Orton Wistow Primary School – Curriculum Plan

Subject : Maths | **Year :** 6 | **Unit :** Number and Place Value

Vocabulary	Knowledge What children will know			Understanding What children will understand			Skills What children will be able to do		
Define the word and include etymology if useful.	Learning Remembering	Teaching Telling	Assessment Testing	Learning Practising	Teaching Coaching	Assessment Observing	Learning Reflecting	Teaching Facilitating	Assessment Evaluating
≥ greater than or equal to **≤ less than or equal to** **Roman numerals** **integer, positive, negative above/below zero,** **negative numbers** **formula -** a mathematical rule written using symbols, usually as an equation describing a certain relationship between quantities. **Divisibility -** can be divided evenly without leaving a remainder. **factorise -** the reverse of expanding brackets. **prime factor -** a prime number that divides exactly into another given number. **ascending/descending order** **digit total –** the sum of all the digits in a number, e.g. the digit total of 364 is 3+6+4 = 13	• Pupils know the value of each digit in a number up to 10 000 000 • Know why it is helpful to round numbers, e.g. when estimating calculations or when working with very large numbers such as populations. • Know where to put commas or separators when writing numbers greater than 10 000 • Pupils will know the inequality symbols < and > **Stem Sentences** One million is one thousand thousands. The _____ represents _____. The value of the _____ is _____. ***a*** is between _____ and _____. The previous multiple of one million is _____. The next multiple of one million is _____. ***a*** is nearest to _____.			• Pupils understand the importance of the placeholder in numbers • Pupils understand which place value column to look at when rounding numbers • Pupils understand which two numbers a given number lies between when rounding. • Pupils understand the convention of rounding up if numbers are exactly halfway • Pupils understand where negative numbers are used in real life contexts •			• Can use negative numbers in context and calculate intervals across zero • Can read, write, compare and order numbers up to 10 000 000 • Can round any number to a required degree of accuracy		

			
Vocabulary	**Knowledge** What children will know	**Understanding** What children will understand	**Skills** What children will be able to do
Define the word and include etymology if useful.	**Learning** Remembering / **Teaching** Telling / **Assessment** Testing	**Learning** Practising / **Teaching** Coaching / **Assessment** Observing	**Learning** Reflecting / **Teaching** Facilitating / **Assessment** Evaluating
	a is _____ when rounded to the nearest million.		

Orton Wistow Primary School – Curriculum Plan

Subject : Maths | **Year :5 /6** | **Unit :Addition and Subtraction**

			
Vocabulary	**Knowledge** What children will know	**Understanding** What children will understand	**Skills** What children will be able to do
Define the word and include etymology if useful.	**Learning** Remembering / **Teaching** Telling / **Assessment** Testing	**Learning** Practising / **Teaching** Coaching / **Assessment** Observing	**Learning** Reflecting / **Teaching** Facilitating / **Assessment** Evaluating
Addition Add, more, and, make, sum, total, altogether Double Near double Half, halve One more, two more… ten more **Addends –** the numbers added together to make the sum **Subtraction**	• Pupils will know how to use place value to line up numbers with more than 4 digits accurately • Pupils will know when an exchange is and isn't needed • Pupils know how to round numbers in order to estimate • Pupils know the most appropriate number to round to, e.g. the nearest 10, 100 or 1000	• Pupils understand '0' as a place holder	• Use manipulatives and pictorial representations to demonstrate how to add and subtract • Add and subtract increasingly larger numbers mentally • Use formal written methods to add and subtract numbers greater than 4-digits • Use rounding to estimate and check answers

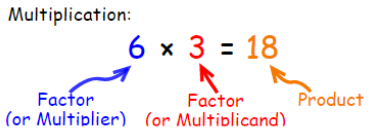
			
Vocabulary	**Knowledge** What children will know	**Understanding** What children will understand	**Skills** What children will be able to do

Define the word and include etymology if useful.	Learning Remembering	Teaching Telling	Assessment Testing	Learning Practising	Teaching Coaching	Assessment Observing	Learning Reflecting	Teaching Facilitating	Assessment Evaluating
Take away, minus, fewer, less, difference between One less, two less… ten less **Minuend –** a quantity or number from which another is to be subtracted **Subtrahend -** a quantity or number to be subtracted from another. **Equals** Is equal to, is the same as Number bonds Number pair Number facts Part, part, whole Partition Recombine Missing number Tens boundary / Hundreds boundary **Commutative** - involving the condition that a group of quantities connected by operators gives the same result whatever the order of the quantities involved, e.g. $a \times b = b \times a$. **Approximate** - something is almost, but not completely, accurate or exact; roughly	• Pupils know that addition can be done in any order but subtraction cannot **Stem Sentences** If one addend is increased by an amount and the other addend is decreased by the same amount, the sum remains the same.						• Solve addition and subtraction muti-step problems		

Orton Wistow Primary School – Curriculum Plan

Subject : Mathematics | **Year : 6** | **Unit : Multiplication and Division**

Vocabulary	Knowledge What children will know			Understanding What children will understand			Skills What children will be able to do		
Define the word and include etymology if useful.	Learning Remembering	Teaching Telling	Assessment Testing	Learning Practising	Teaching Coaching	Assessment Observing	Learning Reflecting	Teaching Facilitating	Assessment Evaluating
Multiplication Multiply Multiplied by Groups of Times Repeated addition **Multiple -** The result of multiplying a number by an integer (not by a fraction). **Common multiple -** A multiple that is common to two or more numbers. **Factor -** Numbers we can multiply together to get another number. **Common factor -** When we find the factors of two or more numbers, and then find some factors are the same ("common"), then they are the "common factors". **Multiplicand –** The number to be multiplied	• Pupils know that 'long multiplication' is an algorithm involving multiplication, then addition of partial products. • Pupils know that remainders can be expressed as a whole number, a fraction or a decimal. • Pupils know how to use a systematic approach to find all the common factors of numbers. • Pupils know that in mixed operation calculations, calculations are not carried out from left to right. • Pupils know the convention that when there is no operation sign written, this means multiply. • Pupils know when it is more efficient to carry out a mental strategy rather than a written computaional method. **Stem Sentences**			• Pupils understand that when multiplying two numbers that are multiples of 10, 100 or 1000, you multiply the number of tens, hundreds or thousands and then adjust the product using place value. e.g. 30 x 40 = 3 x 4 x 10 x 10 = 3 x 4 x 100 = 12 x 100 = 1,200 • Pupils understand the compensation property of multiplication, e.g. 5 x 8 = 10 x 4. • Pupils understand that two two-digit numbers can be multiplied by partitioning one of the factors, calculating partial products and then adding these partial products together. This can be extended to multiplying three-digit numbers by two-digit numbers. • Pupils understand how portioning in different ways, other than			• Pupils can use short multiplication to multiply numbers by a single-digit number. • Pupils can use long multiplication to multiply numbers by a two-digit number. • Pupils can multiply and divide by 10, 100, 1000 using concrete and pictorial representations and then by visualising place value charts. • Pupils can use the compensation property of multiplication to complete equations such as 0.3 x 320 = 3 x ?, and to help them solve calculations such as 0.3 x 320. • Pupils are able to list multiples of the divsor to help them solve disions more easily. • Pupils can find common factors of numbers. • Pupils can find whether or not a number up to 100 is prime.		

Vocabulary	Knowledge What children will know			Understanding What children will understand			Skills What children will be able to do		
Define the word and include etymology if useful.	Learning Remembering	Teaching Telling	Assessment Testing	Learning Practising	Teaching Coaching	Assessment Observing	Learning Reflecting	Teaching Facilitating	Assessment Evaluating
Multiplier – The number by which the multiplicand is multiplied by **Product –** The result of a multiplication  **Division** Dividing Divide Divided by Divided into Grouping Sharing Shared equally Left over Remainder Equal groups of **Dividend –** The amount that you want to divide up. **Divisor –** The number we divide by. **Quotient -** The answer after we divide one number by another. **dividend ÷ divisor = quotient.**	"If I multiply one factor by a number, I must divide the other factor by the same number for the product to stay the same." "If I multiply one factor by a number, and keep the other factor the same, I must multiply the product by the same number." "If one factor is made ten times the size, the product will be en times the size."			according to place value, supports division of larger numbers. • Pupils understand how using factor pairs can support dividing, e.g. 780 ÷ 20 = 780 ÷ 10 ÷ 2 • Pupils understand each step in the 'long division' process • Pupils understand how to change a remainder into a fraction or a decimal. • Pupils understand how to interpret the remainder, e.g. 380 ÷ 12 = 31r8 could mean 31 full packs or 32 packs needed, depending on the context. • Pupils understand how to break numbers down to their prime factors. • Pupils understand how the order of operations affects the answer.			• Pupils can solve problems involving square and cubed numbes. • Pupils can use known facts from one calculation to determine the answer to another similar calculation, e.g. 5,138 ÷ 14 = 367 use this to to calculate 367 x 15		

			
Vocabulary	**Knowledge** What children will know	**Understanding** What children will understand	**Skills** What children will be able to do
Define the word and include etymology if useful.	**Learning** Remembering / **Teaching** Telling / **Assessment** Testing	**Learning** Practising / **Teaching** Coaching / **Assessment** Observing	**Learning** Reflecting / **Teaching** Facilitating / **Assessment** Evaluating
Commutative law - The Law that says you can swap numbers around and still get the same answer when you add or when you multiply. **Ditributive law -** multiplying a number by a group of numbers added together **is the same as doing each multiplication separately.** **Prime number -** A number that is only divisible by itself and 1 to leave a whole number. **Composite number -** A whole number that can be made by multiplying other whole numbers. **Square number -** the number we get after multiplying an integer (not a fraction) by itself. **Cubed number -** The whole number is used **three times**, just like the sides of a cube. **Prime factor -** A factor that is a prime number.			

Orton Wistow Primary School – Curriculum Plan

Subject : Maths | **Year : 6** | **Unit : Algebra**

			
Vocabulary	**Knowledge** What children will know	**Understanding** What children will understand	**Skills** What children will be able to do
Define the word and include etymology if useful.	**Learning** Remembering / **Teaching** Telling / **Assessment** Testing	**Learning** Practising / **Teaching** Coaching / **Assessment** Observing	**Learning** Reflecting / **Teaching** Facilitating / **Assessment** Evaluating
Term to term rule **Variable** **Unknown** **Expression** **Equation** **Formula** **One-step equation** **Two-step equation** **Substitution** **Pairs of unknown** **enumerates**	• Pupils know that forming algebraic expressions uses letters to represent numbers. • Pupils know the convention that, for example, "3t" means 3 multiplied by t; as multiplication can represent repeated addition, this is also a simpler way of writing t + t + t.	• Pupils understand the meanings of the terms "input", "output", "function" and "rule". • Pupils understandwhy it is important that they follow the order of the functions; for example, the output of × 5 then + 3 will be different from + 3 then × 5. • Pupils understand that phrases such as "2 more than a number" can be written more simply as, for example, "x + 2" or "y + 2". • Pupils understand that the same expression can have different values depending on what number is substituted into it. • Pupils understand the difference between a formula and an expression, noticing that an expression does not have the equals sign, but a formula does. • Pupils understand that an expression, such as 2x + 6, changes value depending on the value of x, whereas in an equation, such as 2x + 6 = 14, x has a specific value. • Pupils understand that using inverse operations helps to solve equations.	• Pupils can find the input from a given output, using inverse operations. • Pupils can find numbers where the input is given and they need to find the output, using a mix of any of the four operations. • Pupils can find a rule. • Pupils can solve problems where the input and output are given, but one of the two functions is missing. • Pupils canfind values of expressions by substituting numbers in place of the letters. • Pupils can substitute numbers into abstract algebraic expressions such as 3a + 1. • Pupils can use substitution to work out pairs of possible values. For example, if x + y = 9, they find the values of y for different values of x. • Pupils can work systematically to find all the possible integer values.

			
Vocabulary	**Knowledge** What children will know	**Understanding** What children will understand	**Skills** What children will be able to do
Define the word and include etymology if useful.	**Learning** Remembering **Teaching** Telling **Assessment** Testing	**Learning** Practising **Teaching** Coaching **Assessment** Observing	**Learning** Reflecting **Teaching** Facilitating **Assessment** Evaluating
		• Pupils understand that equations with two unknown values can have several possible solutions.	

Orton Wistow Primary School – Curriculum Plan

Subject : Mathematics | **Year : 6** | **Unit : Decimals**

			
Vocabulary	**Knowledge** What children will know	**Understanding** What children will understand	**Skills** What children will be able to do
Define the word and include etymology if useful.	**Learning** Remembering **Teaching** Telling **Assessment** Testing	**Learning** Practising **Teaching** Coaching **Assessment** Observing	**Learning** Reflecting **Teaching** Facilitating **Assessment** Evaluating
tenths **hundredths** **thousandths** **decimal** **decimal fraction** **decimal point** **decimal place** **decimal equivalent**	• Pupils know what the decimal point means. • Pupils know how many tenths, hundredths and thousandths are in a number. • Pupils know that when multiplying and dividing decimal numbers by multiples of 10, the decimal point does not move. • Pupils know that numbers such as 2.4 and 2.40 are the same.	• Pupils understand the relationship between ones, tenths, hundredths and thousandths, e.g. 3 tenths is the same as 30 hundredths. • Pupils understand the importance of zero as a place holder when calculating with decimal numbers. • Pupils understand how finding an equivalent fraction where the denominator is 10, 100 or 1000 makes it easier to convert from a fraction to a decimal.	• Pupils can read and write decimal numbers up to thousandths. • Pupils can multiply numbers with up to 3 decimal places by 10, 100 and 1000. • Pupils can calculate with decimals and use these in context, making links to money and measure. • Pupils can convert fractions to tenths, hundredths and thousandths.

			
Vocabulary	**Knowledge** What children will know	**Understanding** What children will understand	**Skills** What children will be able to do
Define the word and include etymology if useful.	**Learning** Remembering / **Teaching** Telling / **Assessment** Testing	**Learning** Practising / **Teaching** Coaching / **Assessment** Observing	**Learning** Reflecting / **Teaching** Facilitating / **Assessment** Evaluating
	• Pupils know common fractions such as thirds, quarters, fifths and eigths as decimals. • Pupils know the line in the fraction is the same as divided by e.g. ¾ is the same as 3 ÷ 4. **Stem Sentences** 1 is 10 times the size of one-tenth. One-tenth is 10 times the size of one-hundredth. 1 is 100 times the size of one-hundredth. 10 tenths is equal to 1 one. 10 hundredths is equal to 1 tenth. 100 hundredths is equal to 1 one. 18 hundredths is equal to 10 hundredths and 8 more hundredths. 10 hundredths is equal to 1 tenth. So 18 hundredths is equal to 1 tenth and 8 more hundredths, which is 0.18. Three hundredths is zero-point-zero-three.		• Pupils can use short division method to convert fractions to decimals.

			
Vocabulary	**Knowledge** What children will know	**Understanding** What children will understand	**Skills** What children will be able to do
Define the word and include etymology if useful.	**Learning** Remembering / **Teaching** Telling / **Assessment** Testing	**Learning** Practising / **Teaching** Coaching / **Assessment** Observing	**Learning** Reflecting / **Teaching** Facilitating / **Assessment** Evaluating
	___.___ *is equivalent to* $\frac{\square}{\square}$. *We know that* $\frac{\square}{\square} < \frac{\square}{\square}$, *so* ___.___ < $\frac{\square}{\square}$. $\frac{\square}{\square}$ *is equivalent to* ___.___. *'We know that* ___.___ < ___.___, so ___.___ < $\frac{\square}{\square}$.		

Orton Wistow Primary School – Curriculum Plan

Subject : Mathematics | **Year : 6** | **Unit : Fractions**

			
Vocabulary Define the word and include etymology if useful.	**Knowledge** What children will know Learning: Remembering Teaching: Telling Assessment: Testing		**Understanding** What children will understand Learning: Practising Teaching: Coaching Assessment: Observing			**Skills** What children will be able to do Learning: Reflecting Teaching: Facilitating Assessment: Evaluating		
fraction **unit fraction –** a fraction with a numerator of 1 **Non-unit fraction –** a fraction where the numerator is greater than or equal to the denominator (equal to or greater than one whole) **Proper fraction –** a fraction where the numerator is smaller than the denominator (less than one whole) **improper fraction – a fraction where the numerator is larder than the denominator** **equivalent fraction –** equal in value **Simplify –** to make a fraction as simple as possible, e.g. 2/10 can be simplified to 1/5 by dividing both top and bottom by 2 (and that is as far as we can go) **Simplest form -** A fraction is in simplest form when the top and bottom cannot be any smaller, while still being whole numbers. **mixed number –** a whole number and a fraction combined into one number **numerator,**	• Pupils know that when calculating fractions, they need to simplify their answers. • Pupils know that when a numerator or denominator are prime numbers, a fraction cannot be simplified any further. • Pupils know that when comparing mixed numbers, they start by comparing the whole numbers. • Pupils know that when the numerators are the same, the larger the denominator, the smaller the fraction. • Pupils know that they have to make the denominators the same and change the numerators accordingly before addition or subtraction can be performed. • Pupils know that multiplying a number by a half is the same as dividing by 2. • Pupils know that – of ___ is the same as – x ___. **Stem Sentences** A fraction can be simplified when the numerator and denominator have a common factor other than 1. To convert a fraction to its simplest form, divide both the numerator and the denominator by their highest common factor.	• Pupils understand how to use the highest common factor to simplify fractions. • Pupils understand how to use their number sense to visualise the size of fractions before converting when comparing and ordering fractions. • Pupils understand how to make the denominators the same in order to compare and order fractions. • Pupils understand how to find the lowest common multiple to find common denominators. • Pupils understand the link between dividing fractions by integers to multiplying by unit fractions.	• Pupils can represent fractions using different pictorial representations. • Pupils can use a diagram to compare fractions. • Pupils can use 1/2 to compare fractions. • Pupils can arrange fractions from smallest to largest and vice versa. • Pupils are able to convert a mixed number into an improper fraction and vice versa. • Pupils can multiply simple pairs of fractions using diagrams. • Pupils can use concrete materials and pictorial representations to divide a fraction by a whole number. • Pupils can show division of fractions using pictures. • Pupils can check their division by using multiplication of fractions. • Pupils can use equivalent fractions to divide fractions where the numerator is not a multiple of the interger they are dividing by. • Pupils can invert the whole number into a fraction to use multiplication to solve.

			
Vocabulary	**Knowledge** What children will know	**Understanding** What children will understand	**Skills** What children will be able to do
Define the word and include etymology if useful.	**Learning** Remembering / **Teaching** Telling / **Assessment** Testing	**Learning** Practising / **Teaching** Coaching / **Assessment** Observing	**Learning** Reflecting / **Teaching** Facilitating / **Assessment** Evaluating
common numerator – when two or more fractions have the same numerator **denominator** **common denominator –** when two or more fractions have the same denominator **equal part** **equal grouping** **equal sharing** **parts of a whole** **half, two halves** **one of two equal parts** **quarter, two quarters, three quarters** **one of four equal parts** **one third, two thirds** **one of three equal parts** **sixths, sevenths, eighths, tenths, hundredths, thousandths…**	We need to compare the denominators of $\frac{1}{5}$ and $\frac{4}{15}$. 15 is a multiple of 5. We can use 15 as the common denominator. We need to express both fractions in fifteenths. If one denominator is not a multiple of the other, we can multiply the two denominators to find a common denominator. We need to compare the denominators of $\frac{1}{3}$ and $\frac{3}{8}$. 8 is not a multiple of 3. 24 is a multiple of both 3 and 8. We can use 24 as the common denominator. We need to express both fractions in twenty-fourths. If the denominators are the same, then the larger the numerator, the larger the fraction. If the numerators are the same, then the larger the denominator, the smaller the fraction.		

Orton Wistow Primary School – Curriculum Plan

Subject : Mathematics | **Year : 6** | **Unit : Percentages**

			
Vocabulary	**Knowledge** What children will know	**Understanding** What children will understand	**Skills** What children will be able to do
Define the word and include etymology if useful.	**Learning** Remembering / **Teaching** Telling / **Assessment** Testing	**Learning** Practising / **Teaching** Coaching / **Assessment** Observing	**Learning** Reflecting / **Teaching** Facilitating / **Assessment** Evaluating
Proportion **in every, for every** **per cent, % -** out of one hundred. Derived from the Latin per centum, meaning "hundred" or "by the hundred". **percentage,**	• Pupils know that per cent means "out of a hundred". • Pupils know the symbol % • Pupils know that to find 10% of a number you must divide by 10. • Pupils know that converting a decimal to a fraaction is helpful when converting to percentages. • Pupils know to convert fractions, decimals and percentages to the same form so that they can be more easily ordered and compared. **Stem Sentences** 50% = ½ so we divide into 2 equal parts. 25% = ¼ so we divide into 4 equal parts. 20% = 1/5 so we divide into 5 equal parts. 10% is equivalent to 1/10. To find 10% of an amount, divide by 10. 1% is equivalent to 1/100. To find 1% of an amount, divide by 100.	• Pupils understand that percentage is a measure of proportion. • Pupils understand that 'per cent' relates to 'number of parts per hundred'. • Pupils understand the connection of percentages, fractions and decimals. • Pupils understand the difference between tenths and hundredths and their equivalent percentages, e.g. understanding that 0.1 is 10% not 1%. • Pupils understand there may be more than one way to solve a problem involving percentages and some ways are more efficient than others. • Pupils understand how to find the whole when they are given a percentage, e.g. If 10% of a number is 7, what is the number?	• Pupils can draw bar models to represent a quantity as 100% • Pupils can determine multiples of 10% of a number or quantity using the bar model. • Pupils can find percentages of amounts, e.g. 35% by finding multiples of 10% and other known percentages. • Pupils can convert fractions to equivalent fractions where the denominator is 100 in order to find the percentage equivalent. $\frac{12}{50} = \frac{\square}{100} = \square\ \%$ • Children can convert between fractions, decimals and percentages to enable them to order and compare them. • Pupils can use a bar model to show an increase and decrease in amounts.

Orton Wistow Primary School – Curriculum Plan

Subject : Maths | **Year : 6** | **Unit : Ratio**

			
Vocabulary	**Knowledge** What children will know		**Understanding** What children will understand			**Skills** What children will be able to do		
Define the word and include etymology if useful.	**Learning** Remembering	**Teaching** Telling	**Assessment** Testing	**Learning** Practising	**Teaching** Coaching	**Assessment** Observing	**Learning** Reflecting	**Teaching** Facilitating	**Assessment** Evaluating
Ratio **Proportion** **"for every… there are…"** **Part** **Whole** **Scale factor** **Enlargement** **Similar shapes** **Length** **Width** **perimeter**	• Pupils know that ratio represents a multiplicative relationship between two amounts. • Pupils know the ratio symbol as a colon. • Pupils know that the wording, "For every , there are " can be written as : . • Pupils know, and convey in their answers, which number refers to which value. • Pupils know that simplifying ratios is similar to simplifying fractions and that both involve dividing by common factors. • Pupils know that one shape is an enlargement of another if all the matching sides are in the same ratio. • Pupils know that similar shapes are shapes where corresponding sides are in the same proportion and the corresponding angles are equal, so if one shape is an enlargement of the other, the two shapes are similar.			• Pupils understand that the relationship between two numbers can be expressed additively or multiplicatively. For example, the relationship between 3 and 9 can be expressed as an addition (3 + 6 = 9) or a multiplication (3 × 3 = 9). • Pupils understand the inverse relationships related to each of these, for example 9 − 6 = 3 and 9 ÷ 3 = 3. • Pupils understand multiplicative relationships by using the language such as "3 times the size" and "a third of the size". • Pupils understand how one value is related to another by making simple comparisons, such as: "For every 2 blue counters, there are 3 red counters." • Pupils understand that the order in which the notation is used is important. For example, for every 2 red cubes there are 3 blue cubes, so red to blue is 2 : 3. For every 3 blue cubes, there are 2 red cubes, so blue to red is 3 : 2.			• Pupils can complete sequences of numbers, deciding whether each relationship is additive or multiplicative. • Pupils can relate ratio to their understanding of simplifying fractions. • Pupils can explore ratio when given a fraction as a starting point. For example, they are told that 1/ 4 of a group of objects is blue, and they need to find the ratio of blue to not blue. • Pupils can explore different ways of calculating scaled lengths using multiplicative relationships between numbers. For example, if 3 cm represents 9 cm, then to find what 6 cm represents they can either multiply 9 cm by 2 or multiply 6 cm by 3 to find the result, 18 cm. • Pupils can use familiar language such as "3 times as big" before being introduced to the language of scale factors, for example "enlarged by a scale factor of 3".		

								
Vocabulary	**Knowledge** What children will know			**Understanding** What children will understand			**Skills** What children will be able to do		
Define the word and include etymology if useful.	**Learning** Remembering	**Teaching** Telling	**Assessment** Testing	**Learning** Practising	**Teaching** Coaching	**Assessment** Observing	**Learning** Reflecting	**Teaching** Facilitating	**Assessment** Evaluating
	• Pupils know that when they multiply or divide from one amount to another, they do the same for the other value to keep the ratios equivalent.			• Pupils understand that the same ratio can be written in different forms, for example 4 : 6 can be written as 2 : 3. • Pupils understand the differences and similarities between ratios and fractions. Pupils understand that a ratio compares one item with another, whereas fractions compare each part with the whole. • Pupils understand if diagrams are accurately scaled or if the proportion of the dimensions has been changed. • Pupils understand the language of "Each square represents …" to explain the relationship between the original image and its scale drawing.			• Pupils can draw the result of an enlargement by a given scale factor. • Pupils can identify the scale factor of an enlargement when presented with both images. • Pupils can use the inverse operations to find the dimensions of the original shape given the size of the enlargement. • Pupils can represent problems using bar models.		

Orton Wistow Primary School – Curriculum Plan

Subject : Maths | **Year : 6** | **Unit : Statistics**

			
Vocabulary	**Knowledge** What children will know	**Understanding** What children will understand	**Skills** What children will be able to do
Define the word and include etymology if useful.	**Learning** Remembering / **Teaching** Telling / **Assessment** Testing	**Learning** Practising / **Teaching** Coaching / **Assessment** Observing	**Learning** Reflecting / **Teaching** Facilitating / **Assessment** Evaluating
bar chart, pictogram **frequency table, tally chart** **pie chart** **discrete data, continuous data** **line graph** **sum, difference** **comparison** **interpret** **mean** **average**	• Pupils know they can only read off approximate values for data that lies between two marked points, which is why a dashed line is used. • Pupils know that time is usually shown on the horizontal axis. • Pupils know that dual bar charts are used to compare data. • Pupils know that pie charts are used to represents information as part of a whole. • Pupils know that a whole pie chart represents 100% of the data, so one half represents 50%, one quarter represents 25% and so on. • Pupils know the mean as an average. • Pupils know the formula: mean = total number ÷ number of items.	• Pupils understand what each axis will represent • Pupils understand the appropriate scales based on the numbers given. • Pupils understand the importance of a key to ensure that the bar charts can be interpreted. • Pupils understand that bar charts may show the numbers of most/least popular items quickly, whereas pie charts show something as more/less than a half/quarter etc. of the total. • Pupils understand percentages, in the context of pie charts. • Pupils understand efficient strategies for finding multiples of 10%, 20% and 25%. • Pupils understand they can work out the value of t sections, using either the total or proportional reasoning (for example, knowing 40% must be 8 times the size of 5%). • Pupils understand that they use division to work out how many degrees represent each item of data, and then multiplication to find the angle for each sector. • Pupils understand what an average is and why averages are useful to summarise sets of data. • Pupils understand how the mean is calculated, using addition and division skills.	• Pupils draw line graphs using given information. • Pupils can answer problems involving line graphs. • Pupils can infer what has happened in a given situation based on the information provided in the line graph. • Pupils can interpret simple pie charts to identify the greatest/ least amounts. • Pupils can use the total number represented by a pie chart to work out what each equal part is worth. • Given the value of one part, pupils can work out the total and/or the values of other parts of the pie chart. • Pupils can interpret pie charts where the total number is not given, and they need to work out the total from a given percentage. • Pupils can draw simple pie charts, with each part being worth 50% or 25%, where they can easily see one half and one quarter of the chart. • Pupils can construct pie charts where guidelines are provided, firstly in 10% intervals and then at 1% intervals.

Subject : Mathematics | **Year : 6** | **Unit : Position and Direction**

			
Vocabulary	**Knowledge** What children will know	**Understanding** What children will understand	**Skills** What children will be able to do
Define the word and include etymology if useful.	**Learning** (Remembering) / **Teaching** (Telling) / **Assessment** (Testing)	**Learning** (Practising) / **Teaching** (Coaching) / **Assessment** (Observing)	**Learning** (Reflecting) / **Teaching** (Facilitating) / **Assessment** (Evaluating)
Coordinates **Axes** **X axis** **Y axis** **Origin (0,0)** **Quadrant** **First quadrant** **Four quadrants** **Negative numbers** **clockwise, anticlockwise** **compass point** **north, south, east, west, N, S, E, W** **north-east, north-west, south-east, south-west, NE, NW, SE, SW** **horizontal, vertical, diagonal** **translate, translation** **movement** **whole turn, half turn, quarter turn, three-quarter turn** **rotate, rotation** **angle, is a greater/smaller angle than** **degree** **right angle** **acute angle** **obtuse angle** **Symmetry, symmetrical, line of symmetry** **reflection** **straight line**	• Pupils know the point (0,0) is know as the origin. • Pupils know which way to move along the axis to find negative coordinates. • Pupils know that the order of the coordinates is (x, y). • Pupils know that to find where a reflected point is located, you can use a mirror or count how far the point is away from the mirror line. • Pupils know that when translating shapes, you should focus on one vertex at a time. • Pupils know when translating shapes, you move along the X axis first (left/right) and then along the Y axis (up/down) • Pupils know the difference between reflection and translation.	• Pupils understand negative numbers in context of reading scales in four quadrants. • Pupils understand how to find the length of a line by using the coordinates of its two end points. • Pupils understand the coordinate is fixed (does not move) wheras a point can be plotted at different coordinates, so it can be moved. • Pupils understand that (0, 0) is where we start measuring the coordinates from.	• Pupils can place positive numbers on a number line. • Pupils can place negative numbers on a number line. • Pupils can determine the difference between positive and negative numbers using a number line. • Pupils can describe the positions of points on a coordinate grid. • Pupils can record the positions of points on a coordinate grid accurately. • Pupils can reflect a shape across a horizontal mirror line. • Pupils can reflect a shape across a vertical mirror line. • Pupils can identify the coordinates of figures on a grid. • Pupils can identify the vertex of a square and its opposite vertex. • Pupils can determine the difference between the coordinates of a vertex and its opposite vertex. • Pupils can express the change in coordinates between opposite vertices using algebra.

Orton Wistow Primary School – Curriculum Plan

Subject : Mathematics | **Year : 6** | **Unit : Properties of Shape**

Vocabulary	Knowledge What children will know			Understanding What children will understand			Skills What children will be able to do		
Define the word and include etymology if useful.	Learning Remembering	Teaching Telling	Assessment Testing	Learning Practising	Teaching Coaching	Assessment Observing	Learning Reflecting	Teaching Facilitating	Assessment Evaluating
2-D shape **Polygon (from Greek "many-angled)** **Quadrilateral (Latin quadrilaterus, from quadri- "four" and latus "the side, flank of humans or animals, lateral surface,")** **Regular, irregular** **Vertex, vertices** **sides** **point, pointed** **Triangles** **Isosceles (Greek *isoskelēs*, from *isos* 'equal' + *skelos* 'leg'.)** **Scalene (Greek *skalēnos* 'unequal'; related to *skolios* 'bent'.)** **Equilateral (Latin *aequilateralis*, from *aequilaterus* 'equal-sided')** **Quadrilaterals** **Square** **Rectangle** **Rhombus** **Parallelogram** **Trapezium** **3-D shape**	• Pupils know how to line up a protractor accurately. • Pupils know there are two right-angles on a straight line and four right-angles around a point. • Pupils know the notation for right-angles. • Pupils know that vertically opposite angles are equal. • Pupils know that the opposite angles in a rhombus are equal.			• Pupils understand whether to read the inside or outside scale of a protractor when measuring angles. • Pupils understand that vertically opposite angles share a vertex and are therefore equal. • Pupils understand how to find missing angles. • Pupils understand that the internal angles of a triangle can be arranged along a straight line and therefore add together to equal 180 degrees.  • Pupils understand that the internal angles of a quadrilateral can be arranged around a point and therefore add together to make 360 degrees.  • Pupils understand the realtionship between a rectangle, a			• Pupils can read and measure angles accurately using a protractor. • Pupils are able to calculate missing angles on a straight line or around a point. • Pupils are able to calculate missing angles in a triangle. • Pupils can draw shapes accurately using squared, dotted paper and using protractors. • Pupils can identify 3D shapes from their nets. • Pupils can use measuring tools and conventional markings to draw nets accurately.		

			
Vocabulary	**Knowledge** What children will know	**Understanding** What children will understand	**Skills** What children will be able to do

Define the word and include etymology if useful.	Learning Remembering	Teaching Telling	Assessment Testing	Learning Practising	Teaching Coaching	Assessment Observing	Learning Reflecting	Teaching Facilitating	Assessment Evaluating
Face **Edge** **vertex, vertices** **apex** **prism** **net** **<u>Angle</u>** **Right-angle** **Acute** **Obtuse** **Reflex** **Clockwise** **Anti-clockwise** **protractor** **<u>Line</u>** **Horizontal** **Vertical** **Parallel** **Perpendicular**				parallelogram, a square and a rhombus. • Pupils understand that a net is a two-dimensional figure that can be folded to make a three-dimensional shape.					

Orton Wistow Primary School – Curriculum Plan

Subject : Mathematics | **Year : 6** | **Unit : Measures**

			
Vocabulary	**Knowledge** What children will know	**Understanding** What children will understand	**Skills** What children will be able to do
Define the word and include etymology if useful.	**Learning** Remembering **Teaching** Telling **Assessment** Testing	**Learning** Practising **Teaching** Coaching **Assessment** Observing	**Learning** Reflecting **Teaching** Facilitating **Assessment** Evaluating
length **centimetre** **metre** **millimetre** **kilometre** **mile** **foot, feet** **inch, inches** **weight** **mass** **tonne** **kilogram** **gram** **pound** **ounce** **capacity** **volume** **litre** **millilitre** **centilitre** **a.m., p.m.** **digital/analogue clock/watch, timer** **12-hour clock time, 24-hour clock time**	• Pupils know which operation to use when converting a smaller unit of measurement to a larger one and vice versa. • Pupils know the difference between capacity (the amount an object can contain) and volume (the amount actually in an object). • Pupils know the unit of measure that would be the most appropriate to measure different items. • Pupils know that: 5 miles is approximately equal to 8 km. 1 foot is equal to 12 inches 1 pound is equal to 16 ounces 1 stone is equal to 14 pounds 1 gallon is equal to 8 pints 1 inch is approximately 2.5 cm • Pupils know the symbol '≈' as "is approximately equal to". **Stem Sentences** There are 1000 grams in a kilogram so to convert grams to Kilograms we divide by 1000. There are 100 centimetres in a metres so when we convert centimetres to metres, we divide by 100.	• Pupils understand the link between multiplying and dividing by 10, 100 and 1,000 when converting between units of length, mass and capacity. • Pupils understand the role of zero as a place holder when performing some calculations, as questions will involve varied numbers of decimal places. • Pupils understand how to work out what each mark is worth on a scale.	• Children read, write and recognise all metric measures for length, mass and capacity. • Pupils can convert between metres,centimetres and millimetres; litres and millilitres; kilograms and grams; seconds, minutes and hours etc • Pupils can use a ruler to measure 2-D shapes. • Pupils can use decimals to express units of measure when converting. • Pupils can compare measurements in different units and determine 'greater than', 'less than' and 'equal to'. • Pupils can find approximate conversions from miles to km and from km to miles. • Pupils can perform related conversions, both within imperial measures and between imperial and metric. • Pupils can determine how many seconds there are in a minute, how many minutes in an hour, how many hours in a day, and so on. • Pupils can find fractions of time and convert these into decimals using division.

Orton Wistow Primary School – Curriculum Plan

Subject : Maths | **Year : 6** | **Unit : Area, perimeter and volume**

Vocabulary	Knowledge What children will know			Understanding What children will understand			Skills What children will be able to do		
Define the word and include etymology if useful.	Learning Remembering	Teaching Telling	Assessment Testing	Learning Practising	Teaching Coaching	Assessment Observing	Learning Reflecting	Teaching Facilitating	Assessment Evaluating
perimeter **area** **volume** **cubic units (e.g. cm3)** **cuboid** **width length** **rectangle rectilinear** **parallelogram** **perpendicular height**	• Pupils know the differences between area and perimeter. • Pupils know the formula A = L X W to find areas of rectangles. • Pupils know methods for finding the perimeters and areas of rectangles and rectilinear shapes and compare their efficiency. • Pupils know whether they need to add or subtract to find the area of a rectilinear shape. • Pupils know the formula area = ½ × base × perpendicular height. • Pupils know the properties of a parallelogram and compare to a rectangle. • Pupils know that the area of a parallelogram can be found by using the formula area = base × perpendicular height. • Pupils know they can find the volume by multiplying the volume of a single layer by the number of equal layers. • Pupils know the formula: volume of cuboid = length × width × height. •			• Pupils understand that shapes can look different but still have the same area. • Pupils understand when multiplication can be used to find the areas of shapes. • Pupils understand they can use factor pairs rather than relying on counting squares to calculate and draw rectangles that have the same area. • Pupils understand that when finding the area of a rectilinear shape, they look for the most efficient way to split the shape rather than always splitting it the same way. • Pupils understand how to calculate unknown side lengths. • Pupils understand when it may be efficient to find the area of a rectilinear shape by subtracting the missing part from the area of a whole rectangle. • Pupils understand the links between the area of a rectangle and the area of a triangle. • Pupils understand that a right-angled triangle with the same length and perpendicular height as a rectangle has an area that is half the area of the rectangle.			• Pupils can find the areas of shapes by counting squares and then identify shapes that have the same area. • Pupils can estimate the areas of triangles that involve sections of squares greater and less than half. • Pupils can create their own triangles with a specific area. • Pupils can identify the correct parts of the triangle. • Pupils can find the areas of triangles where only the base and perpendicular height are given. • Pupils can find the areas of triangles where more measurements are given. • Pupils can use multiplication to find the number of cubes in one "layer" of the shape and then multiply this by the number of layers to find the total volume. • Pupils can find the most efficient method to calculate the volume using the associative law of multiplication.		

			
Vocabulary	**Knowledge** What children will know	**Understanding** What children will understand	**Skills** What children will be able to do

Define the word and include etymology if useful.	Learning Remembering	Teaching Telling	Assessment Testing	Learning Practising	Teaching Coaching	Assessment Observing	Learning Reflecting	Teaching Facilitating	Assessment Evaluating
				• Pupils understand that the perpendicular height is not always the length of one of the sides. • Pupils understand that the base is not always at the bottom of a triangle and sometimes there may be more than one possible calculation they could use to find the area. • Pupils understand how the parts of the parallelogram can be rearranged to make a rectangle in which the length and width correspond to the base and perpendicular height of the parallelogram. • Pupils understand the relationship between the total volume of a cuboid and its length, width and height.				