

Calculation Policy

Year 6 Division

	Mental Strategies	Concrete	Pictorial	Abstract	Vocabulary	Models, Images and resources
Year 6	Divide TO by O number, eg. $68 \div 4$ divide by 25 or 50, eg. $480 \div 25$, $3200 \div 50$ Divide two-digit decimals eg. $4.8 \div 6$ and find halves of decimals with units and tenths, eg. half of 15.2 Divide multiples of 100 by a multiple of 10 or 100 (whole number answers), eg. $600 \div 20$, $800 \div 400$, $2100 \div 300$ Plus related facts e.g. $150 \div 30$ Scale up and down using known facts, e.g. given that six oranges cost 24p, find the cost of four oranges	Multiple digit divided by 1 digit with all 4 possibilities Children should be confident enough to work in the abstract with this. If needed, place value counters can still be used. $8,532 \div 2$ Use short division to convert remainders to decimals Children should be confident enough to work in the abstract with this. If needed, place value counters can still be used. Dividing with a two-digit number using factors Children should be confident enough to work in the abstract with this. If needed, place value counters can still be used.	Multiple digit divided by 1 digit with all 4 possibilities Children should be confident enough to work in the abstract with this. If needed, place value counters can still be used and drawings to represent the values Use short division to convert remainders to decimals Children should be confident enough to work in the abstract with this. If needed, place value counters can still be used. Dividing with a two-digit number using factors Children should be confident enough to work in the abstract with this. If needed, place value counters can still be used.	Multiple digit divided by 1 digit with all 4 possibilities Use short division to convert remainders to decimals $109 \div 4 = 27.25$ Dividing with a two-digit number using factors $2560 \div 16 = 2560 \div 4 \div 4$	Divide Share equally, one each, two each..., Grouping equal groups, how many lots of, groups of... half of halved symbol $\div$ Remainder Left over Repeated subtraction dividend	100 square Number lines Number tracks Bead strings (for children) Bead bar Tens Frame Numicon Place Value Disks Cuisenaire Base hundreds tens and ones Arrow Cards Gattegno chart Place Value Grid

Know the vocabulary for division equations see below:

$$\begin{array}{c} \text{dividend} \downarrow \\ 20 \div 4 = 5 \\ \uparrow \\ \text{divisor} \end{array}$$

$$\begin{array}{r} 5 \leftarrow \text{quotient} \\ 4 \overline{)20} \\ \text{divisor} \quad \text{dividend} \end{array}$$

$$\begin{array}{r} \text{dividend} \rightarrow 20 \\ \text{divisor} \rightarrow 4 \quad \uparrow \\ \hline 5 \\ \text{quotient} \end{array}$$

Dividing with a two-digit number using partitioning

Children should be confident enough to work in the abstract with this. If needed, place value counters can still be used.

Counters can also be used to create the multiplication table to support the division.

Dividing with a two-digit number using short division

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Dividing with a two-digit number using partitioning

When undertaking a division using two-digit numbers. Create a multiple chart first – start with 10 and 5, then 2, 4, 8. If other multiples are required, calculate when needed.

	31	mental method
x1	31	x1
x2	62	double 31
x3	93	add 31 to 62
x4	124	double 62
x5	155	half of 310
x6	186	double 93
x7	217	186 + 31
x8	248	double 124
x9	279	248 + 31
x10	310	easy to calculate

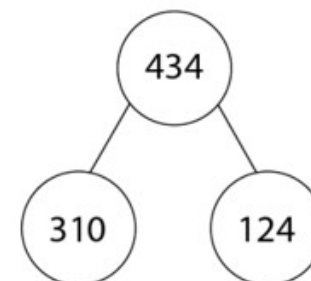
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Dividing with a two-digit number using partitioning

See adjacent column to support this



$$310 \div 31 = 10$$

$$124 \div 31 = 4$$

$$434 \div 31 = 14$$

Dividing with a two-digit number using short division

See adjacent column to support this

$$\begin{array}{r} 0 \ 1 \ 4 \\ 31 \overline{)4 \ 4 \ 3 \ 1 \ 2 \ 4} \end{array}$$

divisor

quotient

a tenth of the size

Dividing with a two-digit number using long division

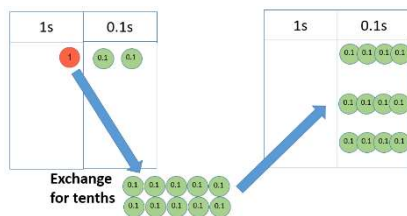
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Related Calculations

Division involving decimals

$$1.2 \div 3$$



Dividing with a two-digit number using long division

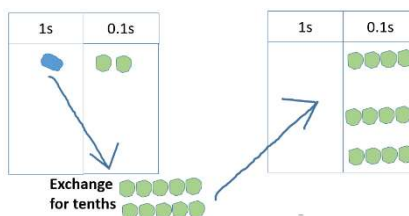
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Dividing with a two-digit number using long division

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$$\begin{array}{r} 014 \\ 31 \overline{) 434} \\ \underline{-31} \\ 124 \\ \underline{-124} \\ 0 \end{array}$$

Related Calculations

Division involving decimals

$$1.2 \div 3$$

$$\begin{array}{lcl} 12 \div 3 = 4 \\ \times 0.1 \div 10 \downarrow \\ 1.2 \div 3 = 0.4 \end{array}$$

Divide numbers up to Th HTO by a TO whole number using efficient written method of long division, and interpret remainders as whole numbers, fractions, decimals fractions or by rounding as appropriate for the context

Other worked examples of formal written division methods – with a remainder

$$354 \div 15 = ?$$

$ \begin{array}{r} 23 \text{ r } 9 \\ 15 \overline{) 354} \\ \underline{30} \\ 54 \\ \underline{45} \\ 9 \end{array} $	$ \begin{array}{r} 23 \frac{9}{15} \\ 15 \overline{) 354} \\ \underline{30} \\ 54 \\ \underline{45} \\ 9 \end{array} $	$ \begin{array}{r} 23.6 \\ 15 \overline{) 354.0} \\ \underline{30} \\ 54 \\ \underline{45} \\ 90 \\ \underline{90} \\ 0 \end{array} $
So, $354 \div 15 = 23 \text{ r } 9$	So, $354 \div 15 = 23 \frac{3}{5}$	So, $354 \div 15 = 23.6$

Useful IWB links for manipulatives

<https://www.coolmath4kids.com/manipulatives/base-ten-blocks>
<https://mathsbot.com/manipulatives/placeValueCounters>
<https://mathsbot.com/manipulatives/bar>
<https://classroomsecrets.co.uk/free-year-1-part-whole-model-iwb-addition-and-subtraction-activity/>
<https://www.nctm.org/Classroom-Resources/Illuminations/Interactives/Ten-Frame/>
<http://www.ictgames.com/mobilePage/tenFrame/index.html>