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| **Unit 4: Fractions, ratio and percentages** | **Year 9 Road Map** |
| In this unit you will learn about number. The aims are as follows:**LG1**: Knowledge **LG2**: Application **LG3**: Skills |
| **S/N** | **Level** | **Learning Goals/Outcomes/Content** | Video clipsR A G |  |  |  |
| **4a) Fractions** |
| 1 | S | Use diagrams to find equivalent fractions or compare fractions;  | N23b |  |  |  |
| 2 | S | Write fractions to describe shaded parts of diagrams;  | N23a |  |  |  |
| 3 | SCE | Express a given number as a fraction of another,  | R3 |  |  |  |
| 4 | S | Find equivalent fractions;  | 25 |  |  |  |
| 5 | S | Write a fraction in its simplest form, including using it to simplify a calculation, e.g. 50 ÷ 20 =  =  = 2.5 | 26a |  |  |  |
| 6 | SCE | Order fractions, by using a common denominator; | N34 |  |  |  |
| 7 | SCE | Compare fractions, use inequality signs, compare unit fractions;  | 70 |  |  |  |
| 8 | S | Convert between mixed numbers and improper fractions;  | N35 |  |  |  |
| 9 | SC | Add and subtract fractions;  | N36 |  |  |  |
| 10 | SCE | Add and subtract mixed numbers | N41 |  |  |  |
| 11 | SCE | Multiply and divide an integer by a fraction;  | N37a |  |  |  |
| 12 | SCE | Multiply and divide a fraction by an integer, including finding fractions of quantities or measurements, and apply this by finding the size of each category from a pie chart using fractions; |  |  |  |  |
| 13 | SCE | Understand and use unit fractions as multiplicative inverses;  |  |  |  |  |
| 14 | SCE | Multiply fractions including mixed numbers; simplify calculations by cancelling first;  | N42a |  |  |  |
| 15 | SCE | Divide fractions including mixed number. | N37a |  |  |  |
| 16 | SC | Find a fraction of a quantity or measurement, including within a context;  | N33 |  |  |  |
| 17 | CE | Convert a fraction to a decimal to make a calculation easier;  | N32 |  |  |  |
| 18 | CE | By writing the denominator in terms of its prime factors, decide whether fractions can be converted to recurring or terminating decimals;  |  |  |  |  |
| 19 | E | Convert a fraction to a recurring decimal;  | 177 |  |  |  |
| 20 | E | Convert a recurring decimal to a fraction;  |  |  |  |  |
| 21 | CE | Find the reciprocal of an integer, decimal or fraction | 76 |  |  |  |
| **4b) Percentages** |
| 22 |  CE | Convert between fractions, percentages and decimals;  | 85 |  |  |  |
| 23 | SCE | Convert a fraction to a decimal to make a calculation easier, e.g. 0.25 × 8 =  ×8,or  × 10 = 0.375 × 10; |  |  |  |  |
| 24 | SCE | Recognise recurring decimals and convert fractions such as ,  and  into recurring decimals;  | 177 |  |  |  |
| 25 | SCE | Compare and order fractions, decimals and integers, using inequality signs; | 3 |  |  |  |
| 26 | SCE | Order fractions, decimals and percentages, including use of inequality signs. | N32 |  |  |  |
| 27 | SC | Express a given number as a percentage of another number; | 40 |  |  |  |
| 28 | CE | Express one quantity as a percentage of another where the percentage is greater than 100%  | N39b |  |  |  |
| 29 | SC | Find a percentage of a quantity without a calculator: 50%, 25% and multiples of 10% and 5%;  | N24b |  |  |  |
| 30 | SC | Find a percentage of a quantity or measurement; |  |  |  |  |
| 31 | SCE | Use percentages in real-life situations, including percentages greater than 100%:  |  |  |  |  |
| 32 | SCE | Work out a percentage increase or decrease, including: simple interest, income tax calculations, value of profit or loss, percentage profit or loss;  | R9a |  |  |  |
| 33 | CE | Describe percentage increase/decrease with fractions, e.g. 150% increase means  times as big;  |  |  |  |  |
| 34 | CE | Compare two quantities using percentages, including a range of calculations and contexts such as those involving time or money; | N39b |  |  |  |
| 35 | CE | Find a percentage of a quantity using a multiplier;  | R9b |  |  |  |
| 36 | CE | Use a multiplier to increase or decrease by a percentage in any scenario where percentages are used;  | R9b |  |  |  |
| 37 | E | Find the original amount given the final amount after a percentage increase or decrease (reverse percentages), including VAT;  |  |  |  |  |
| 38 | E | Use calculators for reverse percentage calculations by doing an appropriate division;  | 110 |  |  |  |
| 39 | CE | Understand that fractions are more accurate in calculations than rounded percentage or decimal equivalents, and choose fractions, decimals or percentages appropriately for calculations |  |  |  |  |
| **4c) Ratio and Proportion** |
| 40 | SC | Express the division of a quantity into a number of parts as a ratio | R1 |  |  |  |
| 41 | SC | Write ratios in the form 1:m or m:1 and to describe a situation | R5a |  |  |  |
| 42 | SC | Write ratios in their simplest form, including three-part ratios | R5a |  |  |  |
| 43 | SCE | Divide a given quantity into two or more parts in a given part: part or part : whole ratio | R5b |  |  |  |
| 44 | SCE | Use a ratio to find one quantity when the other is known | R1a |  |  |  |
| 45 | SCE | Write a ratio as a fraction | 165c |  |  |  |
| 46 | E | Write a ratio as a linear function | 107 |  |  |  |
| 47 | CE | Use a ratio to compare a scale model to real-life object |  |  |  |  |
| 48 | E | Use a ratio to convert between measures and currencies, e.g. £1.00 = €1.36 | R2 |  |  |  |
| 49 | CE | Identify direct proportion from a table of values, by comparing ratios of values |  |  |  |  |
| 50 | SCE | Scale up recipes | 39 |  |  |  |
| 51 | SCE | Convert between currencies |  |  |  |  |
| Student’s comments and questions |