Maths Workshop

Wednesday 3rd December 2025

Workshop objectives

- To understand the progression of maths across the federation
- Methods taught in lessons
- Use of resources
- Fluency, reasoning and problem-solving
- Questioning
- How to help at home

Reception

- The EYFS framework is structured very differently to the national curriculum as it is organised across seven areas of learning rather than subject areas.
- Mathematics is one of these areas and has two early learning goals (ELGs): Number and Numerical Patterns.
- The purpose of the ELGs in Mathematics is to ensure children develop a strong grounding in number so that all children develop the necessary building blocks to excel mathematically.
- Children in Reception have mathematics lessons but also explore and learn mathematical concepts through their play. This supports them to develop positive attitudes and interests in mathematics, look for patterns and relationships, spot connections, 'have a go', talk to adults and peers about what they notice and not to be afraid to make mistakes.
- They will have access to and use resources which will help them to develop their mathematical understanding and vocabulary.

Mathematics

Number

- Have a deep understanding of number to 10, including the composition of each number.
- Subitise (recognise quantities without counting) up to 5.
- Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.

Numerical Patterns

- Verbally count beyond 20, recognising the pattern of the counting system.
- Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity.
- Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.

Reception

















Key Stage One Curriculum

Programme of Study areas in maths are:

- Number - number and place value
  - addition and subtraction
  - multiplication and division
  - fractions
- Measurement (including money and time)
- Geometry - properties of shapes
  - position and direction
- Year 2 also covers Statistics

The 3 main aims of the National Curriculum for Mathematics

Fluency/Flexibility –

Being able to move between different representations.

Being fluent when using mathematical skills and understanding.

Reasoning –

Being logical and being able to convince and prove to others how you got your answer.

Problem solving –

Being able to recognise how to solve a problem and the act of solving it.

Addition

Key vocabulary: add, plus, total, altogether, more

KS1 Addition

Concrete – using resources

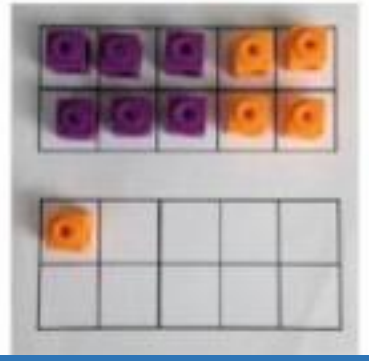
Combining two parts to make a whole (use other resources too e.g. eggs, shells, teddy bears etc)





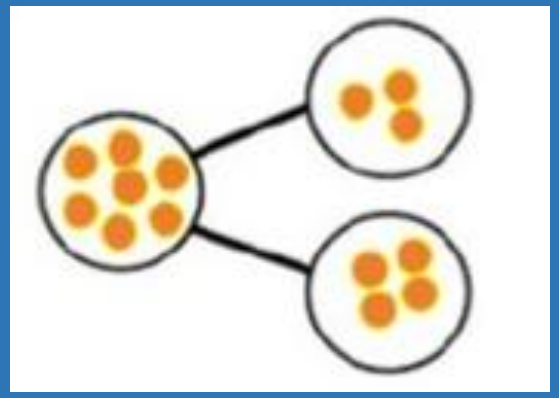
Regrouping to make 10 by using ten frames and counters/cubes or using numicon:

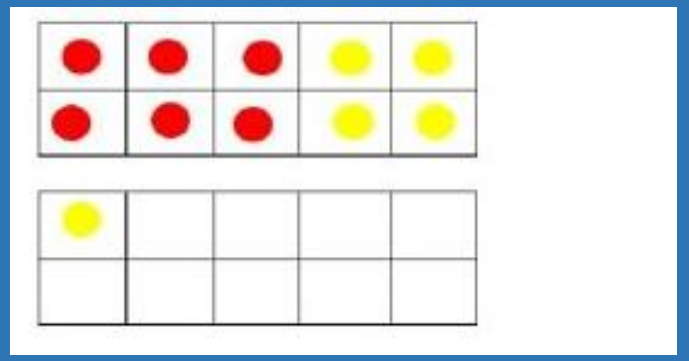
6 + 5



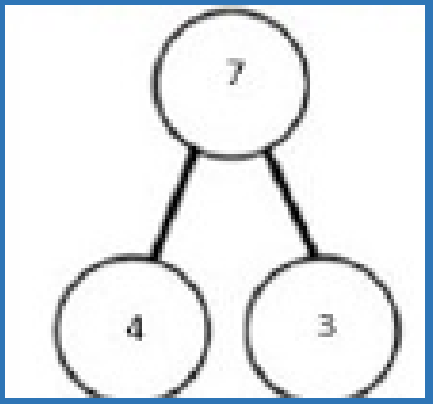


Pictorial – drawing





Abstract – written



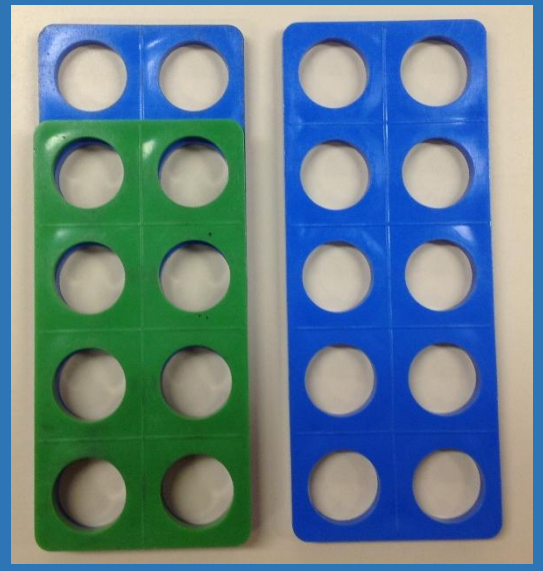
6 + ___ = 11

KS1 Addition

Numicon

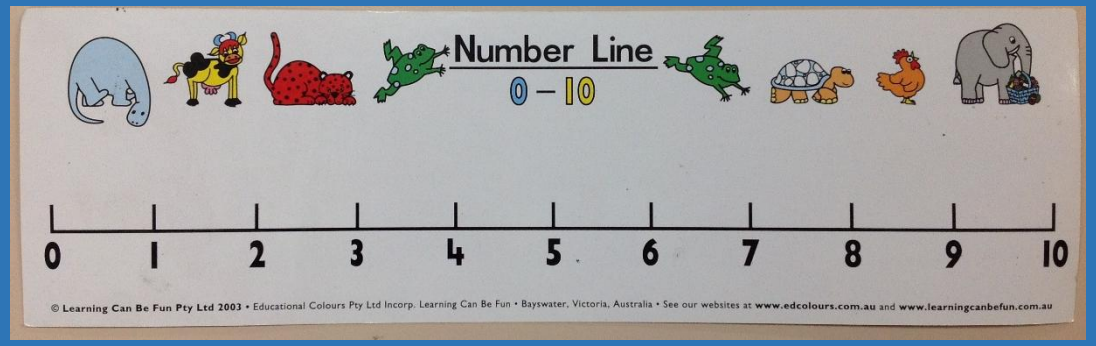


3 + 4 = ___



8 + ___ = 20

Numberlines

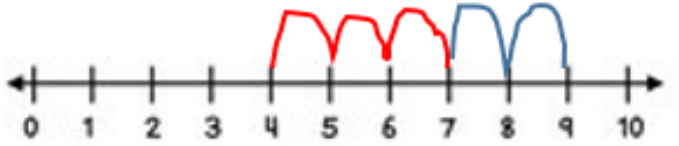


Using a number line to find one more than a given number.



4 + 1 = 5

To add 3, one digit numbers



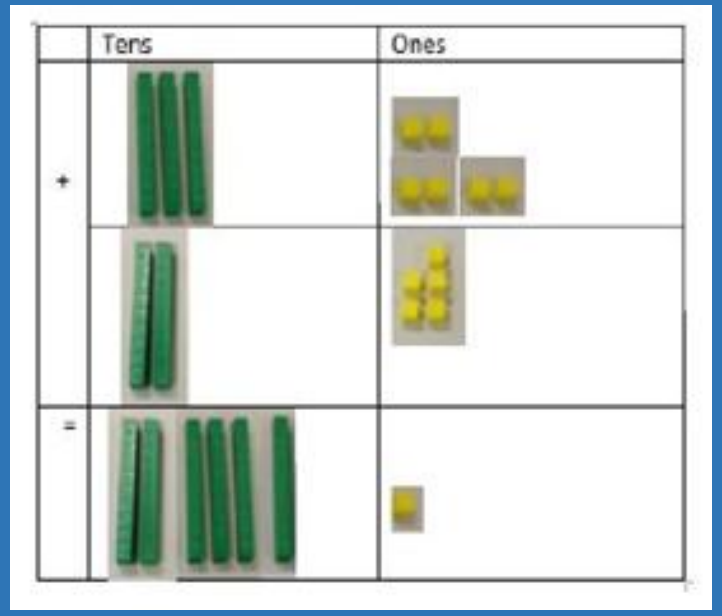
2 + 3 + 4 = 9

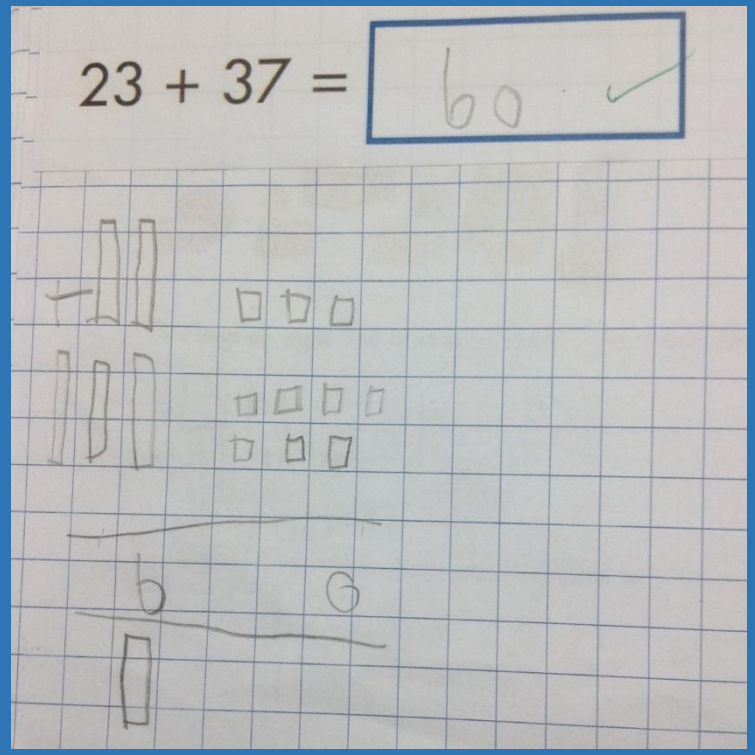
KS1 Addition

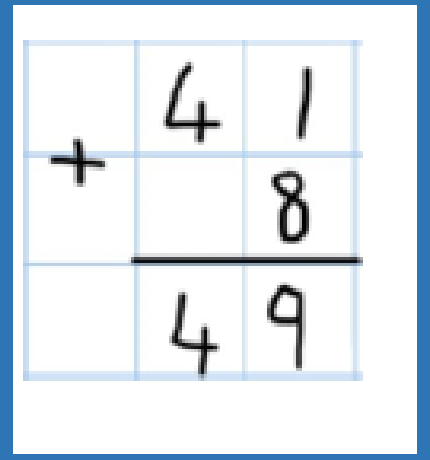
Concrete – using resources

Pictorial – drawing

Abstract – written







Subtraction

Key vocabulary: take (away), subtract, less, fewer

KS1 Subtraction

Concrete – using resources

Physically taking away and removing objects from a whole (use various objects too) rather than crossing out children will physically remove the objects



Finding difference (using cubes, Numicon other objects can also be used)



?

?

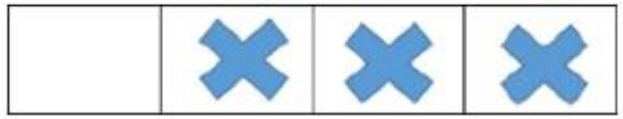


Pictorial – drawing

Children to draw the concrete resources they are using and cross out.



use of the bar model:



Abstract – written

4 - 3 = ___

KS 1 Subtraction

Making 10 (using numicon or ten frames)

14 - 5



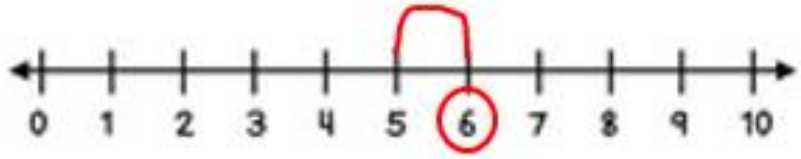
Children could also do this by subtracting a 5 from the 10.



Counting back using number lines.



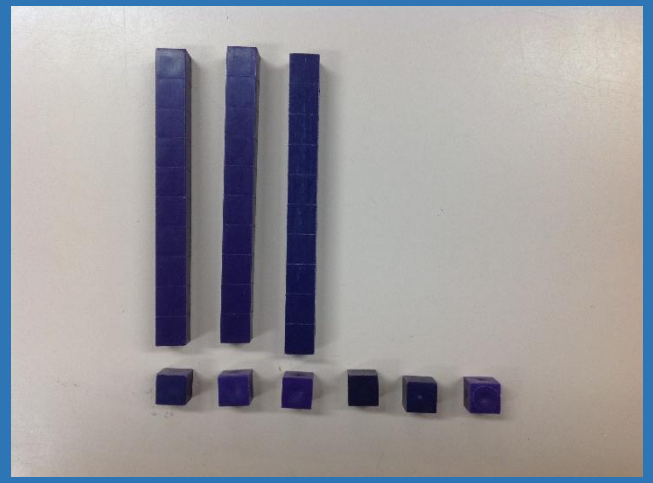
Finding one less than a given number

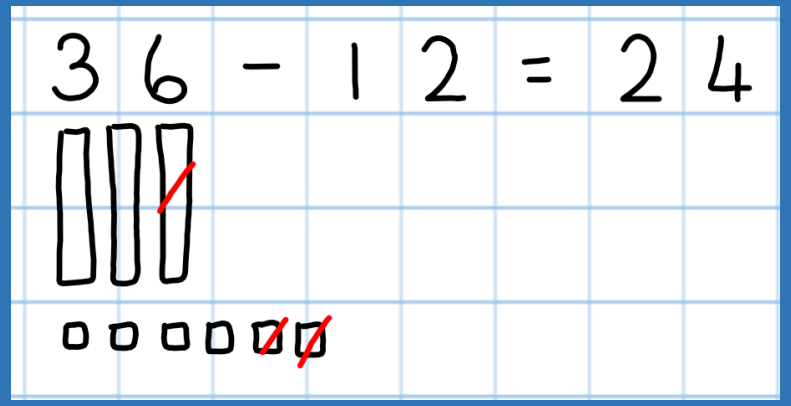


6 - 1 = 5

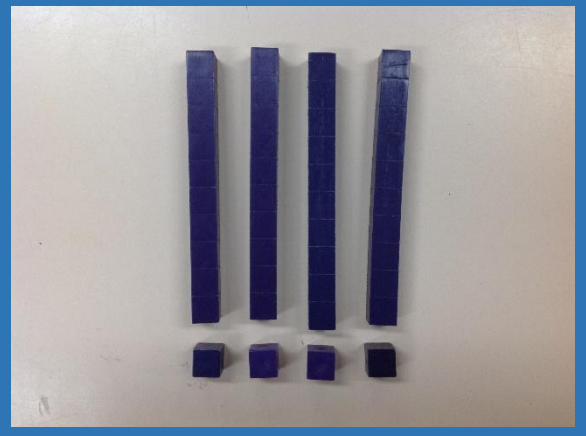
KS1 Subtraction

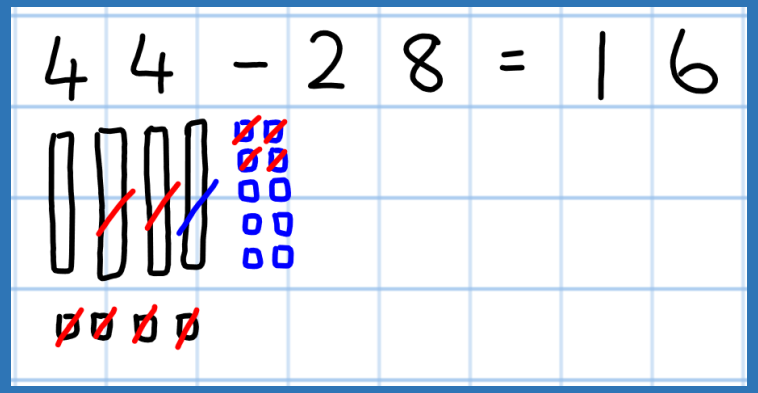
Concrete – using resources	Pictorial – drawing	Abstract – written



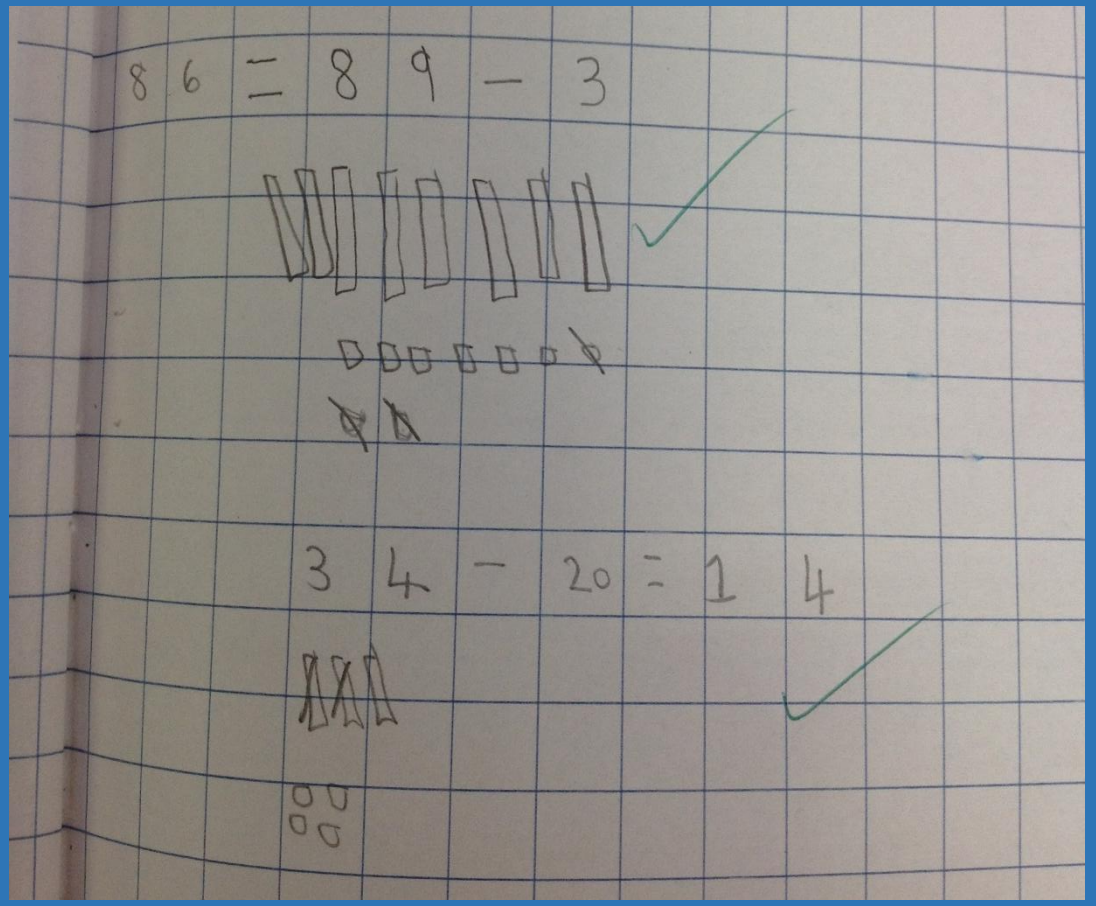


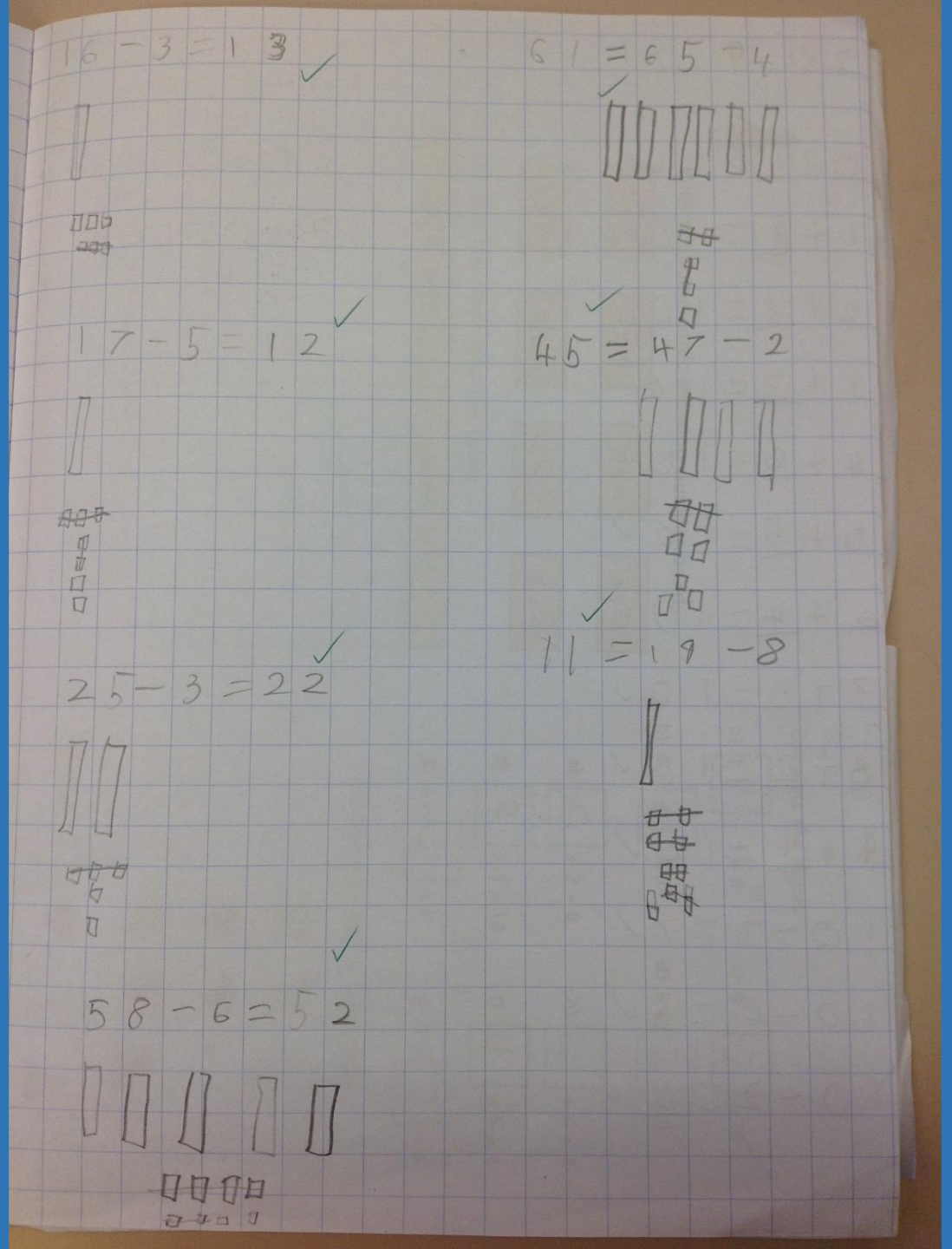
$$\begin{array}{r} 36 \\ -\ 12 \\ \hline 24 \end{array}$$





$$\begin{array}{r} {\scriptstyle 3}\,{\scriptstyle 14} \\ 4\!\not\!4 \\ -\ 28 \\ \hline 16 \end{array}$$


86 = 89 - 3
34 - 20 = 14


16 - 3 = 13
17 - 5 = 12
25 - 3 = 22
58 - 6 = 52
61 = 65 - 4
45 = 47 - 2
11 = 19 - 8

Multiplication

Key vocabulary: multiply, repeated addition, groups, equal, pattern

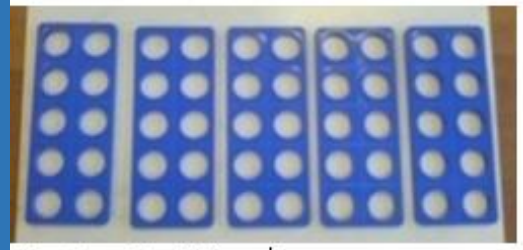
KS1 Multiplication

Concrete – using resources

Repeated grouping/repeated addition (using cubes, Numicon and other objects)



4 x 3 or 4, 3 times



10 x 5 or 10, 5 times

Use arrays to illustrate commutativity (counters and other objects can also be used)

2 x 5 = 5 x 2



Pictorial – drawing

Children to represent the practical resources in a picture

Doubling numbers (related to multiplying by 2)



As arrays



3 x 5 = (3, 5 times)



5 x 3 = (5, 3 times)

Use of a bar model for a more structured method



Abstract – written

4 x 3

4 + 4 + 4

2 x 5 = 10

5 x 2 = 10

2 + 2 + 2 + 2 + 2 = 10

5 + 5 =10

3 x 5 = 15

Division

Key vocabulary: share, group(s), divide, equal

KS1 Division

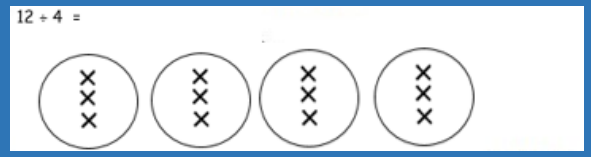
Concrete – using resources



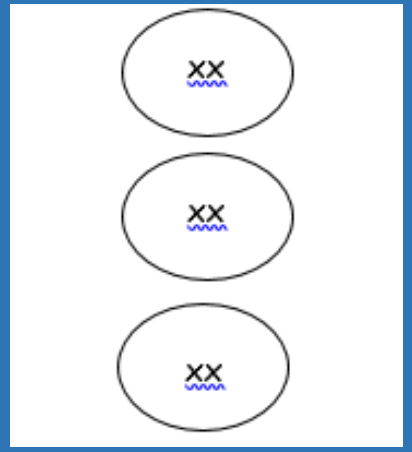


Pictorial – drawing

Sharing



Grouping



Abstract – written

$12 \div 4 = 3$

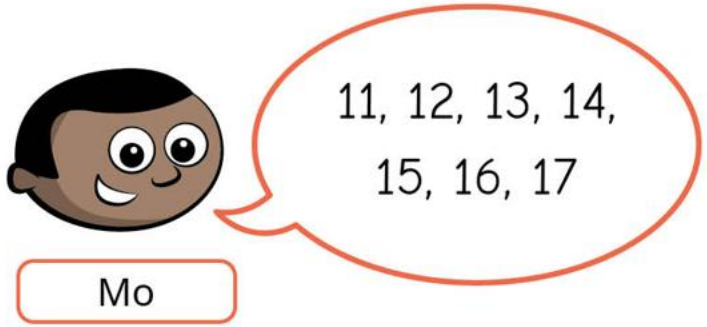
$6 \div 2 = 3$

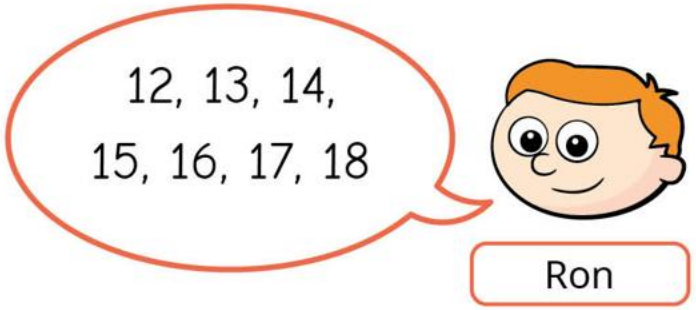
2, 4, 6

Reasoning

Being logical and being able to convince and prove to others how you got your answer.

Mo and Ron are counting on to work out 11 + 7

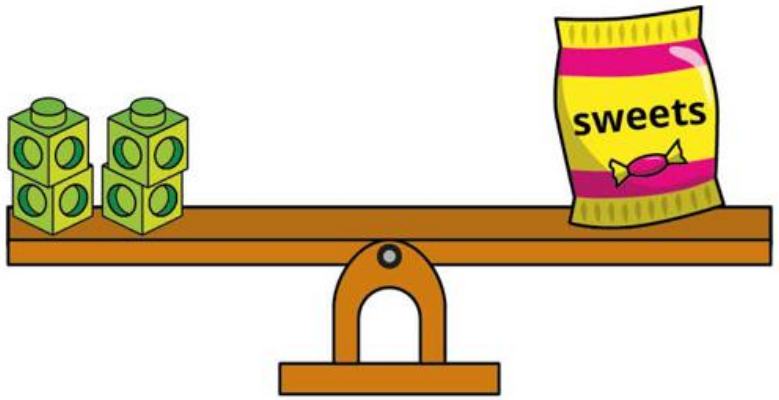




Who is correct?

Use a number line to show your answer.

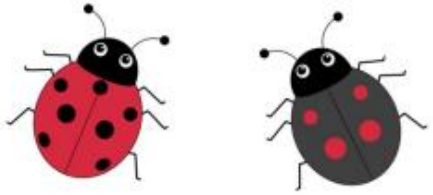
Ron uses cubes to find the mass of one bag of sweets.



What is the mass of 2 bags of sweets?

Ladybirds in the Garden

In Sam and Jill's garden there are two types of ladybirds. There are red Seven-Spot ladybirds with 7 black spots and black Four-Spot ladybirds with 4 red spots.



Sam and Jill looked at a leaf with three ladybirds on it.



"One Seven-Spot ladybird," said Sam, "and two Four-Spot ones."
"That's 15 spots altogether!" said Jill.
"I wonder if we could find ladybirds whose spots add to other numbers. I know how to do 16."
"And 14 is easy too," added Sam.

How would you make 16 and 14 spots with the Seven-Spot and Four-Spot ladybirds?

What other numbers can you make with adding 4s and 7s?
Can you get lots of numbers from 4 to 35?
Are there some numbers you can't get?

Noah





Noah saw 12 legs walk by into the Ark.

How many creatures could he have seen?

How many different answers can you find?

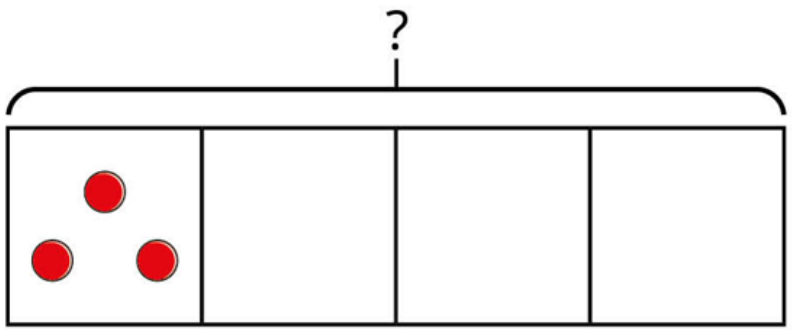


nrich.maths.org

Problem Solving

Being able to recognise how to solve a problem and the act of solving it.

Complete the bar model to work out the whole.



Kim has some coins.

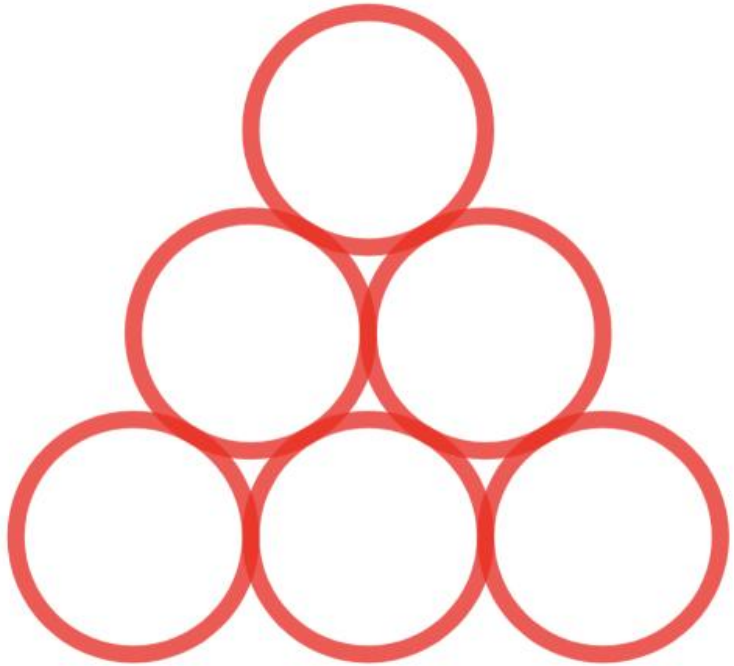


What coins could be in the purse?

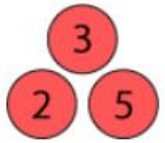
Talk about it with a partner.

Find the Difference

Place the numbers 1 to 6 in the circles so that each number is the difference between the two numbers just below it.



For example:



5 - 2 = 3

Can you find more than one solution?

Can you find all the possible solutions? How do you know you have found them all?

Questioning

- What have we done before to help us?
- How could you write or draw your method?
- How do you know?
- Prove it!
- Can you see a pattern?
- How do you know that?
- Why do you think that?
- What would happen if..?
- Have we found all the possibilities?
- Is there another way?

How to support your child at home

- Encourage children to play maths puzzles and games – this develops number sense and confidence.
- Talk about what they have been doing and what methods they have been using. Remember to always be encouraging - try and find logic in your child's mistakes and discuss this.
- Don't let your child know that you didn't like maths or couldn't do it. Tell them you had to work hard to succeed!
- Maths isn't all about speed – encouraging giving challenges a go and that making mistakes doesn't matter.
- Ask questions!
- Practise 'real life' maths – time, money, measures
- Use report comments to support your child with their next steps.

Websites

There are a number of websites that will help your child with their mathematical understanding:

- School's website - https://www.toftwoodfederation.co.uk/category/video-help/
- www.ictgames.com
- www.topmarks.co.uk
- www.mathsisfun.com
- BBC Number blocks
- TTRS
- Supermovers

Key Stage Two Curriculum

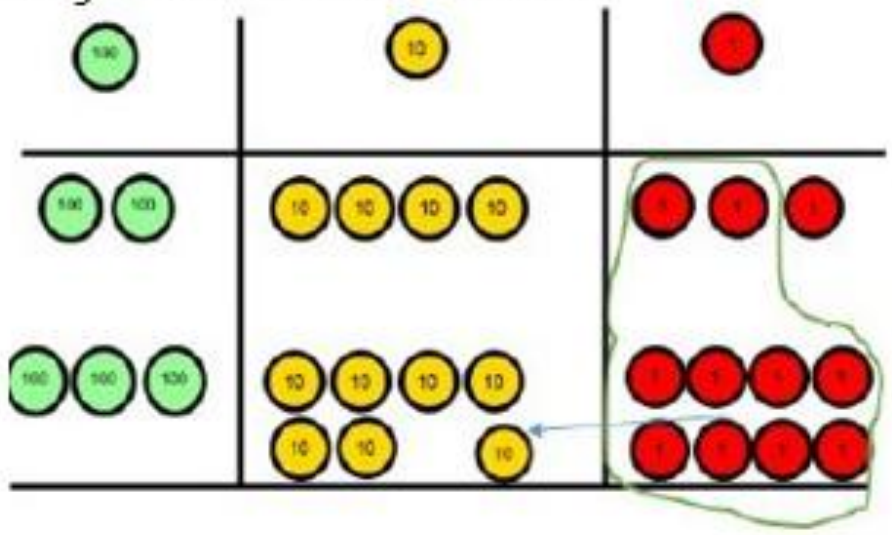
Programme of Study areas in maths are:

- Number - number and place value
  - addition and subtraction
  - multiplication and division
  - fractions, decimals and percentages
  - algebra
  - ratio
- Measurement (including money and time)
- Geometry - properties of shapes
  - position and direction
- Statistics

KS2 Addition

Concrete – using resources

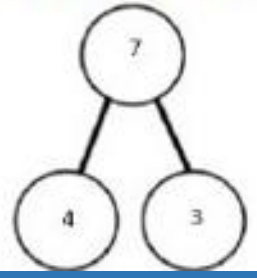
Use of place value counters add HTO + TO, HTO + HTO etc. once the children have had practice with this, they should be able to apply it to larger numbers and the abstract



KS2 Addition

Abstract – written methods

4 + 3 = 7 (four is a part, 3 is a part and the whole is seven)

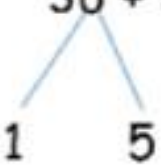


The abstract number line:
What is 2 more than 4? What is the sum of 4 and 4? What's the total of 4 and 2?
4 + 2



Looking for ways to make 10

36 + 25=



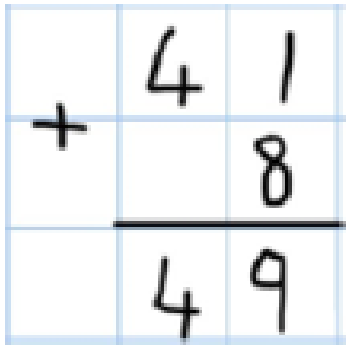
30 + 20 = 50
5 + 5 = 10
50 + 10 + 1 = 61

Formal method:

$$\begin{array}{r} 36 \\ +25 \\ \hline 61 \\ \hline 1 \end{array}$$

Children to develop an understanding of equality e.g 6 + ☐ = 11 and

6 + 5 = 5 + ☐ 6 + 5 = ☐ + 4



$$\begin{array}{r} 243 \\ +368 \\ \hline 611 \\ \hline 1\ \ 1 \end{array}$$

Children will work with a range of numbers containing up to 8 digits.

1.

$$\begin{array}{r} 3456 \\ +\ \ 789 \\ \hline 4245 \\ \hline 111 \end{array} \qquad \begin{array}{r} 1,810 \\ +\ 2436 \\ \hline 4246 \\ \hline 1 \end{array}$$

2.

$$\begin{array}{r} 2829 \\ +\ 1401 \\ \hline 4730 \\ \hline 1\ \ 1 \end{array} \qquad \begin{array}{r} 2312 \\ +\ 2418 \\ \hline 4730 \\ \hline \ \ \ 1 \end{array}$$

3.

$$\begin{array}{r} 7,542 \\ +\ 1858 \\ \hline 9400 \\ \hline 111 \end{array} \qquad \begin{array}{r} 2,312 \\ +\ 2,418 \\ \hline 4730 \\ \hline \ \ \ 1 \end{array}$$

4a. Alan and Oscar are comparing their income.

	Earnings	Bonus
Alan	£28,568	£7,099
Oscar	£24,079	£9,865



Alan: I earnt more because £28,568 + £7,099 = £35,667.



Oscar: I earnt more money because my bonus was almost £3,000 more than yours.

Who is correct? Explain why.

Alan

£28,568
+ 07,099
£35,667

1 1 1

Oscar

£24,079
+ 09,865
33,944

1 1 1

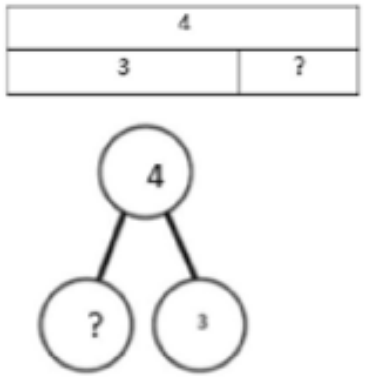
✓ Oscar is wrong because he has two thousand (2,000) less.

KS2 Subtraction

Abstract – written methods

4 - 3 =

□ = 4 - 3



Find the difference between 8 and 6.

8 - 6, the difference is ?

Children to also explore why

9 - 7 = 8 - 6 (the difference, of each digit, has changed by 1 so the difference is the same - this will help when solving 10000-9987)

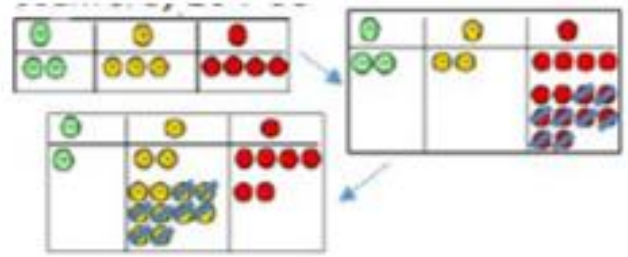
48 - 7 =

	4	8
-		7
	4	1

$$\begin{array}{r} {}^{2}{}^{1} \\ 2\not{3}4 \\ -\ 88 \\ \hline 6 \end{array}$$

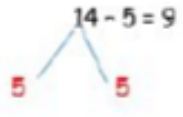
Column method (using place value counters)

234-88



14 - 5 = 9 You also want children to sec related facts e.g. 14 - 9 = 5

Children to represent how they have solved it e.g.



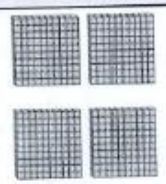
14 is made up of 5, 5 and 4 so I can subtract one 5 to be left with 4 and 5



5 is made up of 4 and 1 so I can subtract 4 to make 10 and then 1 to get to 9

Children will work with a range of numbers containing up to 8 digits.

1. Eva has made this number

Hundreds	Tens	Ones
		

a) What number has Eva made?

463 ✓

a) Eva subtracts 40 from her number. Write a subtraction to show what Eva has done. ✓

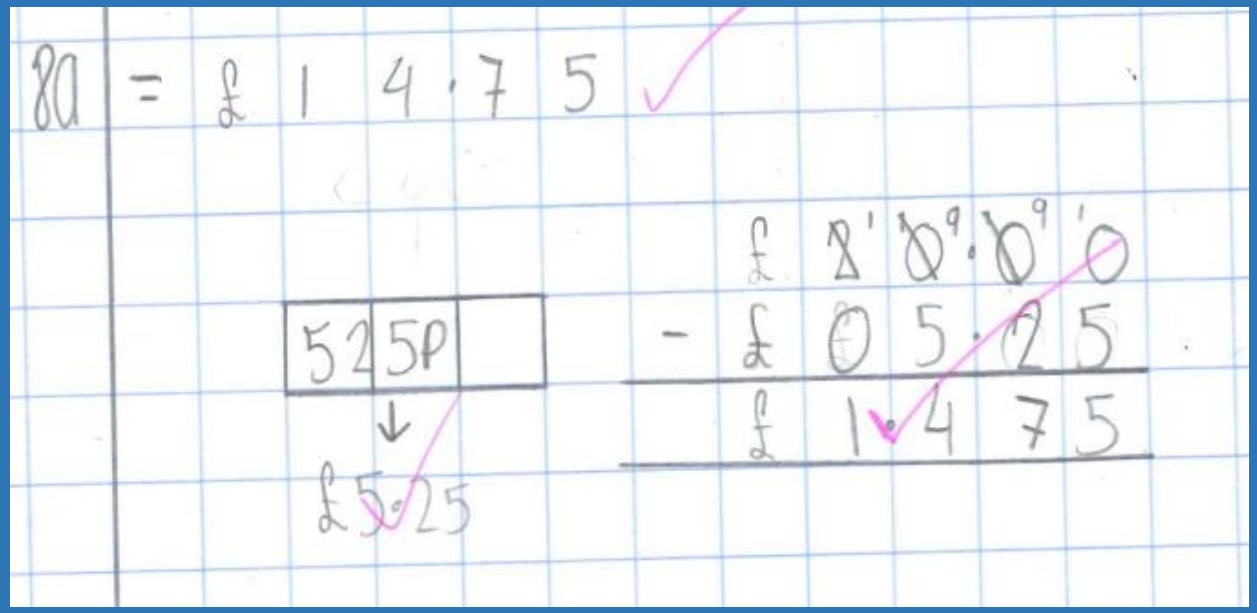
463 - 40 = 423

2. Use Base 10 to help you complete the number sentences.

a) 146 + 30 = ~~126~~ 176 ✓

b) 146 − 30 = 116 ✓

c) 146 + 50 − 50 = 146 ✓



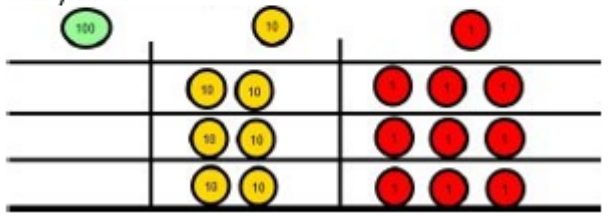
KS2 Multiplication

Abstract – written methods

Formal column method with place value counters or base 10 (at the first stage - no exchanging)

3 x 23

Make 23, 3 times. See how many ones, then how many tens



Children to represent the counters pictorially:



Children to be encouraged to show the steps they have taken

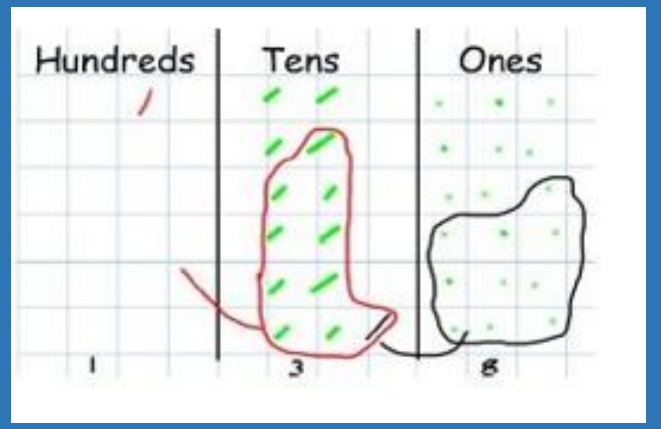
4 x 15

10 5

10 x 4 = 40

5 x 4 = 20

40 + 20 = 60



$$\begin{array}{r} 6 \times 23 = \\ 23 \\ \times\ 6 \\ \hline 138 \\ \hline 1\ 1 \end{array}$$

$$\begin{array}{r} 124 \\ \times\ 26 \\ \hline 744 \\ 248\,0 \\ \hline 3224 \\ \hline 1\ 1 \end{array}$$

Answer: 3224

Children to record what it is they are doing to show understanding

3 x 23

20 3

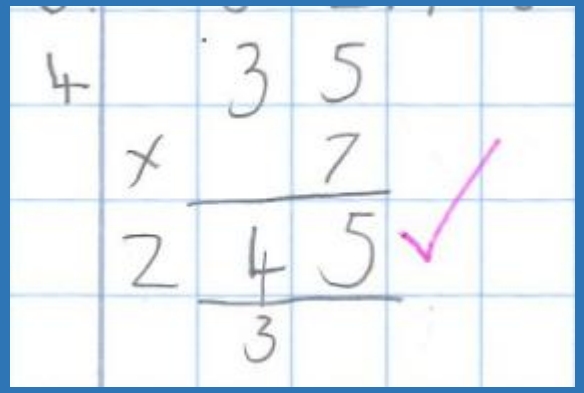
3 x 20 = 60

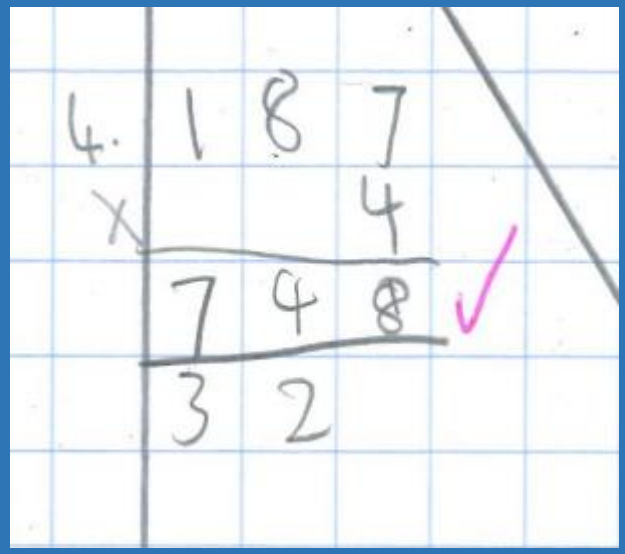
3 x 3 = 9

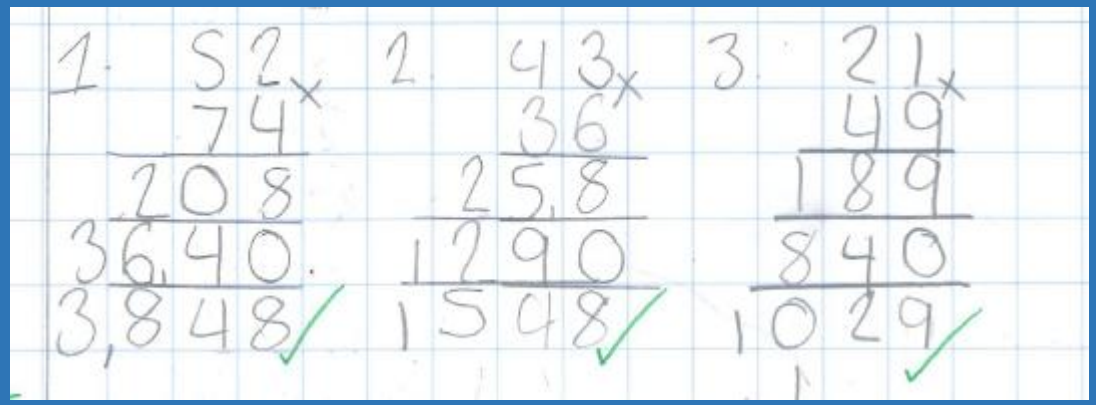
60 + 9 = 69

$$\begin{array}{r} 23 \\ \times\ 3 \\ \hline 69 \\ \hline \end{array}$$

Children will work with numbers up to 4 digit x 2 digit.


4
35
x 7
245
3


4.
187
x 4
748
32

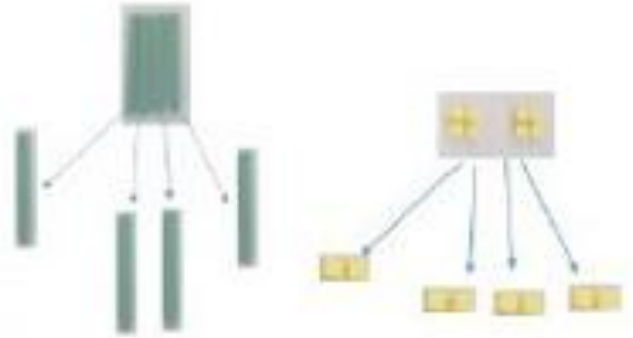

1. 52 x 74 = 208 3640 3,848
2. 43 x 36 = 258 1290 1548
3. 21 x 49 = 189 840 1029

KS2 Division

Concrete – using resources

2d divided by 1d using base 10 (no remainders) SHARING

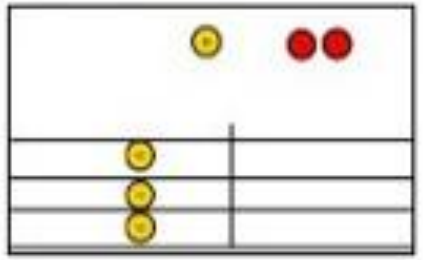
48 ÷ 4 = 12



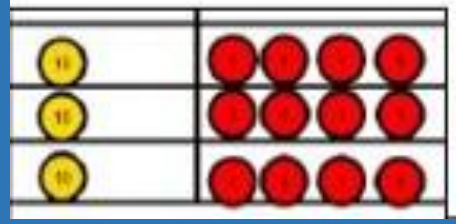
Start with the tens.

Sharing using place value counters.

42 ÷ 3= 14



1. Make 42. Share the 4 tens between 3. Can we make an exchange with the extra 10?

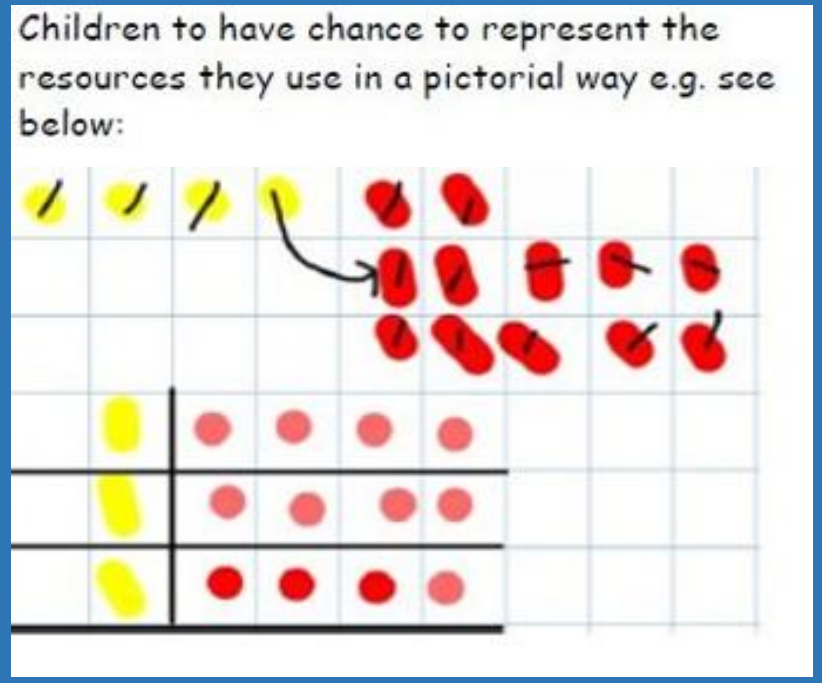


Exchange the ten for 10 ones and share out 12 ones

KS2 Division

Pictorial – drawing

42 ÷ 3 = 14



KS2 Division

Abstract – written methods

6 ÷ 2 = 3

What's the calculation?

3	3

13 ÷ 4 - 3 remainder 1

Children to count their times tables facts in their heads

42 ÷ 3

42 = 30 + 12

30 ÷ 3 = 10

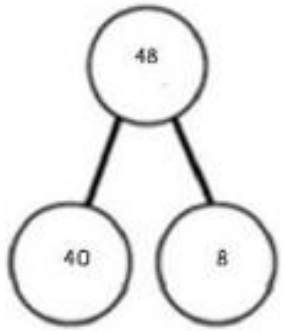
12 ÷ 3 = 4

10 + 4 = 14

Children are encouraged to use their multiplication facts to solve division calculations -

30 ÷ 10 = 10, 20, 30

48 ÷ 4



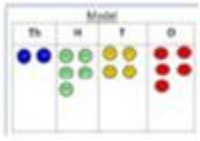
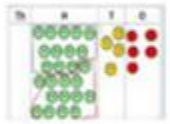
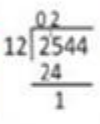
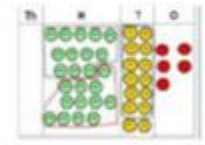
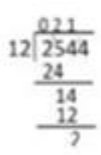
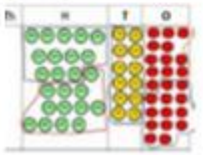
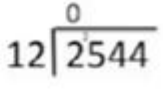
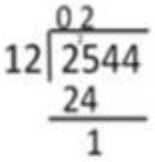
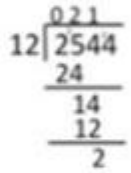
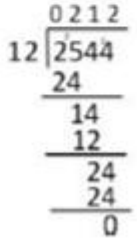
4 tens ÷ 4 = 1 ten
8 ones ÷ 4 = 2 ones

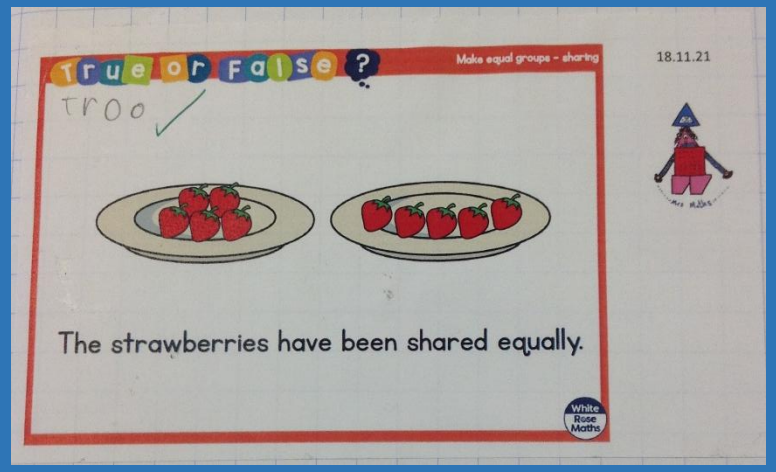
10 + 2 = 12

$$5\overline{)615} = 123$$

Children will work with numbers up to 4 digit x 2 digit.

Long Division

Concrete	Pictorial	Abstract
  2544 ÷ 12 How many groups of 12 thousands do we have? None  Exchange 2 thousand for 20 hundreds.   How many groups of 12 are in 25 hundreds? 2 groups. Circle them. We have grouped 24 hundreds so can take them off and we are left with one.   Exchange the one hundred for ten tens so now we have 14 tens. How many groups of 12 are in 14? 1 remainder 2.  Exchange the two tens for twenty ones so now we have 24 ones. How many groups of 12 are in 24? 2	Children to represent the counters, pictorially and record the subtractions beneath.	 Step one- exchange 2 thousand for 20 hundreds so we now have 25 hundreds.  Step two- How many groups of 12 can I make with 25 hundreds? The 24 shows the hundreds we have grouped. The one is how many hundreds we have left.  Exchange the one hundred for 10 tens. How many groups of 12 can I make with 14 tens? The 14 shows how many tens I have, the 12 is how many I grouped and the 2 is how many tens I have left.  Exchange the 2 tens for 20 ones. The 24 is how many ones I have grouped and the 0 is what I have left.



23.2.22

22÷2=11 ✓

2 4 6 8 10 12 14 16
18 20 22

40÷5=8 ✓

5 10 15 20 25 30 35
40

110÷10=11 ✓

10 20 30 40 50 60 70
80 90 100 110

15÷3=5 ✓

3 6 9 12 15

21÷3=7 ✓

3 6 9 12 15 18 21

18÷2=9 ✓

2 4 6 8 10 12 14
16 18

18.11.21

20÷10=2 ✓

14÷2=7 ✓

10÷5=2 ✓

15÷5=3 ✓

40÷10=4 ✓

10 20 30
40

8÷2=4 ✓

35÷5=7 ✓

5 10 15
20 25 30
35

22÷2=11 ✓

1 2 3 4 5 6 7 8 9 10 11

use the formal written method. Show your w

1. 0398 2/9
   9 | 3³5⁸6⁶
   0868 4/8
2. 8 | 6⁶9⁵4⁶8
   0655 1/3
3. 3 | 1¹9¹6¹6
   0886 4/9
4. 9 | 7⁷9⁷7⁷8
   0579 5/8
5. 8 | 4⁴6⁶3⁷7
   0342 4/7
6. 7 | 2³2⁴9¹8
   0331 1/6
R. 6 | 7¹9¹8 7

Answers
1. 396 2/9 ✓
2. 868 4/8 ✓
3. 655 1/3 ✓
4. 886 4/9 ✓
5. 579 5/8 ✓
6. 342 4/7 ✓

R. Sean and Gabriel are calculat
7,987 ÷ 6.



Sean

The answer is 1,331 r1.

The answer is 1,332 r1.



Gab

Who is correct? Explain your reaso

R. Sean is correct becau
the answer is 133

PS. Oranges are packed into nets.
net holds 5 oranges. There are 2,3
oranges. How many nets are need
hold all the oranges?
they would need 462 net

PS.
   0461
5 | 2²3³07

My Maths

(Juniors only)

https://www.mymaths.co.uk/primary.html

Online Homework | Number facts doubles 4

Q1 - Number bonds

Find the missing numbers.

Q1 0/12

Q2 0/12

No calc

Total 0/24

39 + ☐ = 100

100 - ☐ = 54

☐ + 750 = 1000

1000 - 900 = ☐

118 + ☐ = 200

600 - ☐ = 549

☐ + 6200 = 7000

4000 - ☐ = 3700 [8]

A school has 1000 pupils.

650 of the pupils are boys.

How many girls are there?

☐ girls [2]



Mark wants to save £8000.

So far he has saved £7400.

How much more does he need to save?

£☐ [2]

Mark it

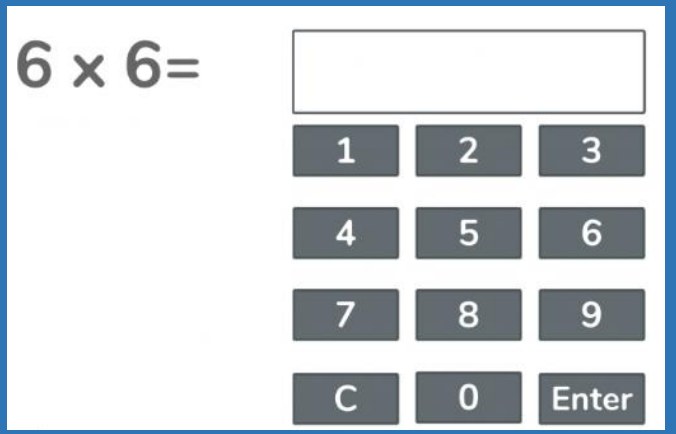
Multiplication Tables Check

Who will take the times tables test?

Children in Year 4 will take the check during the Summer term.

What is the test's format?

The Multiplication Tables Check has been described as "an online, on-screen digital assessment" – meaning the children will take the test on a desktop computer, laptop or tablet (such as an iPad) at school.



https://www.morethanascore.org.uk/what-we-do/times-tables/

Thank you for listening.

Are there any questions?