Whole School Maths Curriculum Overview: Year 3

#TheSmawthorneExperience

Year 3	Summer Term				
Topic	Fractions B	Money	Time	Shape	Statistics
The Big Ideas	Fractions are equal parts of a whole. Equal parts of shapes do not need to be congruent but need to be equal in area. Decimal fractions are linked to other fractions. The number line is a useful representation that helps children to think about fractions as numbers.	Developing benchmarks to support estimation skills is important as pupils become confident in their use of standard measures. The height of a door frame, for example, is approximately 2 metres, and a bag of sugar weighs approximately 1 kilogram.	Developing benchmarks to support estimation skills is important as pupils become confident in their use of standard measures. The height of a door frame, for example, is approximately 2 metres, and a bag of sugar weighs approximately 1 kilogram.	During this year there is an increasing range of shapes that pupils are familiar with. The introduction of symmetrical and non-symmetrical polygons and the requirement that pupils should be able to draw them will give rise to discussions about lengths of sides and sizes of angles. Pupils need to appreciate these features as properties of shapes as well as the number of sides and vertices. Pupils recognise that angles are about the amount of turn – the lengths of the lines used to represent angles do not affect the size of the angle. Pupils recognise that relationships are at the heart of properties of shapes, not particular measurements. For example, the opposite sides of any rectangle will always be equal, not that rectangles have a pair of long sides and a pair of short sides.	Data needs to be collected with a question or purpose in mind. Tally charts are used to collect data over time (cars passing the school, birds on the bird table). They can also be used to keep track of counting.
Key Knowledge and Skills	• **Step 1** Add fractions • **Step 2** Subtract fractions • **Step 3** Partition the whole • **Step 4** Unit fractions of a set of objects	• **Step 1** Pounds and pence • **Step 2** Convert pounds and pence • **Step 3** Add money • **Step 4** Subtract money	• **Step 1** Roman numerals to 12 • **Step 2** Tell the time to 5 minutes • **Step 3** Tell the time to the minute	• **Step 1** Turns and angles • **Step 2** Right angles • **Step 3** Compare angles • **Step 4** Measure and draw accurately • **Step 5** Horizontal and vertical	• **Step 1** Interpret pictograms • **Step 2** Draw pictograms • **Step 3** Interpret bar charts

	• **Step 5** Non-unit fractions of a set of objects • **Step 6** Reasoning with fractions of an amount	• **Step 5** Find change	• **Step 4** Read time on a digital clock • **Step 5** Use a.m. and p.m. • **Step 6** Years, months and days • **Step 7** Days and hours • **Step 8** Hours and minutes - use start and end times • **Step 9** Hours and minutes - use durations • **Step 10** Minutes and seconds • **Step 11** Units of time • **Step 12** Solve problems with time	• **Step 6** Parallel and perpendicular • **Step 7** Recognise and describe 2-D shapes • **Step 8** Draw polygons • **Step 9** Recognise and describe 3-D shapes • **Step 10** Make 3-D shapes	• **Step 4** Draw bar charts • **Step 5** Collect and represent data • **Step 6** Two-way tables
Stem Sentences	"A (fraction) is (numerator) out of (denominator) parts." "A half is one of two equal parts." "One quarter is one of four equal parts." "Two thirds is two out of three equal parts." "The fraction (fraction) represents (numerator) of the whole." "This is a (unit/non-unit) fraction because the numerator is (1/greater than 1)." Identifying Fractions: "The denominator tells us how many equal parts the whole is divided into, which is (number)." "The numerator tells us how many parts we are interested in, which is (number)." "In the fraction 3/4, the numerator is 3 and the denominator is 4." Equivalent Fractions: "To find an equivalent fraction, we can multiply the numerator and	Counting and Recognizing Money: "I can count in [number] pound coins." "£1 is equal to [number] pence." "There are [number] pence in £1." "I can make [amount] using [number] [coin/note] and [number] [coin/note]." "This is [amount] more than [amount]." "This is [amount] less than [amount]." Converting Pounds and Pence: "£[number] and [number] pence is the same as [number] pence." "I can convert [number] pence into £[number] and [number] pence."	• Telling Time: • "The time on the clock is __ minutes past __." • "The minute hand is pointing to __, so it is __ minutes past the hour." • "The hour hand is pointing between __ and __, so it is just past __." • "The time is __ o'clock in the __ hour." (e.g., "The time is 3 o'clock in the afternoon") • "It is __ minutes to __." • Duration: • "There are __ minutes in an hour., "There are __ hours in a day., "A week has __ days., "A month has __ days., and "An hour is __ minutes long.. • Sequencing Time:	• Angles Perpendicular lines meet at a right angle. An angle is made where two lines meet at a point. Angles are measured by the amount of turn it would take for one line to meet the other line. A right angle is a quarter turn. Two right angles make a half turn. Three right angles make a three-quarter turn. Four right angles make a full turn. An angle that is greater than a right angle (but less than a straight line) is called an obtuse angle. An angle that is less than a right angle is called an acute angle. Drawing/ measuring lines When using a ruler, it is easiest to start from 0. Lines A line that runs	• Representing Data: • "There are _____ in the _____." (e.g., "There are 5 children in the 'cats' group.") • "The most popular _____ is _____." (e.g., "The most popular fruit is apple.") • "The least popular _____ is _____." (e.g., "The least popular colour is purple.") • "There are more _____ than _____." (e.g., "There are more cats than dogs.")

	denominator by the same number." "If we multiply the numerator and denominator of 1/2 by 2, we get 2/4, which is an equivalent fraction."		• "First, we __, then we __, and finally we __." • "Before __, it was __." • "After __, it will be __."	straight from left to right is a horizontal line. A line that runs straight up and down is a vertical line. Parallel lines never meet, they stay the same distance apart.	• "There are fewer _____ than _____." (e.g., "There are fewer dogs than birds.") • "There are the same number of _____ and _____." (e.g., "There are the same number of apples and bananas.")
National Curriculum Statements	• count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10 • recognise, find and write fractions of a discrete set of objects: unit fractions and nonunit fractions with small denominators • recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators recognise and show, using diagrams, equivalent fractions with small denominators add and subtract fractions with the same denominator within one whole [for example, 5/7 + 1/7 = 6/7] • compare and order unit fractions, and fractions with the same denominators solve problems that involve all of the above	• add and subtract amounts of money to give change, using both £ and p in practical contexts	• tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks • estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight • know the number of seconds in a minute and the number of days in each month, year and leap year • compare durations of events [for example to calculate the time taken by particular events or tasks].	• draw 2-D shapes and make 3-D shapes using modelling materials • recognise 3-D shapes in different orientations and describe them • recognise angles as a property of shape or a description of a turn • identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle • identify horizontal and vertical lines and pairs of perpendicular and parallel lines	• interpret and present data using bar charts, pictograms and tables • solve one-step and two-step questions [for example, 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables

Misconception	Children may add both the numerators and denominators, for example 3 4 + 1 4 = 4 Children may find some representations of fractions harder to understand than others. As fractions split wholes into equal parts, children may assume that the complementary fraction is the same fraction again, for example 3 7 and 3 7 together are equal to 1 whole. Children may not be confident enough with times-tables to support them with finding fractions of amounts. • Children may not be confident enough with times-tables to support them with finding fractions of amounts. • Children may only complete the first step of dividing by the denominator and forget to then multiply by the numerator.	• Children may assume that more coins always have a greater value than fewer coins. • Children may look at the numbers rather than the units, for example thinking 50p has a greater value than £10 • Children may simply add the number on each note or coin without considering its value, for example thinking that £10 and 5p makes either £15 or 15p. • Children may assume that more coins always have a greater value than fewer coins, regardless of the values of the individual coins. • Children may not recognise the value of pounds and pence, and see 50p as having a greater value than £48 • Children may make errors with their number bonds to 100	• Children may write 4 as IIII or 9 as VIIII. • Children may add numerals, instead of interpreting the values based on their position, for example interpreting IX as 11, rather than 9 • When marking the hour hand on a clock to show half past 7, children may draw the hand pointing to 7, rather than halfway between 7 and 8 • Children may not relate the numbers on the clock face to minutes. For example, when the minute hand is pointing to 4, they may say that it is 4 minutes past the hour. • Children may confuse times past and times to the hour. • If children are not secure in their 5 times-table, they may struggle to fluently identify the number of minutes past or to the hour.	• Children may see the size of an angle as the distance between two lines, rather than a measurement of turn. • Children may confuse clockwise and anticlockwise. Children may assume that right angles are only constructed from a vertical and horizontal line and not recognise right angles in other orientations. • Children may need clarification over the term "right" in "right angle" to avoid confusion that all right angles point to the right. • Children may see the size of an angle as the size of the two lines or the distance between them rather than a measurement of turn. • Children may not recognise the same angles if they are given different starting points or orientations.	• Children may use one-to-one correspondence between the number of symbols in the pictogram and the value of the data without considering the value of each symbol as presented in the key. • Children may always want to use a symbol to represent one item, rather than reducing the number of symbols by using multiples. • Children may choose a symbol that is not easily shown as a half or quarter. • Children may draw larger symbols for greater numbers, rather than keeping the symbols a consistent size.

Progression	Year 2: • add fractions • subtract fractions • recognise, find, name and write fractions 1/3 , 1/4, 2/4 and 3/4 of a length, shape, set of objects or quantity • write simple fractions for example, 1/2 of 6 = 3 and recognise the equivalence of 2/4 and ½ Year 4: count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten. • solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number • add and subtract fractions with the same denominator • recognise and write decimal equivalents of any number of tenths or hundredths • solve simple measure and money problems involving fractions and decimals to two decimal places	Year 2: • recognise and use symbols for pounds (£) and pence (p)• combine amounts to make a particular value • find different combinations of coins that equal the same amounts of money • solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change Year 4: • estimate, compare and calculate different measures, including money in pounds and pence	Year 2: • compare and sequence intervals of time • tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times • know the number of minutes in an hour and the number of hours in a day. Year 4: • Convert between different units of measure [for example, kilometre to metre; hour to minute]	Year 2: • identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line • identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces • identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid] compare and sort common 2-D and 3-D shapes and everyday objects Year 4: • Draw polygons, specified by coordinates in the first quadrant, and translate within the first quadrant. • Identify regular polygons, including equilateral triangles and squares, as those in which the side-lengths are equal and the angles are equal. Find the perimeter of regular and irregular polygons. • Identify line symmetry in 2D shapes presented in different orientations. Reflect shapes in a line of symmetry and complete a symmetric figure or pattern with respect to a specified line of symmetry.	Year 2: • interpret and construct simple pictograms, tally charts, block diagrams and simple tables • ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity • ask and answer questions about totalling and comparing categorical data Year 4: • interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs. • solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs
Key Vocabulary	partition, split, share, group, combine, represent fractions, denominator, numerator, fractional part, and whole number. non-unit fraction', 'denominator' and 'numerator': calculate, compare, difference, equal parts, share, measure, greater than (>), equal to (=), less than (<), equivalent, fraction, whole number.) inequality	add, subtract, total, less, more, difference, convert, amount, cost, change, pounds (£), pence (p).]	o'clock, a.m./p.m., morning, afternoon, noon and midnight leap year, midnight, midday, noon, morning, afternoon, evening, night, halfway, Roman numerals, digital, am, pm, 12-hour clock, 24-hour clock, stopwatch, start time, end time, January, February, March, April, May, June, July, August,	triangle, rectangle, and square horizontal, vertical, perpendicular, parallel, clockwise, and anti-clockwise quadrilateral, parallelogram, rhombus and trapezium	bar chart', 'table' and 'pictogram': symbol, altogether, most, least, compare, half way, smallest, between, order, largest, total, column, row,, order