Year 5/6 Overview

.	Wk 1	Wk 2	Wk 3	Wk 4	Wk 5	Wk 6	Wk 7	Wk 8	Wk 9	Wk 10	Wk 11	Wk 12	Wk 13	Wk 14	Wk 15
Autumn	Transition	Place Value Yr 6 Mock SATS		Four operations			Assessment – Yr5	Four operations	Fractions					Assessment	Fractions
Spring	Yr5: Fractions Yr6: Ratio		Decimals and Percentages			Assessment week Yr5: Decimals Yr6:Algebra		Converting units of measure	Measurement Perimeter, Area and Volume.		Assessment	Statistics			
Summer	Geometry: properties of shape		SATs Week	Investigations and consolidation											

Year 5/6 Overview

Place Value

	National Curriculum Objectives	White Rose Small Steps	
	Read, write, order and compare numbers to at least 1000000 and determine the value of each digit. Count forwards or backwards in steps of powers of 10 for any given number up to 1000000. Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers including through zero. Round any number up to 1000000 to the nearest 10, 100, 1000, 10000 and 100000 Solve number problems and practical problems that involve all of the above.	• 1,000s, 100s, 10s, and 1s • Numbers to 10,000 • Round to nearest 10 and 100 • Rounding to 10, 100 and 1000 • Numbers to 100,000 • Compare and order numbers to 100,000 • Round numbers within 100,000 • Numbers to a million • Counting in 10s, 100s, 1,000s, 10,000s and 100,000s (recap count in 25s) • Compare and order numbers to one million • Round numbers to one million • Negative numbers • Roman numerals •	• Number to 10,000 • Number to 100, 000 • Numbers to a million • Numbers to ten million • Compare and order any number • Round numbers to 10, 100 and 1,000 • Round any number Negative numbers
		DFE Guidance (ready to progress criteria)	

Year 5/6 Overview

	Read Roman numerals to 1000 (M) and recognise years written in Roman numerals. **Year 6** Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit. Round any whole number to a required degree of accuracy. Use negative numbers in context, and calculate intervals across zero. Solve number and practical problems that involve all of the above.	4NPV -1 - Know that 10 hundreds are equivalent to 1 thousand, and that 1,000 is 10 times the size of 100; apply this to identify and work out how many 100s there are in other four-digit multiples of 100. 4NPV–2 Recognise the place value of each digit in four-digit numbers, and compose and decompose four-digit numbers using standard and non-standard partitioning. 4NPV–3 Reason about the location of any four-digit number in the linear number system, including identifying the previous and next multiple of 1,000 and 100, and rounding to the nearest of each. 4NPV–4 Divide 1,000 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 1,000 with 2, 4, 5 and 10 equal parts.	5NPV–1 Know that 10 tenths are equivalent to 1 one, and that 1 is 10 times the size of 0.1. Know that 100 hundredths are equivalent to 1 one, and that 1 is 100 times the size of 0.01. Know that 10 hundredths are equivalent to 1 tenth, and that 0.1 is 10 times the size of 0.01. 5NPV–2 Recognise the place value of each digit in numbers with up to 2 decimal places, and compose and decompose numbers with up to 2 decimal places using standard and nonstandard partitioning. 5NPV–3 Reason about the location of any number with up to 2 decimals places in the linear number system, including identifying the previous and next multiple of 1 and 0.1 and rounding to the nearest of each. 5NPV–4 Divide 1 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in units of 1 with 2, 4, 5 and 10 equal parts. **Year 6** 6NPV–1 Understand the relationship between powers of 10 from 1 hundredth to 10 million, and use this to make a given number 10, 100, 1,000, 1 tenth, 1 hundredth or 1 thousandth times the size (multiply and divide by 10, 100 and 1,000). 6NPV–2 Recognise the place value of each digit in numbers up to 10 million, including decimal fractions, and compose and decompose numbers up to 10 million using standard and nonstandard partitioning.

Year 5/6 Overview

			6NPV–3 Reason about the location of any number up to 10 million, including decimal fractions, in the linear number system, and round numbers, as appropriate, including in contexts.

Four Operations (Addition and subtraction)

National Curriculum Objectives	White Rose Small Steps	
Year 5 Add and subtract numbers mentally with increasingly large numbers. [For example, 12,462 -2,300 = 10,162] Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy. Solve addition and subtraction multi-step problems in contexts deciding which operations and methods to use and why. **Year 6** Solve addition and subtraction multi step problems in contexts, deciding which operations and methods to use and why. Multiply multi-digit number up to 4 digits by a 2 digit number using the formal written method of long multiplication.	• Add whole numbers with more than 4 digits • Subtract whole numbers with more than 4 digits • Round to estimate and approximate • Inverse operations (addition and subtraction) • Multi-step addition and subtraction problems • Efficient subtraction • Estimate answers • Checking strategies	• Add and subtract integers • Multiply up to 4 digit by 2 digit numbers • Short division • Division using factors • Long division • Common factors • Common multiples • Primes to 100 • Squares and cubes • Order of operations • Mental calculations and estimation • Reason from known facts
	DFE Guidance (ready to progress criteria)	

Year 5/6 Overview

	Divide numbers up to 4 digits by a 2 digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions or by rounding as appropriate for the context. Divide numbers up to 4 digits by a 2 digit number using the formal written method of short division, interpreting remainders according to context. Perform mental calculations, including with mixed operations and large numbers. Use their knowledge of the order of operations to carry out calculations involving the four operations. Solve problems involving addition, subtraction, multiplication and division. Use estimation to check answers to calculations and determine in the context of a problem, an appropriate degree of accuracy.	4NF–3 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 100), for example: 8 + 6 = 14 and 14 – 6 = 8 so 800 + 600 = 1,400 1,400 – 600 = 800	5NF–2 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 1 tenth or 1 hundredth), for example: 8 + 6 = 14 0.8 + 0.6 = 1.4 0.08 + 0.06 = 0.14 6AS/MD–1 Understand that 2 numbers can be related additively or multiplicatively, and quantify additive and multiplicative relationships (multiplicative relationships restricted to multiplication by a whole number). 6AS/MD–1 Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value understanding. 6NPV–4 Divide powers of 10, from 1 hundredth to 10 million, into 2, 4, 5 and 10 equal parts, and read scales/number lines with labelled intervals divided into 2, 4, 5 and 10 equal parts.

Year 5/6 Overview

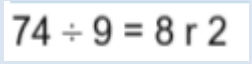
Four Operations - Multiplication and Division

National Curriculum Objectives	White Rose Small Steps
Multiply and divide numbers mentally drawing upon known facts. Multiply and divide whole numbers by 10,100 and 1,000. Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers. Recognise and use square numbers and cube numbers and the notation for squared (^{2}) and cubed (^{3}) Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes. Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers. Establish whether a number up to 100 is prime and recall prime numbers up to 19. Multiply numbers up to 4 digits by a one or two digit number using a formal written method, including long multiplication for 2 digit numbers. Divide numbers up to 4 digits by a one digit number using the formal written method of short division and interpret remainders appropriately for the context. Solve problems involving multiplication and division where larger numbers are used by decomposing them into their factors and including scaling by simple fractions and problems involving simple rates.	• Multiples • Factors • Common factors • Prime numbers activity • Prime Numbers • Square numbers • Cube numbers • Multiply by 10, 100 and 1,000 • Divide by 10,100 and 1,000 • Multiples of 10, 100 and 1,000 • Multiply 4 digits by 1 digit • Multiply 2 digits by 2 digits • Multiply 3 digits by 2 digits • Multiply 4 digits by 2 digits • Divide 4 digits by 1 digit • Divide with remainders
	DFE Guidance (ready to progress criteria)

Year 5/6 Overview

		Multiply and divide whole numbers by 10 and 100 (keeping to whole number quotients); understand this as equivalent to scaling a number by 10 or 100. Recall multiplication and division facts up to 12 x 12. Manipulate multiplication and division equations. Solve division problems, with two-digit dividends and one-digit divisors, that involve remainders, for example: $74 \div 9 = 8 \text{ r } 2$ 4NF–3 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 100), for example: $3 \times 4 = 12$ and $12 \div 4 = 3$ so $300 \times 4 = 1{,}200$ $1{,}200 \div 4 = 300$ Recall multiplication and division facts up to , 12 x 12 and recognise products in multiplication tables as multiples of the corresponding number. Recognise multiples of 10, 100 and 1,000. Apply place-value knowledge to known additive and multiplicative number facts. Multiply and divide whole numbers by 10 and 100 (keeping to whole number quotients).	5MD–1 Multiply and divide numbers by 10 and 100; understand this as equivalent to making a number 10 or 100 times the size, or 1 tenth or 1 hundredth times the size. 5NF–1 Secure fluency in multiplication table facts, and corresponding division facts, through continued practice. 5NF–2 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 1 tenth or 1 hundredth), for example: $3 \times 4 = 12$ $0.3 \times 4 = 1.2$ $0.03 \times 4 = 0.12$ 5MD–2 Find factors and multiples of positive whole numbers, including common factors and common multiples, and express a given number as a product of 2 or 3 factors.

Year 5/6 Overview

		Recall multiplication facts up to 12 x 12 . Manipulate multiplication and division equations. Recall multiplication and division facts up to 12 x 12. Manipulate multiplication and division equations. Solve division problems, with two-digit dividends and one-digit divisors, that involve remainders, for example:  and interpret remainders appropriately according to the context.	5MD–3 Multiply any whole number with up to 4 digits by any one-digit number using a formal written method. 5MD–4 Divide a number with up to 4 digits by a one-digit number using a formal written method, and interpret remainders appropriately for the context. See above for Year 6

Year 5/6 Overview

	Time	
	(Y4) Read, write and convert time between analogue and digital 12- and 24 hours clocks. Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days.	White Rose Small Steps •

Year 5/6 Overview

Fractions

	National Curriculum Objectives	White Rose Small Steps	
	<u>Compare and order fractions whose denominators are multiples of the same number.</u> Identify, name and write equivalent fractions of a given fraction, represented visually including tenths and hundredths. Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number: $^{2}/_{5} + {}^{4}/_{5} = {}^{6}/_{5} = {}^{11}/_{5}$. <u>Compare and order fractions whose denominators are multiples of the same number.</u> Identify, name and write equivalent fractions of a given fraction, represented visually including tenths and hundredths. Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements Add and subtract fractions with the same denominator and denominators that are multiples of the same number.	• Equivalent fractions • Improper fractions to mixed numbers • Mixed numbers to improper fractions • Number sequences • Compare fractions less than 1 • Order fractions greater than 1 • Add and subtract fractions • Add fractions within 1 activity • Add fractions within 1 • Add 3 or more fractions • Add fractions • Add mixed numbers activity • Add mixed numbers • Subtract fractions • Subtract mixed numbers • Subtraction – breaking the whole • Subtract 2 mixed numbers • Multiply unit fraction by an integer • Multiply non-unit fractions by an integer • Multiply mixed numbers by integers • Fraction of an amount • Using fractions as operators • Fraction problem solving	• Equivalent fractions • Simplify fractions • Improper fractions to mixed numbers • Mixed numbers to improper fractions • Fractions on a number line • Compare and order denominator • Compare and order numerator • Add and subtract fraction (2) • Add mixed numbers • Add fractions • Subtract mixed numbers • Subtract fractions • Mixed addition and subtraction • Multiply fractions by integers • Multiply fraction by fractions • Divide fractions by integers (2) • Four rules with fractions • Fraction of an amount • Fraction of an amount – find the whole
		DFE Guidance (ready to progress criteria)	

Year 5/6 Overview

	Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams. Read and write decimal numbers as fractions (for example, 0.71 = $^{71}/_{100}$).) **Year 6** Use common factors to simplify fractions; use common multiples to express fractions in the same denomination. Compare and order fractions, including fractions > 1 Generate and describe linear number sequences (with fractions) 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. Divide proper fractions by whole numbers. To associate a fraction with division to calculate decimal fraction equivalents (0.375) for a simple fraction ($^{3}/_{8}$). Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.	Recall multiplication and division facts up to 12 x 12. Find unit fractions of quantities using known division facts (multiplication tables fluency). Unitise using unit fractions (for example, understand that there are 3 one-fifths in three fifths). Recall multiplication and division facts up to 12x12. Reason about the location of fractions in the linear number system. Divide powers of 10 into 2, 4, 5 and 10 equal parts.	5F–1 Find non-unit fractions of quantities. 5F–2 Find equivalent fractions and understand that they have the same value and the same position in the linear number system. 5F–3 Recall decimal fraction equivalents for 1/2,1/4 ,1/5 and 1/10, and for multiples of these proper fractions. **Year 6** 6F–1 Recognise when fractions can be simplified, and use common factors to simplify fractions. 6F–2 Express fractions in a common denomination and use this to compare fractions that are similar in value. 6F–3 Compare fractions with different denominators, including fractions greater than 1, using reasoning, and choose between reasoning and common denomination as a comparison strategy

Year 5/6 Overview

Decimals and percentages

National Curriculum Objectives

Read, write, order and compare numbers with up to three decimal places.

Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents.

Round decimals with two decimal places to the nearest whole number and to one decimal place.

Solve problems involving number up to three decimal places.

Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000.

Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.

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, and as a decimal.

Solve problems which require knowing percentage and decimal equivalents ½, ¼, ⅕, ⅘ and those fractions with a denominator of a multiple of 10 or 25.

Recognise and write decimal equivalents of any number of tenths and hundredths

White Rose Small Steps

- Decimals up to 2dp
- Understand thousandths
- Three decimal places
- Multiply 10, 100 and 1,000
- Divide by 10, 100 and 1,000
- Multiply decimals by integers
- Divide decimals by integers
- Division to solve problems
- Decimals as fractions
- Fractions to decimals
- Understand percentages
- Fractions to percentages
- Equivalent FDP
- Order FDP
- Percentage of an amount (2)
- Percentages (missing values)

- Decimals up to 2dp
- Decimals as fraction (2)
- Understand thousandths
- Thousandths as decimals
- Rounding decimals
- Order and compare decimals
- Understand percentages
- Percentages as fractions and decimals
- Equivalent FDP
- Adding decimals within 1
- Subtracting decimals within 1
- Complements to 1 Adding decimals (crossing the whole)
- Adding decimals with the same number of decimal places
- Subtracting decimals with the same number of decimal places
- Adding and subtracting decimals with the same number of decimal places
- Adding decimals with a different number of decimal places
- Subtracting decimals with a different number of decimal places
- Adding and subtracting decimals with a different number of decimal places
- Adding and subtracting whole and decimals
- Decimal sequences
- Multiplying decimals by 10,100 and 1,000
- Dividing decimals by 10, 100 and 1,000

DFE Guidance (ready to progress criteria)

Year 5/6 Overview

	Find the effect of dividing a one or two digit number by 10 or 100, identifying the value of the digits in the answer as one, tenths and hundredths. Solve simple measure and money problems involving fractions and decimals to two decimal places Convert between different units of measure (for example, kilometre to metre)	4NPV – 2 Recognise the place value of each digit in four-digit numbers, and compose and decompose four-digit numbers using standard and non-standard partitioning. 4NPV – 3 Reason about the location of any four-digit number in the linear number system, including identifying the previous and next multiple of 1,000 and 100, and rounding to the nearest of each. 4NPV – 4 Divide 1,000 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 1,000 with 2, 4, 5 and 10 equal parts.	5NPV–2 Recognise the place value of each digit in numbers with up to 2 decimal places, and compose and decompose numbers with up to 2 decimal places using standard and nonstandard partitioning. 5NPV–3 Reason about the location of any number with up to 2 decimals places in the linear number system, including identifying the previous and next multiple of 1 and 0.1 and rounding to the nearest of each. 5NPV–4 Divide 1 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in units of 1 with 2, 4, 5 and 10 equal parts.

Year 5/6 Overview

	Algebra and Ratio (Year 6)	
	National Curriculum Objectives	White Rose Small Steps
	Use simple formulae Generate and describe linear number sequences. Express missing number problems algebraically. Find pairs of numbers that satisfy an equation with two unknowns. Enumerate possibilities of combinations of two variables. 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 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.	• Find a rule one step • Find a rule two step • Forming expressions • Substitution • Formulae • Forming equations • Solve simple one step equations • Solve two step equations • Find pairs of value (2) • Using ratio language • Ratio and fractions • Introducing the ratio symbol • Calculating ratio activity • Calculating ratio • Using scale factors • Calculating scale factors • Ratio and proportion problems (2) DFE Guidance (ready to progress criteria)

Year 5/6 Overview

		Be fluent in all key stage 2 additive and multiplicative number facts and calculation. Manipulate additive equations. Manipulate multiplicative equations. Find a fraction of a quantity. Recall multiplication and division facts up to 12 x 12. Apply place-value knowledge to known additive and multiplicative number facts.	6AS/MD–4 Solve problems with 2 unknowns. 6AS/MD–3 Solve problems involving ratio relationships.

Year 5/6 Overview

Geometry

National Curriculum Objectives	White Rose Small Steps	
Identify 3D shapes, including cubes and other cuboids, from 2D representations. Use the properties of rectangles to deduce related facts and find missing lengths and angles. Distinguish between regular and irregular polygons based on reasoning about equal sides and angles. Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles. Draw given angles, and measure them in degrees (^{O}) Identify: angles at a point and one whole turn (total 360^{O}), angles at a point on a straight line and ½ a turn (total 180^{O}) other multiples of 90^{O} Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed.	• The first quadrant • Four quadrants • Translations • Reflections • Measure with a protractor • Drawing lines and angles accurately • Introduce angles • Angles on a straight line • Angles around a point • Calculate angles • Vertically opposite angles • Angles in a triangle • Angles in a triangle – special cases • Angles in a triangle – missing angles • Angles in special quadrilaterals • Angles in regular polygons • Draw shapes accurately • Draw nets of 3-D shapes	• Identify angles • Compare and order angles • Measuring angles in degrees • Measuring using a protractor (2) • Drawing lines and angles accurately activity • Drawing lines and angles accurately • Calculating angles on a straight line • Calculating angles around a point • Triangles • Quadrilaterals • Calculating lengths and angles in shapes • Regular and irregular polygons • Reasoning about 3D shapes • Describe position • Draw on a grid • Position in the first quadrant Translation • Translation with coordinates • Lines of symmetry • Complete a symmetric figure • Reflection • Reflection with coordinates

Year 5/6 Overview

		DFE Guidance (ready to progress criteria)	
		Recognise right angles as a property of shape or a description of a turn, and identify right angles in 2D shapes presented in different orientations. Identify whether the interior angles of a polygon are equal or not.	5G–1 Compare angles, estimate and measure angles in degrees (°) and draw angles of a given size. Year 6 6G–1 Draw, compose, and decompose shapes according to given properties, including dimensions, angles and area, and solve related problems.
	Area and Perimeter		
	National Curriculum Objectives	**White Rose Small Steps**	
	Measure and calculate the perimeter of composite rectilinear shapes in cm and m. Calculate and compare the area of rectangles (including squares), and including using standard units, cm^2,m^2 estimate the area of irregular shapes. Year 6 Recognise that shapes with the same areas can have different perimeters and vice versa. Recognise when it is possible to use formulae for area and volume of shapes.	• Measure perimeter • Calculate perimeter • Area of rectangles • Area of compound shapes • Area of irregular shapes Year 6 • Shapes – same area • Area and perimeter • Area of a triangle (3) • Area of a parallelogram • What is volume? • Volume – counting cubes • Volume of a cuboid	

Year 5/6 Overview

	Calculate the area of parallelograms and triangles. Calculate, estimate and compare volume of cubes and cuboids using standard units, including cm^3, m^3 and extending to other units (mm^3, km^3)	DFE Guidance (ready to progress criteria)
		Compose polygons from smaller shapes. Recall multiplication facts up to 12 x 12 5G–2 Compare areas and calculate the area of rectangles (including squares) using standard units.
	Converting units and volume	
	<u>Convert between different units of metric measure (for example, km and m; cm and m; cm and mm; g and kg; l and ml)</u> Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints. Estimate volume [for example using $1cm^3$ blocks to build cuboids (including cubes)] and capacity [for example, using water] Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling. Solve problems involving converting between units of time.	White Rose Small Steps
		• Kilograms and kilometres • Millimetres and millimetres • Metric units • Imperial units • Converting units of time • Timetables • What is volume? • Compare volume • Estimate volume • Estimate capacity Year 6 • Metric measure • Convert metric measures • Calculate with metric measures • Miles to kilometres • Imperial measures

Year 5/6 Overview

		DFE Guidance (ready to progress criteria)	
	Year 6 Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate Use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit and vice versa, using decimal notation to up to 3 dp. Convert between miles and kilometres.	4 - Divide 1,000 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 1,000 with 2, 4, 5 and 10 equal parts. 4 - Divide 100 and 1,000 into 2, 4, 5 and 10 equal parts. Find unit fractions of quantities using known division facts (multiplication tables fluency).	5NPV–4 Divide 1 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in units of 1 with 2, 4, 5 and 10 equal parts. 5NPV–5 Convert between units of measure, including using common decimals and fractions.

Year 5/6 Overview

Statistics

National Curriculum Objectives	White Rose Small Steps	
Solve comparison, sum and difference problems using information presented in a line graph. Complete, read and interpret information in tables including timetables. Year 6 Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius. Interpret and construct pie charts and line graphs and use these to solve problems. Calculate the mean as an average	• Line graphs • Circles • Read and interpret pie charts • Draw pie charts • The mean	• Interpret charts • Comparison, sum and difference • Introduce line graphs • Read and interpret line graphs • Draw line graphs • Use line graphs to solve problems • Read and interpret tables • Two-way tables • Time tables

Year 5/6 Overview

Time	
(Y4) Read, write and convert time between analogue and digital 12- and 24 hours clocks. Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days.	White Rose Small Steps •