

YEAR 2 MATHS WORKSHOP

The background is a solid blue gradient. In the bottom right corner, there are several white lines of varying lengths and thicknesses, all slanted upwards from left to right, creating a dynamic, abstract graphic element.

YEAR 2 PROGRAMME OF STUDY

Number - number and place value

Pupils should be taught to:

- ▶ count in steps of 2, 3, and 5 from 0, and in 10s from any number, forward and backward
- ▶ recognise the place value of each digit in a two-digit number (10s, 1s)
- ▶ identify, represent and estimate numbers using different representations, including the number line
- ▶ compare and order numbers from 0 up to 100; use $<$, $>$ and $=$ signs
- ▶ read and write numbers to at least 100 in numerals and in words
- ▶ use place value and number facts to solve problems

YEAR 2 PROGRAMME OF STUDY

Number - addition and subtraction

Pupils should be taught to:

- ▶ solve problems with addition and subtraction:
 - ▶ using concrete objects and pictorial representations, including those involving numbers, quantities and measures
 - ▶ applying their increasing knowledge of mental and written methods
- ▶ recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100
- ▶ add and subtract numbers using concrete objects, pictorial representations, and mentally, including:
 - ▶ a two-digit number and 1s
 - ▶ a two-digit number and 10s
 - ▶ 2 two-digit numbers
 - ▶ adding 3 one-digit numbers
- ▶ show that addition of 2 numbers can be done in any order (commutative) and subtraction of 1 number from another cannot
- ▶ recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems

YEAR 2 PROGRAMME OF STUDY

Number - multiplication and division

Pupils should be taught to:

- ▶ recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers
- ▶ calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (\times), division (\div) and equals (=) signs
- ▶ show that multiplication of 2 numbers can be done in any order (commutative) and division of 1 number by another cannot
- ▶ solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts

YEAR 2 PROGRAMME OF STUDY

Pupils should be taught to:

- recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity
- write simple fractions, for example $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$

YEAR 2 PROGRAMME OF STUDY

Measurement

Pupils should be taught to:

- ▶ choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature ($^{\circ}\text{C}$); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels
- ▶ compare and order lengths, mass, volume/capacity and record the results using $>$, $<$ and $=$
- ▶ recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value
- ▶ find different combinations of coins that equal the same amounts of money
- ▶ solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change
- ▶ compare and sequence intervals of time
- ▶ tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times
- ▶ know the number of minutes in an hour and the number of hours in a day

YEAR 2 PROGRAMME OF STUDY

Geometry - properties of shapes

Pupils should be taught to:

- ▶ identify and describe the properties of 2-D shapes, including the number of sides, and line symmetry in a vertical line
- ▶ identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces
- ▶ identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]
- ▶ compare and sort common 2-D and 3-D shapes and everyday objects

YEAR 2 PROGRAMME OF STUDY

Geometry - position and direction

Pupils should be taught to:

- ▶ order and arrange combinations of mathematical objects in patterns and sequences
- ▶ use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise)

YEAR 2 PROGRAMME OF STUDY

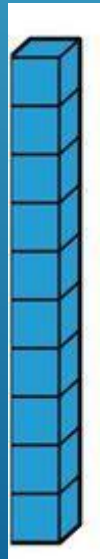
Statistics

Pupils should be taught to:

- ▶ interpret and construct simple pictograms, tally charts, block diagrams and tables
- ▶ ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity
- ▶ ask-and-answer questions about totalling and comparing categorical data

DIENES

- ▶ Children are taught to partition a number into tens and ones. In order to visualise this, children use dienes where a unit/one is represented by one cube and ten is represented by a ten stick (made up of ten ones).

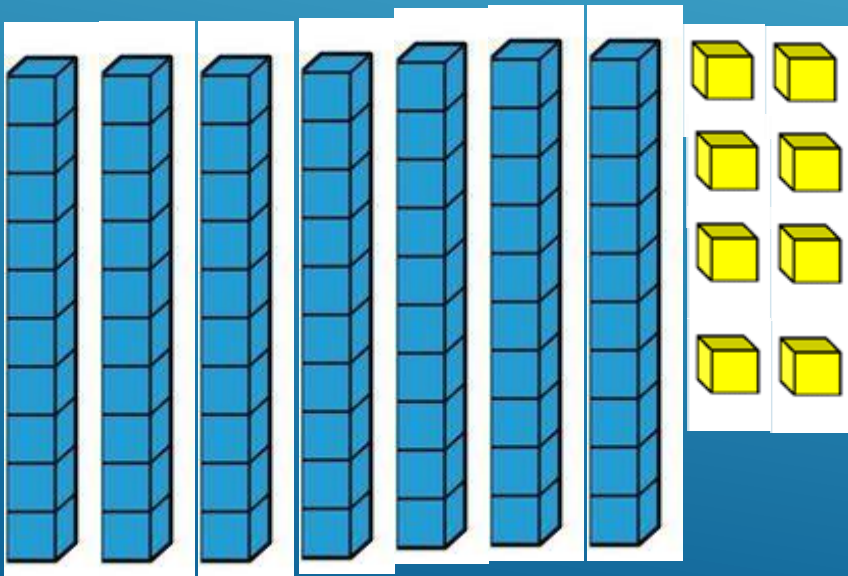


Ten Stick

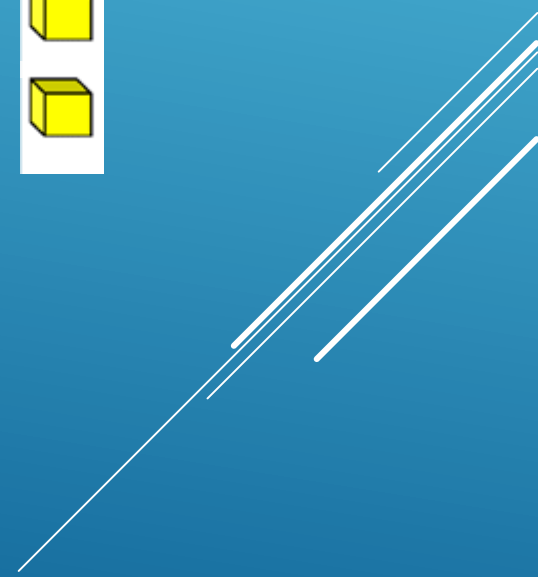
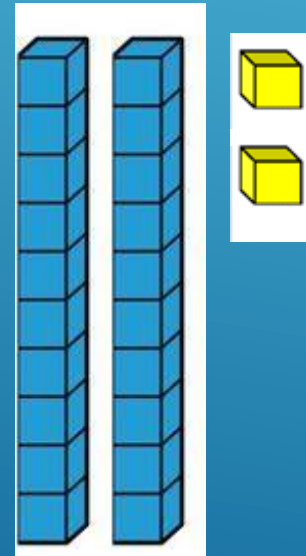


One

78



22

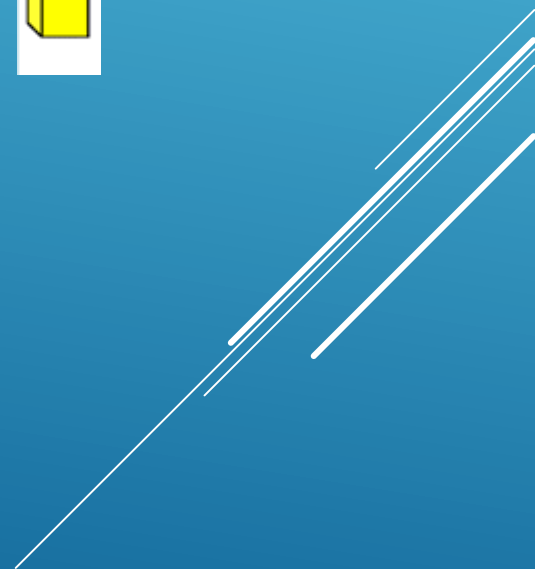
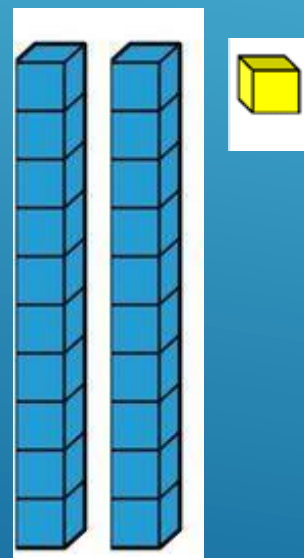
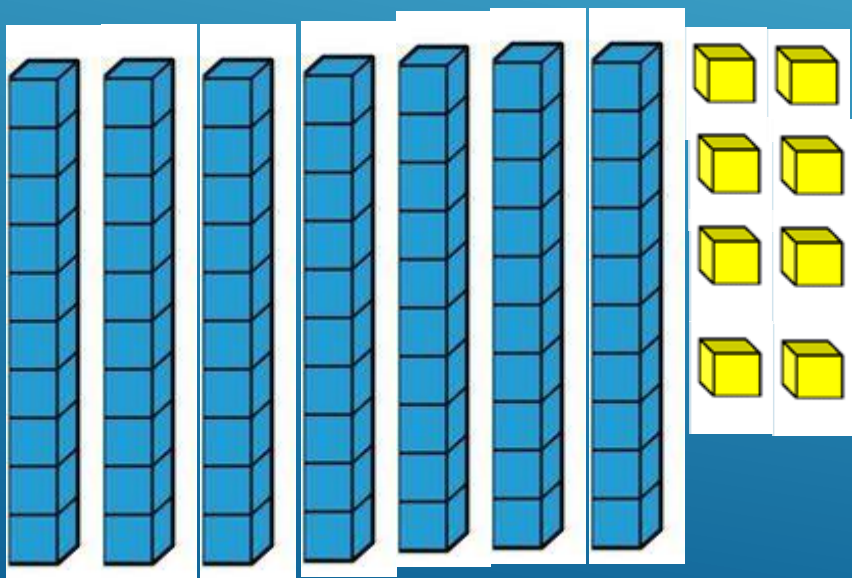


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+

21 =

99



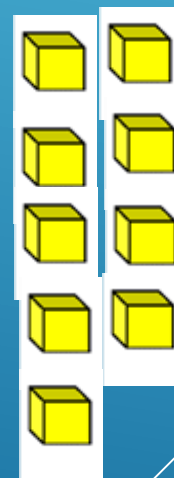
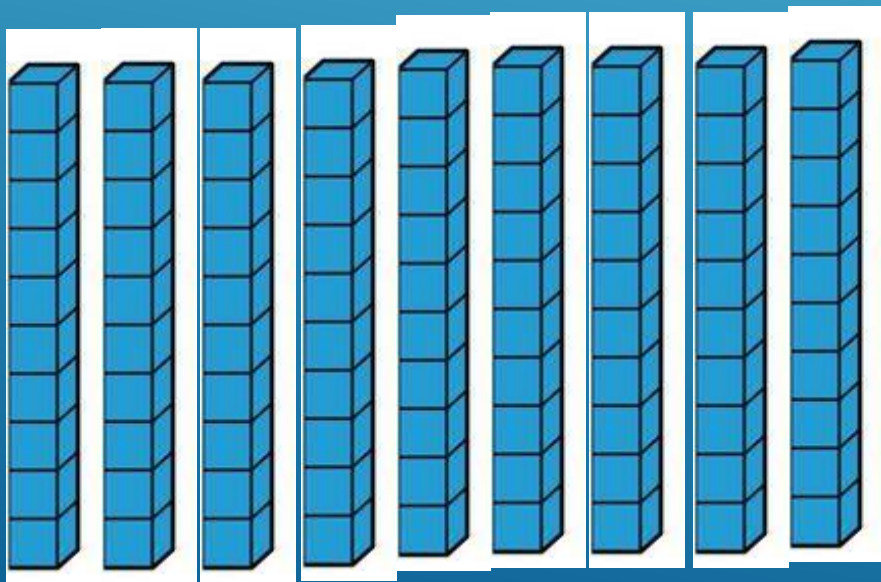
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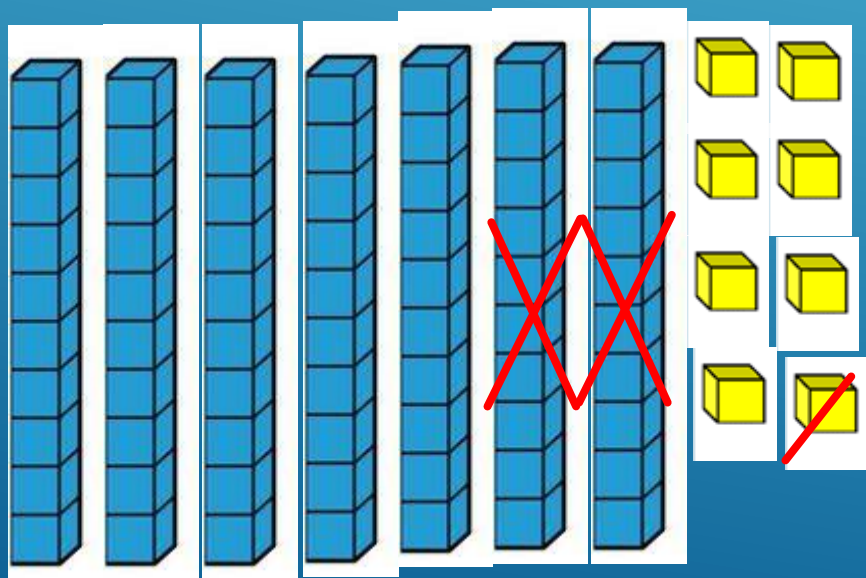


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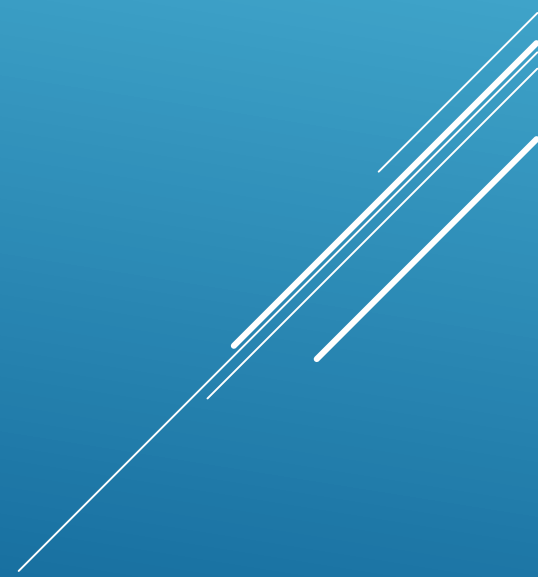
21 =

57



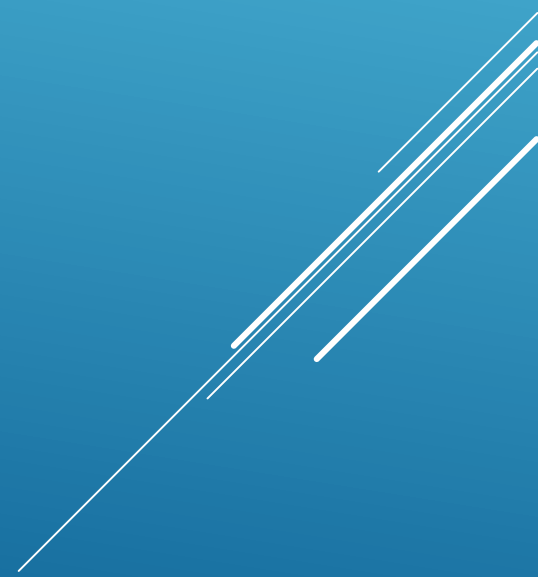
BUBBLE STRATEGY

- ▶ This is another method in which children need to apply their knowledge of partitioning numbers. They partition the tens above the number sentence and work that out. They also partition the ones underneath and work this out.



$$\begin{array}{r} 50 \\ 54 \\ 4 \end{array} + \begin{array}{r} 20 \\ 21 \\ 1 \end{array} = \begin{array}{r} 70 \\ 75 \\ 5 \end{array}$$

ADDITION WITH BUBBLE
STRATEGY



$$\begin{array}{r} 50 \\ 54 \\ 4 \end{array} - \begin{array}{r} 20 \\ 21 \\ 1 \end{array} = \begin{array}{r} 30 \\ 33 \\ 3 \end{array}$$

SUBTRACTION WITH BUBBLE
STRATEGY

EMPTY NUMBER LINE

- ▶ This one is a little bit more complicated. Children use their knowledge of partitioning for this one but they may also use their known number facts to choose their jumps. Children draw a blank line to start with. They are then asked to write their first number on the number line (different for addition and subtraction). Children then need to jump forwards/backwards in tens and then the ones.



$$25 + 24 = 49$$



I know
that 5 +
4 is 9!

ADDITION WITH EMPTY NUMBER
LINE

$$35 + 14 = 21$$

I know
that $5 - 4$
is 1!



21

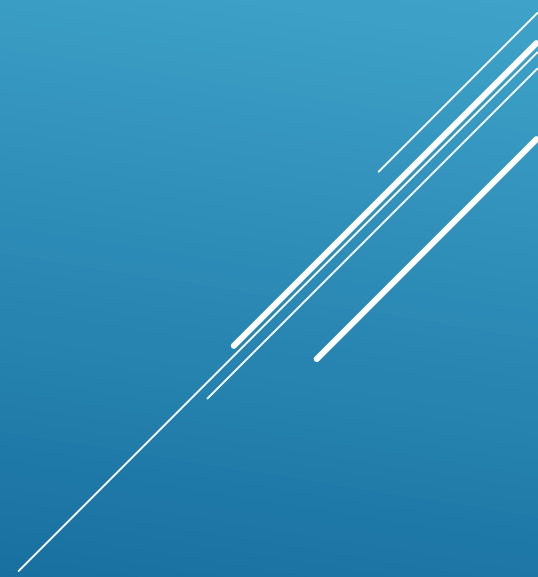
25

35

SUBTRACTION WITH EMPTY
NUMBER LINE

BAR MODEL

- ▶ The Bar Model can be used to help children to add/subtraction numbers and to use the inverse relationship of addition and subtraction. There are plenty of other ways that the Bar Model can be used but today we are focusing on addition and subtraction.



This bar represents the whole

This bar represents part

This bar represents part

$$25 + 24 =$$

?

25

24

$$25 + 24 = 49$$

49

25

24

$$24 + 25 = 49$$

$$49 - 25 = 24$$

$$49 - 24 = 25$$

$$25 + ? = 49$$

49

25

?

To work this out:

$$49 - 25 = ?$$