

Calculation Policy

Early Years to Year 6

CONCRETE

build and manipulate

PICTORIAL

represent and connect

ABSTRACT

record and generalise

Aligned to the National Curriculum in England, the DfE Mathematics Guidance for Key Stages 1 and 2, the EYFS statutory framework and NCETM teaching-for-mastery.

School: Vigo Primary School. Adopted: 2026. Review: _____

WHOLE-SCHOOL APPROACH

Purpose, pedagogy and consistent mathematical language

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Policy intent

Pupils should become fluent, reason mathematically and solve problems. Written methods are introduced when pupils understand the structure and place value that make the method work—not simply because they have reached a particular year group.

Core teaching sequence

- Assess prerequisite facts and place value.
- Use manipulatives that reveal structure.
- Connect each image to precise language and an equation.
- Vary examples; compare methods; fade support when secure.

Non-negotiables

- Estimate before formal calculation.
- Digits are aligned by place value; decimal points remain aligned.
- Exchanges are described as regrouping
- Pupils explain, check using inverse relationships and interpret remainders.

Inclusion and assessment

- Keep access to concrete resources for any pupil who needs them.
- Use stem sentences, worked examples and carefully chosen variation.
- Do not accelerate to compact methods before conceptual security.
- Assess fluency, reasoning, representation choice and application.

Agreed vocabulary

Addition

add, sum, total, altogether, increase, part, whole

Subtraction

subtract, difference, decrease, take away, fewer, missing part

Multiplication

equal groups, factor, product, multiple, array, times

Division

share, group, divisor, dividend, quotient, remainder, each

ADDITION / COMBINING	SUBTRACTION / TAKING AWAY	MULTIPLICATION / EQUAL GROUPS	DIVISION / SHARING & GROUPING
Curriculum destination Find how many altogether by combining two small groups. Notice that a whole can be composed in different ways. Fluency and connections Subitise to 5; bonds to 5; some bonds to 10. Represent with objects • ten-frame • part-whole • number line Teacher check Can the pupil explain the parts and whole and choose an efficient strategy?	Curriculum destination Remove objects and notice how many remain. Find the missing part of a whole in practical stories. Fluency and connections Relate “one less” to the counting sequence. Represent with objects • comparison/bar model • number line • place-value chart Teacher check Can the pupil distinguish removal from difference and justify the method?	Curriculum destination Make and describe equal groups; build doubles with objects, fingers and ten-frames. Fluency and connections Recognise equal/not equal; recall some doubles. Represent with equal groups • array • bar model • area/partition model Teacher check Can the pupil identify the factors, product and unit/group size?	Curriculum destination Share fairly and make groups of a given size in snack, tidy-up and construction contexts. Fluency and connections Explain when a share is fair or unfair. Represent with sharing circles • grouping on number line • bar model • place-value chart Teacher check Can the pupil say whether the context asks for sharing or grouping?

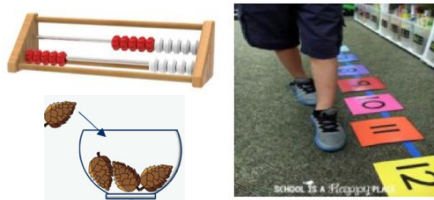
Progression principle: practical and pictorial representations remain available whenever they reveal structure or support explanation; “formal” does not mean “without understanding”. The following are examples of what you could use linked to the represent with above. You are the teacher and know what is best for your class, use any resources you feel are beneficially to your class.

ADDITION / COMBINING

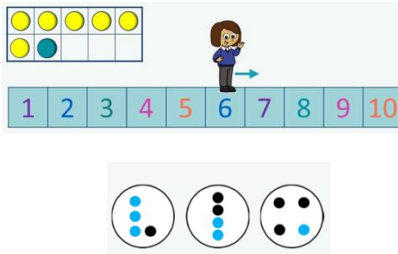
Objects → images

Counters, fingers, natural objects; then five/ten-frames and part-whole pictures.

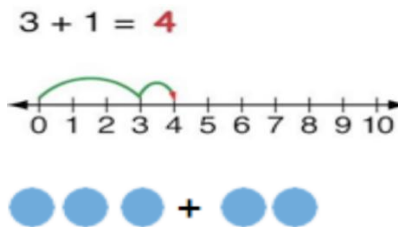
CONCRETE



PICTORIAL



ABSTRACT

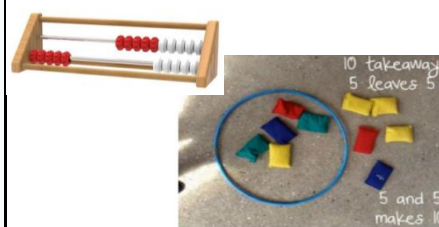


SUBTRACTION / TAKING AWAY

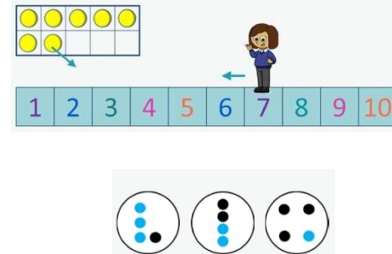
Act it out

Tell a "first, then, now" story; physically remove the part and recount/subitise.

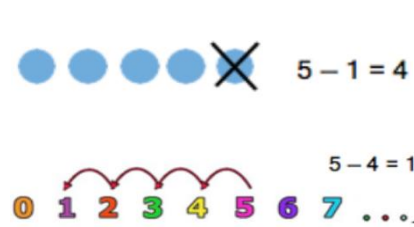
CONCRETE



PICTORIAL



ABSTRACT

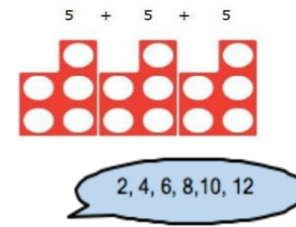


MULTIPLICATION / EQUAL GROUPS

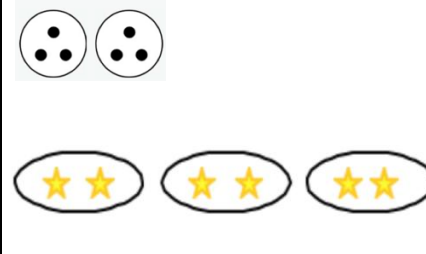
Build doubles

Match two equal rows; say "double 3 is 6" and notice odd/even arrangements.

CONCRETE

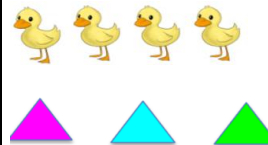


PICTORIAL



ABSTRACT

Children are given multiplication problems set in a real life context. Children are encouraged to visualise the problem e.g. How many fingers on two hands? How many sides on three triangles? How many legs on four ducks?



DIVISION / SHARING & GROUPING

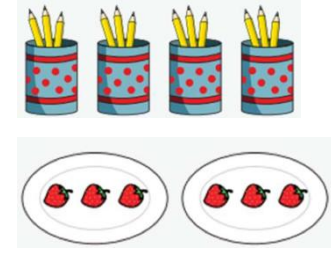
Fair shares

Deal one at a time, compare shares and explain what must change to make them equal.

CONCRETE



PICTORIAL



ABSTRACT

Children are encouraged to have a go at recording the calculation that has been carried out e.g. by arranging concrete objects into groups.



ADDITION / COMBINING	SUBTRACTION / TAKING AWAY	MULTIPLICATION / EQUAL GROUPS	DIVISION / SHARING & GROUPING
Curriculum destination Read, write and interpret + and =. Add one- and two-digit numbers to 20; solve one-step problems. Fluency and connections Bonds within 10; related facts within 20. Represent with objects • ten-frame • part-whole • number line Teacher check Can the pupil explain the parts and whole and choose an efficient strategy?	Curriculum destination Read, write and interpret – and =. Subtract within 20; find difference and missing parts. Fluency and connections One less; inverse links to addition. Represent with objects • comparison/bar model • number line • place-value chart Teacher check Can the pupil distinguish removal from difference and justify the method?	Curriculum destination Solve one-step problems using equal groups, arrays and repeated addition, with concrete and pictorial support. Fluency and connections Count in 2s, 5s and 10s. Represent with equal groups • array • bar model • area/partition model Teacher check Can the pupil identify the factors, product and unit/group size?	Curriculum destination Solve one-step sharing and grouping problems using objects, pictures and arrays. Fluency and connections Connect equal groups to multiplication. Represent with sharing circles • grouping on number line • bar model • place-value chart Teacher check Can the pupil say whether the context asks for sharing or grouping?

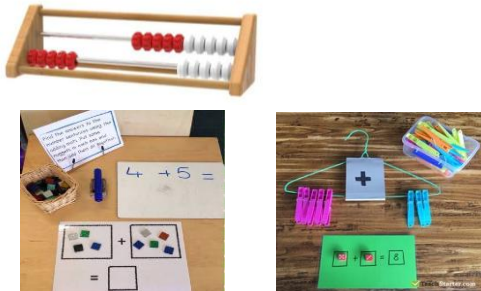
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ADDITION / COMBINING

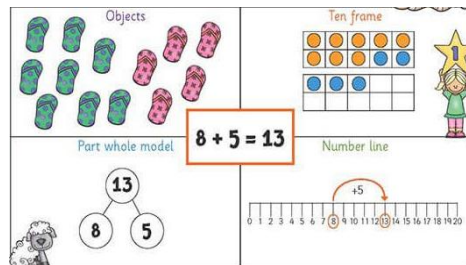
Make ten

Build 7 and 5 on a ten-frame: $7 + 3 + 2 = 12$.

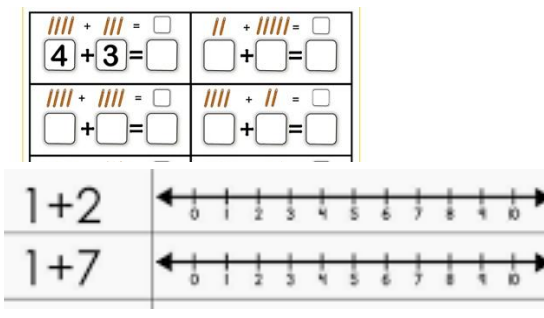
CONCRETE



PICTORIAL



ABSTRACT



SUBTRACTION / TAKING AWAY

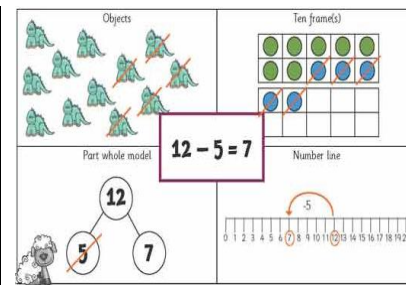
Count back / difference

Use a structured number line; choose removal or comparison to fit the story.

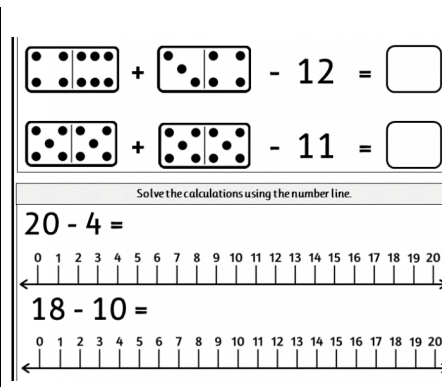
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ABSTRACT

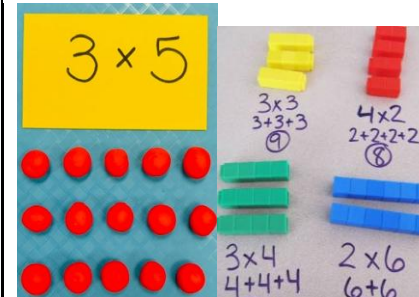


MULTIPLICATION / EQUAL GROUPS

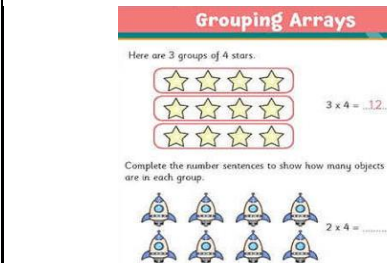
Equal groups first

Say "4 groups of 2"; build, sketch and write repeated addition before $\times$.

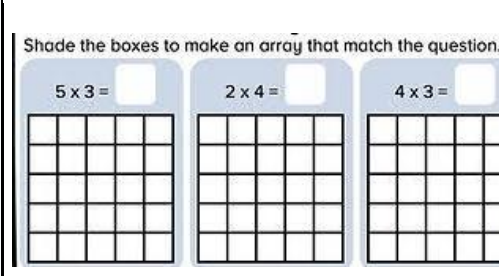
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PICTORIAL



ABSTRACT

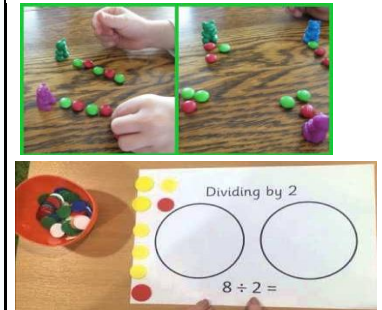


DIVISION / SHARING & GROUPING

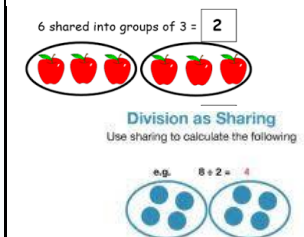
Share and group

Contrast "shared between 2" with "groups of 2"; record $\div$ only after modelling.

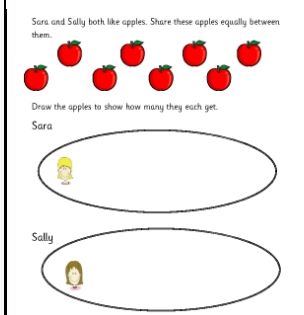
CONCRETE



PICTORIAL



ABSTRACT



ADDITION / COMBINING	SUBTRACTION / TAKING AWAY	MULTIPLICATION / EQUAL GROUPS	DIVISION / SHARING & GROUPING
Curriculum destination Recall and use facts to 20; derive facts to 100. Add mentally and add two two-digit numbers using objects, pictures and jottings. Fluency and connections 10 more; tens + ones; estimate and check. Represent with objects • ten-frame • part-whole • number line Teacher check Can the pupil explain the parts and whole and choose an efficient strategy?	Curriculum destination Recall facts to 20; subtract mentally and subtract two two-digit numbers using objects, pictures and jottings. Fluency and connections 10 less; difference; inverse checking. Represent with objects • comparison/bar model • number line • place-value chart Teacher check Can the pupil distinguish removal from difference and justify the method?	Curriculum destination Recall and use 2, 5 and 10 facts; write $\times$ statements; solve using arrays and repeated addition. Fluency and connections Commutativity; odd/even; doubling. Represent with equal groups • array • bar model • area/partition model Teacher check Can the pupil identify the factors, product and unit/group size?	Curriculum destination Recall related division facts; write $\div$ statements; solve sharing and grouping problems. Fluency and connections Connect $\div$ to $\times$; division is not commutative. Represent with sharing circles • grouping on number line • bar model • place-value chart Teacher check Can the pupil say whether the context asks for sharing or grouping?

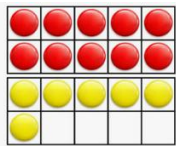
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ADDITION / COMBINING

Partition and recombine

30 + 20, 6 + 7; exchange ten ones when needed. Keep manipulatives available.

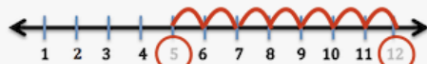
CONCRETE



$$10 + 6 = 16$$



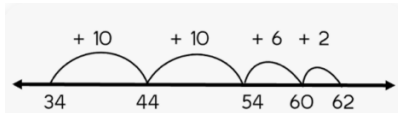
PICTORIAL



$$5 + 7 = 12$$



ABSTRACT



$$1. 3 + 5 = \square$$

$$2. 0 + 3 = \square$$

$$3. 3 + 4 = \square$$

$$1. 23 + 15 = \square$$

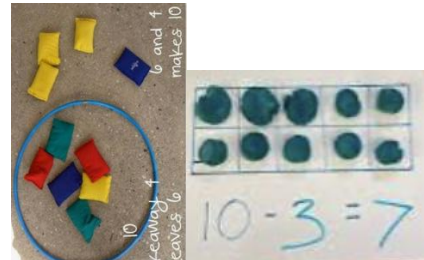
23	15
?	

SUBTRACTION / TAKING AWAY

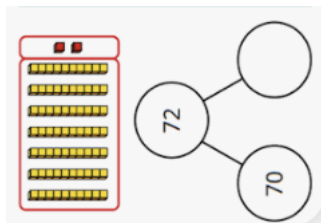
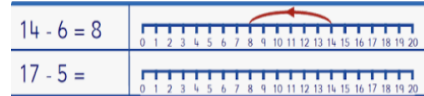
Count up or subtract

For close numbers find the difference; otherwise partition/subtract tens then ones.

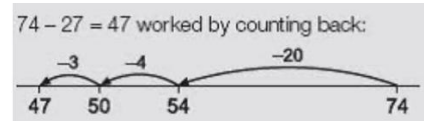
CONCRETE



PICTORIAL



ABSTRACT



$$1. 28 - 5 = \square$$

28	?
5	?

MULTIPLICATION / EQUAL GROUPS

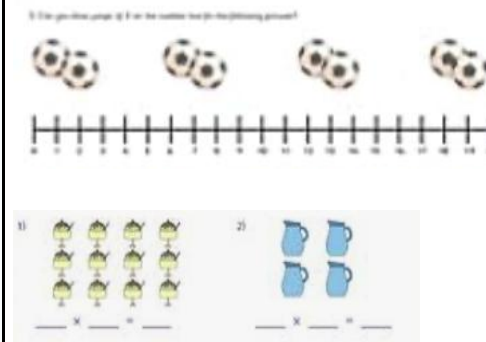
Arrays and facts

Rotate arrays to show $5 \times 4 = 4 \times 5$; link to repeated addition.

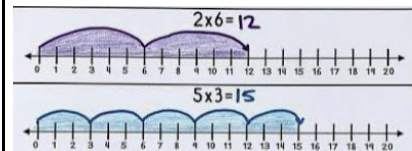
CONCRETE



PICTORIAL



ABSTRACT



$$13 \times 2 = \square$$

$$5 \times 2 = \square$$

$$14 \times 2 = \square$$

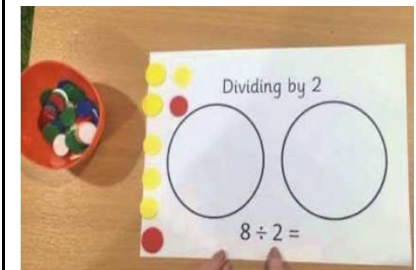
$$2 \times 2 = \square$$

DIVISION / SHARING & GROUPING

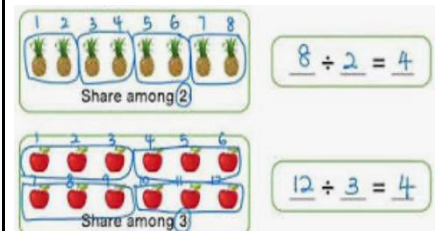
Fact families

From $5 \times 4 = 20$ derive $20 \div 5 = 4$ and $20 \div 4 = 5$.

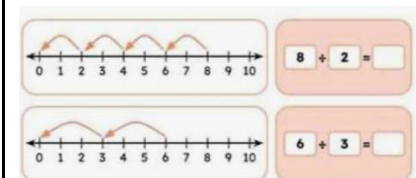
CONCRETE



PICTORIAL



ABSTRACT



$$4 \div 2 = \square$$

$$24 \div 6 = \square$$

$$12 \div 2 = \square$$

$$10 \div 5 = \square$$

ADDITION / COMBINING	SUBTRACTION / TAKING AWAY	MULTIPLICATION / EQUAL GROUPS	DIVISION / SHARING & GROUPING
Curriculum destination Add mentally a three-digit number and ones, tens or hundreds. Add up to three digits using column addition. Fluency and connections Estimate; use inverse to check. Represent with objects • ten-frame • part-whole • number line Teacher check Can the pupil explain the parts and whole and choose an efficient strategy?	Curriculum destination Subtract mentally ones, tens or hundreds from a three-digit number. Use column subtraction. Fluency and connections Estimate; use inverse to check. Represent with objects • comparison/bar model • number line • place-value chart Teacher check Can the pupil distinguish removal from difference and justify the method?	Curriculum destination Recall 3, 4 and 8 facts. Calculate two-digit × one-digit using mental methods then formal written methods. Fluency and connections Distributive law and derived facts. Represent with equal groups • array • bar model • area/partition model Teacher check Can the pupil identify the factors, product and unit/group size?	Curriculum destination Recall related facts. Divide two-digit numbers by one digit, moving from mental strategies to formal written methods. Fluency and connections Interpret exact answers and remainders in context. Represent with sharing circles • grouping on number line • bar model • place-value chart Teacher check Can the pupil say whether the context asks for sharing or grouping?

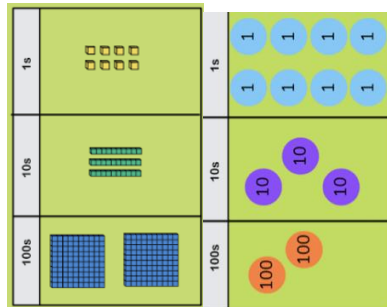
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ADDITION / COMBINING

Column addition

Align place values; combine ones first; exchange 10 ones for 1 ten and record the exchange.

CONCRETE



PICTORIAL



$$\begin{array}{r} 200 + 60 + 8 \\ + 100 + 50 + 7 \\ \hline \end{array}$$

ABSTRACT



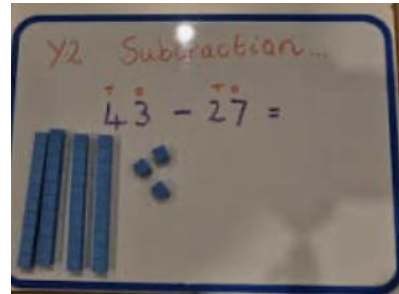
$$\begin{array}{r} 278 \\ + 153 \\ \hline \end{array}$$

SUBTRACTION / TAKING AWAY

Column subtraction

Represent the minuend; exchange only when a place has insufficient units.

CONCRETE



PICTORIAL



$$\begin{array}{r} 300 + 70 + 9 \\ - 100 + 50 + 5 \\ \hline \end{array}$$

ABSTRACT



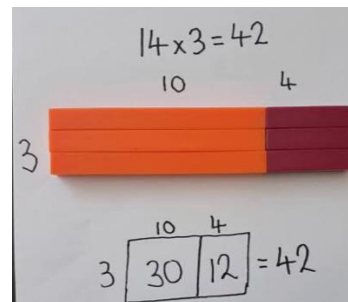
$$\begin{array}{r} \text{H} \quad \text{T} \quad \text{O} \\ 4 \quad 3 \quad 0 \\ - 2 \quad 7 \quad 0 \\ \hline 1 \quad 6 \quad 0 \end{array}$$

MULTIPLICATION / EQUAL GROUPS

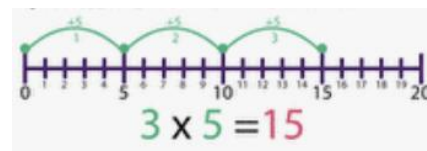
Partition then compact

$20 \times 4 + 3 \times 4 = 80 + 12$. Connect the area/number-line model to short multiplication.

CONCRETE



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ABSTRACT

$\times$	20	6
5	100	30

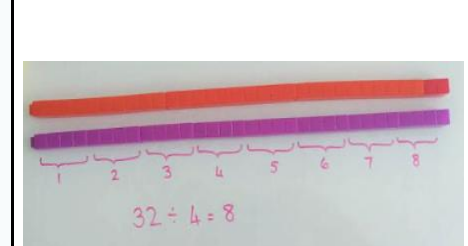
$$26 \times 5 = 130$$

DIVISION / SHARING & GROUPING

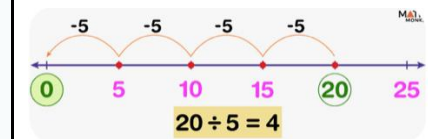
Group using known facts

Partition 84 into 80 and 4; $80 \div 4 + 4 \div 4 = 21$. Introduce short division alongside.

CONCRETE

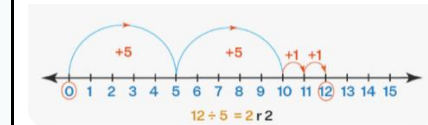


PICTORIAL



Repeated subtraction

ABSTRACT



With remainders

ADDITION / COMBINING	SUBTRACTION / TAKING AWAY	MULTIPLICATION / EQUAL GROUPS	DIVISION / SHARING & GROUPING
Curriculum destination Add numbers with up to four digits using formal column addition; estimate and use inverse operations. Fluency and connections Choose mental or written method. Represent with objects • ten-frame • part-whole • number line Teacher check Can the pupil explain the parts and whole and choose an efficient strategy?	Curriculum destination Subtract numbers with up to four digits using formal column subtraction; estimate and check. Fluency and connections Include zero as a placeholder. Represent with objects • comparison/bar model • number line • place-value chart Teacher check Can the pupil distinguish removal from difference and justify the method?	Curriculum destination Recall facts to 12×12. Multiply two- and three-digit numbers by one digit using formal layout. Fluency and connections Use place value and distributivity. Represent with equal groups • array • bar model • area/partition model Teacher check Can the pupil identify the factors, product and unit/group size?	Curriculum destination Use related division facts to 12×12. Divide mentally using place value and known facts; progress to formal layout. Fluency and connections Use quotitive and partitive interpretations. Represent with sharing circles • grouping on number line • bar model • place-value chart Teacher check Can the pupil say whether the context asks for sharing or grouping?

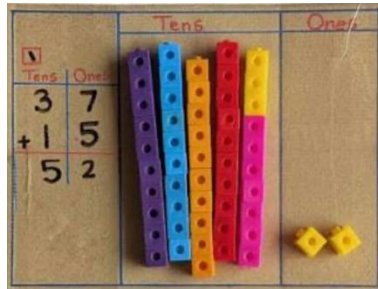
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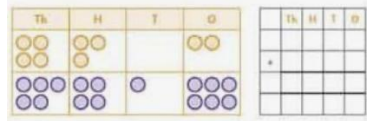
Efficient column method

Align thousands, hundreds, tens and ones. Exchanges sit beneath the correct column.

CONCRETE



PICTORIAL



ABSTRACT

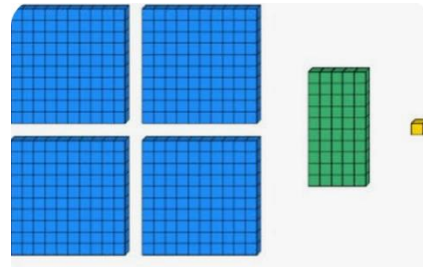
$$\begin{array}{r} & & 1 & & \\ & 6 & 2 & 5 & \\ + & 4 & 1 & 8 & \\ \hline 1 & 0 & 4 & 3 & \end{array}$$

SUBTRACTION / TAKING AWAY

Exchange across places

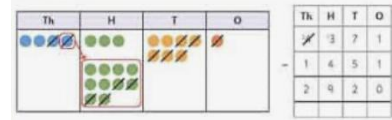
Rename 1 ten as 10 ones (or 1 hundred as 10 tens); explain that value is conserved.

CONCRETE



$$451 - 234 =$$

PICTORIAL



ABSTRACT

$$\begin{array}{r} \text{Th} \text{ H} \text{ T} \text{ O} \\ 4 \text{ 5} \text{ 1} \\ - 2 \text{ 3} \text{ 4} \\ \hline 2 \text{ 1} \text{ 7} \end{array}$$

MULTIPLICATION / EQUAL GROUPS

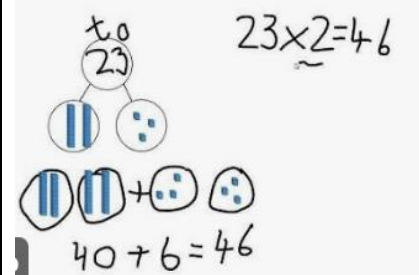
Short multiplication

Partition 126×5 as $100 \times 5 + 20 \times 5 + 6 \times 5$; then compress the same steps.

CONCRETE



PICTORIAL



ABSTRACT

$$\begin{array}{r} 23 \\ \times 2 \\ \hline 46 \end{array}$$

DIVISION / SHARING & GROUPING

Known facts $\rightarrow$ short division

Use $8 \div 4$ and $16 \div 4$ within $96 \div 4$; record carried value as regrouping, not a digit "moved".

CONCRETE



PICTORIAL

Known facts linked to times tables.

$$45 \div 5 =$$

$$180 \div 3 =$$

$$4900 \div 7 =$$

ABSTRACT

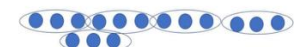
$$45 \div 3 =$$

$$\begin{array}{r} 15 \\ 3 \overline{)45} \end{array}$$

3 goes into 4 once with 1 left over.



The 1 left over is placed before the 5 making it 15.
3 goes into 15 5 times.



The answer is 15.

ADDITION / COMBINING	SUBTRACTION / TAKING AWAY	MULTIPLICATION / EQUAL GROUPS	DIVISION / SHARING & GROUPING
Curriculum destination Add whole numbers with more than four digits using column addition; add mentally with increasingly large numbers. Fluency and connections Solve multi-step problems; round to check. Represent with objects • ten-frame • part-whole • number line Teacher check Can the pupil explain the parts and whole and choose an efficient strategy?	Curriculum destination Subtract whole numbers with more than four digits using column subtraction; subtract mentally when efficient. Fluency and connections Solve multi-step problems; estimate. Represent with objects • comparison/bar model • number line • place-value chart Teacher check Can the pupil distinguish removal from difference and justify the method?	Curriculum destination Multiply up to four digits by one or two digits using short/long multiplication. Multiply mentally using known facts and by 10, 100, 1000. Fluency and connections Apply to scaling and measures. Represent with equal groups • array • bar model • area/partition model Teacher check Can the pupil identify the factors, product and unit/group size?	Curriculum destination Divide up to four digits by one digit using short division; interpret remainders. Divide by 10, 100 and 1000. Fluency and connections Use factors and multiples to reason. Represent with sharing circles • grouping on number line • bar model • place-value chart Teacher check Can the pupil say whether the context asks for sharing or grouping?

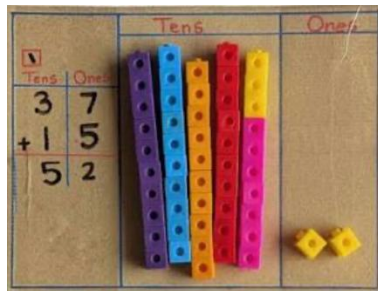
Progression principle: practical and pictorial representations remain available whenever they reveal structure or support explanation; “formal” does not mean “without understanding”. The following are examples of what you could use linked to the represent with above. You are the teacher and know what is best for your class, use any resources you feel are beneficially to your class.

ADDITION / COMBINING

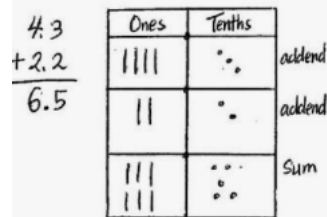
Whole numbers and decimals

Line up place values, not final digits. Use zero placeholders only to clarify place value.

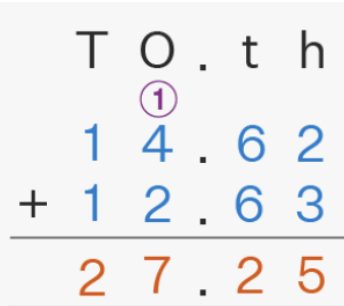
CONCRETE



PICTORIAL



ABSTRACT

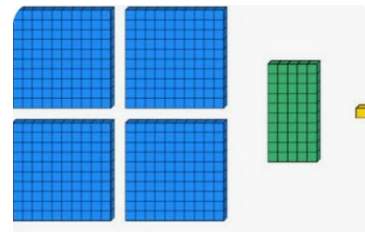


SUBTRACTION / TAKING AWAY

Check before calculating

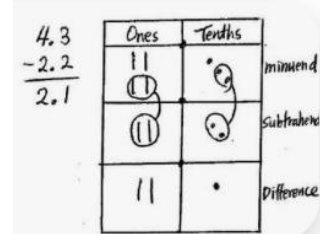
Estimate by rounding; use addition as the inverse and discuss whether the answer is reasonable.

CONCRETE

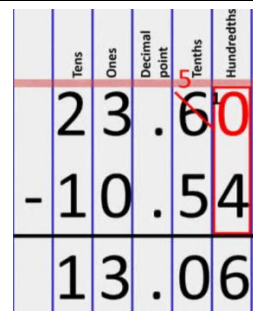


$$451 - 234 =$$

PICTORIAL



ABSTRACT

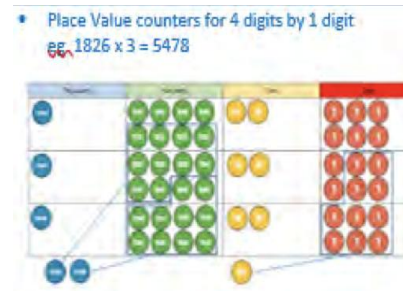


MULTIPLICATION / EQUAL GROUPS

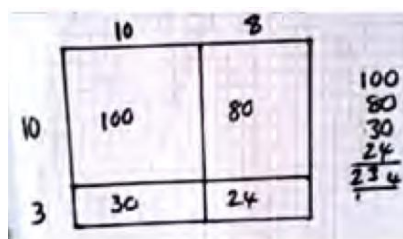
Long multiplication

Record partial products for $\times 6$ and $\times 20$; place the zero placeholder because the second row is tens.

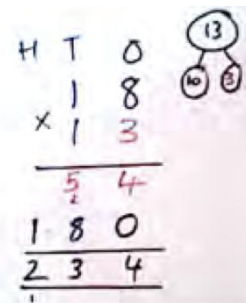
CONCRETE



PICTORIAL



ABSTRACT

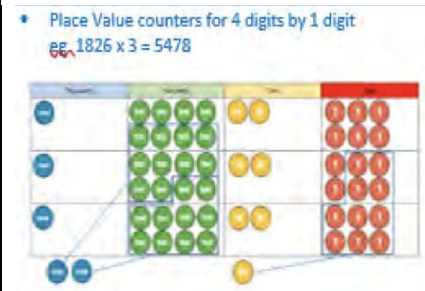


DIVISION / SHARING & GROUPING

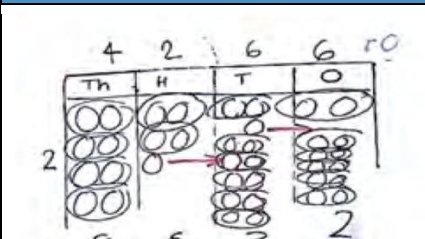
Short division and remainder

Regroup across places; answer as r, fraction, decimal, rounded up/down according to the context.

CONCRETE



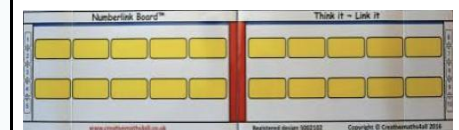
PICTORIAL



ABSTRACT

Bus stop with number links

$$\begin{array}{r} 0944.0 \\ 4 \overline{) 3776} \end{array}$$



ADDITION / COMBINING	SUBTRACTION / TAKING AWAY	MULTIPLICATION / EQUAL GROUPS	DIVISION / SHARING & GROUPING
Curriculum destination Use formal methods for multi-digit whole numbers and decimals; perform mental calculations including mixed operations. Fluency and connections Use estimation and order of operations. Represent with objects • ten-frame • part-whole • number line Teacher check Can the pupil explain the parts and whole and choose an efficient strategy?	Curriculum destination Use formal methods for multi-digit whole numbers and decimals; solve multi-step problems and explain choices. Fluency and connections Use inverse and estimation. Represent with objects • comparison/bar model • number line • place-value chart Teacher check Can the pupil distinguish removal from difference and justify the method?	Curriculum destination Multiply up to four digits by two digits using long multiplication. Multiply one-digit numbers with up to two decimal places by whole numbers. Fluency and connections Use estimation and known facts. Represent with equal groups • array • bar model • area/partition model Teacher check Can the pupil identify the factors, product and unit/group size?	Curriculum destination Divide up to four digits by two digits using short or long division. Interpret remainders as whole numbers, fractions or by rounding. Fluency and connections Divide decimals by whole numbers in context. Represent with sharing circles • grouping on number line • bar model • place-value chart Teacher check Can the pupil say whether the context asks for sharing or grouping?

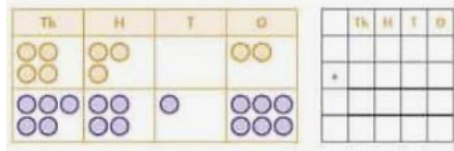
Progression principle: practical and pictorial representations remain available whenever they reveal structure or support explanation; “formal” does not mean “without understanding”. The following are examples of what you could use linked to the represent with above. You are the teacher and know what is best for your class, use any resources you feel are beneficially to your class.

ADDITION / COMBINING

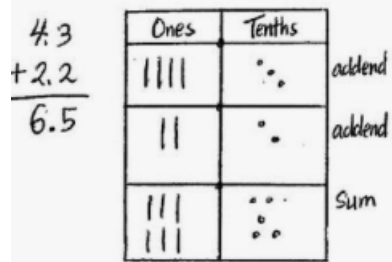
Decimal column addition

Align decimal points and place values; estimate magnitude before operating.

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ABSTRACT

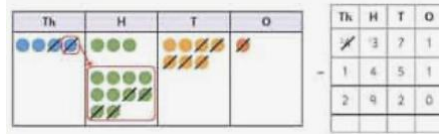
$$\begin{array}{r} \text{T O . t h} \\ 1 \text{ 4 . 6 2} \\ + 1 \text{ 2 . 6 3} \\ \hline 2 \text{ 7 . 2 5} \end{array}$$

SUBTRACTION / TAKING AWAY

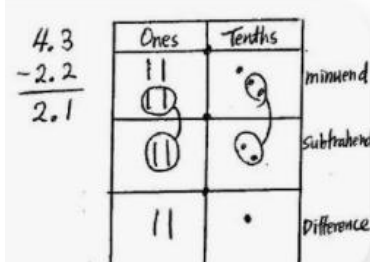
Exchange through zero

Use a place-value chart to record each regrouping; preserve the decimal point position.

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ABSTRACT

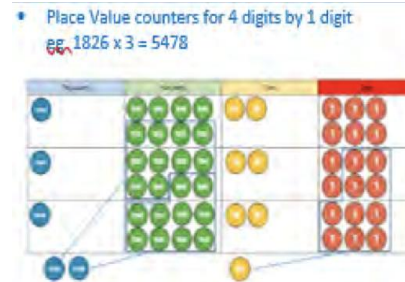
$$\begin{array}{r} \text{Tens Ones Decimal point Tenths Hundredths} \\ 23.60 \\ - 10.54 \\ \hline 13.06 \end{array}$$

MULTIPLICATION / EQUAL GROUPS

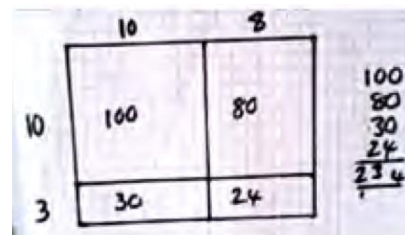
Long multiplication with decimals

Calculate using place value, not a rule about "moving decimal points"; check scale using estimation.

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ABSTRACT

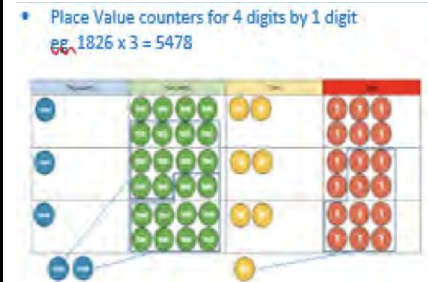
$$\begin{array}{r} \text{H T O} \\ 18.26 \\ \times 3 \\ \hline 54.78 \end{array}$$

DIVISION / SHARING & GROUPING

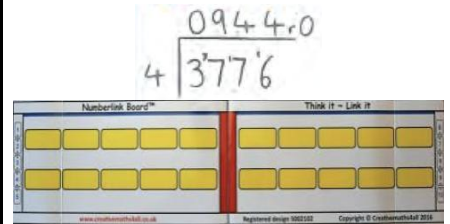
Long division

Subtract useful multiples of the divisor; express 8/24 as 1/3 or continue to a decimal when appropriate.

CONCRETE



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ABSTRACT

$$\begin{array}{r} 028 \\ 13 \overline{) 33684} \end{array}$$