



The Croft Primary School

*Mathematics
Workshop*



4 stages of activity

Our children learn maths at The Croft using and applying their Concrete, Pictorial and Abstract methods in a variety of different tasks. These include;

- *Fluency tasks*
- *Varied Fluency tasks*
- *Problem solving tasks*
- *Reasoning tasks*

Fluency

$336 + 80$

$453 + 60$

$347 + 70$

$285 + 80$

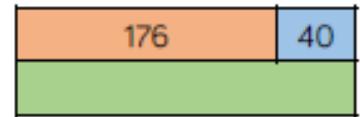
Varied Fluency



Miss Wilson has 237 marbles in a box.
She adds 6 more bags of 10 marbles.
How many marbles does she have now?
Write the calculation for this problem.

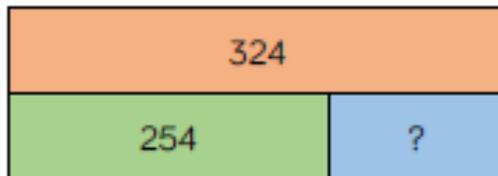


Year 3 '3 digit number add 2 digit number'



Problem solving

Write a sensible number story to represent this bar model.



Reasoning

Which is the odd one out? Why?

$336 + 80$

$453 + 60$

$347 + 70$

$285 + 80$

Fluency

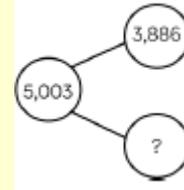
	Th	H	T	U
-				
=				

Varied Fluency

3,465	
2,980	?



Subtract 2,332 from the number shown.



Use a place value grid to calculate:

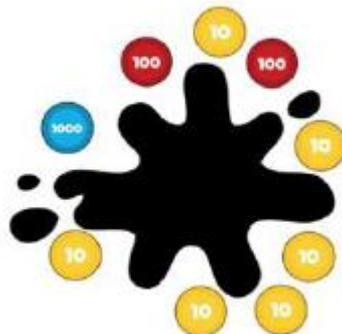
$$2,348 - 235 = \underline{\quad} \quad \underline{\quad} = 4,572 - 2,341$$

$$6,582 - 582 = \underline{\quad} \quad \underline{\quad} = 7,262 - 7,151$$

Year 4 'Subtraction'

Problem solving

There are counters to the value of 3,470 on the table but some have been covered by the splat.



How many different ways can you make the missing amounts?

Reasoning

Amir and Tommy solve a problem.

When I subtract 546 from 3,232 my answer is 2,714



When I subtract 546 from 3,232 my answer is 2,686

Who is correct?
Explain your reasoning.
Why is one of the answers wrong?

Fluency

$$1025 \times 4 =$$

Varied Fluency



Complete the calculation.

TH	H	T	O
1	0	2	3
+			
			3

Write the multiplication calculation represented and find the answer.

TH	H	T	O
1	3	2	5
+			
			4

Remember if there are ten or more counters in a column, make an exchange.

Sam earns £1,325 per week.
How much would he earn in 4 weeks?

Use the place value counters to solve the problem.

Year 5 'Multiplication'

Problem solving

Can you work out the missing numbers using the clues?

				5

- The 4 digits being multiplied by 6 are consecutive numbers.
- The first 2 digits of the answer are the same.
- The 4th and 5th digits in the answer add to make the 3rd.

Reasoning

Megan worked out the answer to $1,432 \times 4$

Here is her answer:

	TH	H	T	O
	1	4	3	2
\times				4
	4	16	12	8

$$1,432 \times 4 = 416,128$$

Can you explain what Megan has done wrong?

Fluency

Calculate using short division.

5	7	2	5
---	---	---	---

3	1	9	3	8
---	---	---	---	---

12	6	0	3	6
----	---	---	---	---

$$3,612 \div 14$$

List the multiples of the numbers to help you calculate.

Varied Fluency



A limousine company allows 14 people per limousine.

How many limousines are needed for 230 people?

Year 6 has 2,356 pencil crayons for the year.

They put them in bundles, with 12 in each bundle.

How many complete bundles can be made?

Year 6 'Division'

Problem solving

Find the missing digits.

$$\begin{array}{r} 041\Box r3 \\ 4\overline{)1\Box59} \end{array}$$

Here are two calculation cards.

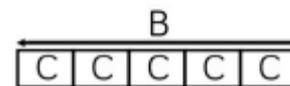
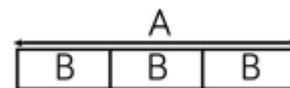
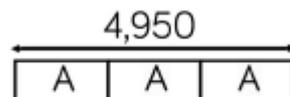
$$A = 396 \div 11$$

$$B = 832 \div 13$$

Find the difference between A and B.

Work out the value of C.

(The bar models are not drawn to scale)



Reasoning

Tommy says,



To work out $4,320 \div 15$ I will first divide 4,320 by 5 then divide the answer by 10

Do you agree?
Explain why.

Helping your child at home

Recall facts for addition

How many recall facts should children know in order to be able to calculate efficiently any addition?

0+0, 0+1, 0+2, 0+3, 0+4, 0+5, 0+6, 0+7, 0+8, 0+9,
1+1, 1+2, 1+3, 1+4, 1+5, 1+6, 1+7, 1+8, 1+9
2+2, 2+3, 2+4, 2+5, 2+6, 2+7, 2+8, 2+9
3+3, 3+4, 3+5, 3+6, 3+7, 3+8, 3+9
4+4, 4+5, 4+6, 4+7, 4+8, 4+9,
5+5, 5+6, 5+7, 5+8, 5+9,
6+6, 6+7, 6+8, 6+9
7+7, 7+8, 7+9
8+8, 8+9,
9+9

55 addition facts

Recall facts for subtraction

How many recall facts should children know in order to be able to calculate efficiently any subtraction?

10-0, 10-1, 10-2, 10-3, 10-4, 10-5, 10-6, 10-7, 10-8, 10-9, 10-10,
9-0, 9-1, 9-2, 9-3, 9-4, 9-5, 9-6, 9-7, 9-8, 9-9,
8-0, 8-1, 8-2, 8-3, 8-4, 8-5, 8-6, 8-7, 8-8,
7-0, 7-1, 7-2, 7-3, 7-4, 7-5, 7-6, 7-7,
6-0, 6-1, 6-2, 6-3, 6-4, 6-5, 6-6,
5-0, 5-1, 5-2, 5-3, 5-4, 5-5
4-0, 4-1, 4-2, 4-3, 4-4,
3-0, 3-1, 3-2, 3-3,
2-0, 2-1, 2-2,
1-0, 1-1

and

18-9,
17-9, 17-8,
16-9, 16-8, 16-7,
15-9, 15-8, 15-7, 15-5,
14-9, 14-8, 14-7, 14-6, 14-5,
13-9, 13-8, 13-7, 13-6, 13-5, 13-4
12-9, 12-8, 12-7, 12-6, 12-5, 12-4, 12-3,
11-9, 11-8, 11-7, 11-6, 11-5, 11-4, 11-3, 11-2,
101 subtraction facts.

Times tables

Year Group:	Times table introduced:
1	Counting in 2's 5's and 10's
2	2 5 10
3	3 4 8
4	6 9 11 7
5	All tables are used and applied
6	All tables are used and applied

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

Top tips for parents

- Be positive about maths (even if you found maths hard at school!)
- Point out the maths in everyday life. Include your child in activities involving numbers and measuring, such as shopping, cooking and travelling.
- Praise your child for effort rather than for being "clever". This shows them that by working hard they can always improve.

Web sites

- <https://www.bbc.com/bitesize/subjects/z826n39> BBC
- <https://mathsmadeeasy.co.uk/ks2-revision/> revision in year groups
- <https://www.educationquizzes.com/ks2/maths/> quizzes
- <https://www.topmarks.co.uk/maths-games/7-11-years/mental-maths>
Topmarks
- <https://mathsframe.co.uk/en/resources/category/22/most-popular>
Mathsframe
- <http://www.crickweb.co.uk/ks2numeracy.html> Crickweb
- <http://mathszone.co.uk/> Maths zone
- <https://www.topmarks.co.uk/maths-games/hit-the-button> hit the
button

Number and Place Value

- Look for numbers in the environment e.g. venue capacities population sizes. Talk about the value of digits in numbers and how they make a number bigger or smaller.
- Explore the local area. Ask them to guess how many people live in your town, how far is the nearest airport is etc. Ask for the reasons behind their answer and check the answers online.
- Estimation. For example ask them to think about how they can estimate how many bricks were used to build a local landmark.

Addition, subtraction, multiplication and division

- Share real life examples of these calculations with you children e.g. we each need 3 sweets each, how many do we need altogether?

Fractions

- Dividing cakes, chocolate bars and pizzas into enough pieces for your family. Talk about larger fractions, smaller fractions and adding or subtracting pieces to make one whole.

Shape

- Encourage your child to spot shapes whenever you go out. As well as identifying 2D and 3D shapes, they should be able to spot lines of symmetry and begin to identify different sorts of angles, parallel and perpendicular lines. Play games such as battle ships with coordinates
- Look for patterns and symmetry when out and about.

Measurement

- Get your child to help with the washing up! This is an ideal way to help them learn about the capacity of different containers.
- Cooking is great way of helping children practise how to measure in grams and kilograms. It also gives them a chance to learn how to accurately read scales and measure out capacities in litres and centilitres.
- Following recipes will also make them familiar with imperial measurements such as pints, pounds and ounces.

Money

- Receiving (and spending!) pocket money can make children very keen learners in this area!

Use any shopping trips, or a fantasy shopping spree at home, to encourage your child to be able to:

- ☑ Recognise all the coins
- ☑ Find totals and calculate change that should be given.
- At the shops. When buying a couple of items, ask them to work out how much they will cost together. As a challenge for older children, ask them to estimate what the weekly shop will come to.
- Get your child to work out holiday spending money by using conversion charts in newspapers to convert pounds to foreign currency.
- For older children, you could use the sales to help them practise their percentages (what is the price if there is 10% off etc).
- Use pocket money as an opportunity to talk about maths - are they saving for anything? How much do they need to save each week to buy it?
- Work out offers in supermarkets together. Ask them to work out which are the best deals.
- When travelling, ask your child to help you work out whether it's cheaper to drive or take public transport. Are there any deals you can get on public transport?
- Talk to them about getting a bank account. Look together at what's on offer for young people opening their first account and see which is the best deal.

Position and direction

- When travelling somewhere familiar, ask your child to give you directions and timings, then test their directions out. If they get something wrong, ask them to think of the best way to get back to where you want to go.
- Describe movements including right angles, forward, backward up and down linking with measures.

Time

- Telling the time is an area that many children struggle with, so giving them plenty of opportunities to practise can be very beneficial. Make sure that there are both traditional and digital clocks around the house for your child to practise reading the time to the nearest minute.
- Use timers e.g. can you clean your teeth for two minutes
- Convert between different units of time e.g. If we need to leave in one hour, how many minutes do we have next?
- Use timetables and TV guides to practise using a 24 hour clock and calculating time intervals. Give your child lots of time problems to solve. E.g. "Tea will be 45 minutes. What time will it be ready?"
- Use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight
- Use calendars and diaries know the number of seconds in a minute and the number of days in each month, year and leap year
- Encourage your child to read the time and calculate times e.g. using TV programming

Games

- Children's number skills can be supported in all sorts of fun ways at home. Board games are a great way of making them familiar with the number system and addition and subtraction. Children can really enjoy inventing their own.
- Play with cards. Take 2 cards and add the numbers together, the player with the highest number wins. Try it with subtraction, multiplication, and division too.
- Get them to design a tree house, clothes or car or whatever they're interested in. Ask them to work out the right measurements.
- Play board games like Connect 4, Jenga, Monopoly, Scrabble or Dominos.
- Ask your child to design their own board game and dice. Play the game together and talk about the mathematical thinking, reasoning, or problem solving the game used