

Parents Maths Workshop

Subtraction: Reception to Year 6

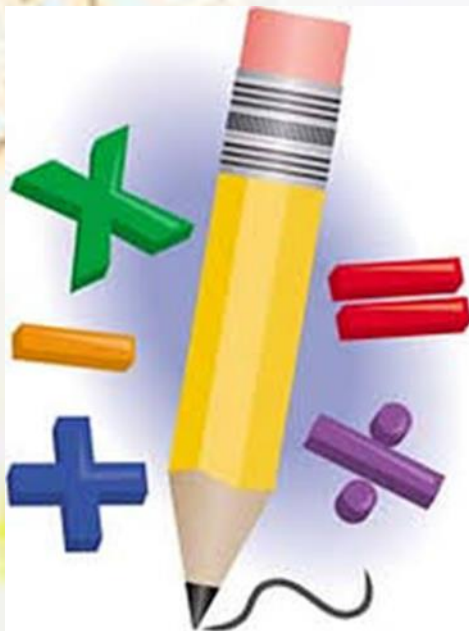


Outcomes for workshop

- Understand the importance of maths in every day life
- Be able to support your child in subtraction throughout their schooling
- Experience the concrete apparatus and pictorial representations that are used
- Have practical ideas for using maths at home
- Answering any questions

**WITHOUT MATHEMATICS,
THERE'S NOTHING YOU CAN DO.
EVERYTHING AROUND YOU
IS MATHEMATICS.
EVERYTHING AROUND YOU
IS NUMBERS.**

- Shakuntala Devi -



Barriers to Learning Maths

- The way maths is taught
- Do not understand the concept
- It's boring and too hard to learn
- Too many formulas to remember
- Confusing
- I will never need to use it when I am older

That's why we teach children ...

This image displays a collection of mathematical strategy cards for children, organized by operation. The cards are color-coded and feature various visual aids like number lines, partitioning diagrams, and repeated addition.

Multiplication Strategies

- Long**: Shows a long multiplication problem: $15 \overline{) 399}$. The steps are: $15 \times 20 = 300$, $399 - 300 = 99$, $15 \times 6 = 90$, $99 - 90 = 9$, $15 \times 0.6 = 9$. The final answer is 26.6.
- Short**: Shows a short multiplication problem: $7 \overline{) 4304}$. The steps are: $7 \times 600 = 4200$, $4304 - 4200 = 104$, $7 \times 14 = 98$, $104 - 98 = 6$. The final answer is 614.6.

Addition Strategies

- Number Line**: Shows a number line from 0 to 10. The steps are: $8 + 4 = 12$, $12 + 4 = 16$, $16 + 4 = 20$. The final answer is 20.
- Partitioning**: Shows a partitioning diagram for $84 + 4$. The steps are: $84 + 4 = 88$, $88 + 4 = 92$, $92 + 4 = 96$. The final answer is 96.
- Repeated Addition**: Shows a repeated addition problem: $15 + 3 = 18$. The steps are: $15 + 3 = 18$, $18 + 3 = 21$, $21 + 3 = 24$. The final answer is 24.

Subtraction Strategies

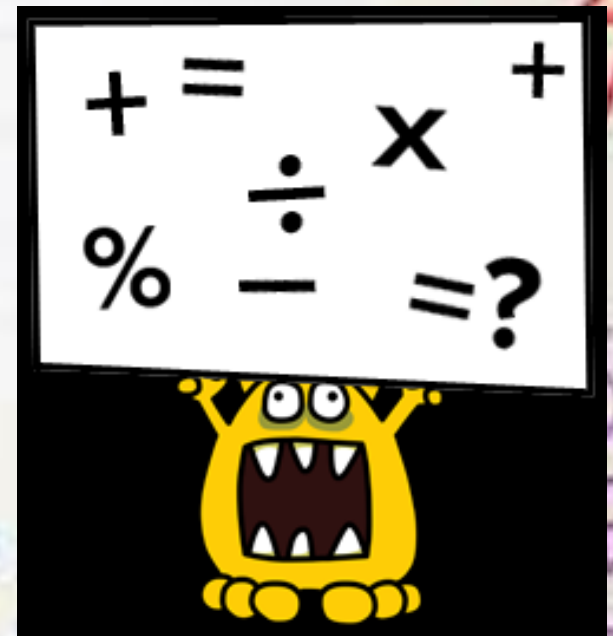
- Number Line**: Shows a number line from 0 to 10. The steps are: $8 - 4 = 4$, $4 - 4 = 0$. The final answer is 4.
- Partitioning**: Shows a partitioning diagram for $84 - 4$. The steps are: $84 - 4 = 80$, $80 - 4 = 76$. The final answer is 76.
- Repeated Subtraction**: Shows a repeated subtraction problem: $15 - 3 = 12$. The steps are: $15 - 3 = 12$, $12 - 3 = 9$, $9 - 3 = 6$. The final answer is 6.

Division Strategies

- Dividing by 10**: Shows a division problem: $674 \div 10 = 67.4$. The steps are: $674 \div 10 = 67.4$, $67.4 \div 10 = 6.74$. The final answer is 6.74.
- Dividing by 100**: Shows a division problem: $674 \div 100 = 6.74$. The steps are: $674 \div 100 = 6.74$, $6.74 \div 100 = 0.0674$. The final answer is 0.0674.

Maths in everyday life

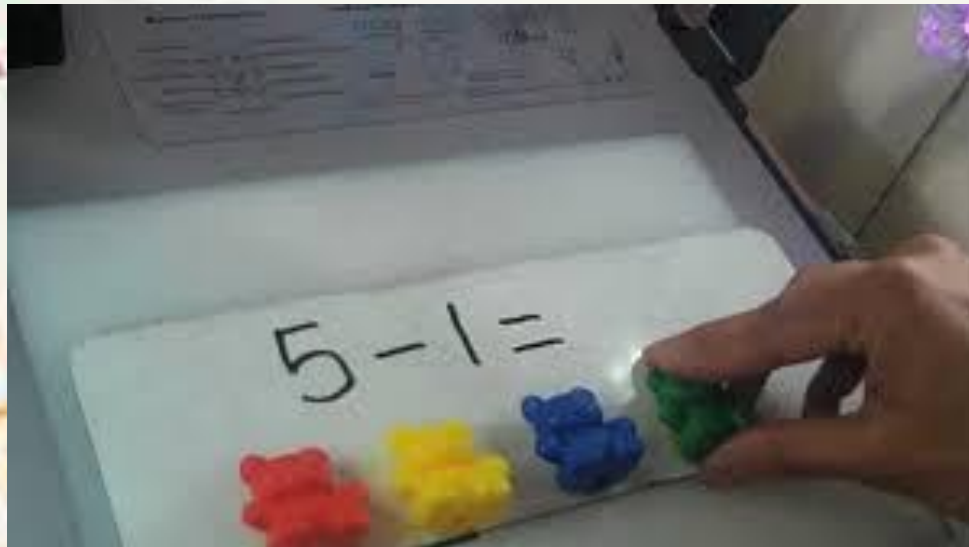
We use maths every day in all areas of our lives. Our confidence and ability with numbers impacts us financially, socially, and professionally. It even affects our health and wellbeing.



How often do you use Maths

- Working out how many minutes until our train
- Increasing a recipe to serve extra guests
- Checking we've received the right change
- Working out discounts in shops
- Working out how much to tip in a restaurant
- Setting and keeping to a budget
- Helping children with homework
- Managing our diet and nutrition
- Measuring medicine doses
- Making sense of statistics and graphs in the news

Reception



Year 1

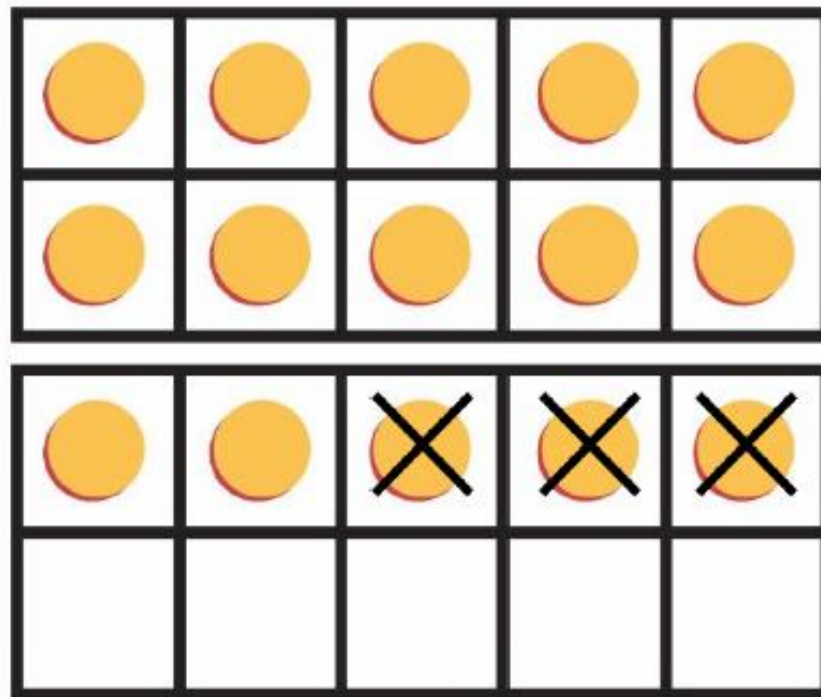
National Curriculum States

Represent and use number bonds and related subtraction facts within 20

Add and subtract one digit and two digit numbers to 20, including zero

Calculating and Recording

$$15 - 3 = 12$$



Using a beadstring

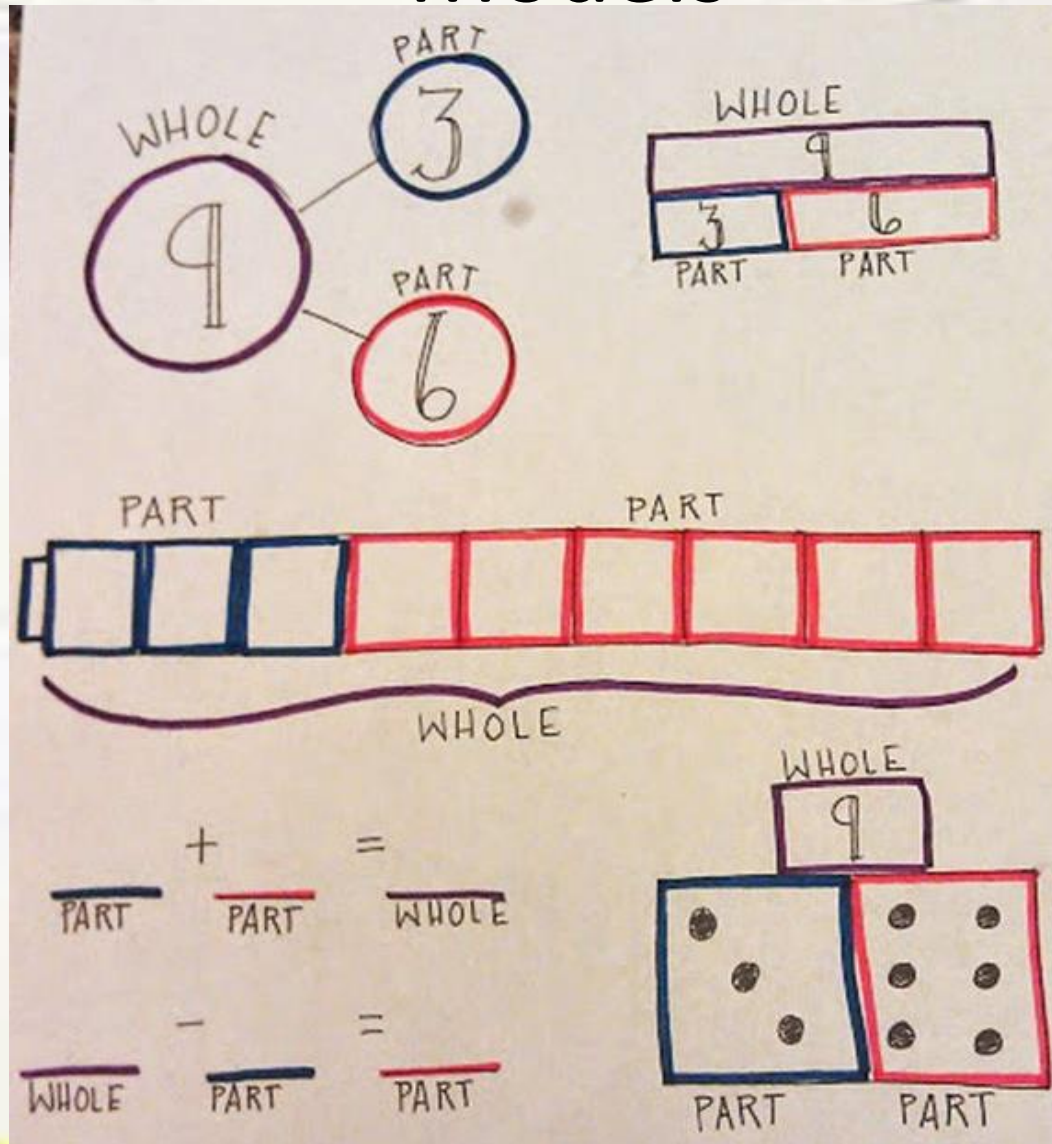
$$14 - 6 = 8$$



I can count back 4 from 14 to 10.
Then count back 2 more to 8.
14 take away 6 is 8.

$$\begin{array}{rcl} 14 - \begin{array}{c} \textcircled{6} \\ \swarrow \quad \searrow \\ \textcircled{4} \quad \textcircled{2} \end{array} & = & 14 - 4 - 2 \\ & = & 10 - 2 \\ & = & 8 \end{array}$$

Recording using Part:Part:Whole Models



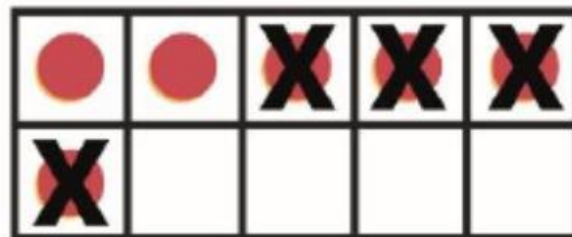
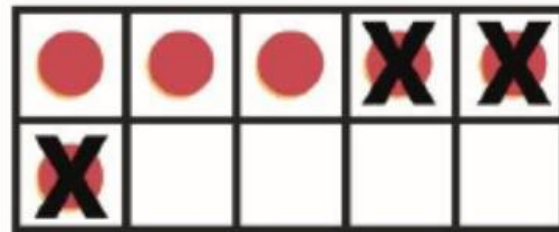
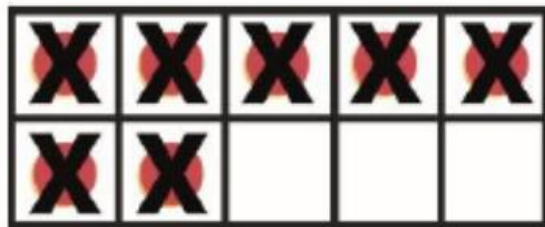
Language of subtraction

Match the sentence to the tens frame:

3 less than 6 equals 3.

4 taken away from 6 leaves 2.

Subtract 7 from 7 and there will be nothing left.

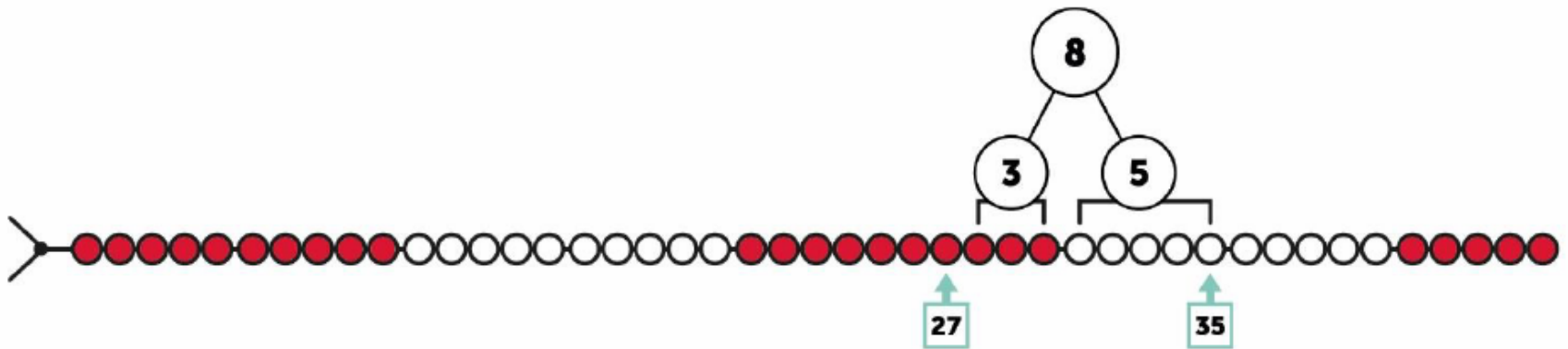


Year 2

National Curriculum States

Apply increasing knowledge of mental and written methods in addition and subtraction using concrete objects and pictorial representations

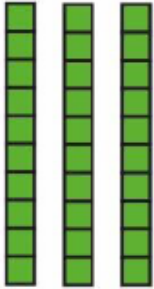
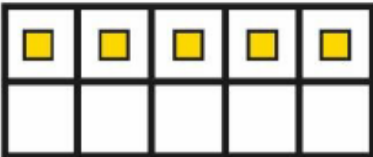
Mental subtraction



$$\begin{array}{r} 35 - 8 = 35 - 5 - 3 \\ = 30 - 3 \\ = 27 \end{array}$$

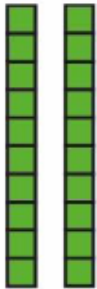
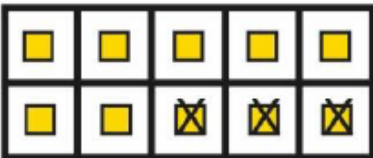
I have regrouped the 8 into 5 and 3.
Take away 5 from 35. This jumps back to the previous multiple of ten, 30.
Then take away 3 from 30. Jumping to the answer, 27.

Calculating and recording

Tens	Ones
	 

How can we take away 8?

There aren't 8 ones at the moment. A ten will need to be regrouped into ten ones, making 15 ones and 2 tens.

Tens	Ones
	 

Eight ones can now be taken away. This leaves 2 tens and 7 ones (27).

$$\begin{array}{rcl}
 \begin{array}{c} \textcircled{35} \\ \swarrow \quad \searrow \\ \textcircled{20} \quad \textcircled{15} \end{array} - 8 & = & 20 + 15 - 8 \\
 & = & 20 + 7 \\
 & = & 27
 \end{array}$$

Year 3

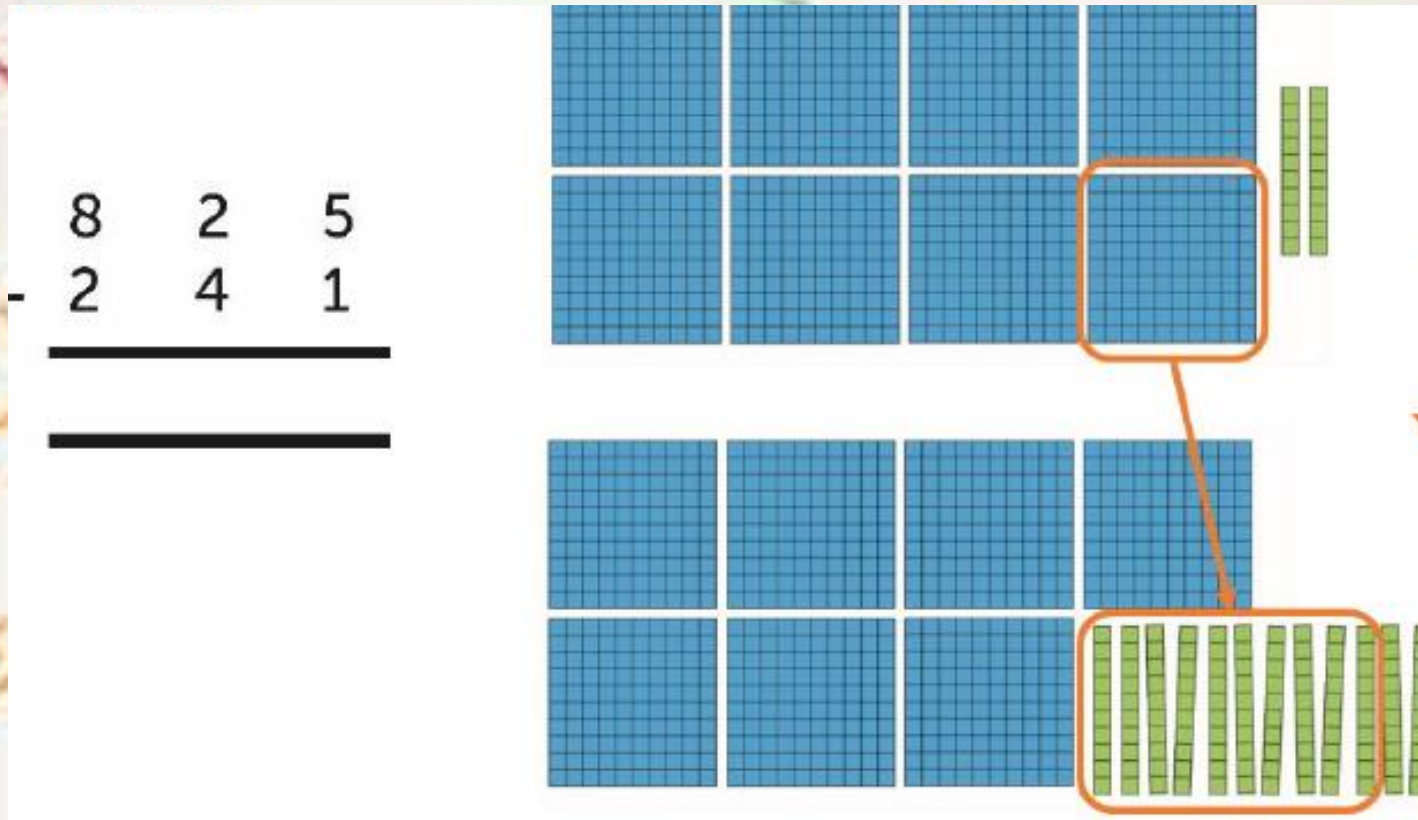
National Curriculum States

Add and subtract numbers mentally, including:

- a three-digit number and ones
- a three-digit number and tens
- a three-digit number and hundreds

Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction

Column Subtraction



8 hundreds and 2 tens
can be regrouped into 7
hundreds and 12 tens.
I take the 4 tens from 12
tens. I have 8 tens left.

Reasoning and Problem Solving

What are the values of E, F, G and H?

Explain how you know.

$$\begin{array}{r} E F G \\ - G H E \\ \hline 5 5 5 \end{array}$$

Kassie is working out $406 - 289$

Here is her working out:

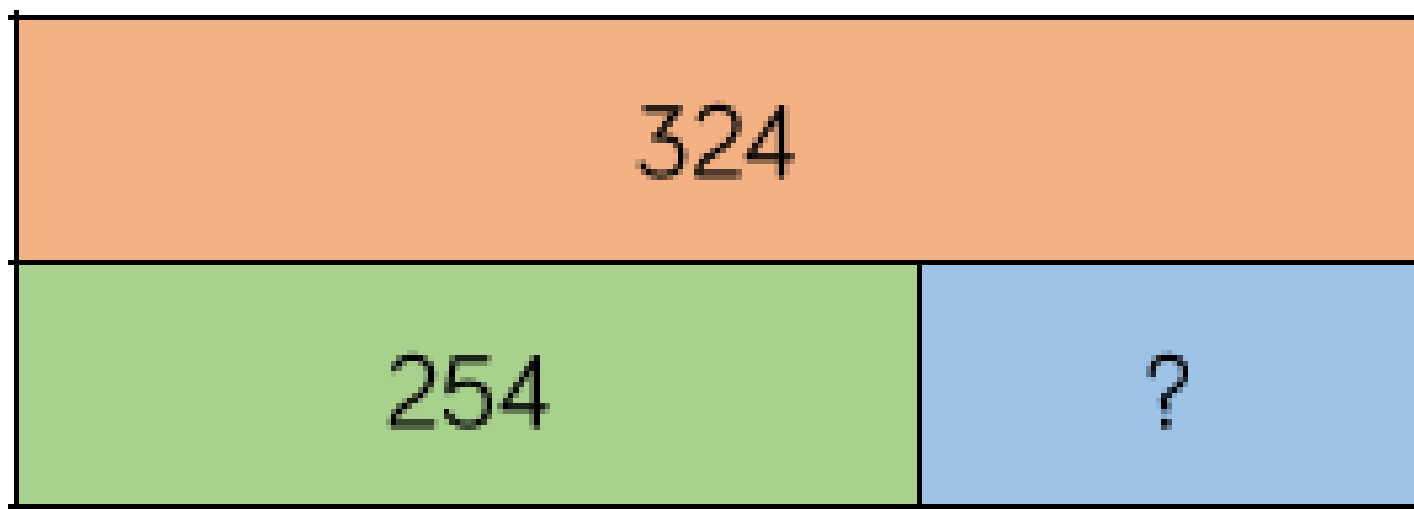
$$\begin{array}{r} \overset{3}{\cancel{4}}\overset{1}{0}\overset{1}{6} \\ - 289 \\ \hline 7 \end{array} \qquad \begin{array}{r} \overset{2}{\cancel{4}}\overset{1}{0}\overset{1}{6} \\ - 289 \\ \hline 027 \end{array}$$

Explain her mistake.

What should the answer be?

Exploring and creating

Write a sensible number story to represent this bar model.



Year 4

National Curriculum States

Add and subtract numbers up to 4 digits using formal written methods of columnar addition and subtraction where appropriate

Column subtraction



Dexter is using place value counters to calculate $5,643 - 4,316$

1,000s	100s	10s	1s

1,000s	100s	10s	1s

1,000s	100s	10s	1s

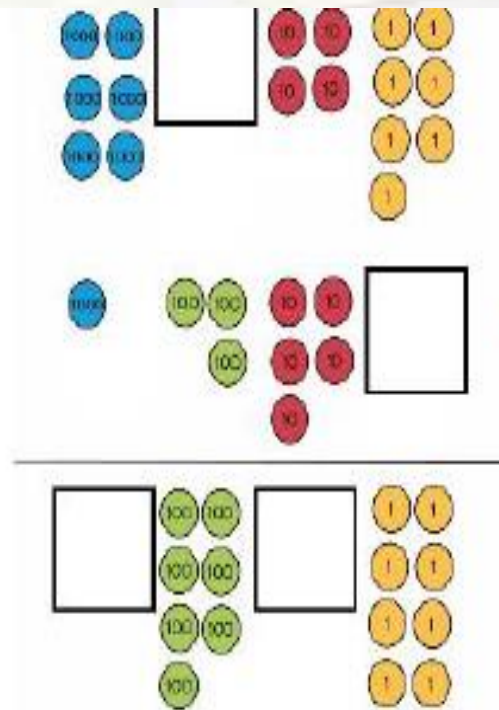
	Th	H	T	O
	5	6	3 4	1 3
-	4	3	1	6
	1	3	2	7

Use Dexter's method to calculate:

$$4,721 - 3,605 = \quad 4,721 - 3,650 = \quad 4,172 - 3,650 =$$

Finding missing numbers

6		4	7
1	3	5	
	7		8



How can we find the missing numbers?

Reasoning and Problem Solving



1,235 people go on a school trip.

There are 1,179 children and 27 teachers.
The rest are parents.

How many parents are there?

Explain your method to a friend.

Add children and
teachers together
first.

$$1,179 + 27 = 1,206$$

Subtract this from
total number of
people.

$$1,235 - 1,206 = 29$$

29 parents.

Find the missing numbers that could go
into the spaces.

Give reasons for your answers.

$$\underline{\quad} - 1,345 = 4\underline{\quad}6$$

What is the greatest number that could go
in the first space?

What is the smallest?

How many possible answers could you
have?

What is the pattern between the
numbers?

What method did you use?

Possible answers:

1,751 and 0
1,761 and 10
1,771 and 20
1,781 and 30
1,791 and 40
1,801 and 50
1,811 and 60
1,821 and 70
1,831 and 80
1,841 and 90
1,841 is the
greatest
1,751 is the
smallest.

There are 10
possible answers.
Both numbers
increase by 10

Year 5

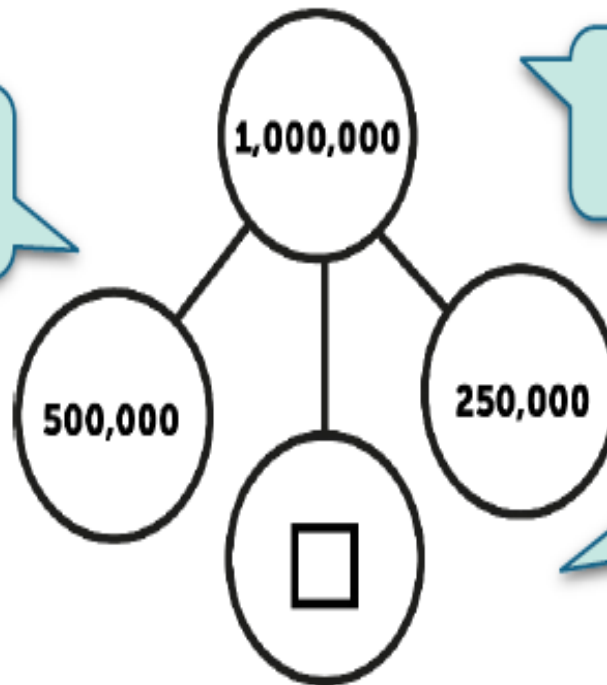
National Curriculum States

Add and subtract whole numbers with more than 4 digits, using formal written methods

Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.

Year of the million

Can you regroup
1,000,000 into 4 groups?



What is the
missing number?

How else can you
regroup 1 million?

Building on Column subtraction

	TTh	Th	H	T	U
				1	14
	1	6	3	2	4
-		8	5	1	6
					8

$$16324 - 8516$$

Subtraction using decimals

Here is a number.

Ones	Tenths	Hundredths	Thousandths
	  	   	   

- What is three tenths less than the number?
- Take away 0.02, what is your number now?
- Subtract 5 thousandths. What is the final number?

Find the difference between the two numbers using the number line.

0.424

0.618

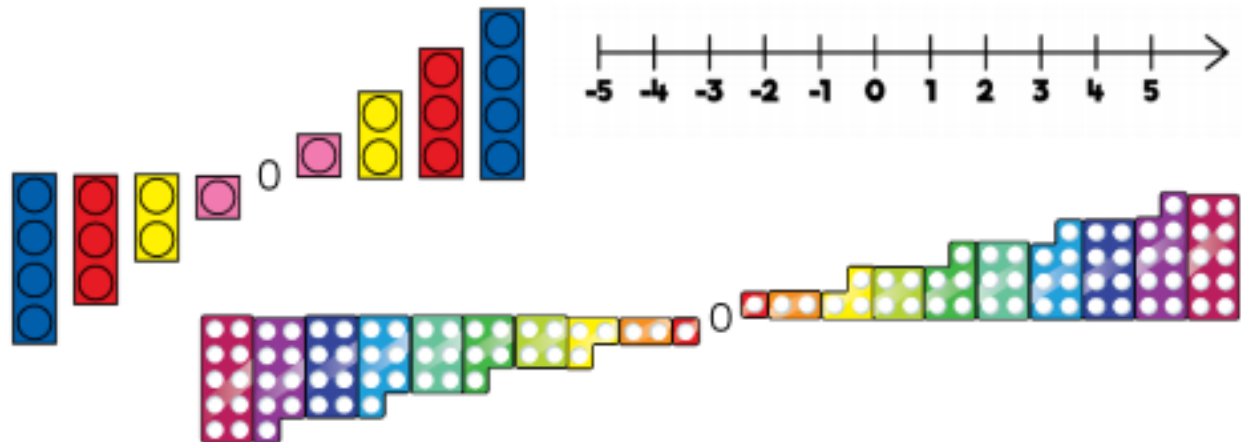
Calculate.

$$\begin{aligned}0.584 - 0.154 &= \\0.684 - 0.254 &= \\0.685 - 0.255 &= \end{aligned}$$

$$\begin{aligned}0.44 - 0.1 &= \\0.44 - 0.09 &= \\0.44 - 0.11 &= \end{aligned}$$

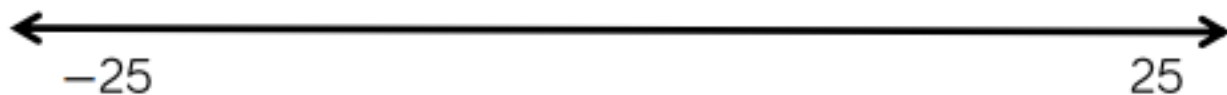
Negative numbers

Here are three representations for negative numbers.



What is the same and what is different about each representation?

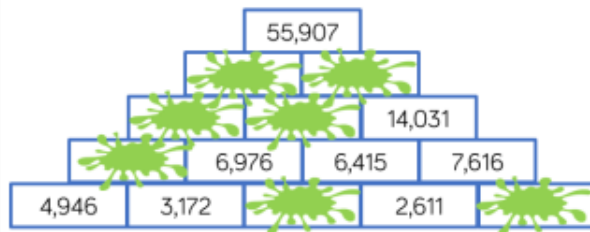
Estimate and label where 0, -12 and -20 will be on the number line.



Whitney visits a zoo.
The rainforest room has a temperature of 32°C
The Arctic room has a temperature of -24°C
Show the difference in room temperatures on a number line.

Problem solving and reasoning

Complete the pyramid using addition and subtraction.



From left to right:

Bottom row:
3,804, 5,005

Second row:
8,118

Third row:
15,094, 13,391

Fourth row:
28,485, 27,422

Mo, Whitney, Teddy and Eva collect marbles.



Mo

I have 1,648 marbles.

I have double the amount of marbles Mo has.



Whitney



Teddy

I have half the amount of marbles Mo has.

In total they have 8,524 marbles between them.

How many does Eva have?

Eva has 2,756 marbles.

Year 6

National Curriculum States

Perform mental calculations, including with mixed operations and large numbers

Solve problems involving addition, subtraction, multiplication and division

Year 6 SATs

- Children have three papers each worth 40 marks. The Arithmetic paper is 30 minutes long compared to 40 minutes for Papers 2 and 3 which are Problem Solving and Reasoning papers.
- Children will now need to draw on the most efficient and effective strategies to complete multi step questions.

SATs Questions

5

Here are the temperatures in four cities at midnight and at midday.

City	Temperature	
	At midnight	At midday
Paris	-4°C	-2°C
Oslo	-13°C	-7°C
Rome	3°C	10°C
Warsaw	-6°C	2°C

At **midnight**, how many degrees colder was Paris than Rome?

degrees

1 mark

Which city was 6 degrees colder at midnight than at midday?

How would you solve it?

9

Jack chose a number.

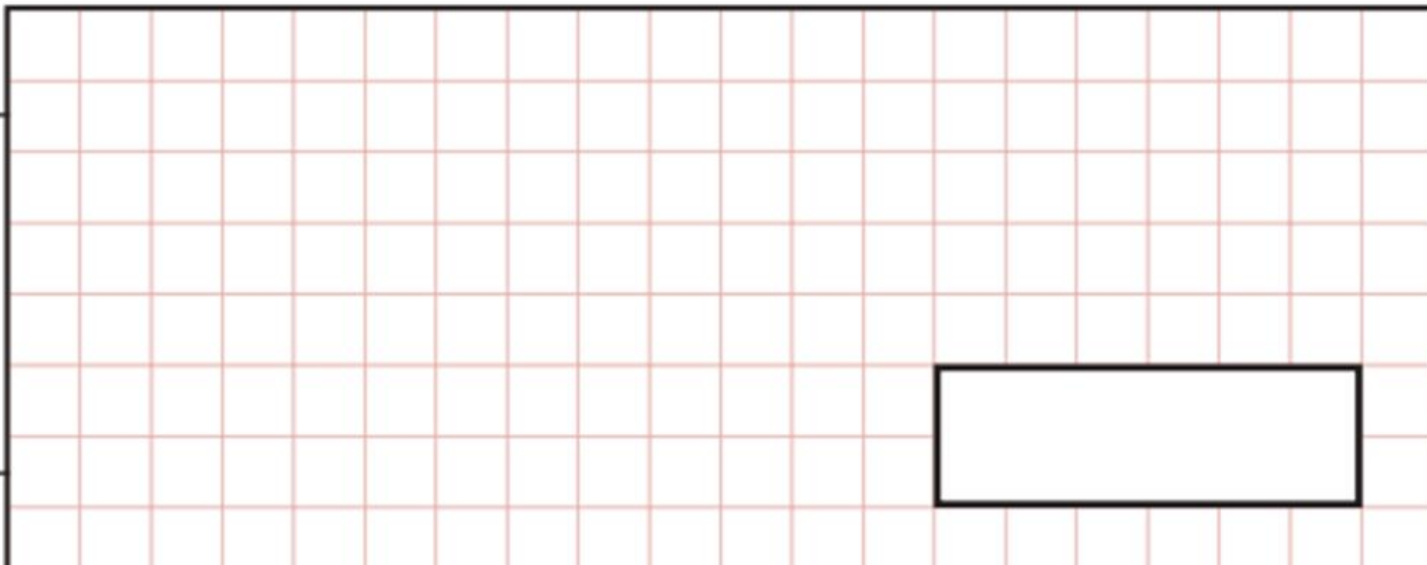
He multiplied the number by 7

Then he added 85

His answer was 953

What number did Jack choose?

Show
your
method



2 marks

9

Jack chose a number.

He multiplied the number by 7

Then he added 85

His answer was 953

What number did Jack choose?

- Work backwards
- Use the inverse of each operation
- $953 - 85 = 868$
- $868 \div 7 = 124$

Answer 124

6

John buys one toy car and one pack of stickers.



£1.49



£1.64

He pays with a £10 note.

How much change does John get?

Show
your
method

£

2 marks

Use of language and speed

7

This picture shows the masses of eight kittens.



305 g



375 g



310 g



255 g



275 g



410 g



360 g



345 g

What is the **difference** in mass between the heaviest kitten and the lightest kitten?

g

1 mark

The masses of the kittens are to be put in four groups.

Write the missing numbers in the table.

One has been done for you.

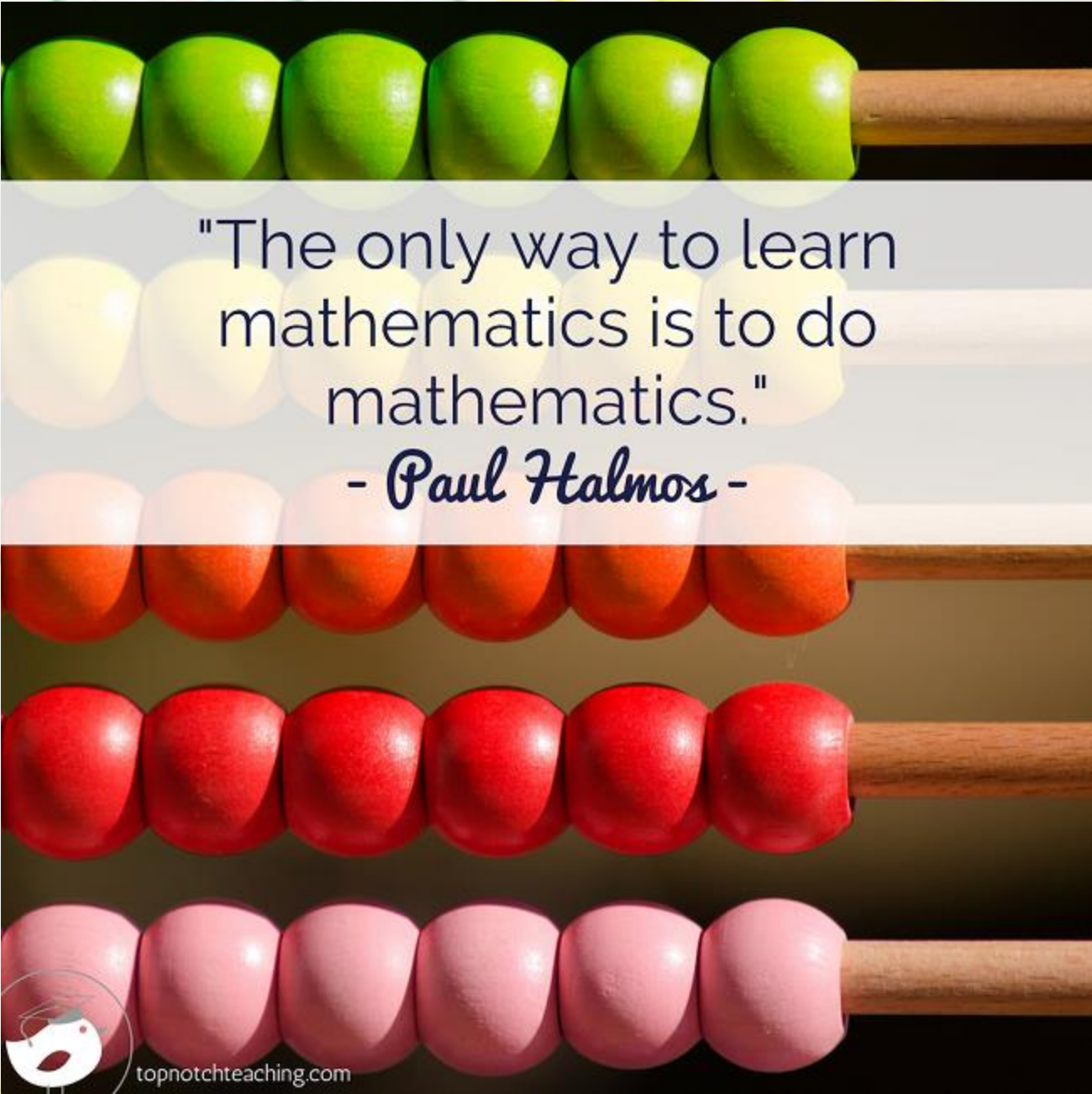
Mass in g	Number of kittens
250–299	
300–349	
350–399	
400–449	1

1 mark

Practical ways to support at home

- Count your steps to school in different times table patterns
- Counting money, working out totals and finding change when shopping. Do you have enough for? What will your change be?
- Look out patterns, especially numbers. What can you see?
- Encourage cooking. Work out half, double, 4 times, quarter etc of ingredients
- Work out discounts. How much is each item when 3 for 2? How much is the discount when 15% off, etc
- Ask your child to explain their homework using mathematical vocabulary
- Games on TOPMARKS
 - <https://www.topmarks.co.uk/maths-games>





"The only way to learn
mathematics is to do
mathematics."

- *Paul Halmos* -



Any questions?

