Number: Fractions (including Decimals and Percentages)

National Centre for Excellence in the Teaching of Mathematics

<table>
<tr><th colspan="6">COUNTING IN FRACTIONAL STEPS</th></tr>
<tr><th>Year 1</th><th>Year 2</th><th>Year 3</th><th>Year 4</th><th>Year 5</th><th>Year 6</th></tr>
<tr><td></td><td>Pupils should count in fractions up to 10, starting from any number and using the1/2 and 2/4 equivalence on the number line (Non Statutory Guidance)
T2 U10</td><td>count up and down in tenths
T2 U9</td><td>count up and down in hundredths
T2 U8</td><td></td><td></td></tr>
<tr><th colspan="6">RECOGNISING FRACTIONS</th></tr>
<tr><td>recognise, find and name a half as one of two equal parts of an object, shape or quantity
T3 U14</td><td rowspan="2">recognise, find and name a half as one of two equal parts of an object, shape or quantity Y1
T2 U10

recognise, find and name a quarter as one of four equal parts of an object, shape or quantity Y1
T2 U10

recognise, find, name and write fractions $^{1}/_{3}$, $^{1}/_{4}$, $^{2}/_{4}$ and $^{3}/_{4}$ of a length, shape, set of objects or quantity
T2 U10</td><td>recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators
T2 U9
T3 U10</td><td rowspan="3">recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten
T2 U8</td><td rowspan="3">recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents
(appears also in Equivalence)
T2 U11
T3 U12</td><td rowspan="3"></td></tr>
<tr><td></td><td>recognise that tenths arise from dividing an object into 10 equal parts and in dividing one – digit numbers or quantities by 10.
T2 U9</td></tr>
<tr><td>recognise, find and name a quarter as one of four equal parts of an object, shape or quantity
T3 U14</td><td>recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators
T2 U9
T3 U10</td></tr>
</table>

TRIBAL

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COMPARING FRACTIONS					
		compare and order unit fractions, and fractions with the same denominators T2 U9 T3 U10		compare and order fractions whose denominators are all multiples of the same number T2 U8	compare and order fractions, including fractions >1 T1 U4 T2 U8

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Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
COMPARING DECIMALS					
			compare numbers with the same number of decimal places up to two decimal places T3 U11	read, write, order and compare numbers with up to three decimal places T2 U11	identify the value of each digit in numbers given to three decimal places T2 U7
ROUNDING INCLUDING DECIMALS					
			round decimals with one decimal place to the nearest whole number T3 U11	round decimals with two decimal places to the nearest whole number and to one decimal place T2 U11	solve problems which require answers to be rounded to specified degrees of accuracy T2 U7& U8
EQUIVALENCE (INCLUDING FRACTIONS, DECIMALS AND PERCENTAGES)					
	write simple fractions e.g. $^1/_2$ of 6 = 3 and recognise the equivalence of $^2/_4$ and $^1/_2$. T2 U10	recognise and show, using diagrams, equivalent fractions with small denominators T2 U9 T3 U10	recognise and show, using diagrams, families of common equivalent fractions T2 U8	identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths T2 U8, U11	use common factors to simplify fractions; use common multiples to express fractions in the same denomination T1 U4
			recognise and write decimal equivalents of any number of tenths or hundredths T2 U10 T3 U11	read and write decimal numbers as fractions (e.g. 0.71 = $^{71}/_{100}$) T2 U11 recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents T3 U12	associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $^3/_8$) T2 U7

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				T2 U11	
			recognise and write decimal equivalents to $^{1}/_{4}$; $^{1}/_{2}$; $^{3}/_{4}$ T3 U11	recognise the per cent symbol (%) and understand that per cent relates to "number of parts per hundred", and write percentages as a fraction with denominator 100 as a decimal fraction T2 U11	recall and use equivalences between simple fractions, decimals and percentages, including in different contexts. T2 U8 T3 U14

ADDITION AND SUBTRACTION OF FRACTIONS					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		add and subtract fractions with the same denominator within one whole (e.g. $^{5}/_{7} + {}^{1}/_{7} = {}^{6}/_{7}$) T3 U10	add and subtract fractions with the same denominator T2 U9 T3 U11	add and subtract fractions with the same denominator and multiples of the same number T2 U9	add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions T1 U4, U5 T1 U5
				recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number (e.g. $^{2}/_{5} + {}^{4}/_{5} = {}^{6}/_{5} = 1\,{}^{1}/_{5}$) T2 U8, U9, U10	
MULTIPLICATION AND DIVISION OF FRACTIONS					
				multiply proper fractions and mixed numbers by	multiply simple pairs of proper fractions, writing

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				whole numbers, supported by materials and diagrams T2 U10	the answer in its simplest form (e.g. $^1/_4 \times {}^1/_2 = {}^1/_8$) T1 U5 T2 U8
					multiply one-digit numbers with up to two decimal places by whole numbers T2 U8
					divide proper fractions by whole numbers (e.g. $^1/_3 \div 2 = {}^1/_6$) T1 U5 Multiply proper fractions and mixed numbers by whole numbers, support by material and diagrams. T1 U5
MULTIPLICATION AND DIVISION OF DECIMALS					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
					multiply one-digit numbers with up to two decimal places by whole numbers T2 U7
			find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as		multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places

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			ones, tenths and hundredths T2 U10 T3 U11		T2 U7
					identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places T2 U7
					associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $^{3}/_{8}$) T2 U7
					use written division methods in cases where the answer has up to two decimal places T1 U5 T2 U7
PROBLEM SOLVING					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Solving word problem- halves and quarters T3 U14		solve problems that involve all of the above T2 U9 T3 U10	solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities,	solve problems involving numbers up to three decimal places T3 U12	Solve problems involving the calculation of percentages (for example, of measures, and such as 15% of 360) and the use

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			including non-unit fractions where the answer is a whole number T2 U8, U9		of percentage comparison. Also in ratio and proportion T2 U8
			solve simple measure and money problems involving fractions and decimals to two decimal places. T2 U10 T3 U11 T3 U12	solve problems which require knowing percentage and decimal equivalents of $^{1}/_{2}$, $^{1}/_{4}$, $^{1}/_{5}$, $^{2}/_{5}$, $^{4}/_{5}$ and those with a denominator of a multiple of 10 or 25. T2 U11	

T1- Autumn term

T2- Spring term

T3- Summer term