Hato Petera

JUNIOR MATHEMATICS AND STATISTICS

MATHEMATICS AND STATISTICS YEAR 9 & 10

This programme allows students to explore, use, and communicate patterns and relationships in quantities, space and time, as well as relationships in data in solving problems, using symbols, graphs, and diagrams.

Term/Strands	Unit/Topic and Time allotment	Curriculum level	Curriculum statement/Learning Outcomes Students are able to:
Term One **Geometry and Measurement**	**Shapes** 3 weeks	3	• Classify plane shapes and prisms by their spatial features.
		4-5	• Identify classes of two-and three-dimensional shapes by their geometric properties.
Number and Algebra	Number strategies and number knowledge 7 weeks	3	• Use a range of additive and simple multiplicative strategies with whole numbers, fractions, decimals, and percentages. • Perform addition, subtraction, multiplication and division operations. • Count sequences for whole numbers. • Tell how many tenths, tens, hundreds and thousands are in whole numbers.
Number *continued*		4-5	• Use a range of multiplicative strategies when operating on whole numbers. • Perform addition and subtraction of fractions, decimals and integers. • Identify the relative size and place value structure of positive and negative integers and decimals to three places.
Term 2 **Geometry and Measurement**	Measurement 4 weeks	3	• Use linear scales and whole numbers of metric units for length, area, volume and capacity, weight (mass), angle, temperature and time. • Find areas of rectangles and volumes of cuboids by applying multiplication.
		4	• Use appropriate scales, devices, and metric units for length, area, volume and capacity, weight (mass), temperature, angle and time. • Convert between metric units, using whole numbers and commonly used decimals. • Use side or edge lengths to find the perimeters and areas of rectangles, parallelograms and triangles and the volumes of cuboids. • Interpret and use scales, timetables and charts.

Term/Strands	Unit/Topic and Time allotment	Curriculum level	Curriculum statement/Learning Outcomes Students are able to:
Fractions and Percentages	6 weeks	3	• Use a range of additive and simple multiplicative strategies with whole numbers, fractions, decimals and percentages. • Perform addition, subtraction, multiplication and division of fractions and percentages.
		4	• Find fractions, decimals and percentages of amounts expressed as whole numbers, simple fractions and decimals. • Apply simple linear proportions, including ordering fractions. • Determine the equivalent decimal and percentage forms for everyday fractions.
Term 3 **Patterns**	4 weeks	4	• Record and interpret additive and simple multiplicative strategies, using words, diagrams and symbols, with an understanding of equality. • Generalise the properties of addition and subtraction with whole numbers. • Connect members of sequential patterns with their ordinal position and use tables, graphs and diagrams to find relationships between successive elements of number and spatial patterns. • Generalise properties of multiplication and division with whole numbers.
			• Use graphs, tables and rules to describe linear relationships found in number and spatial patterns.
Algebra and graphs	6 weeks	3	• Record and interpret additive and simple multiplicative strategies, using words, diagrams and symbols, with an understanding of equality. • Generalise the properties of addition and subtraction with whole numbers. • Record and interpret additive and simple multiplicative strategies, using words, diagrams and symbols, with an understanding of equality.
		4-5	• Generalise the properties of addition and subtraction with whole numbers. • Connect members of sequential patterns with their ordinal position and use tables, graphs and diagrams to find relationships between successive elements of number and spatial patterns. • Form and solve simple linear equations.

Term/Strands	Unit/Topic and Time allotment	Curriculum level	Curriculum statement/Learning Outcomes Students are able to:
Term 4 **Statistics**	5 weeks	3	• Conduct investigations using the statistical enquiry cycle: ▪ gathering, sorting, and displaying multivariate category and whole-number data and simple time-series data to answer questions. ▪ identifying patterns and trends in context, within and between data sets. ▪ communicating findings, using data displays. • Evaluate the effectiveness of different displays in representing the findings of a statistical investigation or probability activity undertaken by others.
		4-5	• Plan and conduct investigations using the statistical enquiry cycle: ▪ determining appropriate variables and data collection methods ▪ gathering, sorting and displaying multivariate category, measurement, and time-series data to detect patterns, variations, relationships and trends ▪ comparing distributions visually ▪ communicating findings, using appropriate displays. • Evaluate statements made by others about the findings of statistical investigations and probability activities.
Probability	3 weeks	3	• Investigate simple situations that involve elements of chance by comparing experimental results with expectations from models of all the outcomes.
		4-5	• Investigate situations that involve elements of chance by comparing experimental distributions with expectations from models of the possible outcomes, acknowledging variation and independence. • Use simple fractions and percentages to describe probabilities.
Geometry	2 weeks	3	• Describe the transformations (reflection, rotation, translation or enlargement) that have mapped one object onto another.
		4	• Use the invariant properties of figures and objects under transformations (reflection, rotation, translation or enlargement).