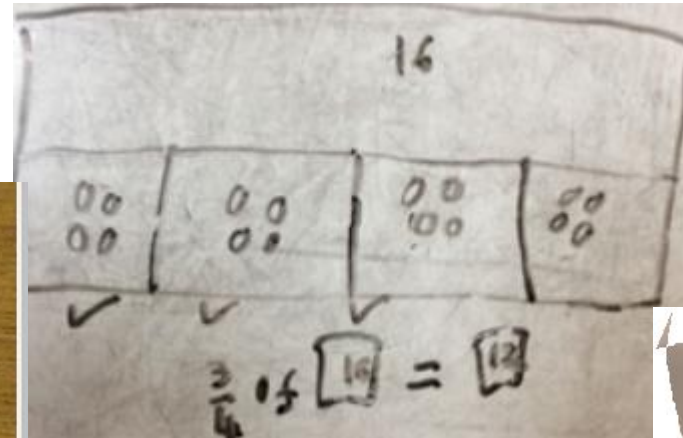
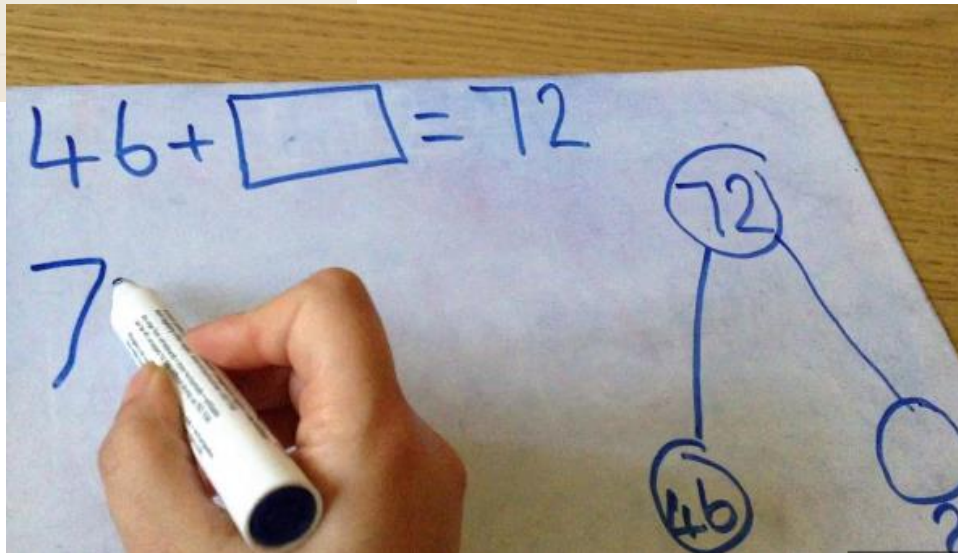
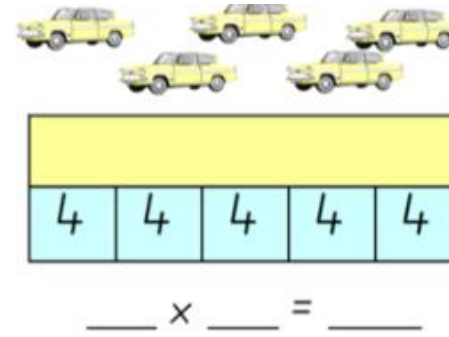
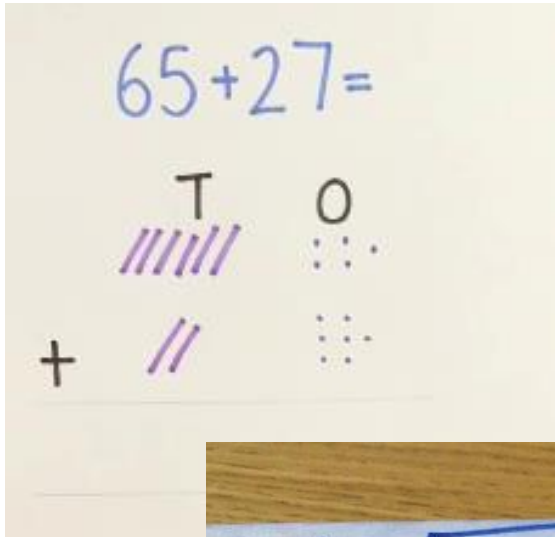
--	--	--	--	--

X	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144



CPA - approach to maths!

Pictorial



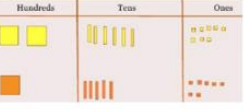
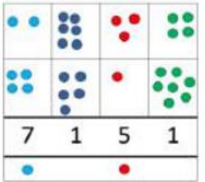
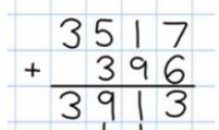

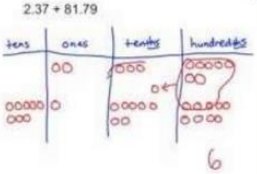
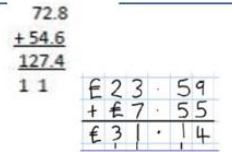
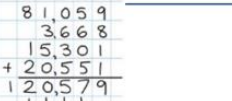

CPA - approach to maths!

Abstract

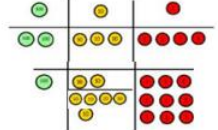
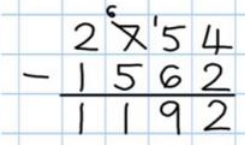
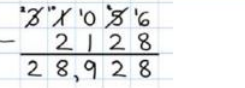
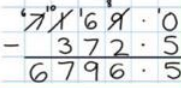
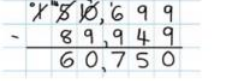
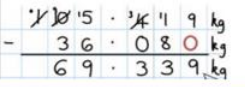
$$2098 + 248 =$$

How we teach formal methods?

Addition & Subtraction:

Objective & Strategy	Concrete	Pictorial	Abstract
Y4—add numbers with up to 4 digits	Children continue to use dienes or pv counters to add, exchanging ten ones for a ten and ten tens for a hundred and ten hundreds for a thousand. 	 Draw representations using pv grid.	 Continue from previous work to carry hundreds as well as tens. Relate to money and measures.
Y5—add numbers with more than 4 digits. Add decimals with 2 decimal places, including money.	As year 4  Introduce decimal place value counters and model exchange for addition.		
Y6—add several numbers of increasing complexity Including adding money, measure and decimals with different numbers of decimal points.	As Y5	As Y5	  Insert zeros for place holders.

Y4-6
ADDITION

Objective & Strategy	Concrete	Pictorial	Abstract
Subtracting tens and ones Year 4 subtract with up to 4 digits. <i>Introduce decimal subtraction through context of money</i>	234 - 179  Model process of exchange using Numicon, base ten and then move to PV counters.	Children to draw pv counters and show their exchange—see Y3	 Use the phrase 'take and make' for exchange
Year 5- Subtract with at least 4 digits, including money and measures. <i>Subtract with decimal values, including mixtures of integers and decimals and aligning the decimal</i>	As Year 4	Children to draw pv counters and show their exchange—see Y3	 Use zeros for place holders. 
Year 6—Subtract with increasingly large and more complex numbers and decimal values.			 

Y4-6
SUBTRACTION

Can you make an exchange?

How we teach formal methods?

Division & Multiplication:

Objective & Strategy	Concrete	Pictorial	Abstract																																																																					
Column multiplication	<p>Children can continue to be supported by place value counters at the stage of multiplication. This initially done where there is no regrouping. $321 \times 2 = 642$</p> <table border="1"> <tr> <td>Hundreds</td> <td>Tens</td> <td>Ones</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </table> <p>It is important at this stage that they always multiply the ones first.</p> <p>The corresponding long multiplication is modelled alongside</p>	Hundreds	Tens	Ones														$\begin{array}{r} 327 \\ \times 4 \\ \hline 28 \quad (7 \times 4) \\ 80 \quad (20 \times 4) \\ 1200 \quad (300 \times 4) \\ \hline 1308 \end{array}$ <p>This may lead to a compact method.</p> $\begin{array}{r} 327 \\ \times 4 \\ \hline 1308 \end{array}$																																																						
Hundreds	Tens	Ones																																																																						
Column multiplication	<p>Manipulatives may still be used with the corresponding long multiplication modelled alongside.</p>		<p>Expanded bracket method or short method.</p> <table border="1"> <tr><td>1</td><td>8</td><td></td><td></td><td></td><td></td></tr> <tr><td>x</td><td>1</td><td>3</td><td></td><td></td><td></td></tr> <tr><td></td><td>2</td><td>4</td><td>(8x3)</td><td></td><td></td></tr> <tr><td></td><td>3</td><td>0</td><td>(10x3)</td><td></td><td></td></tr> <tr><td></td><td>8</td><td>0</td><td>(8x10)</td><td></td><td></td></tr> <tr><td></td><td>1</td><td>0</td><td>(10x10)</td><td></td><td></td></tr> <tr><td></td><td>2</td><td>3</td><td>4</td><td></td><td></td></tr> </table> <table border="1"> <tr><td></td><td>1</td><td>2</td><td>3</td><td>4</td></tr> <tr><td>x</td><td></td><td>1</td><td>6</td><td></td></tr> <tr><td></td><td>7</td><td>4</td><td>0</td><td>4</td></tr> <tr><td></td><td>1</td><td>2</td><td>3</td><td>4</td><td>0</td></tr> <tr><td></td><td>1</td><td>9</td><td>7</td><td>4</td><td>4</td></tr> </table>	1	8					x	1	3					2	4	(8x3)				3	0	(10x3)				8	0	(8x10)				1	0	(10x10)				2	3	4				1	2	3	4	x		1	6			7	4	0	4		1	2	3	4	0		1	9	7	4	4
1	8																																																																							
x	1	3																																																																						
	2	4	(8x3)																																																																					
	3	0	(10x3)																																																																					
	8	0	(8x10)																																																																					
	1	0	(10x10)																																																																					
	2	3	4																																																																					
	1	2	3	4																																																																				
x		1	6																																																																					
	7	4	0	4																																																																				
	1	2	3	4	0																																																																			
	1	9	7	4	4																																																																			

Y5-6
MULTIPLICATION

Objective & Strategy	Concrete	Pictorial	Abstract																																																																		
Divide at least 3 digit numbers by 1 digit.	<p>96 ÷ 3</p> <table border="1"> <tr> <td>Tens</td> <td>Units</td> </tr> <tr> <td>3</td> <td>2</td> </tr> <tr> <td></td> <td></td> </tr> </table> <p>Use place value counters to divide using the bus stop method alongside</p> <table border="1"> <tr><td>4</td><td>2</td><td>÷</td><td>3</td><td>=</td><td></td></tr> <tr><td>4</td><td>2</td><td>÷</td><td>3</td><td>=</td><td></td></tr> <tr><td>4</td><td>2</td><td>÷</td><td>3</td><td>=</td><td></td></tr> <tr><td>4</td><td>2</td><td>÷</td><td>3</td><td>=</td><td></td></tr> <tr><td>4</td><td>2</td><td>÷</td><td>3</td><td>=</td><td></td></tr> <tr><td>4</td><td>2</td><td>÷</td><td>3</td><td>=</td><td></td></tr> </table> <p>42 ÷ 3 =</p> <p>Start with the biggest place value, we are sharing 40 into three groups. We can put 1 ten in each group and we have 1 ten left over.</p> <table border="1"> <tr><td>1</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>1</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>1</td><td>0</td><td>0</td><td>0</td></tr> </table> <p>We exchange this ten for ten ones and then share the ones equally among the groups.</p> <table border="1"> <tr><td>1</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>1</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>1</td><td>0</td><td>0</td><td>0</td></tr> </table> <p>We look how much in 1 group so the answer is 14.</p>	Tens	Units	3	2			4	2	÷	3	=		4	2	÷	3	=		4	2	÷	3	=		4	2	÷	3	=		4	2	÷	3	=		4	2	÷	3	=		1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	<p>Students can continue to use drawn diagrams with dots or circles to help them divide numbers into equal groups.</p> <p>Encourage them to move towards counting in multiples to divide more efficiently.</p>	<p>Begin with divisions that divide equally with no remainder.</p> $\begin{array}{r} 218 \\ 3 \overline{) 672} \\ \underline{6} \\ 0 \\ \underline{0} \\ 0 \\ \underline{0} \\ 0 \end{array}$ <p>Move onto divisions with a remainder.</p> $\begin{array}{r} 86 \text{ r } 2 \\ 3 \overline{) 258} \\ \underline{6} \\ 19 \\ \underline{15} \\ 40 \\ \underline{36} \\ 4 \end{array}$ <p>Finally move into decimal places to divide the total accurately.</p> $\begin{array}{r} 14.6 \\ 35 \overline{) 511.0} \\ \underline{35} \\ 16 \\ \underline{14} \\ 20 \\ \underline{21} \\ 0 \end{array}$ $\begin{array}{r} 0663 \text{ r } 5 \\ 8 \overline{) 5309} \\ \underline{40} \\ 13 \\ \underline{12} \\ 10 \\ \underline{9} \\ 1 \end{array}$
Tens	Units																																																																				
3	2																																																																				
4	2	÷	3	=																																																																	
4	2	÷	3	=																																																																	
4	2	÷	3	=																																																																	
4	2	÷	3	=																																																																	
4	2	÷	3	=																																																																	
4	2	÷	3	=																																																																	
1	0	0	0																																																																		
1	0	0	0																																																																		
1	0	0	0																																																																		
1	0	0	0																																																																		
1	0	0	0																																																																		
1	0	0	0																																																																		

Y4-6
DIVISION

How large can the remainder be?

Let's play some games with the children!



Telling the Time!

Start	Miss a turn			End
Miss a turn				Miss a turn
	Miss a turn			
			Miss a turn	

Time Bandits

Start

How many hours are there in 120 minutes?

How many minutes are there in 180 seconds?

How many months are there in 2 years?

How many days are there in 48 hours?

Miss a turn.

How many days are there in 3 weeks?

How many minutes are there in 4 hours?

Cover any answer with one of your counters.

How many seconds are there in 5 minutes?

Roll again.

How many years are there in 48 months?

How many weeks are there in 56 days?

Move forward 2 spaces.

How many months in $1\frac{1}{2}$ years?

Move back 3 spaces.

How many years are there in 60 months?

Move forward 2 spaces.

How many minutes are there in 600 seconds?

How many weeks are there in 49 days?

How many hours are there in 7 days?

How many seconds are there in 20 minutes?

Roll the dice again.

How many days are there in 6 weeks?

How many minutes are there in 8 hours?

Counters: 8, 4, 2, 2, 5, 3, 1200, 10, 7, 24, 42, 2, 240, 168, 18, 300, 21, 480, 240.

How to Play

- You will need dice, playing counters to move around the board and counters to cover the answers.
- Roll the dice and move the correct number of spaces.
- Answer the question on the square you land on or follow the instructions. Find the answer to the question on one of the circles.
- Cover the answer with a counter.
- If the answer has already been covered, miss a turn.
- The winner is the player who covers the most answers.

Developing mental strategies...

Mental Calculations Four-in-a-Row Game

583 - 300 = 19 + 2 = 4952 + 10 = 32 × 4 = 32.3 + 10 = 234.5 + 230.8 =

399 + 483 = 15.6 + 15.9 = = 128 × 2 64 ÷ 4 = = 135.1 + 483.7 50 × 8 =

= 589 - 482 13 × 4 = = 120 ÷ 4 15 + 20 = 28.7 - 16.5 = 56.7 + 54 =

= 2.9 + 2.8 529 + 295 = 5833 + 100 = 74.9 - 22.5 = 413 + 10 = = 315 ÷ 5

794 - 357 = = 654 - 294 = 482 - 205 80 ÷ 4 = 25 × 4 = = 23 × 20

295 - 139 = 392 + 492 = = 21 × 8 = 492 + 505 56.6 - 25.6 = = 295 ÷ 5

Finish 100	99	98	97	96	95	94	93	92	91
90 + 10	32 + 15	5 × 4	50 - 13	10 × 1	3 + 12	40 - 16	5 × 7	10 × 11	19 + 22
81	82	83	84	85	86	87	88	89	90
10 × 12	49 - 14	11 + 25	4 + 2	21 + 19	25 + 5	17 + 22	41 - 12	10 × 4	2 × 12
80	79	78	77	76	75	74	73	72	71
22 + 13	2 × 3	45 - 10	10 ÷ 10	46 - 13	20 ÷ 10	2 × 8	14 + 2	35 + 12	10 × 8
91	92	93	94	95	96	97	98	99	100
5 × 12	34 - 11	6 + 1	35 - 29	2 × 1	47 - 36	10 ÷ 3	37 - 24	120 ÷ 10	5 × 3
80	80	80	80	80	80	80	80	80	80
44 + 2	110 ÷ 10	10 ÷ 2	16 + 32	31 - 15	5 × 1	41 + 9	20 ÷ 5	39 - 14	4 + 10
91	92	93	94	95	96	97	98	99	100
55 + 5	33 - 4	70 ÷ 10	20 - 10	60 + 5	5 × 3	2 × 2	5 - 2	100 ÷ 10	5 × 11
80	80	80	80	80	80	80	80	80	80
10 - 4	10 × 5	15 - 12	16 + 2	15 + 13	40 ÷ 10	7 - 2	34 + 12	30 ÷ 10	27 × 12
91	92	93	94	95	96	97	98	99	100
2 × 7	27 - 16	60 ÷ 10	20 ÷ 2	5 + 5	38 + 12	2 + 2	25 - 5	12 + 31	24 - 11
80	80	80	80	80	80	80	80	80	80
26 - 24	45 ÷ 5	5 × 8	30 - 17	40 ÷ 10	10 × 9	24 + 24	40 ÷ 5	22 - 10	2 × 5
Start 1	2	3	4	5	6	7	8	9	10
10 × 6	49 + 1	29 - 19	10 × 7	2 × 9	29 + 11	50 ÷ 10	45 ÷ 2	8 × 2	11 + 17

Cat and Mouse Chase

5820 - 833 8533 - 1886 Cat Starting Point 7151 - 186 5042 - 1796

8101 - 717 6280 - 2951 3723 - 1767 1460 - 688

5681 - 2899 4206 - 2759 9713 - 5798 9611 - 7728 8950 - 3989

6266 - 4868 1033 - 188 1510 - 646 9102 - 5645

8211 - 6319 3685 - 1998 8266 - 2399 8653 - 3668 7720 - 4868

6348 - 3869 2572 - 1695 2491 - 692 2533 - 1539

3912 - 2957 8154 - 3498 6122 - 4865 2542 - 544 5140 - 1878

2402 - 735 3523 - 1686 8200 - 2244 6286 - 3699

5402 - 4678 1380 - 389 Mouse Starting Point 1705 - 839 4306 - 1409

Tenths and Hundredths Place Value Grid

Hundreds	Tens	Ones	Tenths	Hundredths

Developing multiplication knowledge

- Counting up
- Songs and using fingers
- chanting
- Referring to grids/ charts
- Dividing and multiplying by 10 and 100.

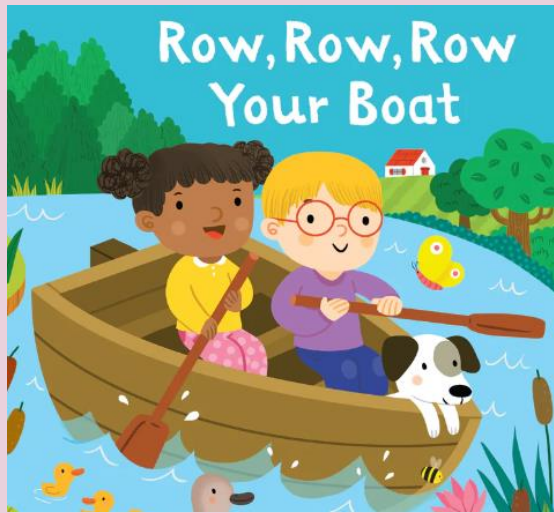
X	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144

1 x	2 x	3 x	4 x	5 x	6 x
1 x 1 = 1	2 x 1 = 2	3 x 1 = 3	4 x 1 = 4	5 x 1 = 5	6 x 1 = 6
1 x 2 = 2	2 x 2 = 4	3 x 2 = 6	4 x 2 = 8	5 x 2 = 10	6 x 2 = 12
1 x 3 = 3	2 x 3 = 6	3 x 3 = 9	4 x 3 = 12	5 x 3 = 15	6 x 3 = 18
1 x 4 = 4	2 x 4 = 8	3 x 4 = 12	4 x 4 = 16	5 x 4 = 20	6 x 4 = 24
1 x 5 = 5	2 x 5 = 10	3 x 5 = 15	4 x 5 = 20	5 x 5 = 25	6 x 5 = 30
1 x 6 = 6	2 x 6 = 12	3 x 6 = 18	4 x 6 = 24	5 x 6 = 30	6 x 6 = 36
1 x 7 = 7	2 x 7 = 14	3 x 7 = 21	4 x 7 = 28	5 x 7 = 35	6 x 7 = 42
1 x 8 = 8	2 x 8 = 16	3 x 8 = 24	4 x 8 = 32	5 x 8 = 40	6 x 8 = 48
1 x 9 = 9	2 x 9 = 18	3 x 9 = 27	4 x 9 = 36	5 x 9 = 45	6 x 9 = 54
1 x 10 = 10	2 x 10 = 20	3 x 10 = 30	4 x 10 = 40	5 x 10 = 50	6 x 10 = 60
1 x 11 = 11	2 x 11 = 22	3 x 11 = 33	4 x 11 = 44	5 x 11 = 55	6 x 11 = 66
1 x 12 = 12	2 x 12 = 24	3 x 12 = 36	4 x 12 = 48	5 x 12 = 60	6 x 12 = 72

7 x	8 x	9 x	10 x	11 x	12 x
7 x 1 = 7	8 x 1 = 8	9 x 1 = 9	10 x 1 = 10	11 x 1 = 11	12 x 1 = 12
7 x 2 = 14	8 x 2 = 16	9 x 2 = 18	10 x 2 = 20	11 x 2 = 22	12 x 2 = 24
7 x 3 = 21	8 x 3 = 24	9 x 3 = 27	10 x 3 = 30	11 x 3 = 33	12 x 3 = 36
7 x 4 = 28	8 x 4 = 32	9 x 4 = 36	10 x 4 = 40	11 x 4 = 44	12 x 4 = 48
7 x 5 = 35	8 x 5 = 40	9 x 5 = 45	10 x 5 = 50	11 x 5 = 55	12 x 5 = 60
7 x 6 = 42	8 x 6 = 48	9 x 6 = 54	10 x 6 = 60	11 x 6 = 66	12 x 6 = 72
7 x 7 = 49	8 x 7 = 56	9 x 7 = 63	10 x 7 = 70	11 x 7 = 77	12 x 7 = 84
7 x 8 = 56	8 x 8 = 64	9 x 8 = 72	10 x 8 = 80	11 x 8 = 88	12 x 8 = 96
7 x 9 = 63	8 x 9 = 72	9 x 9 = 81	10 x 9 = 90	11 x 9 = 99	12 x 9 = 108
7 x 10 = 70	8 x 10 = 80	9 x 10 = 90	10 x 10 = 100	11 x 10 = 110	12 x 10 = 120
7 x 11 = 77	8 x 11 = 88	9 x 11 = 99	10 x 11 = 110	11 x 11 = 121	12 x 11 = 132
7 x 12 = 84	8 x 12 = 96	9 x 12 = 108	10 x 12 = 120	11 x 12 = 132	12 x 12 = 144

Using well known songs...

3x



4x




8x




Times table games...

8 Times Table Multiplication And Division Board Game

Roll the dice and work out the multiplication or division you land on. The winner is the first to finish!

Start					96 ÷ 8	88 ÷ 8	Go forward 1 space	12 × 8
8 × 10					Help a friend		Go forward 4 spaces	
80 ÷ 8	Go back to Start	8 × 2	64 ÷ 8		8 × 11			32 ÷ 8
				9 × 8	72 ÷ 8	Move back to 32 ÷ 8	Move back to 96 ÷ 8	
16 ÷ 2	8 × 7	40 ÷ 8	Miss a go		8 × 10			3 × 8
8 × 8					48 ÷ 8			8 × 8
Go back 2 spaces	80 ÷ 8	8 × 1	8 ÷ 1	32 ÷ 8	Go forward 3 spaces	8 × 5	Finish	



9 Times Table Multiplication and Division Board Game

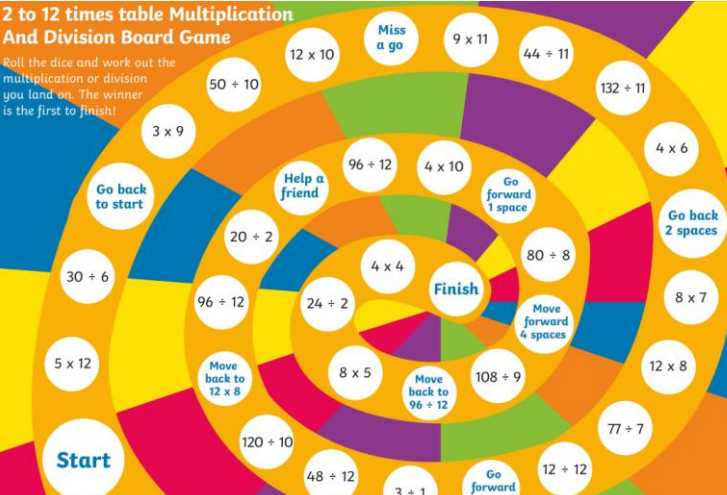
Roll the dice and work out the multiplication or division you land on. The winner is the first to finish!



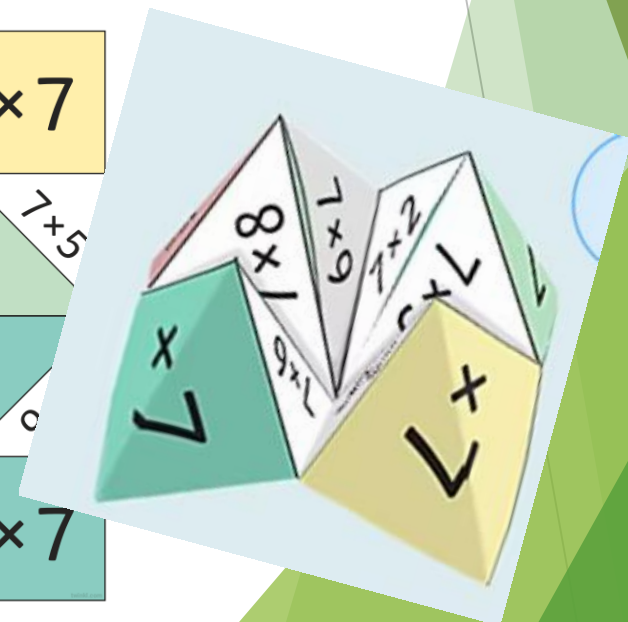
20 4 × 5 =	21 5 × 7 =	22 3 × 5 =	23 2 × 9 =	Finish
19 4 × 4 =	18 2 × 7 =	17 5 × 5 =	16 3 × 8 =	15 2 × 2 =
10 2 × 4 =	11 5 × 6 =	12 3 × 9 =	13 4 × 2 =	14 2 × 6 =
9 4 × 9 =	8 2 × 3 =	7 3 × 4 =	6 4 × 6 =	5 5 × 8 =
Start	1 5 × 2 =	2 3 × 6 =	3 2 × 8 =	4 4 × 3 =

2 to 12 times table Multiplication And Division Board Game

Roll the dice and work out the multiplication or division you land on. The winner is the first to finish!



× 7	7 + 3	7 + 4	× 7
7 + 2	21	28	7 + 5
6 + 1	14	35	
× 7	63	42	× 7
× 7	56	67	× 7



Doodle Maths - great for retrieval!



doodlemaths

TTRS



THANK YOU