

St Peter's CE Middle School Curriculum Overview

Subject: Maths

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	<b>Topic:</b> Number	<b>Topic:</b> Number	<b>Topic:</b> Number	<b>Topic:</b> Number Measurement	<b>Topic:</b> Geometry Number	<b>Topic:</b> Number Measurement
	<b>Concept:</b> Place Value Addition and Subtraction	<b>Concept:</b> Multiplication and Division Fractions	<b>Concept:</b> Multiplication and Division Fractions Decimals and percentages	<b>Concept:</b> Decimals and Percentages Perimeter & Area Statistics	<b>Concept:</b> Shape Position and direction Decimals	<b>Concept:</b> Decimals Negative numbers Converting units Volume
<b>Year 5</b>	<b>Skills:</b> Read, understand, write, order and compare numbers up to 1 000 000.  Find powers of 10 and 10/100/1000/ 10,000/ 100,000 more or less  Number line to 1, 000, 000  Solve roman numerals to 1, 000  Rounding to the nearest 10, 100, 1000, 10,000 and 100,000.	<b>Skills:</b> Multiply and divide mentally using known facts.  Identify multiples and factors and use these terms with understanding.  Find common factors of two whole numbers  Identify prime numbers and explain how they are different from composite numbers  Understand the meaning of square and cube numbers and be able to use their notations. Multiply and divide	<b>Skills:</b> Use a formal written method for multiplication and division up to four digits and with remainders. (Multiply 4-digit by 2-digit and divide 4-digit by 1-digit)  Understand the relationship between multiplication and division and use the inverse to check answers.  Multiply proper fractions and mixed numbers supported	<b>Skills:</b> Recognise and use thousandths and relate them to tenths, hundredths and other decimal equivalences  Read, write, order and compare decimal up to three places.  Round decimals up to two places to the nearest whole number and one decimal place.  Recognise the per cent symbol and understand that percent relates to number or parts per hundred.	<b>Skills:</b> Measure and draw given angles and measure them in degrees accurately  Know and identify the features of triangle, rectangle and regular polygons.  Identify angles at a point, around a point, on a straight line and in a triangle.  Know the difference between regular and irregular polygons.  Use the properties of rectangles to find missing lengths and angles in shapes	<b>Skills:</b>  solve problems involving numbers up to three decimal places.  Solve problems which require knowing percentage and decimal equivalence e.g. $\frac{1}{2}$ , $\frac{1}{4}$ , $\frac{1}{5}$  To understand negative numbers and solve problems  Convert between different unit of metric measure e.g. km and m, l and ml etc. Understand how to

<p>Add and subtract mentally using increasingly larger numbers.</p> <p>Using a formal written method to add and subtract numbers with more than four digits.</p> <p>Solving multi-step problems using rounding, inversion and estimation to check reliability and accuracy of answers.</p>	<p>whole numbers by 10, 100 and 1000.</p> <p>Use knowledge of multiples of 10, 100 and 1000 to answer related questions.</p> <p>Identify, name and write equivalent fractions.</p> <p>Compare and order fractions greater and less than 1</p> <p>Add and subtract fractions with the same denominator</p> <p>Add 3 or more fractions by finding a common denominator</p> <p>Add and subtract fractions to a mixed number including two mixed numbers</p>	<p>by concrete/pictorial resources.</p> <p>Multiply unit and non-unit fractions by an integer</p> <p>Multiply mixed numbers by integers</p> <p>Calculations fractions of quantity</p> <p>Find fractions of an amount</p> <p>Read and write decimal numbers as fractions.</p>	<p>Write percentages as a fraction (out of 100).</p> <p>Measure and calculate perimeter of rectilinear shapes and apply this knowledge to calculate unknown side lengths.</p> <p>Find the area of rectangles, compound shapes and irregular shapes.</p> <p>Read, interpret and draw bar charts and line graphs as well as two-way tables</p> <p>Solve comparison, sum and difference problems using bar charts and line graphs.</p> <p>Complete, read and interpret information in tables, including timetables.</p>	<p>Identify 3D shapes, including cubes and cuboids using knowledge of 2D shapes.</p> <p>Read, write and plot co-ordinates in the first quadrant</p> <p>Identify, describe and represent the position of a shape following a reflection or translation.</p> <p>Adding (crossing the whole) and subtracting decimals including with the same number of decimal places</p> <p>To complete decimal sequences</p> <p>Multiplying and dividing decimals by 10, 100 and 1000.</p>	<p>use equivalences between metric units and common imperial units such as inches, pounds and pints.</p> <p>Solve problems involving converting between units of time.</p> <p>To know what the volume (cubes/ cuboids) and to compare and estimate volume including finding the capacity.</p>
<p><b>Outcome:</b> To use mental and written methods for addition and subtraction efficiently</p>	<p><b>Outcome:</b> To be able to multiply and divide mentally To be able to use fraction understanding to add and subtract any fraction</p>	<p><b>Outcome:</b> To use mental and written methods for multiplication and division including fractions</p>	<p><b>Outcome:</b> To read, write, order, compare and round decimals To understand what a percent is To interpret, read and solve information in tables, charts, graphs</p>	<p><b>Outcome:</b> To be able to use a protractor to draw, measure and find missing angles</p>	<p><b>Outcome:</b> To be able to convert between different units of measure including metric and imperial</p>

<b>Year 6</b>	<b>Autumn 1</b>	<b>Autumn 2</b>	<b>Spring 1</b>	<b>Spring 2</b>	<b>Summer 1</b>	<b>Summer 2</b>
	<b>Topic: Number</b>	<b>Topic: Number Measurement</b>	<b>Topic: Number</b>	<b>Topic: Number Measure</b>	<b>Topic: Geometry</b>	<b>Topic: Consolidation SATS Y7 Sequences</b>
	<b>Concept: Place Value Addition Subtraction Multiplication Division</b>	<b>Concept: Fractions Converting Units</b>	<b>Concept: Ratio Algebra Decimals</b>	<b>Concept: Fraction, decimals and percentages Area, perimeter and volume Statistics</b>	<b>Concept: Shape Position and Direction</b>	<b>Concept: Revision of topics Sequences</b>
	<b>Skills:</b>  Read, write, order and compare numbers up to 10,000,000.  Find powers of 10  Compare and order any digit and determine the value of each digit.  Rounding whole numbers to a required degree of accuracy.  Use negative numbers in context	<b>Skills:</b>  Find equivalent and common factors to simplify fractions and common multiples to find equivalences.  Compare and order fractions, including fractions > 1  Add and subtract fractions with different denominators and mixed fractions.  To solve multi-step problems with fractions Multiply integers with fractions	<b>Skills:</b>  Use ratio language – 'For every'  Use objects and diagrams to compare ratios and fractions.  Use the colon notation as the ratio symbol, and link the language 'for every'  Begin to calculate ratios to find both a part and a whole.  Enlarge shapes using scale factors Find scale factors when given similar shapes	<b>Skills:</b>  Convert fraction to percentage using equivalent fraction to ensure denominator is 100  Find common equivalent fraction, percentage and decimals  Convert between fractions, percentages and decimals to compare and order  Find percentage of an amount starting with 50%, 25%, 10% and 1% only and	<b>Skills:</b>  Measure with a protractor  Draw lines and angles accurately  To know the total angles on a straight line  To know angles around a point equal to 360 °  Recognise that vertically opposite angles share a vertex  Explore interior angles of a triangle which add up to 180 degrees.	<b>Skills:</b>  Investigations and Problem solving Across a range of topics  Develop calculator skills

	<p>and calculate intervals across zero. Add and subtract any integer</p> <p>Find common factors, multiples including prime, square and cube numbers</p> <p>Multiply multi-digit numbers using the formal written method up to 4 by 2 digit</p> <p>Use short and long division including with remainders</p> <p>Solve multi-step problems with the four operations</p> <p>To use order of operations</p>	<p>Multiply simple pairs of proper fractions, writing the answer in its simplest form.</p> <p>Divide fractions by integers</p> <p>Find fraction of amounts including finding the whole</p> <p>To convert and calculate with metric measures including miles and kilometres</p> <p>To convert between imperial measures</p>	<p>Solve ratio and proportion problems</p> <p>Find and solve one and two step rules and equations</p> <p>To form expressions and using the concept of substitution</p> <p>Understand place value up to 3 decimal places</p> <p>Multiply and Divide whole numbers and decimals by 10,100 and 1000</p> <p>Multiply and Divide decimals by integers</p> <p>Apply understanding of division to solve problems using division up to 2 decimal places.</p> <p>Convert a decimal to a fraction and simplify</p> <p>Convert fraction to decimal finding the equivalent fraction</p>	<p>then building onto multiples of 10% and 5%</p> <p>Use inverse to find missing values when solving a percentage problem</p> <p>Find and draw rectilinear shapes that have the same area.</p> <p>Calculate area and perimeter of rectilinear shapes</p> <p>Explore that shapes with the same area can have the same or different perimeters.</p> <p>Work out the area of different triangles by counting.</p> <p>Use the formula, <math>\text{base} \times \text{perpendicular height} \div 2</math> to calculate the area of a variety of triangles Find the area of a parallelogram.</p> <p>Find volume of cuboids by counting</p>	<p>Find missing angles in right angle triangles and isosceles triangles</p> <p>Explore angles in quadrilateral that add up to 180</p> <p>Explore angles in polygons</p> <p>Draw shapes accurately Identify nets of 3D shapes</p> <p>Describe positions on the full coordinate grid.</p> <p>Describe positions on a four-quadrant grid.</p> <p>Draw and translate simple shapes on the coordinate plane and reflect them in the axes.</p>	
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			<p>where the denominator is 10, 100 1000, so you are able to divide.</p> <p>Understand the fraction line is same a division.</p>	<p>cubes and using formula (<math>l \times w \times h</math>)</p> <p>Read and interpret line graphs</p> <p>Draw Line graphs</p> <p>Solve problems using line graphs</p> <p>Label parts of a circle</p> <p>Read and Interpret pie charts</p> <p>Draw Pie charts using knowledge of angles</p> <p>Find the mean using formula  <math>\text{Mean} = \text{Total} \div \text{number of items.}</math></p>		
	<p><b>Outcome:</b> To be able to use written methods confidently</p>	<p><b>Outcome:</b> To use methods of fractions to solve problems</p>	<p><b>Outcome:</b> To be able to understand the ratio symbol to solve problems To be able to efficiently multiply and divide</p>	<p><b>Outcome:</b> To be able to convert fractions, decimals and percentages To calculate the area and perimeter of shapes</p>	<p><b>Outcome:</b> To measure, accurately draw angles and solve missing angle problems  To describe positions on a full coordinate grid to translate and reflect</p>	<p><b>Outcome:</b> To begin to develop key skills that will be used in KS3</p>

<b>Year 7</b>	<b>Autumn 1</b>	<b>Autumn 2</b>	<b>Spring 1</b>	<b>Spring 2</b>	<b>Summer 1</b>	<b>Summer 2</b>
	<b>Topic:</b>	<b>Topic:</b>	<b>Topic:</b>	<b>Topic:</b>	<b>Topic:</b>	<b>Topic:</b>
	<b>Algebraic Thinking</b>	<b>Number Place Value and Proportion</b>	<b>Applications of Number</b>	<b>Directed Numbers</b> <b>Fractional Thinking</b>	<b>Lines and Angles</b>	<b>Reasoning with number</b>
	<b>Concept:</b> <b>Sequences Understanding algebraic notation Equality and Equivalence</b>	<b>Concept:</b> <b>Place Value with integers and decimals</b>  <b>Fraction Decimal equivalence</b>	<b>Concept:</b> <b>Solving problems using four operations</b>  <b>Fractions and percentages of amounts</b>	<b>Concept:</b> <b>Operations and equations with directed number</b>  <b>Addition and subtraction of fractions</b>	<b>Concept:</b> <b>Constructing, measuring and using algebraic notation</b>  <b>Developing geometric reasoning</b>	<b>Concept:</b> <b>Develop number sense</b>  <b>Sets and Probability</b>  <b>Prime numbers and proof</b>
<b>Skills:</b> Describe and continue sequences in graphs, tables and diagrams as well as in numbers.  Identify linear and non-linear sequences and be able to continue them  Explain the term to term rule and	<b>Skills:</b> Recognise place value, write integers in words and figures up to 1 billion  Work out intervals on a numberline and position integers  Compare and order integers using signs up to 1 billion =, ≠, <, >, ≤, ≥	<b>Skills:</b> Understand mental strategies for addition and subtraction  Use formal methods for addition and subtractions  Solve problems in different contexts linked to measure and statistics  Add and subtract numbers giving in standard form	<b>Skills:</b> Understand and use representations of directed numbers  Order directed number using a number line and appropriate symbols  Perform calculations that cross zero  Add and subtract directed numbers  Multiply and divide directed numbers	<b>Skills:</b> Understand and use letter and labelling conventions  Draw and measure line segments including geometric figures  Describe angles as a measure of a turn  Classify a range of angles  Measure and draw angles up to 180 degrees using a protractor	<b>Skills:</b> Know and use mental addition and subtraction strategies for integers  Known and use mental multiplication and division strategies for integers  Know and use mental arithmetic strategies for decimals and fractions  Use estimation as a method for checking mental calculations	

<p>find missing terms</p> <p>Find input and output using a single function machine</p> <p>Using algebraic expressions to generalise diagrams and letters</p> <p>Begin to understand simple expression and use them with a function machine</p> <p>Substitute values into single expressions</p> <p>Find functions, substitute values and generate sequences using two step expressions</p> <p>Begin to represent one and two step</p>	<p>Understand place value of decimals and position on a number line</p> <p>Round numbers to 1 significant number</p> <p>Begin to use standard form (H)</p> <p>Represent fractions on diagrams and on a number line</p> <p>Convert fractions and decimals including tenths, hundredths, fifths, quarters, eighths and thousandths</p> <p>Convert fluently between fractions, percentages and decimals</p> <p>Use fractions to interpret pie charts</p> <p>Explore fractions above one and convert to</p>	<p>Understand multiples and factors</p> <p>Use formal methods to multiply and divide integers</p> <p>Understand the order of operation</p> <p>Solve problems linked to measures and statistics</p> <p>Explore multiplication and division in algebraic expressions</p> <p>Find fraction and percentage of an amount and apply to solve problems greater than 1 and 100%</p>	<p>Use a calculator to solve directed number calculations</p> <p>Evaluate algebraic expressions with directed numbers</p> <p>Solve two step equations</p> <p>Use order of operations</p> <p>Find roots of positive numbers (H)</p> <p>Explore higher powers and roots (H)</p> <p>Represent fractions in various ways</p> <p>Convert mixed numbers into improper fractions</p> <p>Add and subtract unit and non-unit fractions with the same denominator</p> <p>Add and subtract fractions with integers</p> <p>Find equivalent fractions</p>	<p>Measure and draw angles between 180 and 360 degrees using a protractor</p> <p>Identify parallel and perpendicular lines</p> <p>Recognise and describe properties of different triangles</p> <p>Recognise and describe properties of different quadrilaterals</p> <p>Recognise and identify polygons up to a decagon</p> <p>Construct triangles using side-side-side (SSS) Side-angle-side (SAS) Angle-side-angle (ASA)</p> <p>Construct complex polygons</p> <p>Interpret pie charts using proportion</p> <p>Interpret and draw pie charts using a protractor</p> <p>Understand and use angles on a straight line and on a point</p>	<p>Use known number and algebraic facts to derive other facts</p> <p>Know when to use mental, formal written or calculator methods</p> <p>Identify and represent sets</p> <p>Interpret and create Venn diagrams</p> <p>Understand and use the intersection and union of sets</p> <p>Understand and use the complement of a set (H)</p> <p>Know and use the vocabulary of probability</p> <p>Generate sample spaces for single events</p> <p>Calculate the probability of a single event</p> <p>Understand and use the probability scale</p>
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<p>functions graphically</p> <p>Understand the meaning of equivalence and the use of the = sign</p> <p>Solve one step linear equations using inverse operations</p> <p>Understand the meaning of like and unlike terms and being to simplify algebraic expressions</p>	<p>decimals and percentages</p>			<p>Add and subtract unit and non-unit fractions with the different denominator – using multiples</p> <p>Add and subtract mixed numbers and improper fractions</p> <p>Add and subtract fractions and decimals</p> <p>Solving fractions in algebraic contexts</p> <p>Add and subtract algebraic fractions (H)</p>	<p>Understand and use equality of vertically opposite angles</p> <p>Know and apply sums of angles in a triangle and a quadrilateral</p> <p>Solve angles problems</p> <p>Find and use the angles sum of a polygon (H)</p> <p>Investigate angles in parallel lines</p> <p>Use parallel line angle rules</p> <p>Use known facts to obtain simple proof</p>	<p>Know that the sum of probabilities for all possible outcomes is 1</p> <p>Find and use factors and multiples</p> <p>Recognise and identify prime numbers</p> <p>Recognise and identify square numbers and triangular numbers</p> <p>Find lowest common multiples and highest common factors</p> <p>Use factor trees to write a number as a product of its prime factors</p> <p>Use a Venn diagram to calculate HCF and LCM (H)</p> <p>Make and test conjectures and Use counter examples to disprove a conjecture</p>
<p><b>Outcome:</b> To understand basic concepts on Algebra and write expressions.</p>	<p><b>Outcome:</b> To use skills of number knowledge and apply to solve real-life problems</p>	<p><b>Outcome:</b> To use clear written methods and apply to solve real-life problems</p>	<p><b>Outcome:</b> To understand all methods of fraction calculations and apply to solving problems</p>	<p><b>Outcome:</b> To understand how to use equipment to construct shapes. To understand all properties of shapes and lines including their angles</p>	<p><b>Outcome:</b> To understand the different types of numbers and how they can be used to solve calculations and problems</p>	



<b>Year 8</b>	<b>Autumn 1</b>	<b>Autumn 2</b>	<b>Spring 1</b>	<b>Spring 2</b>	<b>Summer 1</b>	<b>Summer 2</b>
	<b>Topic: Proportional Reasoning</b>	<b>Topic: Representations</b>	<b>Topic: Algebraic Techniques</b>	<b>Topic: Developing Number</b>	<b>Topic: Developing Geometry</b>	<b>Topic: Reasoning with Data</b>
	<b>Concept:</b> Ratio and Scale Multiplicative Change Multiplying and Dividing fractions	<b>Concept:</b> Equations of a straight line Interpreting and representing data Finding probability	<b>Concept:</b> Brackets, Equations & Inequalities Sequences Indices	<b>Concept:</b> Fractions and Percentages Standard Index Form Number sense	<b>Concept:</b> Angles Area of Trapeziums and circles Line of symmetry and reflection	<b>Concept:</b> Data Handling Measures of location
	<b>Skills:</b> Understand the meaning of ratio and use the notation  Simplify ratios in its simplest form  Solve ratio problems by dividing in a given ratio  Link ratios to other contexts such as fractions, pie and gradient.  Explore conversion graphs and convert between	<b>Skills:</b> Draw, plot and find co-ordinates on a four-quadrant grid  Recognise lines that form $y = x$ , $y = kx$ , $y = x + a$  Explore positive and negative gradients and know how to form lines $y = mx + c$  Link graphs to sequences and explore linear and non-linear graphs	<b>Skills:</b> Identify variables and express relations between variables algebraically and graphically  Begin to model situations mathematically and express the results using a range of formal mathematical representations  Substitute numerical values into formulae and expressions, including scientific formulae  Understand and use the concepts and vocabulary of expressions, equations, inequalities, terms and factors	<b>Skills:</b> Convert fluently between key fractions decimals and percentages  Calculate key fractions, decimals and percentages of an amount with and without a calculator  Convert between decimals and percentages greater than 100%  Calculate percentage increase and decrease using a multiplier  Express one number as a fraction or a percentage of another with and without a calculator	<b>Skills:</b> Understand and use basic angle rules and notation  Investigate angles between parallel lines and the transversal  Identify and calculate with co-interior, alternate and corresponding angles  Solve complex problems with parallel line angles  Construct triangles and special quadrilaterals  Identify and calculate with sides and angles	<b>Skills:</b> Set up a statistical enquiry and design and criticise questionnaires  Draw and interpret pictograms, bar charts, multiple bar charts and vertical line charts  Draw and interpret line charts and pie charts  Choose the most

<p>money and units of measures</p> <p>Explore direct proportion</p> <p>Understand scale factor and use to interpret scale diagrams and maps</p> <p>Multiply and divide fractions by unit fractions and integers</p> <p>Multiply and divide improper fractions and mixed numbers</p> <p>Multiply and divide algebraic fractions</p>	<p>To draw and interpret scatter diagrams and drawing and using the line of best fit</p> <p>Identify different types of data and be able to read an interpret ungrouped and grouped frequency tables, discrete data and two-way tables</p> <p>Construct sample space for one or more events</p> <p>Find the probability from a sample space diagram, two-way tables, Venn Diagram</p> <p>Use product rule for total possible outcomes</p>	<p>Simplify and manipulate algebraic expressions to maintain equivalence by:</p> <ul style="list-style-type: none"> <li>- collecting like terms</li> <li>- multiplying a single term over a bracket</li> <li>- taking out common factors</li> <li>- expanding products of two or more binomials</li> </ul> <p>Understand and use standard mathematical formulae; rearrange formulae to change the subject</p> <p>Use algebraic methods to solve linear equations in one variable (including all forms that require rearrangement)</p> <p>Generate terms of a sequence from either a term-to-term or a position-to-term rule</p> <p>Recognise arithmetic sequences and find the <math>n</math>th term</p> <p>Recognise geometric sequences and appreciate other sequences that arise.</p>	<p>Work with percentage change</p> <p>Choose appropriate methods to solve percentage problems and complex percentage problems</p> <p>Find the original amount given the percentage less than OR greater than 100% (H)</p> <p>Investigate positive and negative powers of 10</p> <p>Work with numbers greater than 1 in standard form</p> <p>Work with numbers between 0 and 1 in standard form</p> <p>Compare, order and mentally calculate numbers in standard form</p> <p>Add, subtract, multiply and divide numbers in standard form</p> <p>Use calculator to work with numbers in standard form</p> <p>Use negative and fractional indices (H)</p>	<p>in special quadrilaterals</p> <p>Understand and use the properties of diagonals of quadrilaterals</p> <p>Understand and use the sum of exterior angles of any polygon</p> <p>Calculate and use the sum of the interior angles in any polygon</p> <p>Prove simple geometric facts (H)</p> <p>Construct an angle bisector (H)</p> <p>Construct a perpendicular bisector of a line segment (H)</p> <p>Calculate the area of triangles, rectangles and parallelograms</p> <p>Calculate the area of a trapezium</p> <p>Calculate the perimeter and area of compound shapes (1)</p>	<p>appropriate diagram for given set of data</p> <p>Represent and interpret grouped quantitative data</p> <p>Find and interpret the range</p> <p>Compare distributions using charts</p> <p>Identify misleading graphs</p> <p>Understand and use the mean, median and mode</p> <p>Find the mean from a grouped and ungrouped frequency table (H)</p> <p>Identify outliers on graphs and tables</p> <p>Compare distributions</p>
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			<p>Adding and subtracting expressions with indices</p> <p>Simplify algebraic expressions by multiplying and dividing</p> <p>Use the law of indices</p> <p>Finding powers of powers (H)</p>	<p>Round numbers to powers of 10 and 1 significant figure</p> <p>Round numbers to a given number of decimal places</p> <p>Estimate the answer to a calculation</p> <p>Understand and use error interval notation (H)</p> <p>Calculate using the order of operations, money</p> <p>Convert metric measures of lengths, weights and capacity</p> <p>Convert metric units of area and volume (H)</p> <p>Solve problems involving time and the calendar</p>	<p>Calculate the area of a circle and parts of a circle with AND without a calculator</p> <p>Recognise line symmetry</p> <p>Reflect a shape in a horizontal or vertical line (shapes touching the line and not touching the line)</p> <p>Reflect a shape in a diagonal line 1 (shapes touching the line and not touching the line)</p>	<p>using averages and the range</p>
	<p><b>Outcome:</b> To know how to use the correct methods to scale and solve real-life problems</p>	<p><b>Outcome:</b> To draw straight-line graphs and represent data in different forms.</p>	<p><b>Outcome:</b> To apply algebra skills and methods to solve problems.</p>	<p><b>Outcome:</b> To apply number knowledge and understand calculator and non-calculator method to use when solving real-life problems</p>	<p><b>Outcome:</b> To know properties, methods and angle rules to solve complex problem</p>	<p><b>Outcome:</b> To interpret and find averages of a set of given data linked to real-life.</p>