

Fun and Effective Ways to Support Your Child With Maths

November 2018 Mrs Winter



Fun and Effective Ways to Support Your Child With Maths

Today's plan:

- Background and the science – why make it fun?
- Background and the science – why use concrete objects and draw pictures?
- Examples of some good resources.
- Examples of how to use them.
- Games to play!
- Maths shop available.



Background

Why make it fun?

- Studies provide evidence that stress, boredom, confusion, low motivation, and anxiety can interfere with learning.



Background

Why make it fun?

- When activities are pleasurable, the brain releases chemicals which result in increased focused attention!
- So strong positive emotions = better learning.
- Children love to play so playing = strong positive emotions.
- So making learning fun = more effective learning!

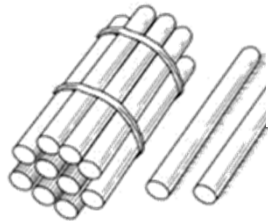
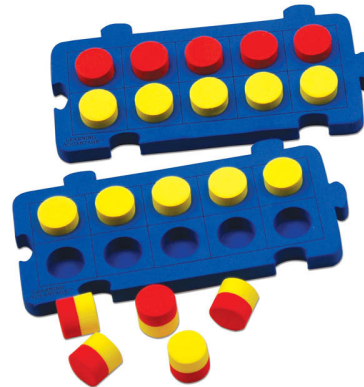
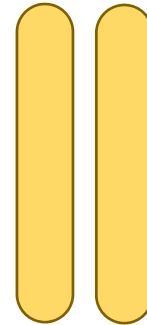


Why use concrete resources and pictures?

- *Using concrete or real things and structured images enables children to understand the abstract.*
- *It gives children a deep understanding of maths.*
- *Concrete resources allow pupils to investigate a concept first – and then make connections when formal methods are introduced.*

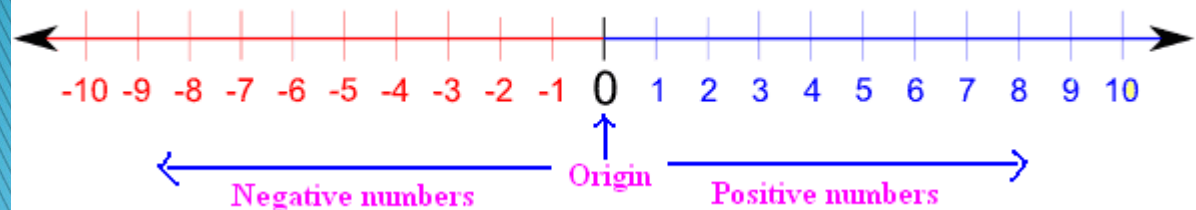


Examples of resources



$$10 + 12 = 22$$

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



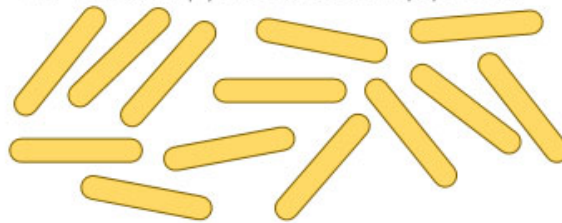
Division with lollipop sticks...

How can you solve $13 \div 4$ using concrete manipulatives and pictorial representations?

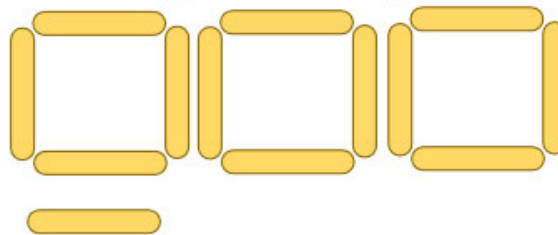
Division

MathsHUBS
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For this activity you will need 13 lollipop sticks.



Use the lollipop sticks to form squares.



Division

Complete the table

Number of lollipop sticks	Diagram	Complete Squares	Left over
12		3	0
13		3	1
14			
15			
16			
17			
18			
19			
20			

What do you notice about the numbers in the left over column? Can you explain the pattern?
Can you explain why the number in the left over column cannot be greater than 3?

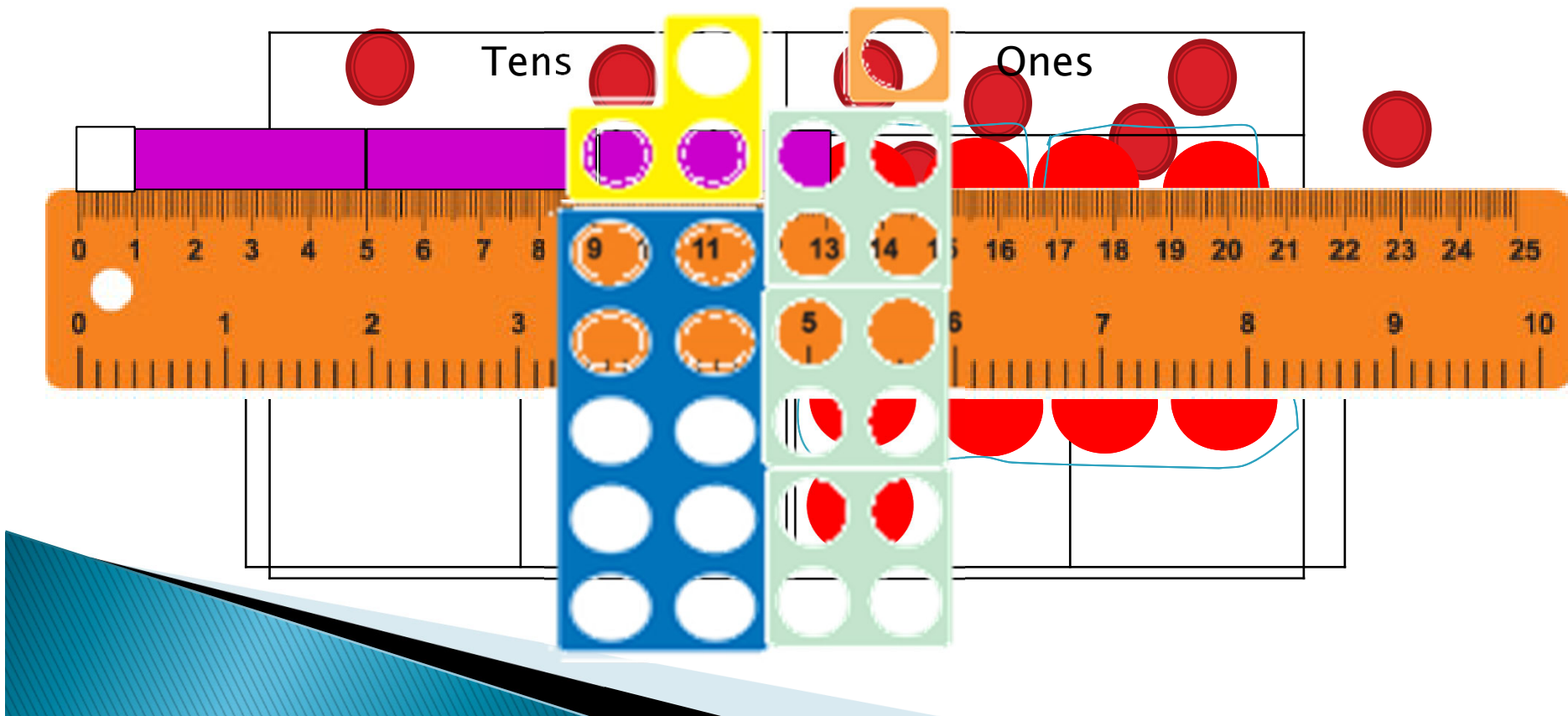
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Multiple representations



$$13 \div 4 = 3 \text{ remainder } 1$$





Addition: regrouping to make 10

Solve...

$$7 + 4$$

Model

●	●	●	●	●
●	●			
●	●	●	●	

Calculations

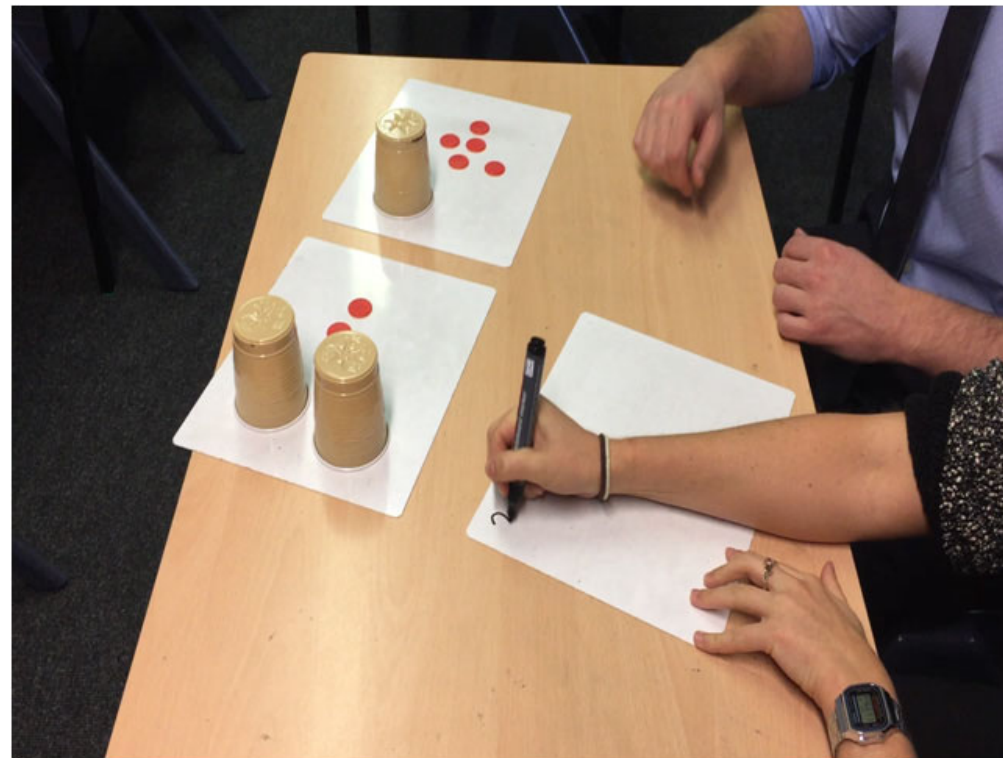
$$7 + 4 = 11$$

You try:

$$5 + 8 =$$

$$6 + 5 =$$

Cups and counters

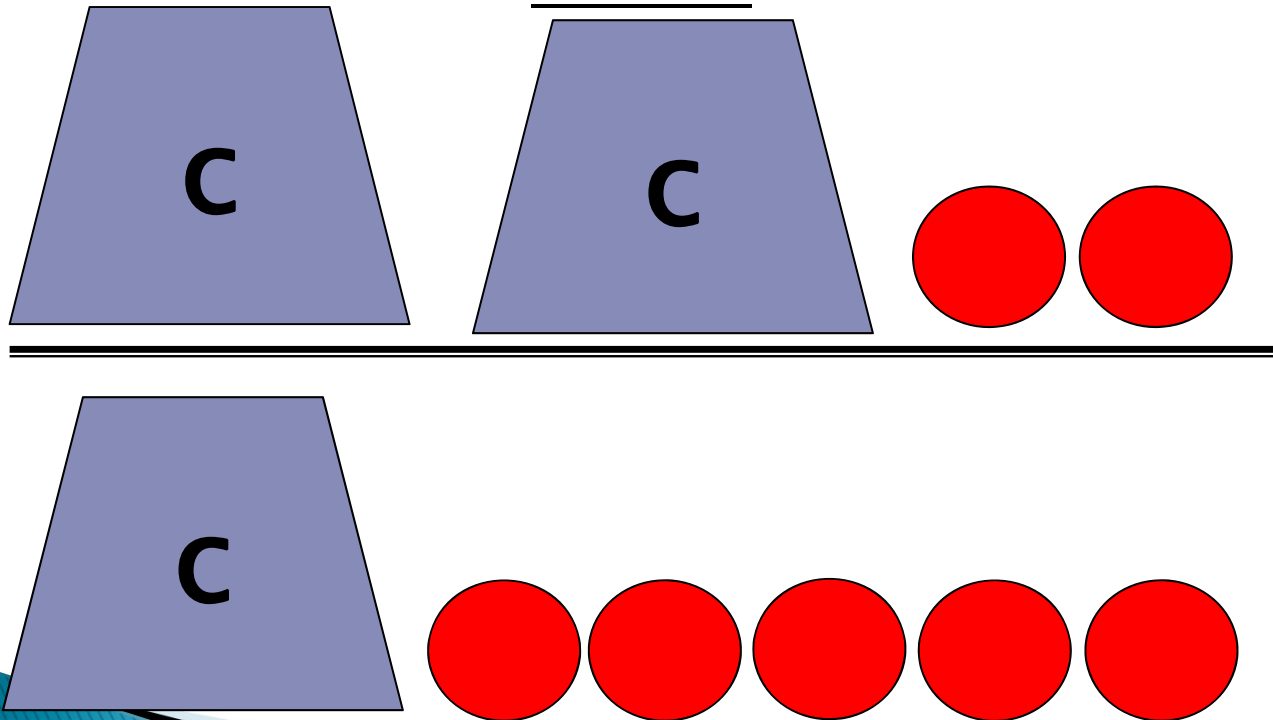


What's in the cup?



How can we represent the cups and counters?

Model



Calculations

$$2c + 2 = c + 5$$

-2

-2

$$2c = c + 3$$

-c

-c

$$c = 3$$

Games to play!

Dice



- ▶ **Hit 10.** (Dice, wipeboards/paper+pen) How many times hit 10 in 10 goes by $\div$ number on dice.
- ▶ Adapt above for crossing 100 (start at 90)
- ▶ Adapt above for crossing 1000 (start at 990)
- ▶ **Stick / bust to 100 (for addition) to 0 (for subtraction)**– 2 players; each player rolls 2 dice e.g. Player 1 rolls 1 and 5, could be 15 or 51. Choose 15, then choose to double or halve.. Choose double to get 30. Choose to carry on. Throw 8 and 6 (68 or 86); choose 86; halve it to get 43, add to 30 to get 73. Choose to carry on. Throw 4 and 9. Choose 49 and halve to get 24.5. Add to 73 to get 97.5. Stick. Then player 2's turn. Whoever gets closest to 100 wins.
- ▶ **Remainder game.** 3 x 10 sided dice. 2 players. 0 can be 0 or 10. Throw the 3 dice and make a division calculation. The remainder is your points. First to a given total or highest total after set number of turns.
- ▶ **Number bonds to 10.** 1x10 sided and 1x6 sided dice. Children try to make 10.
- ▶ **Build a ladybird.** One child is even the other odd. Aim is first to complete a ladybird – can draw 1 feature for each odd / even number thrown.
- ▶ **Rounding.** 2x10 sided dice. Throw and multiply 2 numbers together. Round to nearest 10.
- ▶ **3 in a row.** Draw a line. Use 2 or more dice. Players take turns to throw dice to generate number (could include decimals) which they place on number line. Aim to get 3 in a row and block your opponent doing so.

Games to play!

100 square



- ▶ **Cover up.** Cover up 1 or more squares with counters; child has to correctly guess the hidden number.
- ▶ **Adding / subtracting 10 points** for correct answers.
- ▶ **Complete the square.** Children to complete a partially filled in number square in a given time.
- ▶ **Find pairs that total 100** – take turns and win counters. Cover numbers already used with counters.
- ▶ **Uncover game.** Cover all numbers with counters. Use 2 x 10 sided dice to make a 2 digit number. Uncover that number correctly and keep the counter.
- ▶ **How close to 100.** 2x10 sided dice and blank number square. Take turns to throw dice, multiply the numbers and draw the array on the number square. Can put it anywhere but the aim is to cover more of your square than your opponent does. Or share a square and play till the losing player can no longer draw their array.

Games to play!

10 frame



- ▶ **10 frame flash.** Part fill 10 frame. Flash for 3 seconds. Child has to complete in same way / say how many there are. Points for correct answers. 2 children can play and take turns. Adapt for number bonds to 10, so instead of saying how many there are, say how many more needed to make 10 / how many blue vs red.
- ▶ **Fill 20** 2x10 frames per child and 1 dice. Take turns to throw dice, fill 10 frame with that many counters. Say how many in total. First to fill all 20 but have to get exact number at end to fill.
- ▶ **Guess what.** Barrier between players; Take turns to arrange 1 x 10 frame without other player seeing. Players have to ask questions to complete the layout of partner's 10 frame using the fewest number of questions they can.

Games to play!



- ▶ Google search...
- ▶ *games to play with tens frame*
- ▶ *Games to play with dice*
- ▶ *Games to play with 100 square*
- ▶ Good maths websites...
- ▶ <https://nrich.maths.org>
- ▶ <https://www.youcubed.org>
- ▶ <https://www.nationalnumeracy.org.uk/family-maths-toolkit>

