



Tudor Primary School

Key Stage One

Maths Workshop

Maths Mastery at Tudor

We encourage **maths talk** and **collaborative learning** – they work together to master a concept.

~~Some people just can't do maths~~

By working hard, **all children can succeed**

We provide time to **secure learning** before moving on

We encourage **intelligent practice** and use of key facts to 10.

Children are challenged through **depth** of experience

Where to find more information on Tudor's Maths Curriculum

The image shows a screenshot of the Tudor Primary School website. At the top is a blue navigation bar with the following links: Home, Our School, Values, News & Events, Parents' Information, Learning (which is underlined), Community, and Contact Us. Below this bar, centered, is the text "School and Governor Policies".

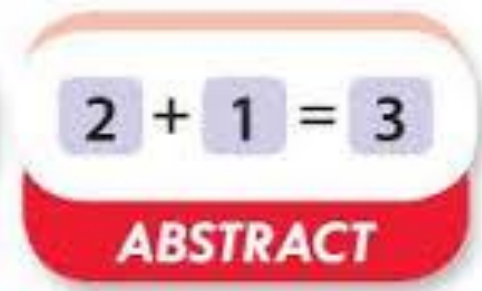
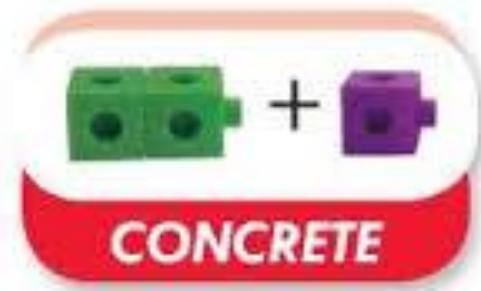
On the left side, there is the Tudor Primary School logo, a stylized rose, followed by the school's name "Tudor Primary School". To the right of the logo are two buttons: "SEARCH" with a magnifying glass icon and "SELECT LANGUAGE" with a globe icon.

Below these are three more buttons: "PARENT VIEW" with a puzzle piece icon, "SEND/FAMILY SUPPORT LINKS" with a group of people icon, and "BREAKFAST CLUB" with a fork and knife icon.

The main content area features a large hero image of children in school uniforms walking in a courtyard. Overlaid on the bottom left of this image is a navigation breadcrumb: "HOME > LEARNING > CURRICULUM AND CLASSES > Maths at Tudor- 'From Strong Foundations'". The text "Maths at Tudor- 'From Strong Foundations'" is circled in black.

On the right side of the hero image, there is a smaller inset image showing children sitting on the floor in a library or reading area, some wearing headphones.

CPA



Moving freely between concrete materials, pictorial representations and abstract symbols.

1. The children are first introduced to an idea or skill using **objects**.
2. When the hands on experience is understood we relate them to representations such as a **diagram** or a **picture**.
3. The children represent their learning using **numbers** and **symbols**

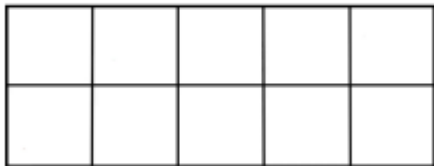
Examples of this to follow...

Bringing concrete, pictorial and abstract together

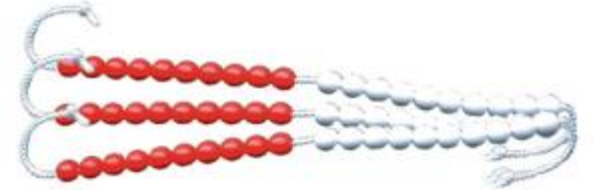
Have a go!

Try these calculations using some of the 'objects' on your table.

$$8 + 9$$



$$15 - 7$$



How could these be represented using pictures?

The Year 1 Learner

Working mathematically

By the end of year 1, children begin to solve simple problems involving addition and subtraction in familiar contexts such as going shopping, using a range of hands-on equipment, symbols, images and pictures. They begin to use what they know to tackle problems that are more complex and provide simple reasons for their opinions.

Number

- Counting and understanding numbers

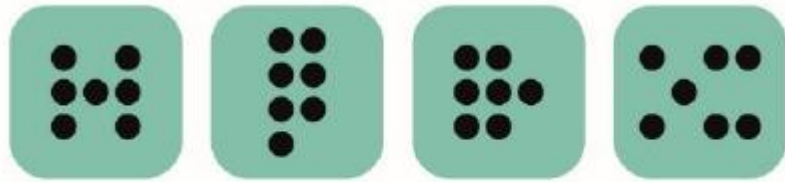
Children will identify and represent numbers using objects, pictures and models, such as the number line, and use 'equal to, more than, less than (fewer), most and least.' Children will accurately count numbers to, and across, 100 forwards and backwards from any given number with increasing understanding. They count, read, write and order numbers in numerals up to 100 and from 1 to 20 in words. When given a number, they can identify one more and one less. They can count in multiples of twos, fives and tens.

- Calculating

Children will understand known addition and subtraction facts within 20, including zero. They will demonstrate an understanding of multiplication and division through grouping and sharing using hands-on resources, pictorial representations and arrays (2, 5 and 10). They understand doubling and halving small quantities.

Year 1

Children will understand known addition and subtraction facts within 20, including zero.

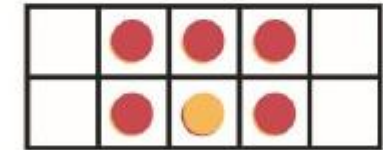
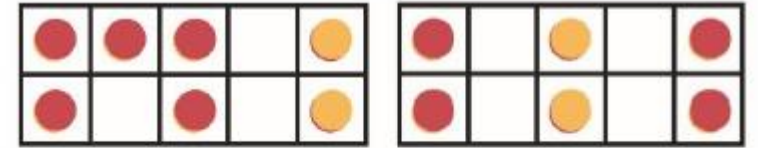


What's the same, what's different?

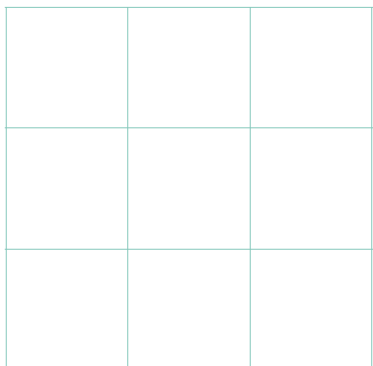


Draw the additional dots to make this 6.

Using objects and pictures, children search for patterns



Decide which one is your odd one out and why?



They play games like 'Make 10':

Aim: to fill each space with a total of ten dots.

- Roll a dotty dice and record the dots rolled in one of the spaces on the grid.
- Take turns to roll the dice and add the dots to a square on the grid.
- The player that rolls the correct value to fill the space with ten dots wins that space on the grid.
- The player who wins the most spaces on the grid is the winner once all the spaces have ten dots.

Year 1

Children will understand known addition and subtraction facts within 20, including zero.



$$6 + 3 = 9$$

$$3 + 6 = 9$$

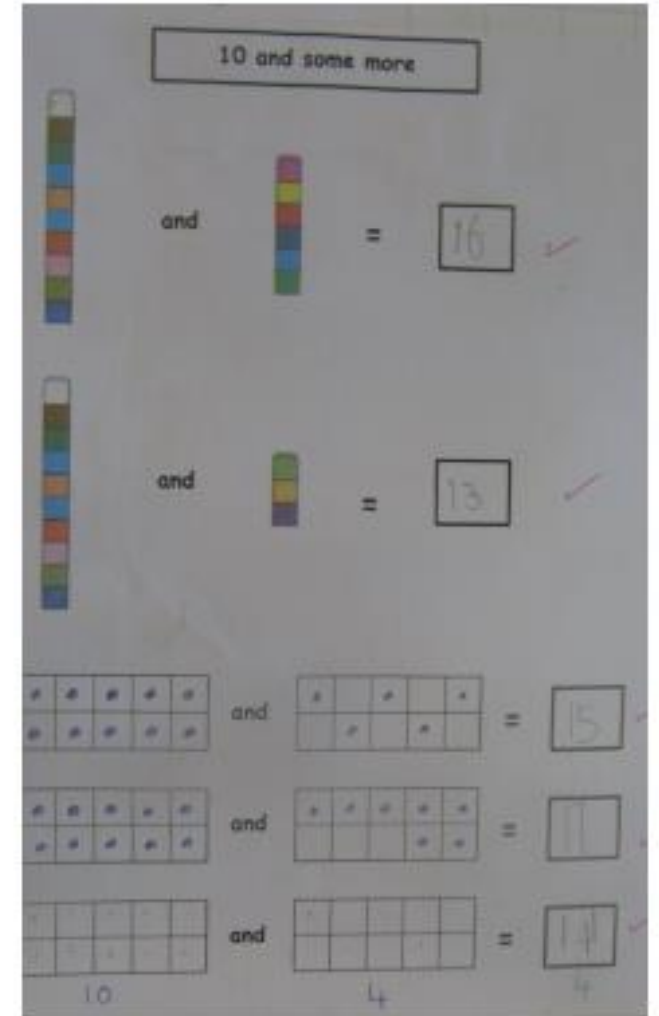
$$9 - 3 = 6$$

$$9 - 6 = 3$$



Language of Addition Speaking Frame

- is the sum of □ and □ .
- and □ is □ altogether.
- more than □ is □ .
- The total of □ and □ is □ .



Year 1

Children will understand known addition and subtraction facts within 20, including zero.

Solve the addition



Solve the subtraction 10 - 3



How would you work out the answer to $3 + 3$

Draw two different ways to represent your answer

There are 6 counters under the blue shape. How many counters are there on the whole tens frame?

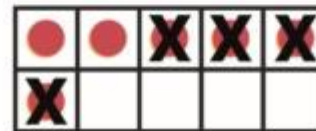


Match the sentence to the tens frame:

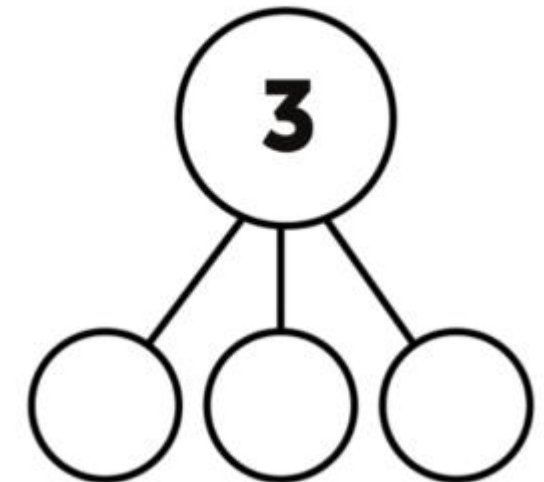
3 less than 6 equals 3.

4 taken away from 6 leaves 2.

Subtract 7 from 7 and there will be nothing left.



Fill the parts



The Year 2 Learner

Working mathematically

By the end of year 2, children will solve problems with one or a small number of simple steps. Children will discuss their understanding and begin to explain their thinking using appropriate mathematical vocabulary, hands-on resources and different ways of recording. They will ask simple questions relevant to the problem and begin to suggest ways of solving them.

Number

• Counting and understanding numbers

Children will develop their understanding of place value of numbers to at least 100 and apply this when ordering, comparing, estimating and rounding. Children begin to understand zero as a place holder as this is the foundation for manipulating larger numbers in subsequent years. Children will count fluently forwards and backwards up to and beyond 100 in multiples of 2, 3, 5 and 10 from any number. They will use hands-on resources to help them understand and apply their knowledge of place value in two digit numbers, representing the numbers in a variety of different ways.

• Calculating

Children learn that addition and multiplication number sentences can be re-ordered and the answer remains the same (commutativity) such as $9+5+1=5+1+9$. They learn that this is not the case with subtraction and division. They solve a variety of problems using mental and written calculations for $+$, $-$, \times , \div in practical contexts. These methods will include regrouping which is where the number is broken up into more manageable parts (e.g. $64 = 60 + 4$ or $50 + 14$), re-ordering (e.g. moving the larger number to the beginning of the number sentence when adding several small numbers) and using a number line. Children will know the 2, 5 and 10 times tables, as well as the matching division facts ($4 \times 5 = 20$, $20 \div 5 = 4$) and can recall them quickly and accurately. They apply their knowledge of addition and subtraction facts to 20 and can use these to work out facts up to 100.

Year 2

Children solve a variety of problems using mental and written calculations

A thought bubble with a scalloped border and three small circles at the bottom left. Inside the bubble, the text "How would you solve this calculation?" is written in a dark blue font.

How would you solve this calculation?

$$46 + 9$$

$$\begin{array}{r} 46 \\ + 9 \\ \hline 55 \end{array}$$

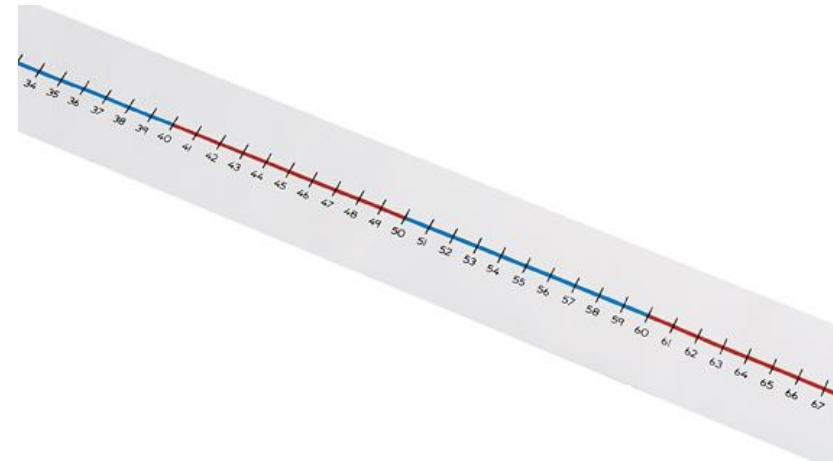
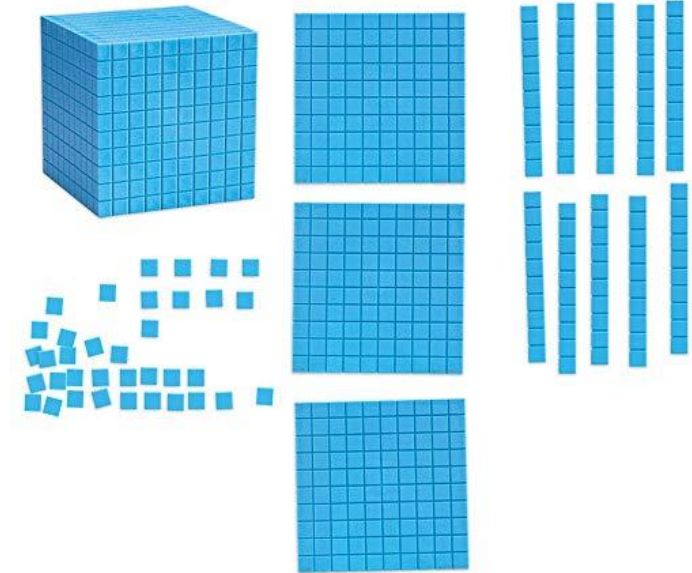
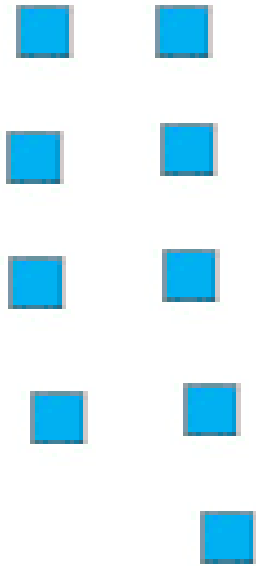
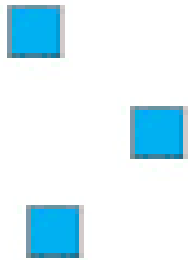
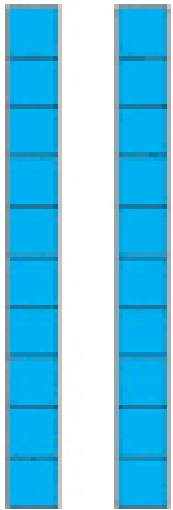
or

$$46 + 10 - 1$$

Year 2

Children solve a variety of problems using mental and written calculations

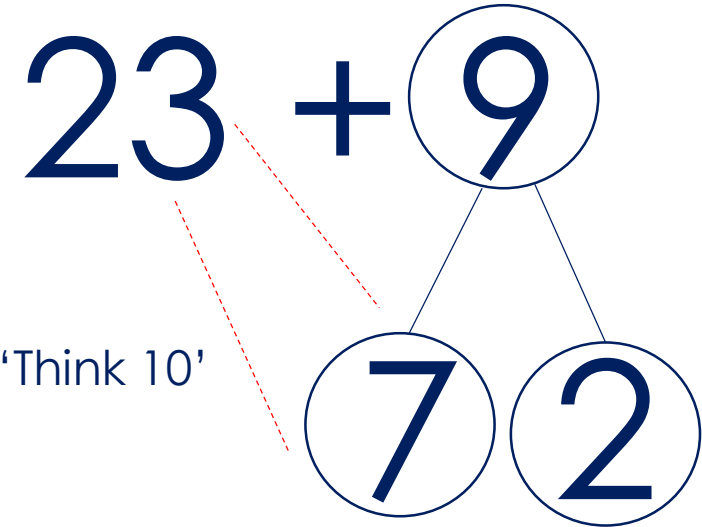
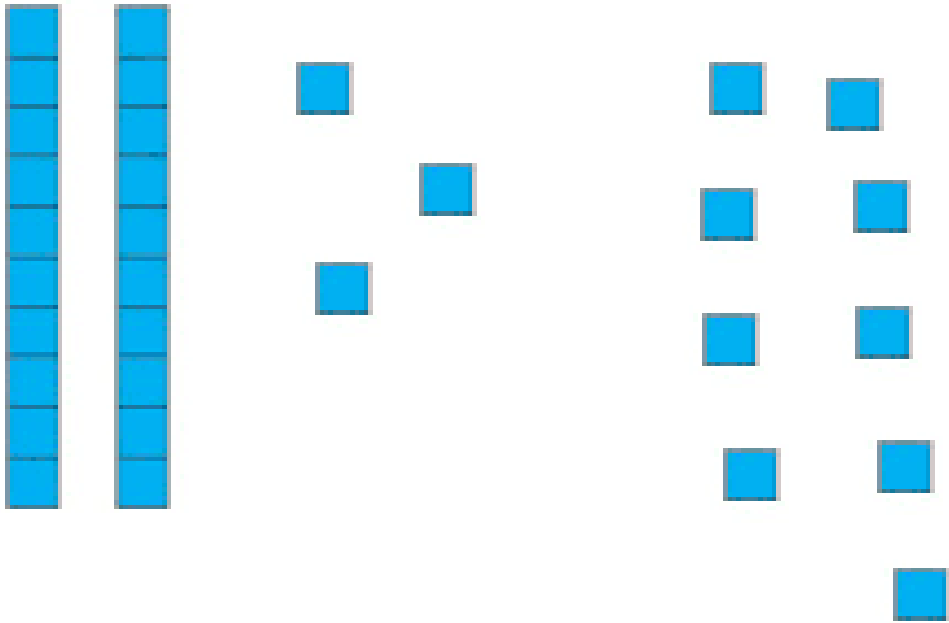
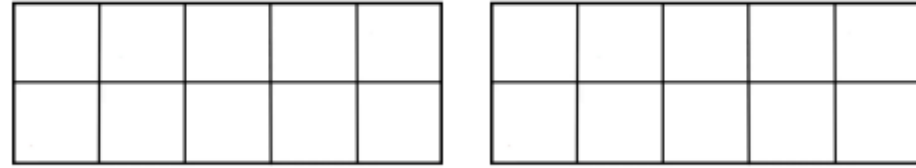
$$23 + 9$$



Year 2

Children solve a variety of problems using mental and written calculations

$$23 + 9$$



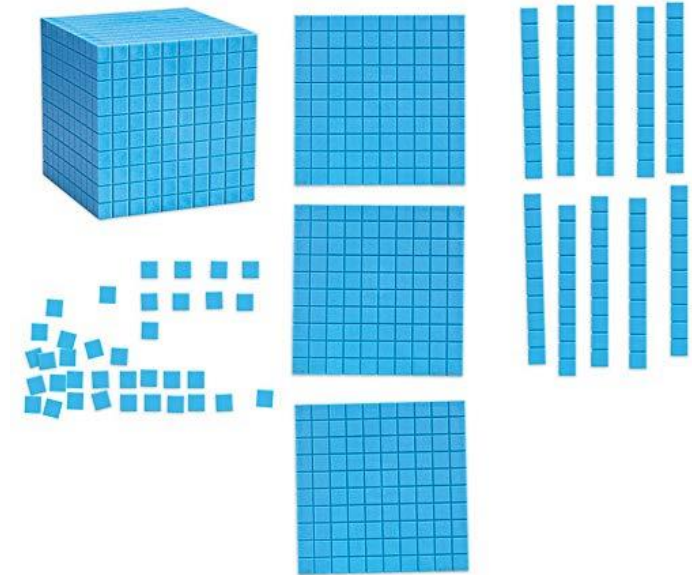
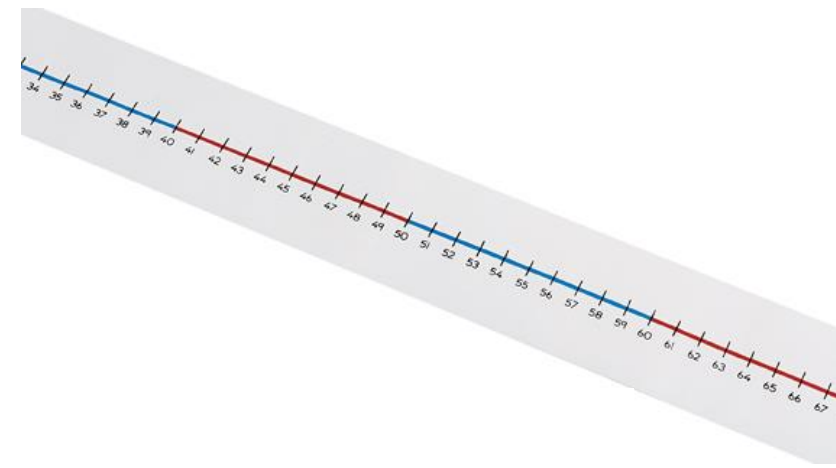
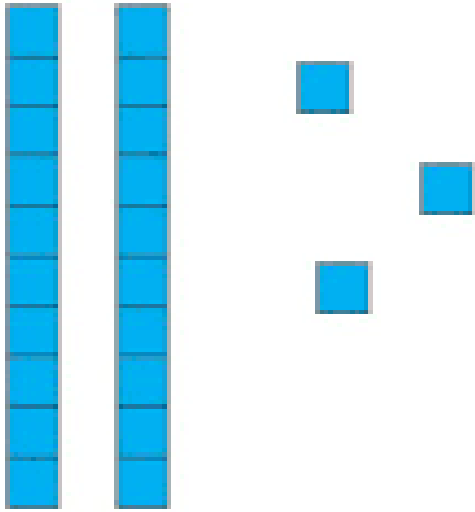
$$23 + 7 = 30$$

$$30 + 2 = 32$$

Year 2

Children solve a variety of problems using mental and written calculations

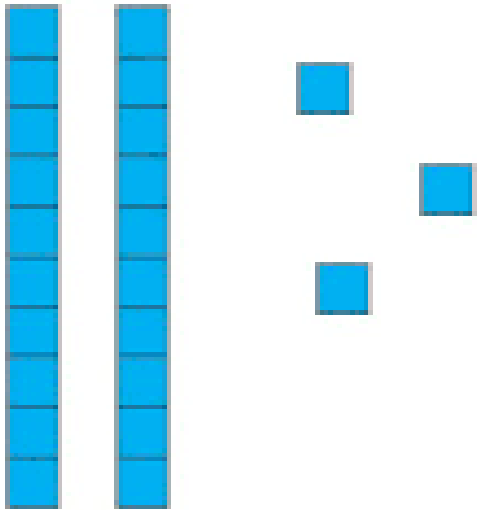
$$23 - 7$$



Year 2

Children solve a variety of problems using mental and written calculations

$$23 - 7$$



$$23 - 7$$

'Think 10'

A diagram illustrating the 'Think 10' strategy. The number 23 is shown on the left. To its right is a minus sign followed by the number 7, which is enclosed in a circle. Two lines extend from the bottom of the circle containing 7 to two separate circles below it, containing the numbers 3 and 4. Dotted red lines connect the 3 in the bottom-left circle to the 3 in the number 23, and the 4 in the bottom-right circle to the 7 in the number 7. The text 'Think 10' is written below the 23.

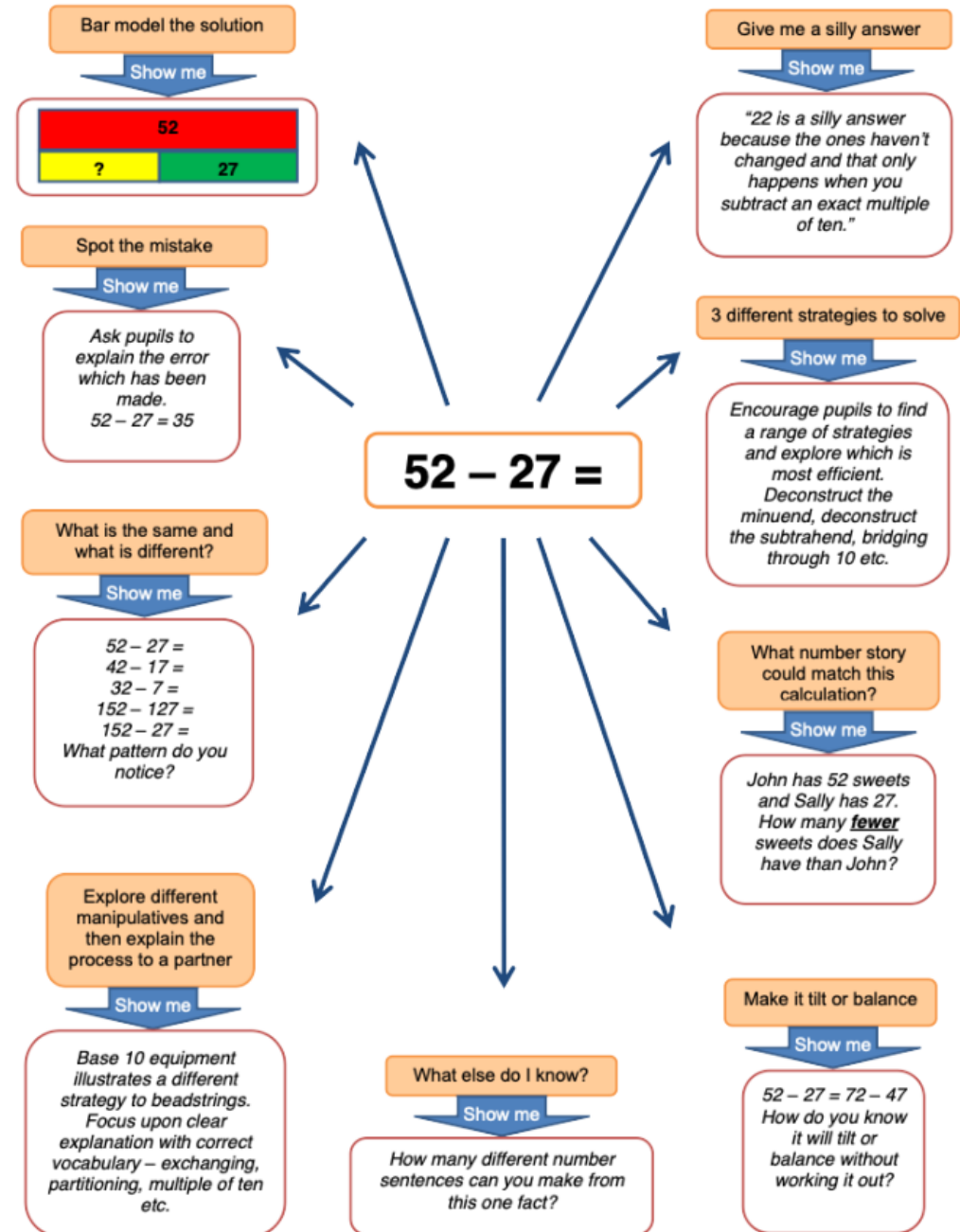
$$23 - 3 = 20$$

$$20 - 4 = 16$$

A thought bubble containing the final steps of the calculation. It starts with 'If...' followed by the equation 10 - 4 = 6. Below that, it says 'Then...' followed by the equation 20 - 4 = 16. An arrow points from the right side of the bubble to the second equation in the previous block.

If...
 $10 - 4 = 6$
Then...
 $20 - 4 = 16$

It's about more than just a question and an answer!

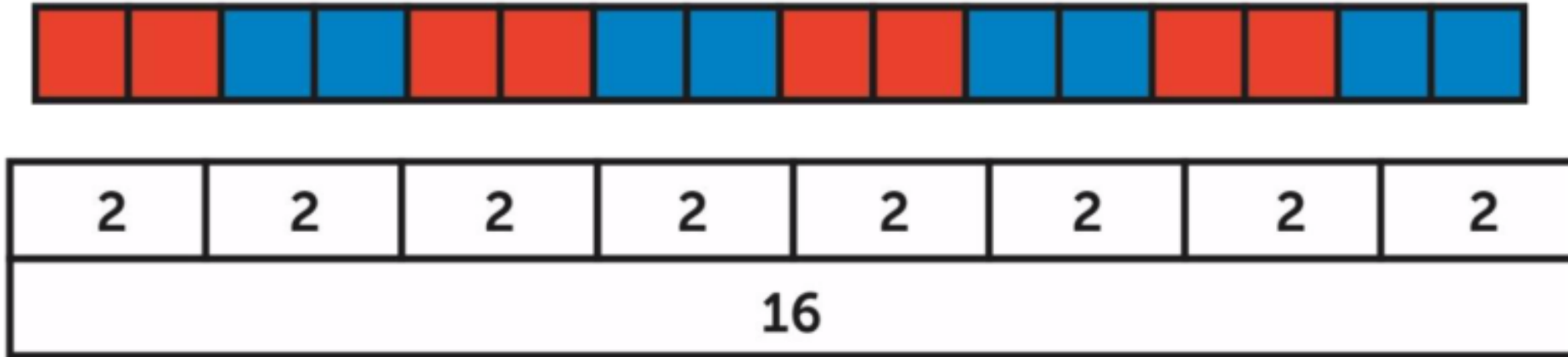


Year 1

They will demonstrate an understanding of multiplication and division through grouping and sharing using hands-on resources, pictorial representations and arrays (2, 5 and 10).

(Summer Term)

Repeated Addition



$$2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 = 16$$

Year 1

They will demonstrate an understanding of multiplication and division through grouping and sharing using hands-on resources, pictorial representations and arrays (2, 5 and 10).

(Summer Term)

Repeated Addition and arrays



What's the same? What's different?

They both have a total of 10 cubes.
One of them has 1 row of 10 cubes and the other has 5 rows of 2 cubes.

$$5 \times 2 = 10$$



Year 1

They will demonstrate an understanding of multiplication and division through grouping and sharing using hands-on resources, pictorial representations and arrays (2, 5 and 10).

(Summer Term)

Circle the ice lollies that match the number sentence.

$$8 = 2 + 2 + 2 + 2$$



Can you make the number sentence in another way?

Draw it.

Find the odd one out.

6 lots of 2	
	6 groups of 2

Explain your choice.

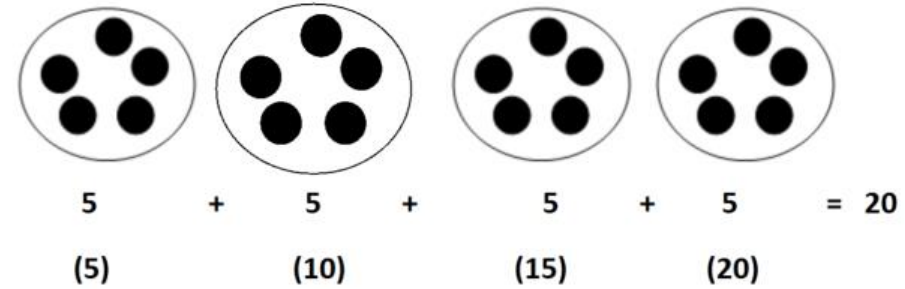
What's the same? What's different?



Year 2

Children solve a variety of problems using mental and written calculations

A continuation of repeated addition and arrays

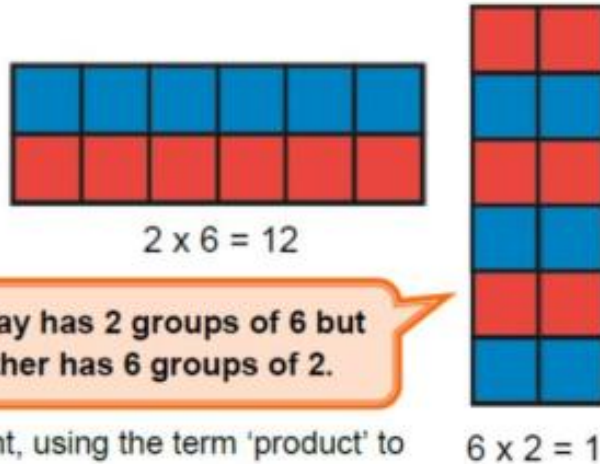


For example:

What's the same? What's different?

Both arrays have 6 red and 6 blue cubes.
They both have 12 cubes altogether.

One array has 2 groups of 6 but
the other has 6 groups of 2.



Model how to record each array as a multiplication statement, using the term 'product' to define the total made.

We relate this to division

If...

$$2 \times 6 = 12$$

$$6 \times 2 = 12$$

then...

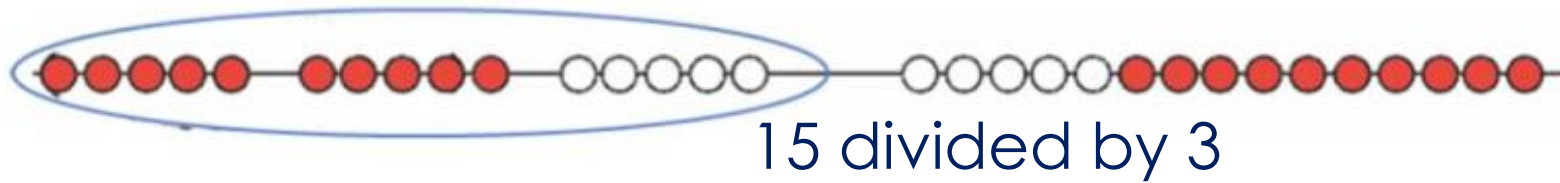
$$12 \div 2 = 6$$

$$12 \div 6 = 2$$

Year 2

Children solve a variety of problems using mental and written calculations

Division using grouping and sharing



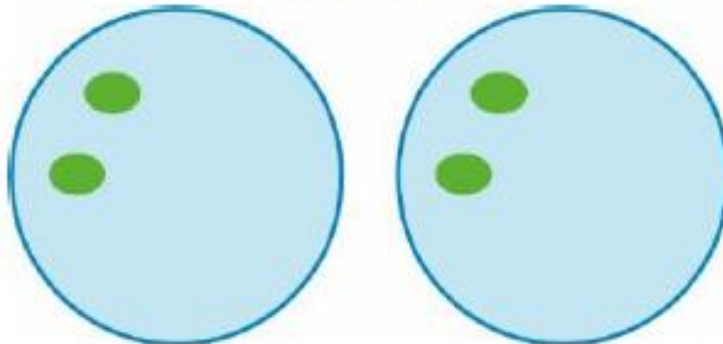
Write a division calculation to match each beadstring:



Explain what you notice.

Liam started to share 16 grapes onto two plates. Continue to share Liam's grapes to solve:

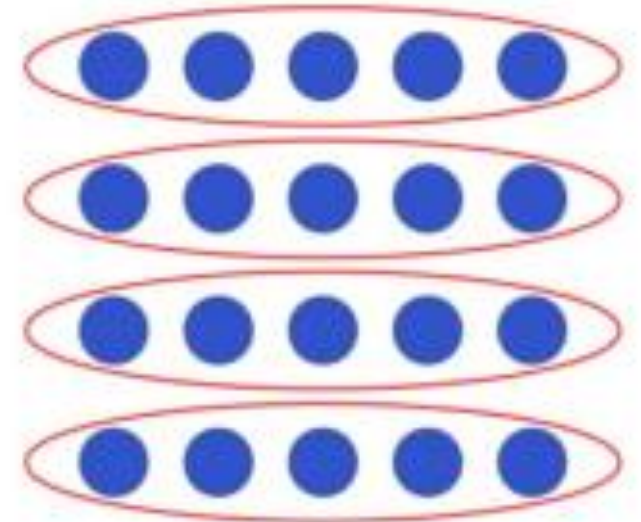
$$16 \div 2 =$$



Grouping

$$20 \div 5 = 4$$

20 divided by 5 gives 4 groups.



Grouping using arrays.

Year 2

Children solve a variety of problems using mental and written calculations

Children might be asked questions like this...

Write a division calculation to match each beadstring:

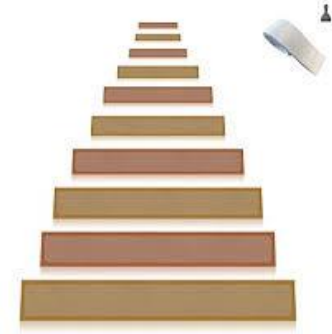


Explain what you notice.

Crayons come in packets of 5.
Mrs Plant needs 30 crayons.
How many packets should she buy?

Draw an array to prove it.

How to help at home



Tableware is a great way to investigate addition, division and multiplication, EG. groups of 2 or 3 or 1 more and 1 less and this follows on from sharing and patterns in Reception. Unpacking the shopping is another way to discuss weight, size order and 3D shape properties. Steps are a good resource for odd and evens...or simple number problems, EG. If steps are labelled 1-6 which step would I land on if I took 3 steps forward and one step back (positional language!)? Time can be a challenging concept but if children **experience** time such as, how long does it take for an ice cube to melt then they begin to understand what a length of time might mean. Children are always shocked when they actually sit and experience 1 minute! Household resources are free and readily available (no expense needed!), but more importantly, they put maths into an everyday context in an age appropriate way.

Year 2 specific skills

- Explore all possibilities to regroup numbers to 10 ('number bonds').
- Apply this knowledge to regrouping numbers to 20 and 100 e.g. if I know that $3 + 7 = 10$, I also know that $13 + 7 = 20$, $3 + 17 = 20$, $30 + 70 = 100$ and so on.
- Practice counting in 2's, 5's and 10's
- Match multiplication facts to related division facts e.g. $4 \times 5 = 20$, $20 \div 5 = 4$

How to help at home



$$4 + 1 = 5$$



$$2 + 3 = 5$$



$$5 + 0 = 5$$

Then rotate them to create:

$$1 + 4 = 5$$

$$3 + 2 = 5$$

$$0 + 5 = 5$$

This is a great way to demonstrate commutativity.

Matching: Line up tiles end to end by matching up the number of dots on each tile.

Stacks: Form stacks of a set number of tiles (1, 2, 3, 4, etc.).

Creating: Create shapes or letters with the tiles

Constructing: Construct 3-dimensional shapes or towers with the dominoes

Domino train totals: Create domino trains (of different lengths) e.g. to total a number. This could then be extended to find the smallest or longest train etc.

Domino Staircase: Make a domino stairway where dot totals touching each other must be the same. Then build in challenge e.g. the number touching must total ..., have a difference of ..., are odd etc.





National Numeracy

for everyone, for life

'Resources to share with parents'



BBC Bitesize

Clear explanations, examples and diagrams for all school curriculum maths.



NRICH games, puzzles and investigations

Full of information and activities which develop children's thinking and reasoning skills.



Oxford Owl

Features activities, simple ideas, top tips and eBooks to help your child with their maths at home.



Easy Peasy

Help parents prepare their children for learning at school through play, including maths games and more.



Maths 4 Mums and Dads

This site explains some of the milestones children make between the ages of 3-and-11-years-old.



Premier League Primary Stars

Free downloadable resources for teachers which use the appeal of football to inspire children to learn. Developed by the Premier League with input from National Numeracy.

Where to find more information on Tudor's Maths Curriculum

The image shows a screenshot of the Tudor Primary School website. At the top is a blue navigation bar with the following links: Home, Our School, Values, News & Events, Parents' Information, Learning (which is underlined), Community, and Contact Us. Below this bar is a white section containing the school's logo on the left, which is a stylized Tudor rose. To the right of the logo is the text "Tudor Primary School". Further right are two buttons: "SEARCH" with a magnifying glass icon and "SELECT LANGUAGE" with a globe icon. Below these are three more buttons: "PARENT VIEW" with a puzzle piece icon, "SEND/FAMILY SUPPORT LINKS" with a group of people icon, and "BREAKFAST CLUB" with a fork and knife icon. The bottom half of the image is a hero section with a background image of children in school uniforms. Overlaid on this image is a white navigation breadcrumb: "HOME > LEARNING > CURRICULUM AND CLASSES >". Below the breadcrumb is the main heading "Maths at Tudor- 'From Strong Foundations'", which is circled in black. On the right side of the hero image, there is a smaller inset image showing children sitting on the floor in a library or reading area, some wearing headphones.