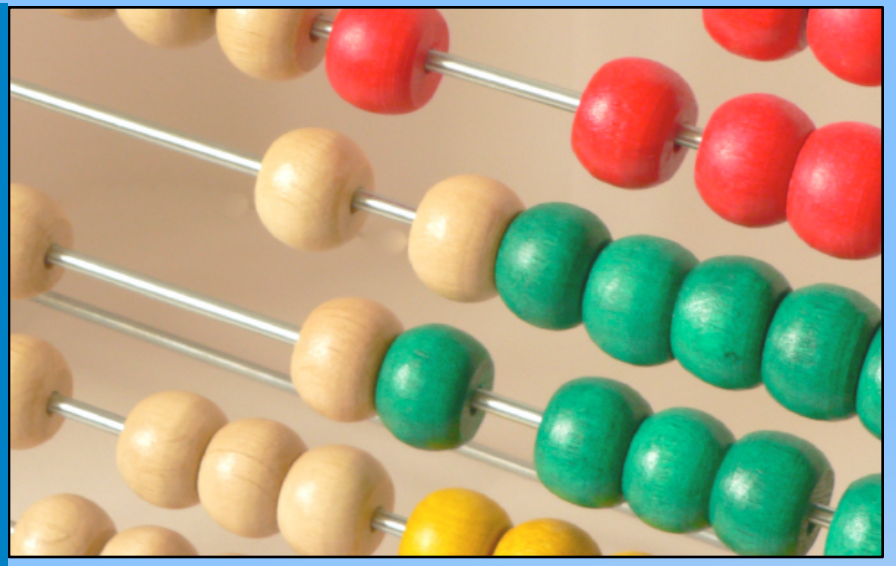
Holy Trinity Primary School

Supporting Mathematics Learning at Home



KS1 Parent Workshop – Mathematics

Catherine Thomas

Why get involved?

"**Parents are a child's first and most enduring educators**, and their influence cannot be overestimated."

Independent Review of Mathematics teaching in Early Years Settings and Primary Schools, Sir Peter Williams 2008

"Childrens' motivation to learn mathematics is higher among childrens whose parents discuss with them how mathematics can be applied to everyday life or who obtain mathematics materials for them."

The Programme for International Student Assessment 2013

Be positive about maths. Don't say things like "I can't do maths" or "I hated maths at school"; your child might start to think like that themselves.

Point out the maths in everyday life. Include your child in activities involving maths such as using money, cooking and travelling.

Praise your child for effort rather than talent - this shows them that by working hard they can always improve.

The Fundamentals – Year 1

Counting

Count to and across 100, forwards and backwards from any number

Fill the missing numbers in the boxes.

103	102	101			

Count in multiples of two, five and ten

Put the numbers on the number track so they go up in twos.

2 → ☐ → 6 → ☐ → 10 → ☐

Place Value

Read and write numbers to 100 in numerals

Identify one more/less than a given number within 100

1 **more** than 26 is ☐

1 **more** than 38 is ☐

1 **less** than 46 is ☐

1 **less** than 90 is ☐

Write the number in the box.

sixty ☐ fifty four ☐

eighty ☐ hundred ☐

Addition and Subtraction

Read, write and interpret mathematical statements involving +, - and =

Put the missing sign in the box.

8 ☐ 5 = 3

Write the missing number in the box.

☐ = 15 + 0

Represent and use number bonds and related subtraction facts within twenty

What is the total cost?

Multiplication and Division

Solve multiplication and division questions using concrete, pictorial and array representations

Halve and double numbers to twenty

Billy and Jay share these apples. How many do they each get?

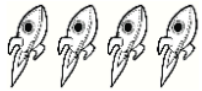
Write a sum (number sentence) to explain this picture.

Fractions

Recognise, find and name halves of shapes and quantities

Sarah and James share this bottle of water. What fraction will they have?

Colour half this shape



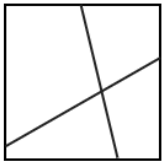
Half the rockets zoom away. How many are left?

Recognise, find and name quarters of shapes and quantities

Four children share this cake. What fraction will they each have?

What fractions have this square been cut into?

Halves / Quarters/ It's not fraction



The Fundamentals – Year 2

Counting

Count in steps of two, three and five from zero and count in tens from any number

Continue the number pattern.

0 3 6 ☐ ☐ ☐

Identify odd and even numbers

Write down three odd numbers between 5 and 15. ☐ ☐ ☐

Place Value

Recognise the place value of each digit in a two digit number

What does the digit 8 stand for in 58?

8 tens 8 ones 8 hundreds

Order numbers 0 - 100 and compare them using >, < and = (in numerals and words)

Write the missing numbers in the boxes.

10 ☐ 20 30 ☐ 40 ☐ 50

Addition and Subtraction

Recall and use addition and subtraction facts to twenty and can work out related facts up to 100

Write the missing number in the box.

8 + 2 = ☐ 100 - 70 = ☐

Add and subtract two 2 digit numbers and three 1 digit numbers (checking with inverse)

There are 56 penguins on the ice. 18 swim away. How many are left?

Multiplication and Division

Know multiplication and related division facts for two, five and ten

8 x 5 ☐ 40

100 ☐ 10 = 10

Fill in the boxes.

12 times 2 is ☐

18 shared by 2 is ☐

12 times 5 is ☐

110 shared by 10 is ☐

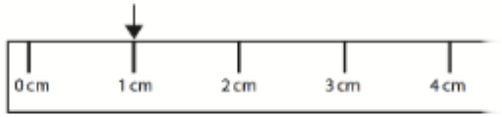
Solve multiplication and division problems in context using materials, arrays, repeated addition, multiplication and division facts

Edward shared 45 bananas between 5 children. How many does each child get?

Fractions

Identify 1/2, 1/3, 1/4, 2/4 and 3/4 of length, shape or quantity

Circle the fraction that shows three quarters. $\frac{3}{4}$ $\frac{1}{3}$ $\frac{1}{4}$ $\frac{1}{2}$



Circle the fraction the arrow shows on the ruler. $\frac{3}{4}$ $\frac{1}{3}$ $\frac{1}{4}$ $\frac{1}{2}$

Circle a quarter of the cakes.

Recognise the equivalence of 2/4 and 1/2

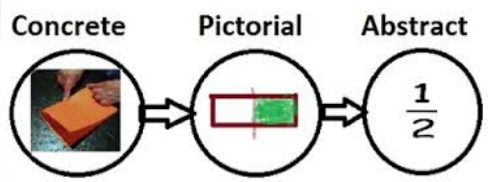
Shade 1/2 of this shape.

Can you write the fraction in another way?

Key Concepts - CPA

The concrete-pictorial-abstract approach, based on research by psychologist Jerome Bruner, suggests that there are three steps (or representations) necessary for pupils to develop understanding of a concept.

Reinforcement is achieved by going back and forth between these representations.



The Fundamentals – Being a Mathematician

The same from Year 1 to Year 6

Describes, convinces and justifies decisions following lines of enquiry and generalising.

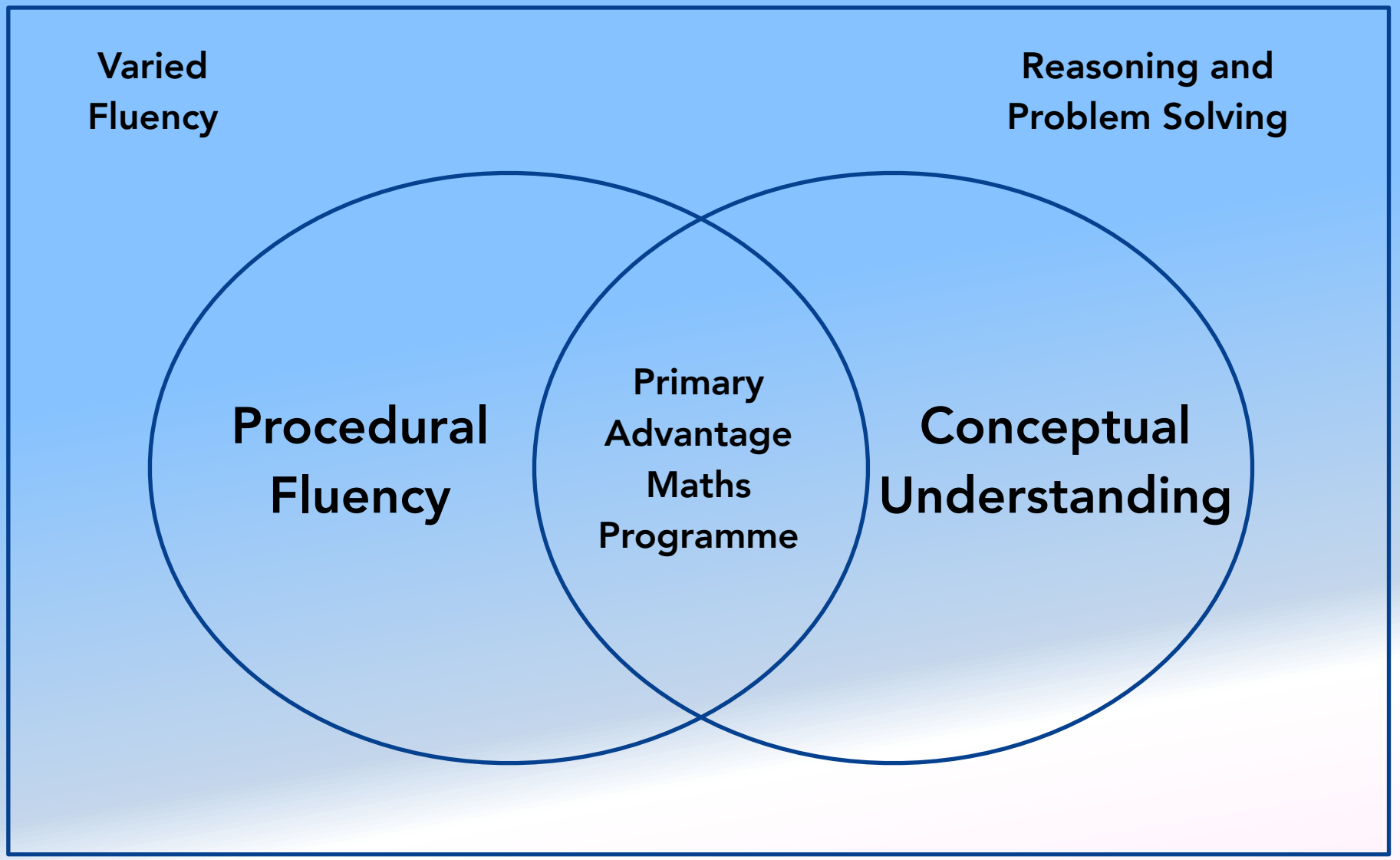
Works systematically and spots patterns by visualising and making conjectures.

Works efficiently and accurately.

Makes their mathematical thinking clear to themselves and others.

Uses own and suggested strategies to make corrections and improvements.

Experience and the National Curriculum



Counting and Place Value

Number and counting – What do we teach?

Counts to and across 100, forwards and backwards from any number.

- 0, 1, 2, 3, 4, 5, 6, 7, 8, 9……
- 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102……
- 115, 114, 113, 112, 111, 110, 109, 108, 107……
- 32, 31, 30, 29, 28, 27, 26, 25, 24, 23, 22……

Put the bigger number in your head and count on…

36 + 5 = 41

Use counting on method to help your child complete these questions:

a) 12 + 6 = b) 42 + 7 = c) 8 + 21 = d) 22 + 11

Number and counting – What do we teach?

Count in steps of 2, 5 and 10 from zero

Used in number sequences

- 0, 2, 4, 6, 8, 10, 12, 14, 16, 18…… → **6, 8, 10, ____, 14, 16, ____**
- 0, 5, 10, 15, 20, 25, 30, 35…… → **25, 20, 15, ____, ____, ____**
- 0, 10, 20, 30, 40…… → **100, 90, ____, ____, 60, ____**

Use counting in 2's, 5's and 10's to complete the missing numbers in these sequences:

a) 4, 6, 8, 10, 12, ____, ____, ____

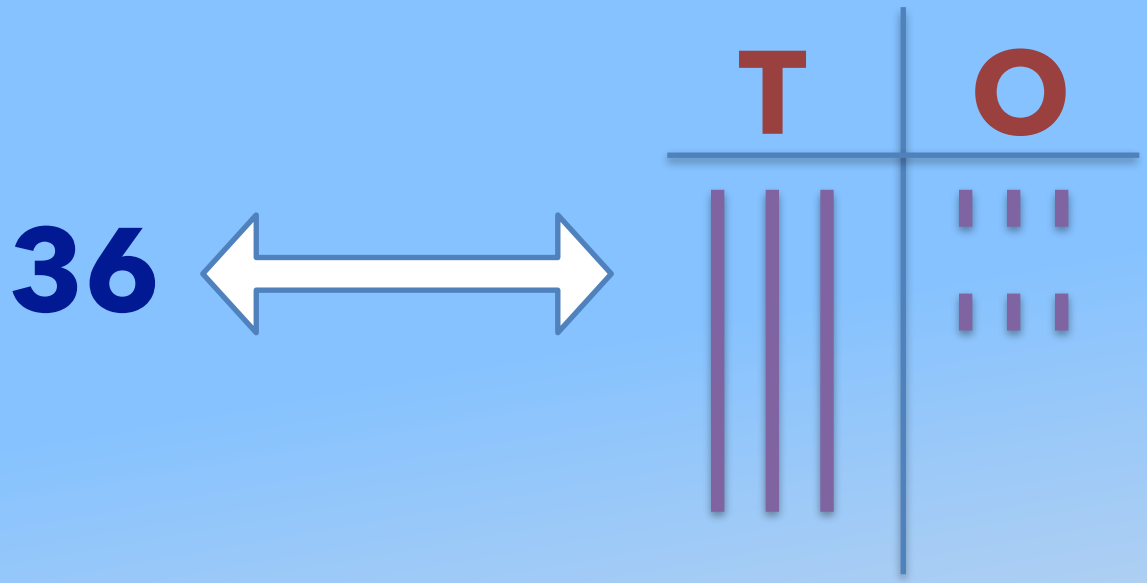
b) 15, 20, 25, 30, 35, ____, ____, ____

c) 78, 76, 74, 72, 70, ____, ____, ____

d) 90, 80, 70, ____, ____, 40, 30, ____

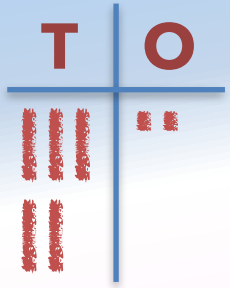
Number and place value – What do we teach?

Reads and writes numbers to 100 in numerals (and 1-20 in words).

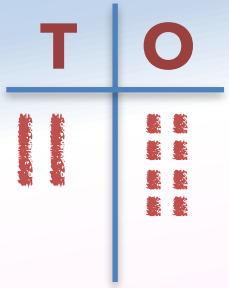


Use the paper on your table to draw a place value chart and work with your child to make these numbers:

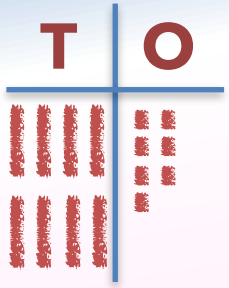
a) 52



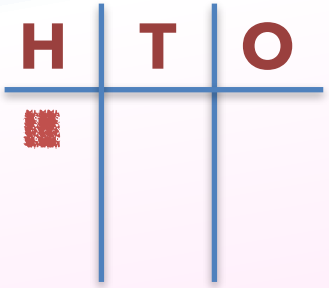
b) 28



c) 87



d) 100



Number and place value – What do we teach?

Knowing the value of numbers help children to complete questions like these:

T	O		
5	8	=	+ 8

3 0 + 5 =

Say the number, can your child write the digits?

Forty five

Thirty two

Seventeen

Say the number, can your child write the word?

18

5

11

Number and place value – What do we teach?

Identifies one more/less than a given number within 100.

1 more than 46 is 47

1 more than 69 is 70

1 less than 32 is 31

1 less than 50 is 49

Place Value – Varied Fluency

Complete each box using a picture, a numeral and a word.

one more → ☐

3 one more → ☐

six one more → ☐

Complete the number tracks.

10		8	7	6			3	2	1

ten	nine	eight		six		four	three	two	

Year 1

Place Value – Varied Fluency

Year 2

Here is part of a bead string.

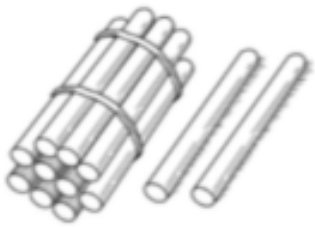
Complete the sentence.

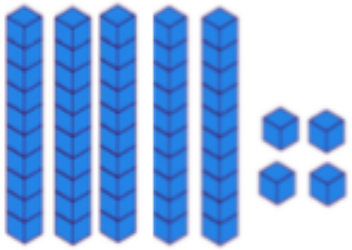
There are …….. tens and …….. ones.

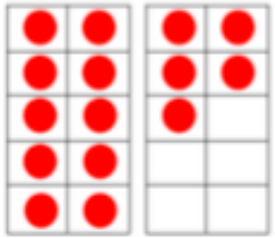
The number is ……..

Represent 45 on a bead string.

What numbers are represented below?
Write your answer in numerals and words.







Place Value – Reasoning and Problem Solving

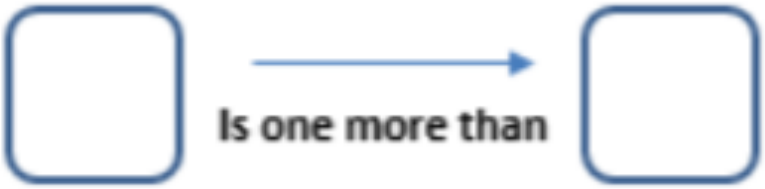
Year 1

Timmy rolls the number that is 1 more than the dice below.

He says that he rolls 2

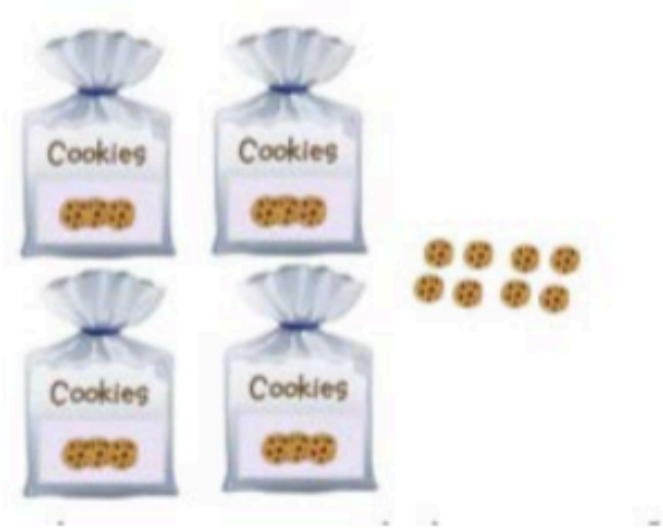
Explain his mistake.

Using number cards 0 to 10.
How many different ways can you complete the boxes below?



Place Value – Reasoning and Problem Solving

Each bag contains 10 cookies



How many cookies are there altogether?

Write your answers in numerals and words.

What strategy did you use?

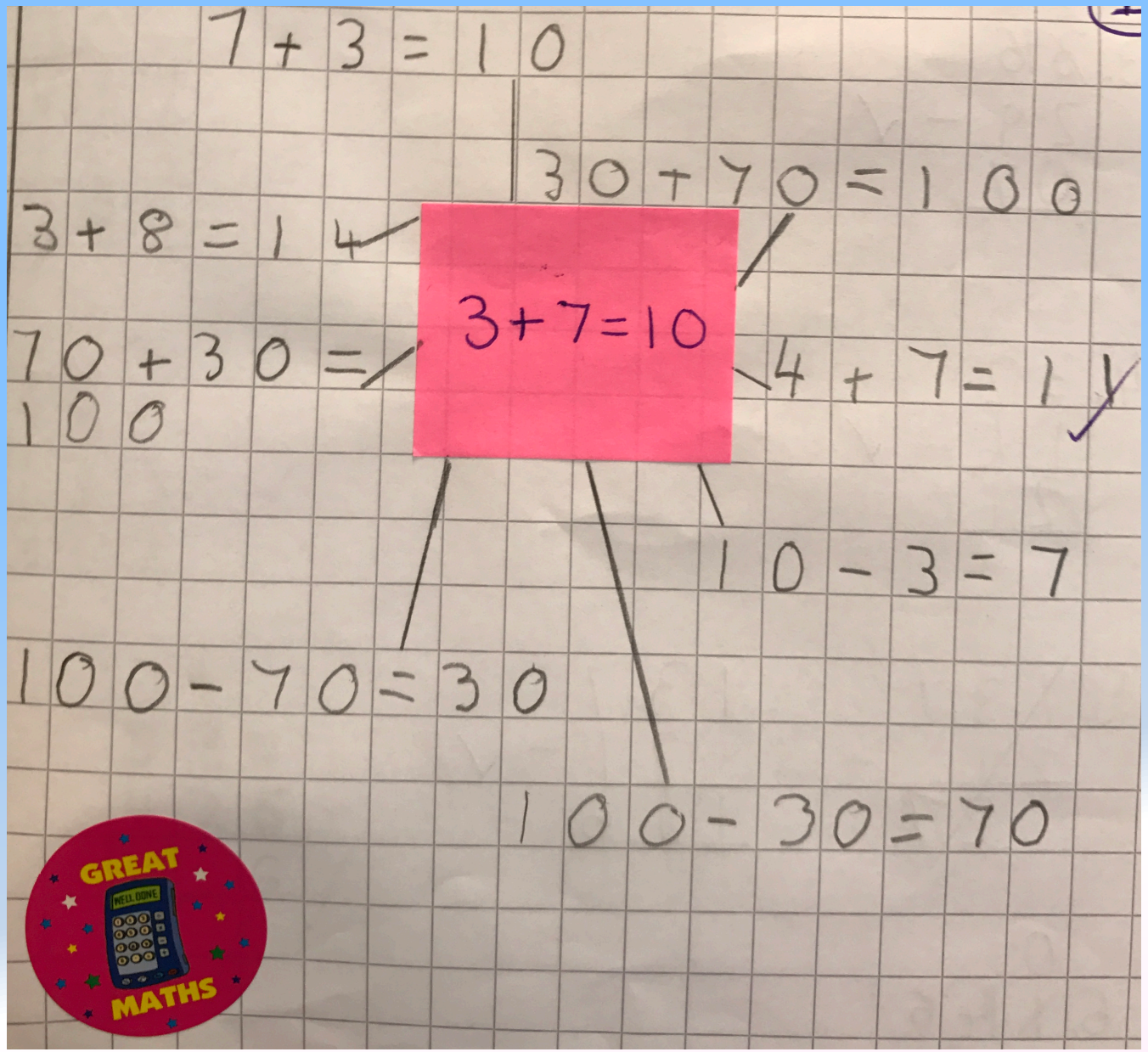
Did your partner use a different method?

What is the best strategy to use

Year 2

Addition

Play - 'If I know… game'



Represents and uses number bonds and related subtraction facts within 20.

Knowledge of Fact Families and more.

3 + 7 = 10

7 + 3 = 10

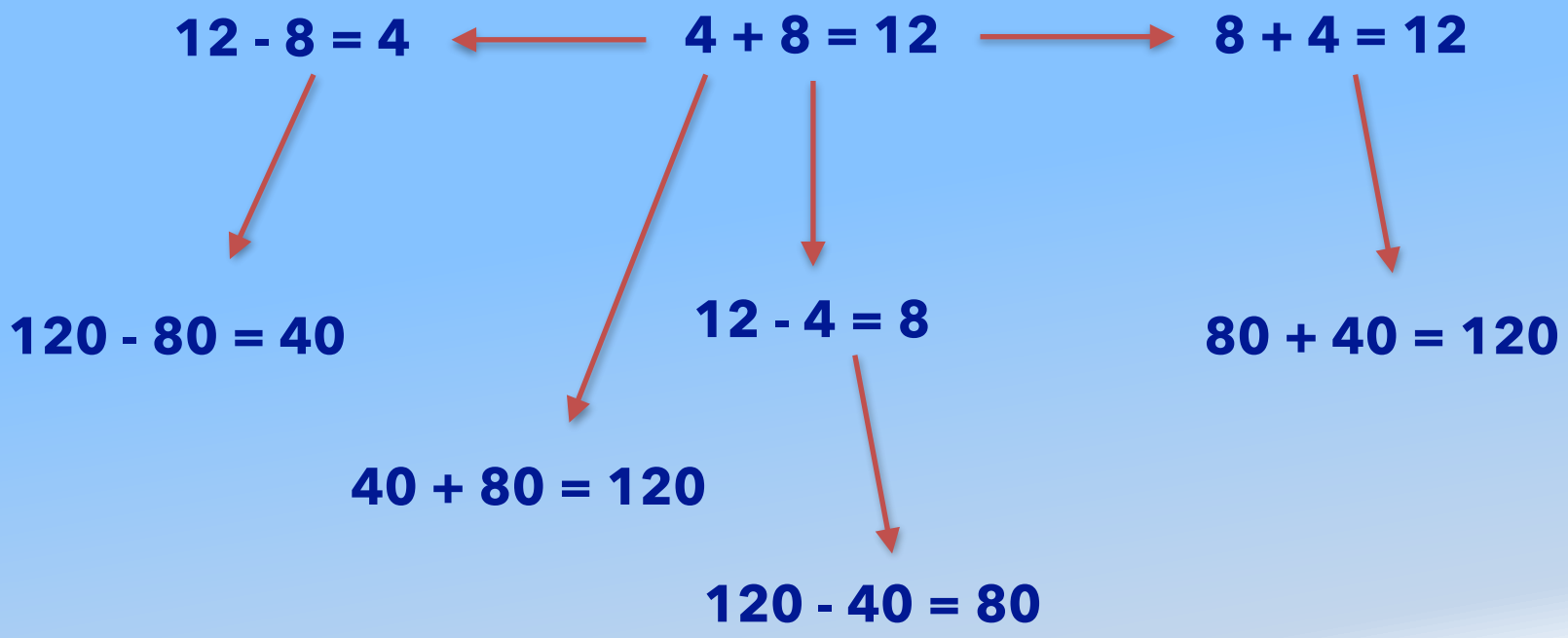
10 - 3 = 7

10 - 7 = 3

30 + 70 = 100

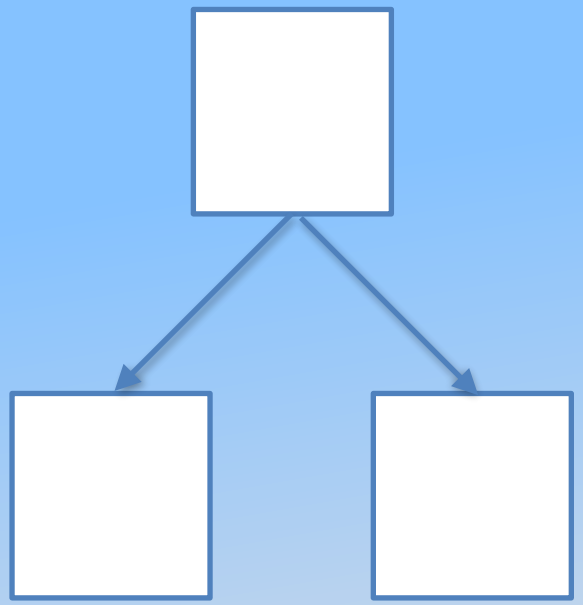
Play - If I know game

What else do you know?



Addition and Subtraction – What do we teach?

Adds and subtracts 1 and 2 digit numbers using 0-20 (including missing number problems).



a) 12 + 3 = ___

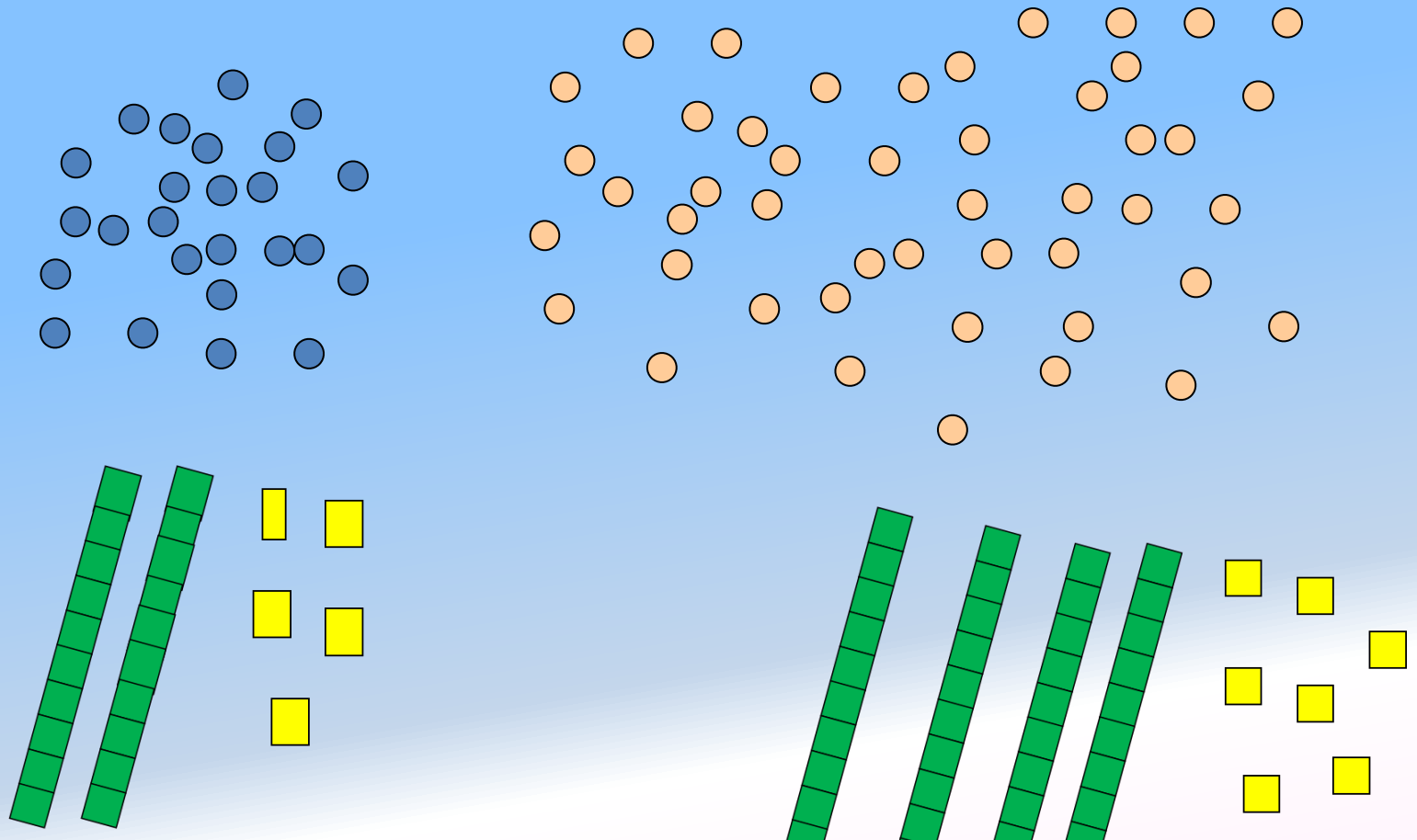
b) 18 - 12 = ___

c) 18 = ___ + 8

d) 16 = 20 - ___

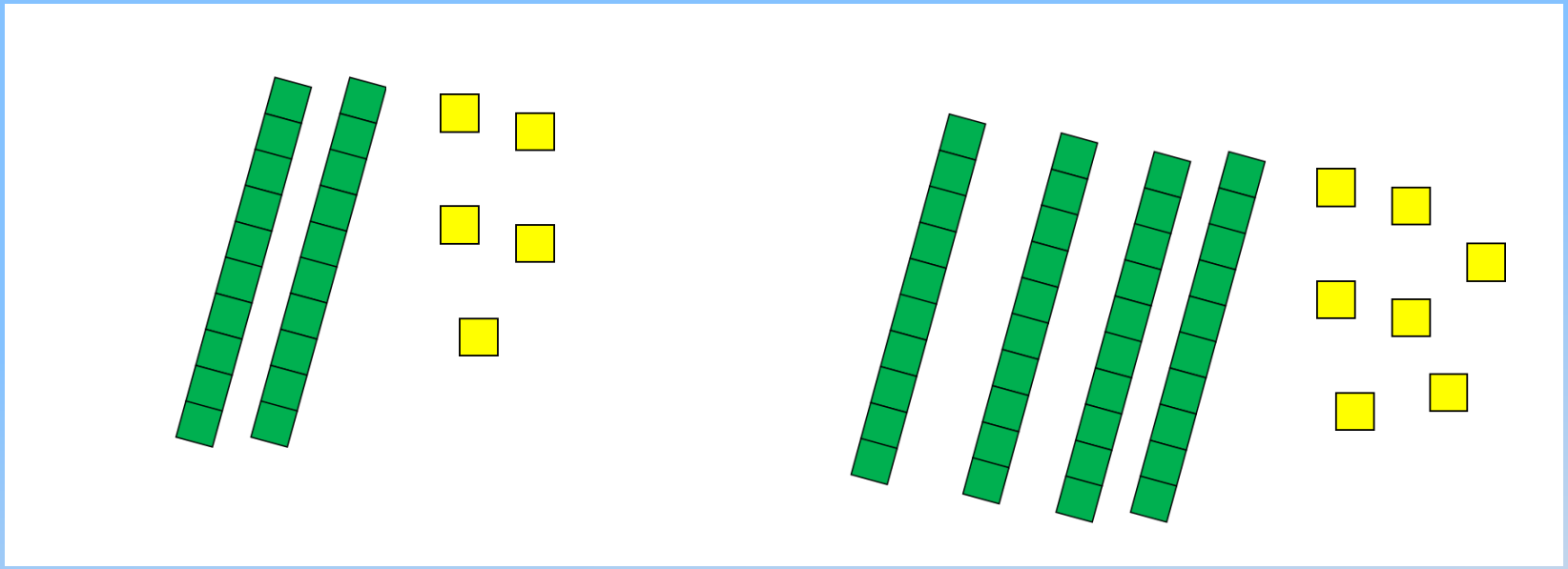
Models for Addition - Moving to written methods

25 + 47



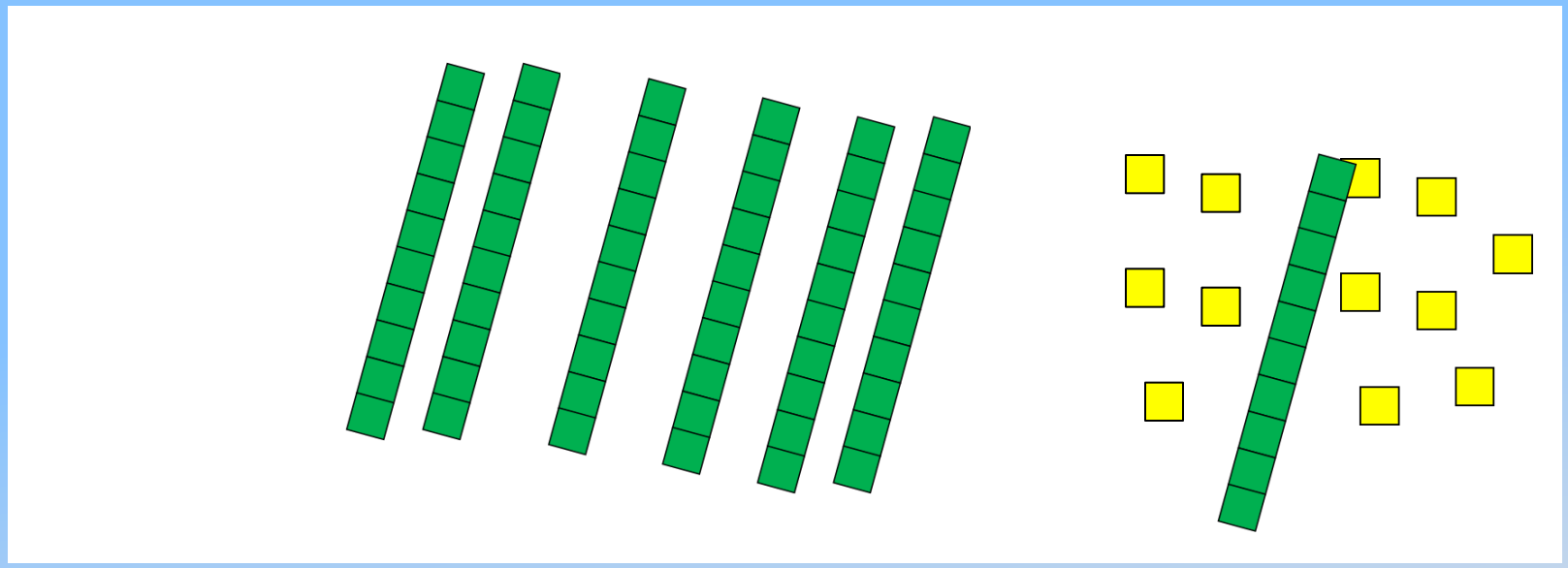
Models for Addition - Moving to written methods

25 + 47



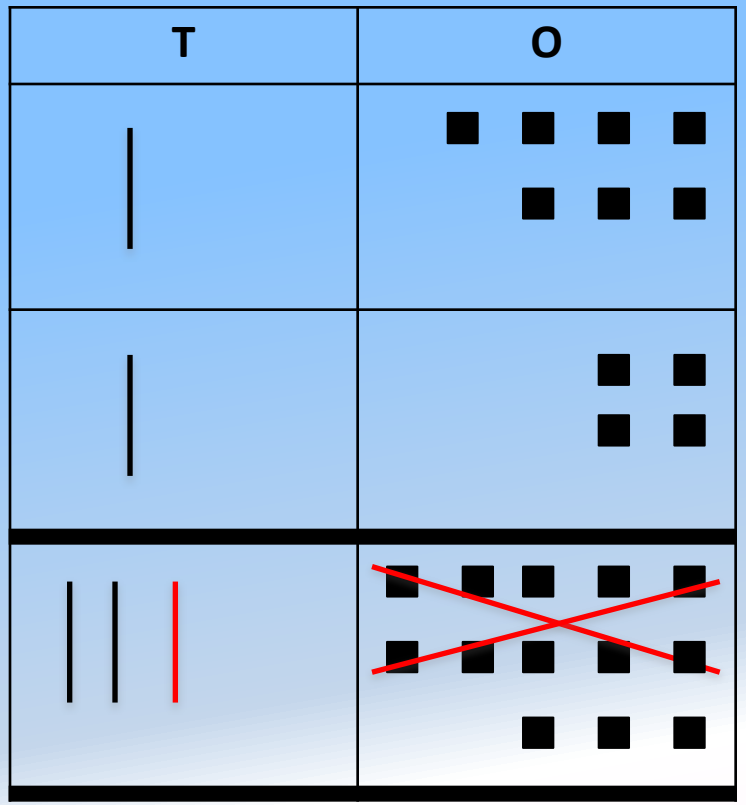
Models for Addition - Moving to written methods

25 + 47



This becomes:

A pictorial representation of the concrete method the children complete using dienes.



Written Methods for Addition

Expanded Method

20	+	5
10	+	4
30	+	9

+

20	+	7
10	+	5
40	+	2

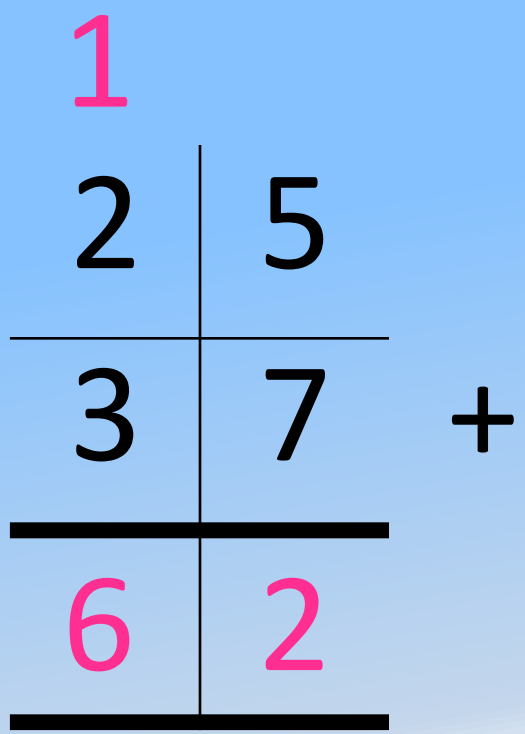
+

10

regrouped and renamed

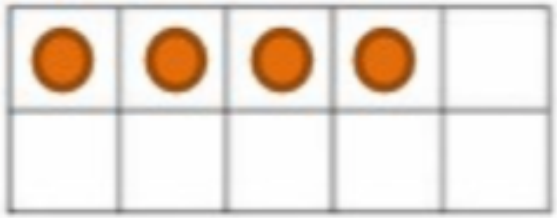
Written Methods for Addition

Column Addition - Formal Written Method



Addition – Varied Fluency

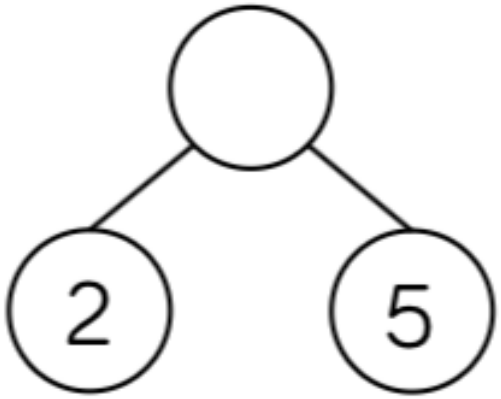
There are 5 red cars and 4 blue cars. How many cars are there altogether?



□ + □ = □

□ = □ + □

If 2 is a part and 5 is a part, what is the whole?



□ + □ = □

Year 1

Addition – Varied Fluency

Year 2

Hamza has 41 sweets.

Jemima has 55 sweets.

How many sweets do they have altogether?

$64 + 12 =$

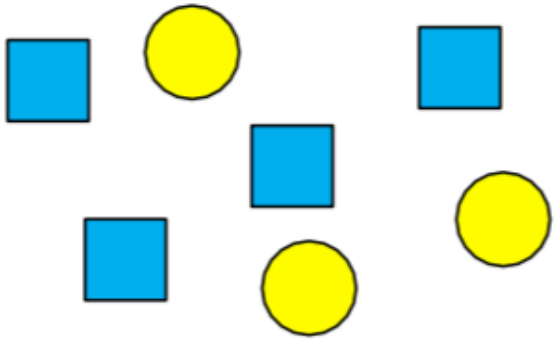
4 ones + 2 ones = ☐

6 tens + 1 ten = ☐

☐ tens + ☐ ones = ☐

Addition – Reasoning and Problem Solving

Which sentence is correct?



A: 5 is a part, 2 is a part and the whole is 7

B: 4 is a part, 3 is a part and the whole is 8

C: 4 Is a part, 3 is a part and the whole is 7

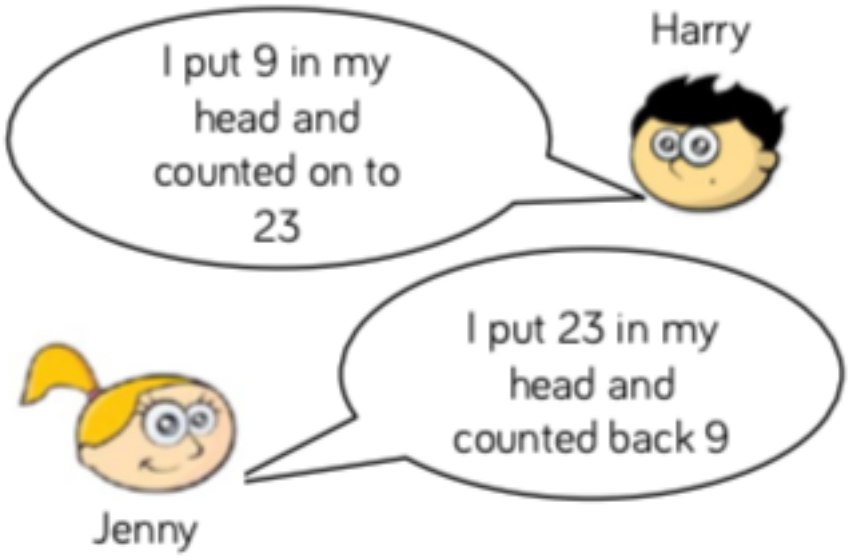
What mistakes have been made in the incorrect sentences?

Year 1

Addition – Reasoning and Problem Solving

Harry and Jenny are solving the subtraction 23 – 9

Here are their methods



Who's method is the most efficient?

Can you explain why?

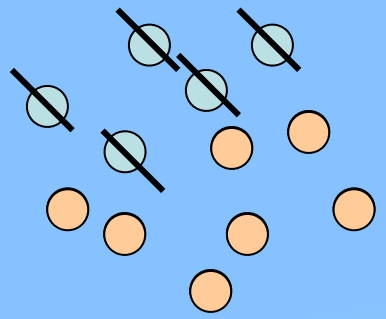
Can you think of another method to solve the subtraction.

Year 2

Subtraction

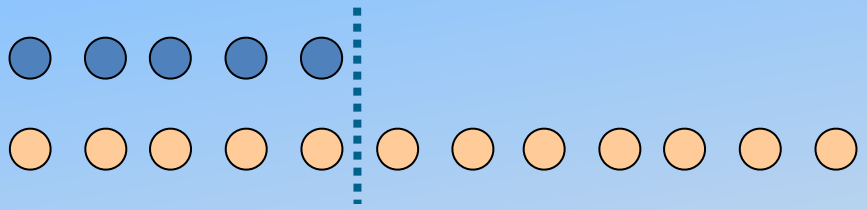
Models for Subtraction

Removing items from a set (reduction or take-away)

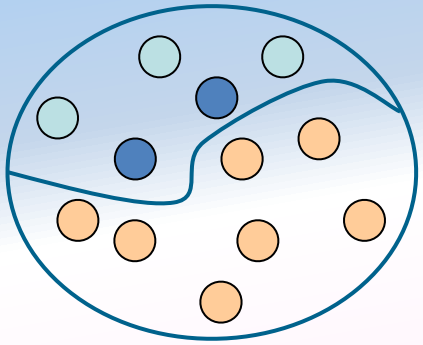


12 - 5 = 7

Comparing two sets (comparison or difference)



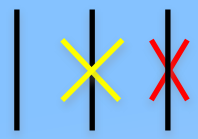
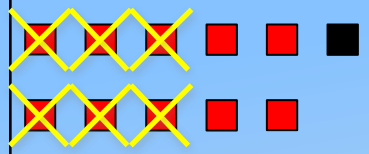
Seeing one set as partitioned



Seeing 12 as made up of 5 and 7

Concrete Method for Subtraction:

$31 - 16 = 15$

T	O
	
1	5

Again we use the terms **regroup** and **rename**.

Thinking Column

$1 - 6 = X$

$11 - 6 = 5$

$20 - 10 = 10$

Written Methods for Subtraction

Expanded Method

25 – 14 = 15

20	+	5
10	+	4
10	+	1

-

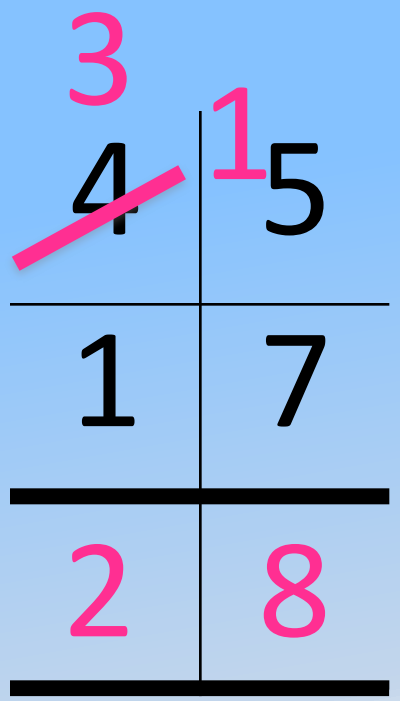
33 – 15 = 18

		10
~~30~~	+	3
10	+	5
10	+	8

-

Written Methods for Subtraction

Column Subtraction - Formal Written Method



Your turn:

Use this method to complete these sums:

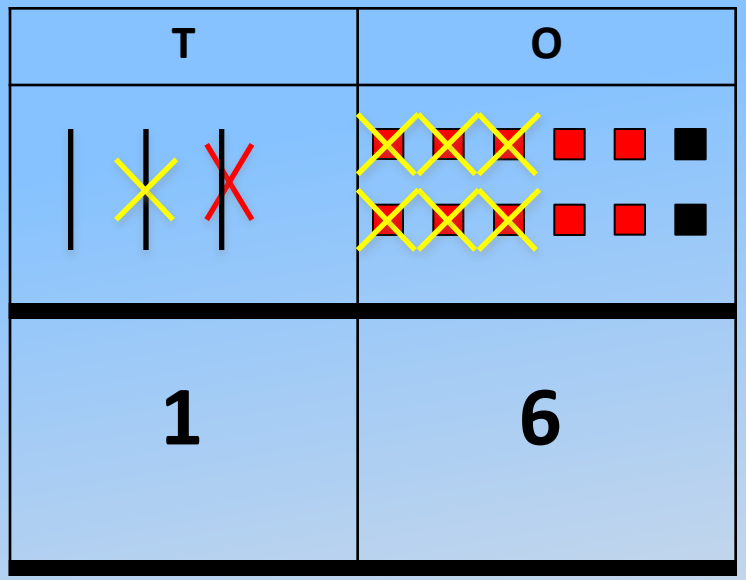
a) 17 - 14

b) 22 - 9

c) 32 - 16

d) 72 - 61

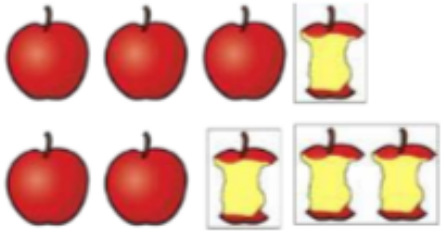
32 – 16 = 16



Remember to use the terms **regroup** and **rename**.

Subtraction – Varied Fluency

Complete the sentences to create a story and draw a part whole model.



At first there were _____.

Then _____ were eaten.

Now there are _____.

Complete the sentences and draw the missing horses required.

First there were ____ horses in the barn. Then ____ galloped away.

Now there are ____ horses in the barn.

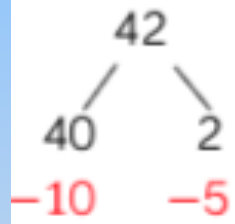
Year 1

Subtraction – Varied Fluency

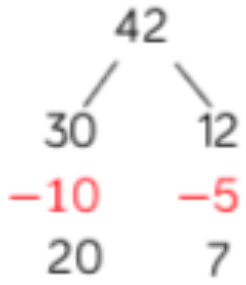
Use the number line to subtract 12 from 51.

Can you subtract the ones first and then the tens?
Can you partition the ones to count back to the next ten and then subtract the tens?

$42 - 15 =$



We can't subtract the ones. Can we partition differently?

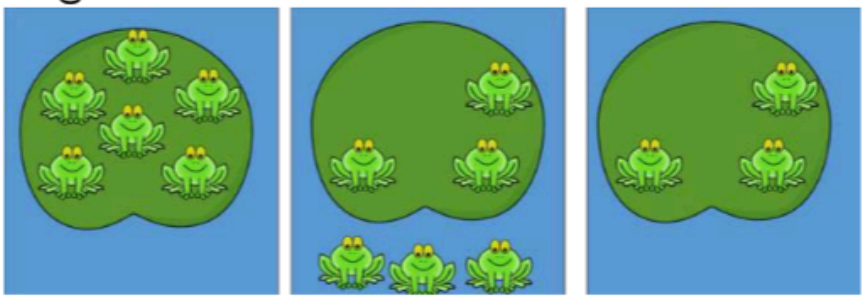


Now we can subtract the ones and then subtract the tens.
$42 - 15 = 27$

Year 2

Subtraction – Reasoning and Problem Solving

Some frogs are on a lily pad.
Three frogs jumped off and there are three frogs left on.



First Then Now

Complete the sentences:

At first there were _.
Then _____.
Now there are ___.

Year 1

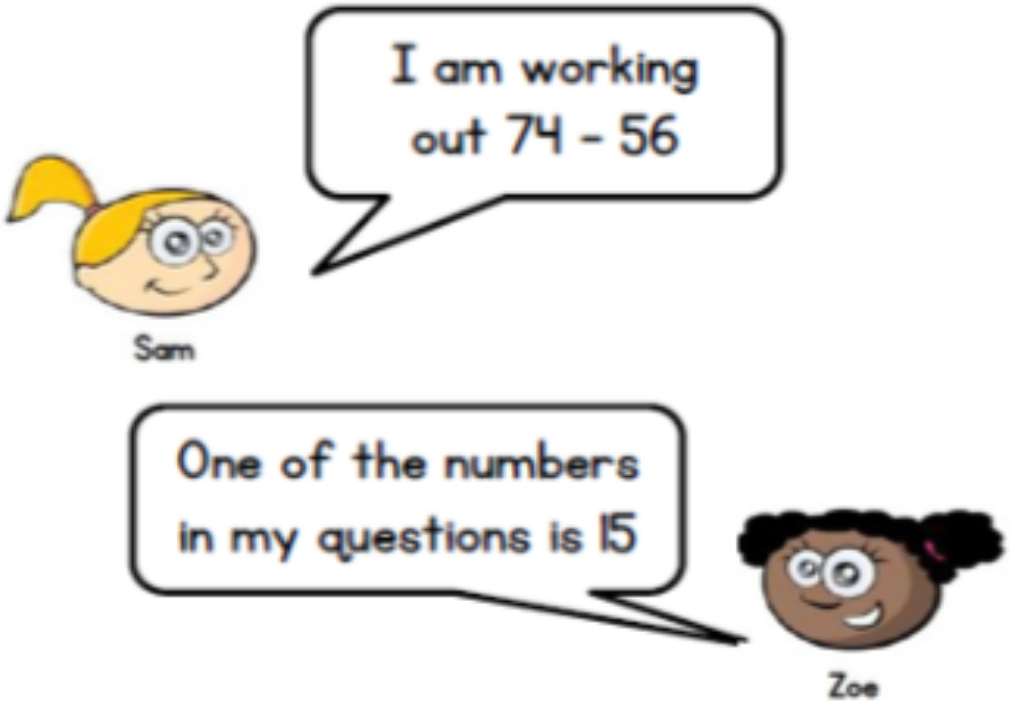
In the 'then' picture, do the 3s show the same thing? Why not?

What if 4 jumped off, what would the start number be?

Explain how you know.

Subtraction – Reasoning and Problem Solving

Sam and Zoe are working out some subtractions.



Sam's answer is double Zoe's answer.

What could Zoe's subtraction be?

Year 2

The Key Facts

- Number bonds within 10
- Number bonds to 10
- Number bonds to 20
- Doubles and halves to 20
- Two times tables
- Five times tables
- Ten times tables

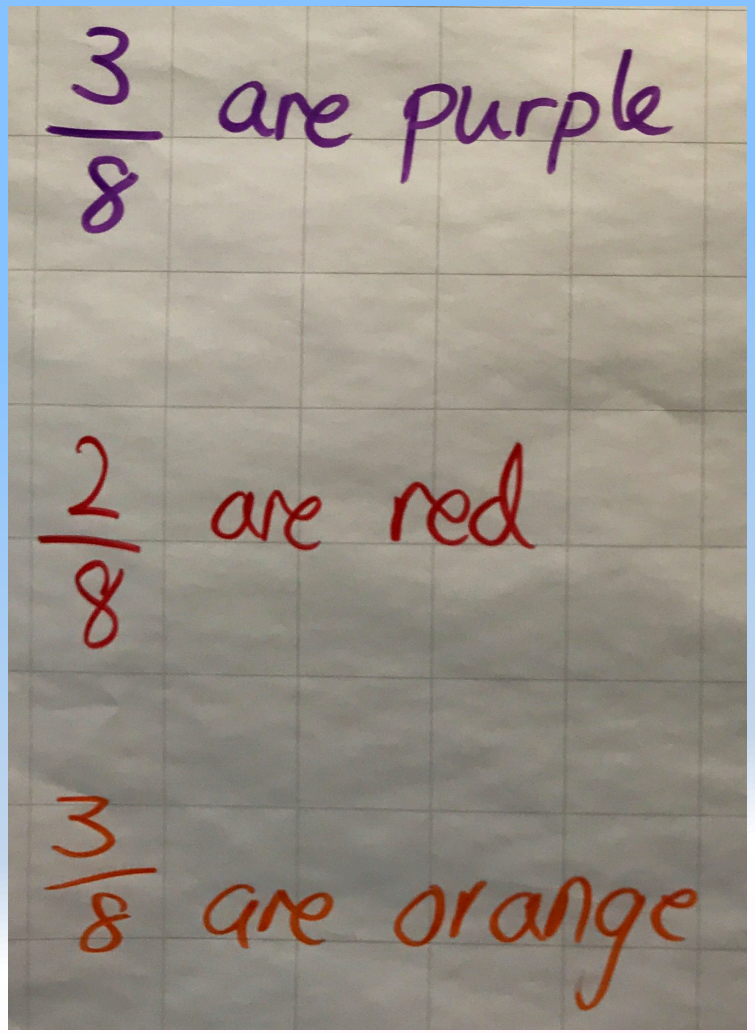
1. Look, cover, write and check
2. I say, you say
3. Five minutes whenever you get the chance

Check out our website - How we teach Maths and the Pupil Pages

Fractions

Fractions - Making real life links

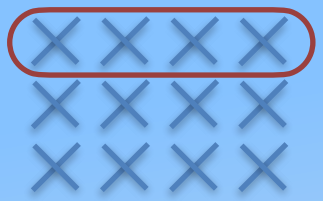
When do children come across fractions in real life situations?

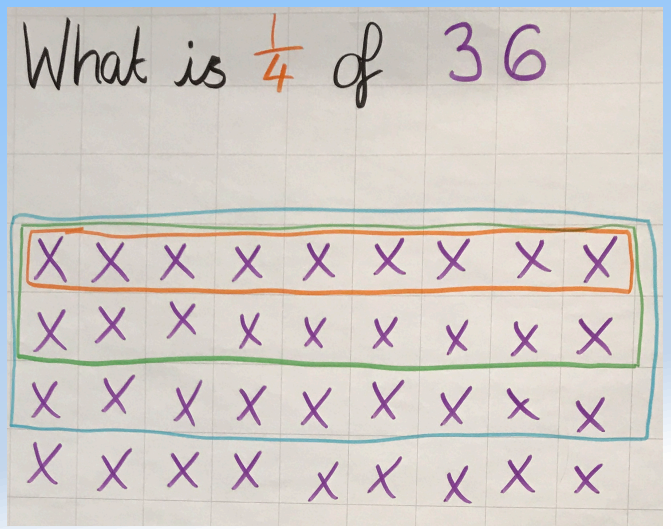


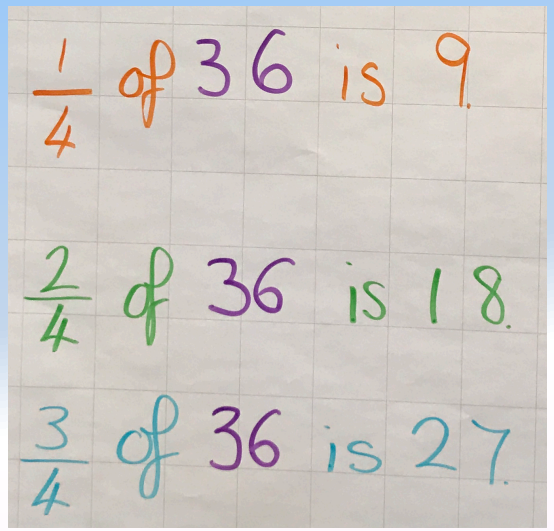
Models for Fractions

Identify 1/2, 1/3, 1/4, 2/4 and 3/4 of quantity.

What is 1/3 of 12?

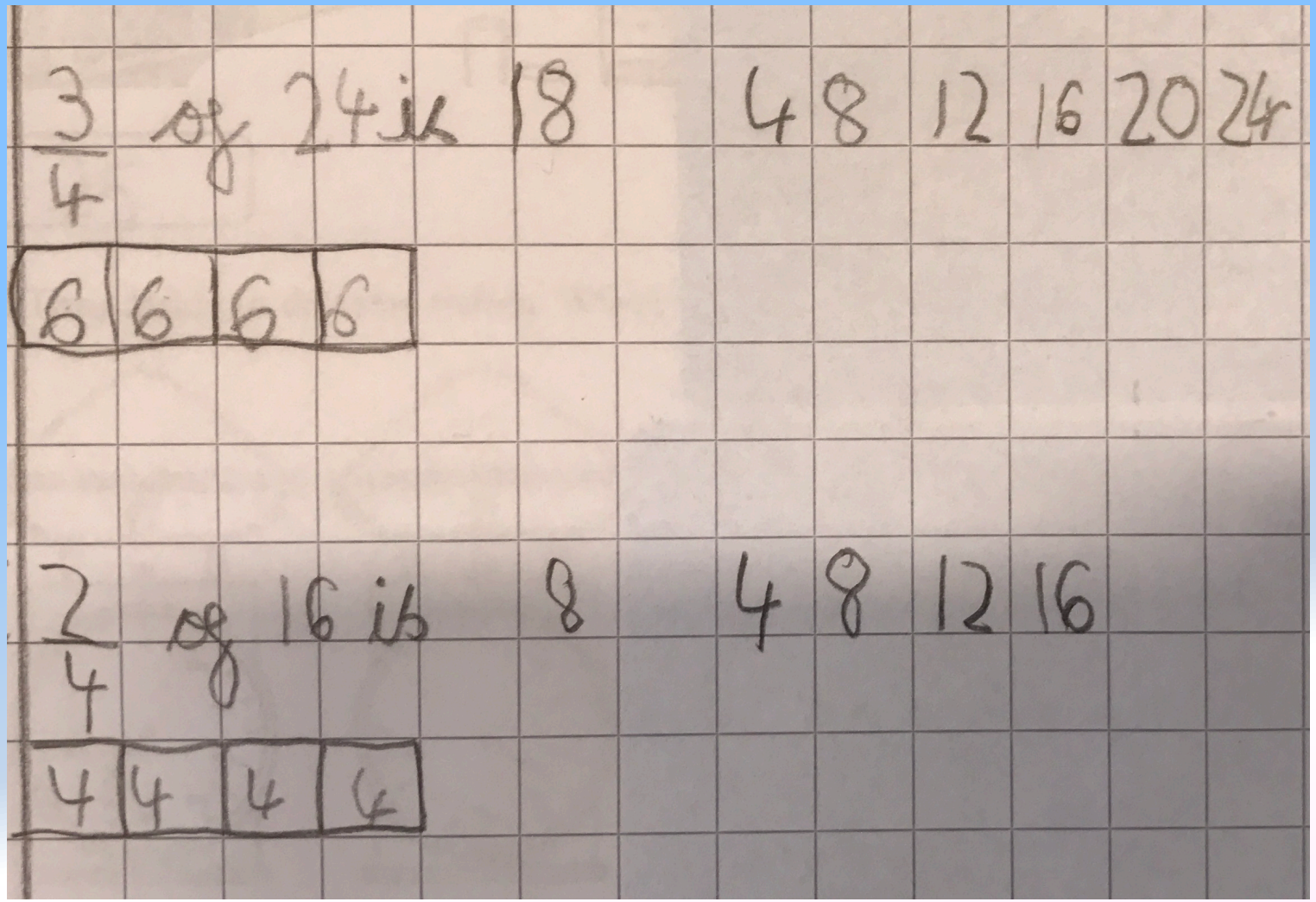






Models for Fractions

As children become more confident with the link between fractions and multiplication their workings move onto this:



Fractions – Varied Fluency

Show the children real life objects and how they can be cut in half.

How can we cut these objects in half?

Draw a line to cut the objects in half.

Can any of the objects be cut in half in more than one way?

Match the half shapes below to make 5 complete shapes.

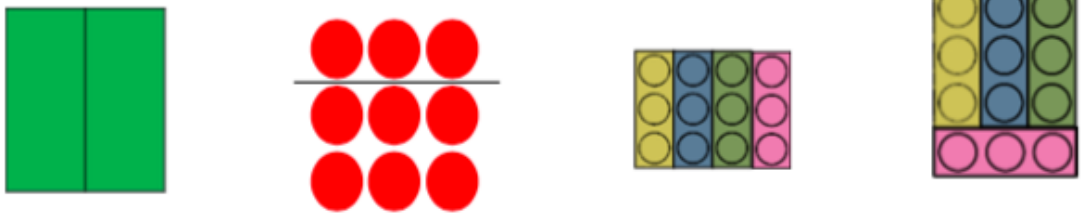
Year 1

Fractions – Varied Fluency

Can you split the teddies into three equal groups?
Can you split the teddies into three unequal groups?

Year 2

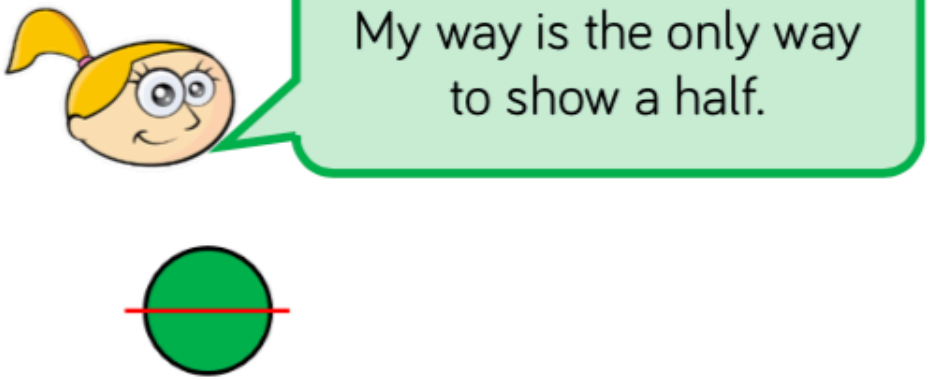
Look at the representations. Decide which show equal parts and which show unequal parts.



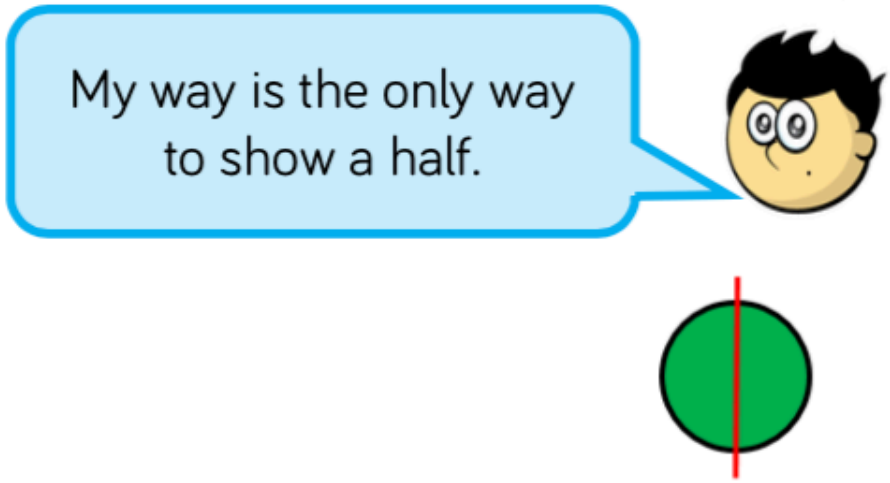
Fractions – Reasoning and Problem Solving

Jules and Freddy are both attempting to split a circle in half.

Jules



Freddy



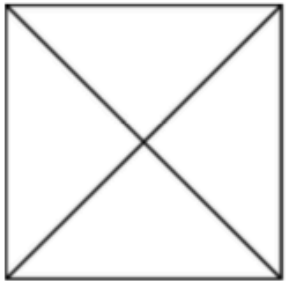
Year 1

Who has correctly split the shape in half? Explain your answer.

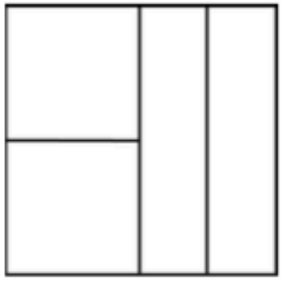
Fractions – Reasoning and Problem Solving

Three children are splitting a square into equal parts.

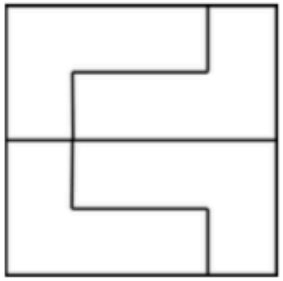
Child A



Child B

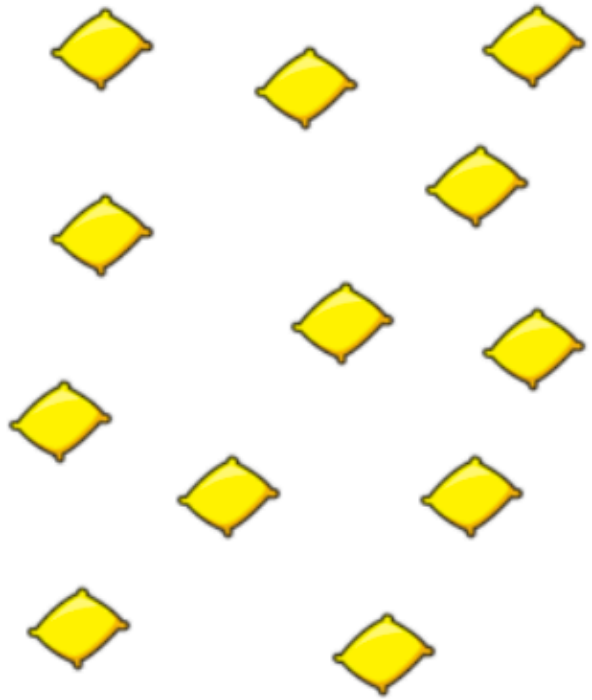


Child C



Who has split the square into equal parts? Explain why.

How many different ways can you put these beanbags into equal groups?



Year 2

Time – What you can do to help?

Tell the time to the nearest 5 minutes (knowing number of minutes in hour and hours in day)

Start with:

- o'clock and half past
- Quarter past and Quarter to

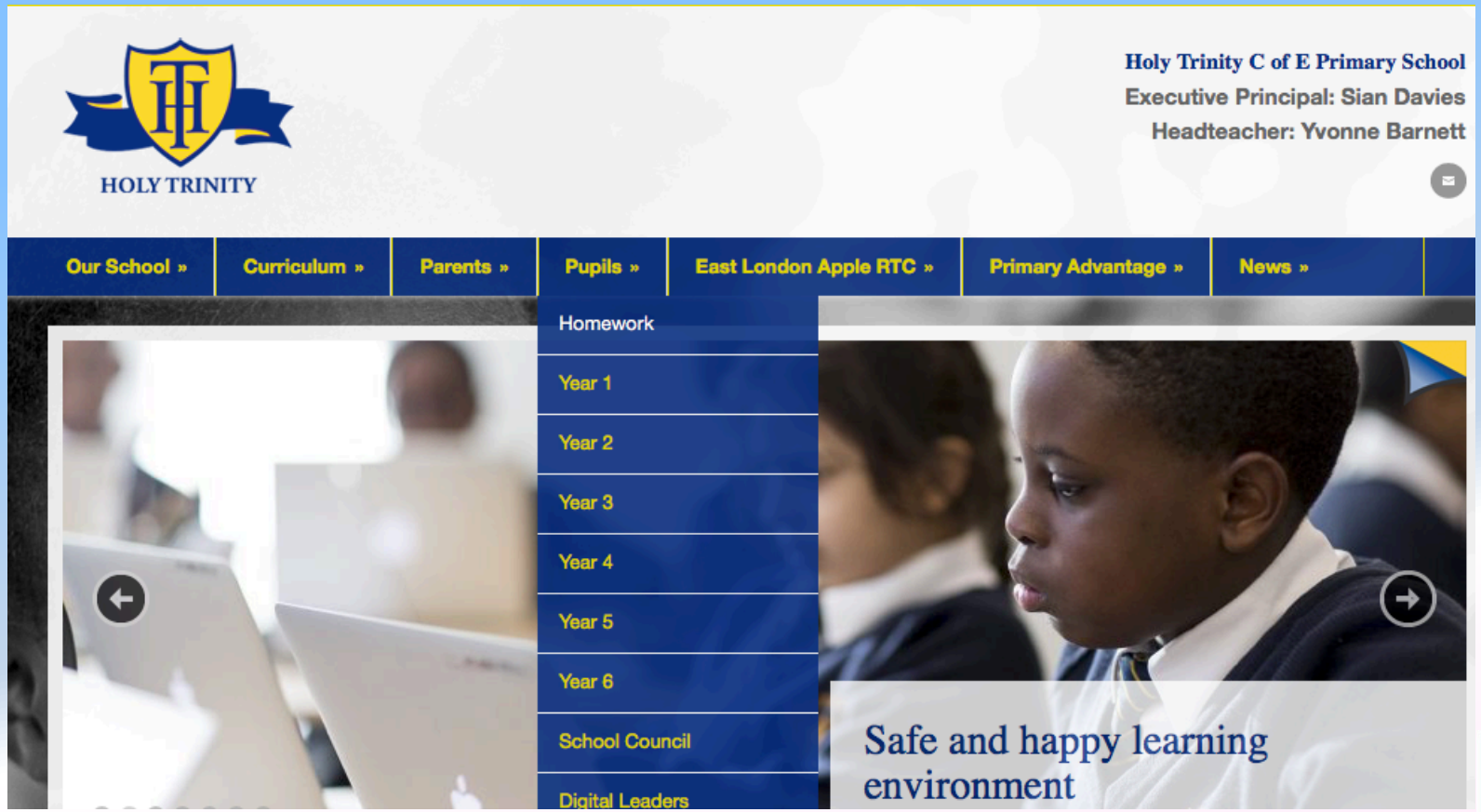
Move onto:

Ten-thirty five

Six-twenty

Two-ten

Supports moving between analogue and digital

Time – What you can do to help?

IXL and Homework