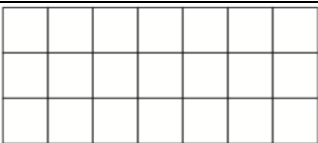
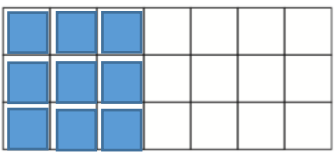


Topic: Fractions, Decimals, Percentages

Topic/Skill	Definition/Tips	Example
Fraction	A mathematical expression representing the division of one integer by another. Fractions are written as two numbers separated by a horizontal line .	$\frac{2}{7}$ is a 'proper' fraction. $\frac{9}{4}$ is an 'improper' or 'top-heavy' fraction.
Numerator	The top number of a fraction.	In the fraction $\frac{3}{5}$, 3 is the numerator.
Denominator	The bottom number of a fraction.	In the fraction $\frac{3}{5}$, 5 is the denominator.
Unit Fraction	A fraction where the numerator is one and the denominator is a positive integer.	$\frac{1}{2}, \frac{1}{3}, \frac{1}{4}$ etc. are examples of unit fractions.
Fraction of a shape	Count parts of the shape equal to the denominator of the fraction and shade in parts equal to the numerator . Repeat this process until all parts of the shape have been counted.	Shade $\frac{3}{7}$ of:  There are 7 boxes per row so we shade in 3 boxes per row: 
Mixed Number	A number formed of both an integer part and a fraction part .	$3\frac{2}{5}$ is an example of a mixed number.
Simplifying Fractions	Divide the numerator and denominator by the highest common factor.	$\frac{20}{45} = \frac{4}{9}$
Equivalent Fractions	Fractions which represent the same value .	$\frac{2}{5} = \frac{4}{10} = \frac{20}{50} = \frac{60}{150}$ etc.
Comparing Fractions	To compare fractions, they each need to be rewritten so that they have a common denominator . Ascending means smallest to biggest . Descending means biggest to smallest .	Put in to ascending order : $\frac{3}{4}, \frac{2}{3}, \frac{5}{6}, \frac{1}{2}$. Equivalent: $\frac{9}{12}, \frac{8}{12}, \frac{10}{12}, \frac{6}{12}$ Correct order: $\frac{1}{2}, \frac{2}{3}, \frac{3}{4}, \frac{5}{6}$
Fraction of an Amount	Divide by the bottom, times by the top	Find $\frac{2}{5}$ of £60 $60 \div 5 = 12$ $12 \times 2 = 24$
Adding or Subtracting Fractions	Find the LCM of the denominators to find a common denominator.	$\frac{2}{3} + \frac{4}{5}$ Multiples of 3: 3, 6, 9, 12, 15 .. Multiples of 5: 5, 10, 15 ..

	Use equivalent fractions to change each fraction to the common denominator . Then just add or subtract the numerators and keep the denominator the same .	LCM of 3 and 5 = 15 $\frac{2}{3} = \frac{10}{15}$ $\frac{4}{5} = \frac{12}{15}$ $\frac{10}{15} + \frac{12}{15} = \frac{22}{15} = 1\frac{7}{15}$
Multiplying Fractions	Multiply the numerators together and multiply the denominators together. Then simplify .	$\frac{3}{8} \times \frac{2}{9} = \frac{6}{72} = \frac{1}{12}$
Dividing Fractions	'Keep it, Flip it, Change it – KFC' Keep the first fraction the same Flip the second fraction upside down Change the divide to a multiply Multiply by the reciprocal of the second fraction.	$\frac{3}{4} \div \frac{5}{6} = \frac{3}{4} \times \frac{6}{5} = \frac{18}{20} = \frac{9}{10}$
Mixed number arithmetic	Use the same rules for adding, subtraction, multiplying , and dividing fractions but convert the mixed numbers to improper fractions first.	$2\frac{1}{3} + 1\frac{1}{5}$ $\frac{7}{3} + \frac{6}{5} = \frac{35}{15} + \frac{18}{15}$ $\frac{53}{15} = 3\frac{8}{15}$
Percentage	Number of parts per 100.	31% means $\frac{31}{100}$
Finding 10%	To find 10% , divide 100% by 10	10% of £36 = $36 \div 10 = £3.60$
Finding 1%	To find 1% , divide 100% by 100	1% of £8 = $8 \div 100 = £0.08$
Percentage Change	$\frac{\text{Difference}}{\text{Original}} \times 100\%$	A games console is bought for £200 and sold for £250. % change = $\frac{50}{200} \times 100 = 25\%$
Fractions to Decimals	Divide the numerator by the denominator using the bus stop method.	$\frac{3}{8} = 3 \div 8 = 0.375$
Decimals to Fractions	Write as a fraction over 10, 100 or 1000 and simplify.	$0.36 = \frac{36}{100} = \frac{9}{25}$

Percentages to Decimals	Divide by 100	$8\% = 8 \div 100 = 0.08$
Decimals to Percentages	Multiply by 100	$0.4 = 0.4 \times 100\% = 40\%$
Fractions to Percentages	Percentage is just a fraction out of 100. Make the denominator 100 using equivalent fractions. When the denominator doesn't go in to 100, use a calculator and multiply the fraction by 100.	$\frac{3}{25} = \frac{12}{100} = 12\%$ $\frac{9}{17} \times 100 = 52.9\%$
Percentages to Fractions	Percentage is just a fraction out of 100. Write the percentage over 100 and simplify.	$14\% = \frac{14}{100} = \frac{7}{50}$
Increase or Decrease by a Percentage	Non-calculator: Find the percentage and add or subtract it from the original amount. Calculator: Find the percentage multiplier and multiply.	<u>Increase 500 by 20% (Non Calc):</u> 10% of 500 = 50 so 20% of 500 = 100 500 + 100 = 600 <u>Decrease 800 by 17% (Calc):</u> 100%-17%=83% 83% $\div$ 100 = 0.83 0.83 x 800 = 664

Where else is the FDP topic used:

Algebra Probability

Ratio and Proportion

Links to other subjects: