Development of Fractions through Numicon 1-6

Numicon 1 NPC and GMS	• Halves and quarter of wholes • Wholes can be halved in different ways • Wholes can be quartered in different ways • Halves are two equal parts • Quarters are two equal parts • Halving a half = a quarter • A whole can be 2 halves or 4 quarters • Halves and quarters can be seen in the division of a whole object or a whole group • Applications to measurement – capacity, length, weight, time, volume
Numicon 2 NPC and GMS	• Generalizing all the above, relationships focus • Dividing into two parts with finding half • 2/4 is equal to ½, equivalent to 2 of equal parts • ¾ denotes to 3 of 4 equal parts • 1/3 is one of 3 equal parts • Reading, writing and understanding ½, 1/3. ¼ ¾ • Fractions on a number line, distances • Counting in fractions to 10 in halves and quarters • Applications to measurement – capacity, length, weight, time, volume
Numicon 3 NPC and GMS	• Understanding halfway between multiples of 10, 100 and 1000 • Marking fractions on a number line • Denominator and numerator properties and functions • Equivalence in area and equal divisions • Greater the number of divisions, the smaller the parts • + and – of simple fractions with same denominator • Naming and working with fractions of 1/12's, 6th's, and 1/3's • Fractions as operators and dividing by integers • Applications to measurement – capacity, length, weight, time, volume
Numicon 4 NPC and GMS	• Fractions and part-whole relationships • Fractions equivalent to half • Fractions shown on a number line • Numerator comparisons with the same denominator • Larger the denominator = the smaller the parts • + and – fractions within and beyond 1 • Decimal fractions with links to measuring • Place value of fractions and decimals, 1/10's and 1/100's • Comparing and ordering decimal fractions • Rounding decimal fractions • Equivalence in fractions and exploring proportion • Linking factors and multiples of a whole • The role of division in fractions • Decimal point role • Common decimal fractions ¼ = 0.25 • Applications to measurement – capacity, length, weight, time, volume
Numicon 5 NPC and GMS	• Equivalence with fractions • Mixed and improper and proper fractions • Using equivalence to scale up and down • Understanding decimals and their use in measurement • Connections with decimals and fractions to 1/1000's • Comparing and ordering fractions, place value of fractions and decimals

	• Proportion and ratio links to cooking and adjusting recipes, making scale drawings • Calculating fractions of amounts and lengths using x and ÷ facts • Calculating with fractions and decimals and connections with money • Understanding 'per cent' and links with fractions and decimals
Numicon 6 NPC and GMS	• use common factors to simplify fractions; use common multiples to express fractions in the same denomination • compare and order fractions, including fractions > 1 • add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions • multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, 4 1 × 2 1 = 8 1] • divide proper fractions by whole numbers [for example, 3 1 ÷ 2 = 6 1] • associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, 8 3] • identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places • multiply one-digit numbers with up to two decimal places by whole numbers • use written division methods in cases where the answer has up to two decimal places • solve problems which require answers to be rounded to specified degrees of accuracy • recall and use equivalences between simple fractions, decimals and percentages, including in different contexts. **Ratio and proportion** • solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts • solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison • solve problems involving similar shapes where the scale factor is known or can be found • solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.