





New Zealand Achievement Standards Alignment (F-H)

The presentations offered by The Educated Choices Program provide support for teaching and learning of the following standards:



Health and Physical Education, Years (7-13)	Environment and Modern Agriculture	Healthful Eating	
<p>Years 7-8 Level 3</p>	<p>Personal Health and Physical Development; Movement Concepts and Motor Skills; Relationships with Other People; Healthy Communities and Environments</p> <p>Students will be able to:</p> <p>Personal growth and development</p> <ul style="list-style-type: none"> Identify factors that affect personal, physical, social, and emotional growth and develop skills to manage changes. <p>Regular physical activity</p> <ul style="list-style-type: none"> Maintain regular participation in enjoyable physical activities in a range of environments and describe how these assist in the promotion of wellbeing. <p>Safety management</p> <ul style="list-style-type: none"> Identify risks and their causes and describe safe practices to manage these. <p>Personal identity</p> <ul style="list-style-type: none"> Describe how their own feelings, beliefs, and actions, and those of other people, contribute to their personal sense of self-worth. <p>Movement skills</p> <ul style="list-style-type: none"> Develop more complex movement sequences and strategies in a 	<p style="text-align: center;">✓</p>	<p style="text-align: center;">✓</p>

	<p>range of situations.</p> <p>Positive attitudes</p> <ul style="list-style-type: none"> ● Develop movement skills in challenging situations and describe how these challenges impact on themselves and others. <p>Science and technology</p> <ul style="list-style-type: none"> ● Participate in and describe how their body responds to regular and vigorous physical activity in a range of environments. <p>Challenges and social and cultural factors</p> <ul style="list-style-type: none"> ● Participate in co-operative and competitive activities and describe how co-operation and competition can affect people's behavior and the quality of the experiences <p>Relationships</p> <ul style="list-style-type: none"> ● Identify and compare ways of establishing relationships and managing changing relationships. <p>Identity, sensitivity, and respect</p> <ul style="list-style-type: none"> ● Identify ways in which people discriminate and ways to act responsibly to support themselves and other people. <p>Interpersonal skills</p> <ul style="list-style-type: none"> ● Identify the pressures that can influence interactions with other people and demonstrate basic assertiveness strategies to manage these. <p>Societal attitudes and values</p> <ul style="list-style-type: none"> ● Identify how health care and physical activity practices are influenced by community and environmental factors. <p>Community resources</p> <ul style="list-style-type: none"> ● Participate in communal events and describe how such events enhance the wellbeing of the community. <p>Rights, responsibilities, and laws</p> <ul style="list-style-type: none"> ● Research and describe current health and safety guidelines and practices in their school and take action to enhance their 		
--	---	--	--



	<p>effectiveness.</p> <p>People and the environment</p> <ul style="list-style-type: none"> Plan and implement a programme to enhance an identified social or physical aspect of their classroom or school environment. 		
<p>Years 7-11</p> <p>Level 4</p>	<p>Personal Health and Physical Development; Movement Concepts and Motor Skills; Relationships with Other People; Healthy Communities and Environments</p> <p>Students will be able to:</p> <p>Personal growth and development</p> <ul style="list-style-type: none"> Describe the characteristics of pubertal change and discuss positive adjustment strategies. <p>Regular physical activity</p> <ul style="list-style-type: none"> Demonstrate an increasing sense of responsibility for incorporating regular and enjoyable physical activity into their personal lifestyle to enhance well-being. <p>Safety management</p> <ul style="list-style-type: none"> Access and use information to make and action safe choices in a range of contexts. <p>Personal identity</p> <ul style="list-style-type: none"> Describe how social messages and stereotypes, including those in the media, can affect feelings of self worth. <p>Movement skills</p> <ul style="list-style-type: none"> Demonstrate consistency and control of movement in a range of situations. <p>Positive attitudes</p> <ul style="list-style-type: none"> Demonstrate willingness to accept challenges, learn new skills and strategies, and extend their abilities in movement-related activities. <p>Science and technology</p> <ul style="list-style-type: none"> Experience and demonstrate how science, technology, and the 	✓	✓

	<p>environment influence the selection and use of equipment in a variety of settings.</p> <p>Challenges and social and cultural factors</p> <ul style="list-style-type: none"> • Participate in and demonstrate an understanding of how social and cultural practices are expressed through movement. <p>Relationships</p> <ul style="list-style-type: none"> • Identify the effects of changing situations, roles, and responsibilities on relationships and describe appropriate responses. <p>Identity, sensitivity, and respect</p> <ul style="list-style-type: none"> • Recognise instances of discrimination and act responsibly to support their own rights and feelings and those of other people. <p>Interpersonal skills</p> <ul style="list-style-type: none"> • Describe and demonstrate a range of assertive communication skills and processes that enable them to interact appropriately with other people. <p>Societal attitudes and values</p> <ul style="list-style-type: none"> • Investigate and describe lifestyle factors and media influences that contribute to the well-being of people in New Zealand. <p>Community resources</p> <ul style="list-style-type: none"> • Investigate and/or access a range of community resources that support well-being and evaluate the contribution made by each to the well-being of community members. <p>Rights, responsibilities, and laws; People and the environment</p> <ul style="list-style-type: none"> • Specify individual responsibilities and take collective action for the care and safety of other people in their school and in the wider community. 		
<p>Years 7-13 Level 5</p>	<p>Personal Health and Physical Development; Movement Concepts and Motor Skills; Relationships with Other People; Healthy Communities and Environments</p>		



	<p>Students will be able to:</p> <p>Personal growth and development</p> <ul style="list-style-type: none"> • Describe physical, social, emotional, and intellectual processes of growth and relate these to features of adolescent development and effective self management strategies. <p>Regular physical activity</p> <ul style="list-style-type: none"> • Experience a range of personally enjoyable physical activities and describe how varying levels of involvement affect wellbeing and lifestyle balance. <p>Safety management</p> <ul style="list-style-type: none"> • Investigate and practise safety procedures and strategies to manage risk situations. <p>Personal identity</p> <ul style="list-style-type: none"> • Investigate and describe the ways in which individuals define their own identity and sense of self-worth and how this influences the ways in which they describe other people. <p>Movement skills</p> <ul style="list-style-type: none"> • Acquire and apply complex motor skills by using basic principles of motor learning. <p>Positive attitudes</p> <ul style="list-style-type: none"> • Develop skills and responsible attitudes in challenging physical situations. <p>Science and technology</p> <ul style="list-style-type: none"> • Investigate and experience ways in which scientific, technological, and environmental knowledge and resources assist in and influence people’s participation in regular physical activity. <p>Challenges and social and cultural factors</p> <ul style="list-style-type: none"> • Investigate and experience ways in which people’s physical competence and participation are influenced by social and cultural factors. 		
--	--	--	--

	<p>Relationships</p> <ul style="list-style-type: none"> Identify issues associated with relationships and describe options to achieve positive outcomes. <p>Identity, sensitivity, and respect</p> <ul style="list-style-type: none"> Demonstrate an understanding of how attitudes and values relating to difference influence their own safety and that of other people. <p>Interpersonal skills</p> <ul style="list-style-type: none"> Demonstrate a range of interpersonal skills and processes that help them to make safe choices for themselves and other people in a variety of settings. <p>Societal attitudes and values</p> <ul style="list-style-type: none"> Investigate societal influences on the well-being of student communities. <p>Community resources</p> <ul style="list-style-type: none"> Investigate community services that support and promote people’s wellbeing and take action to promote personal and group involvement. <p>Rights, responsibilities, and laws</p> <ul style="list-style-type: none"> Identify the rights and responsibilities of consumers and use this information to evaluate health and recreational services and products in the community. <p>People and the environment</p> <ul style="list-style-type: none"> Investigate and evaluate aspects of the school environment that affect people’s well-being and take action to enhance these aspects. 		
<p>Years 9-13 Level 6</p>	<p>Personal Health and Physical Development; Movement Concepts and Motor Skills; Relationships with Other People; Healthy Communities and Environments</p> <p>Students will be able to:</p> <p>Personal growth and development</p>		

	<ul style="list-style-type: none"> ● Investigate and understand reasons for the choices people make that affect their well-being and explore and evaluate options and consequences. <p>Regular physical activity</p> <ul style="list-style-type: none"> ● Choose and maintain ongoing involvement in appropriate physical activities and examine factors influencing their participation. <p>Safety management</p> <ul style="list-style-type: none"> ● Demonstrate understanding of responsible behaviours required to ensure that challenges and risks are managed safely in physical and social environments. <p>Personal identity</p> <ul style="list-style-type: none"> ● Demonstrate an understanding of factors that contribute to personal identity and celebrate individuality and affirm diversity. <p>Movement skills</p> <ul style="list-style-type: none"> ● Acquire, apply, and refine specialised motor skills by using the principles of motor skill learning. <p>Positive attitudes</p> <ul style="list-style-type: none"> ● Demonstrate and examine responsible attitudes in challenging physical situations. <p>Science and technology</p> <ul style="list-style-type: none"> ● Apply scientific and technological knowledge and resources to enhance physical abilities in a range of environments. <p>Challenges and social and cultural factors</p> <ul style="list-style-type: none"> ● Demonstrate understanding and affirmation of people’s diverse social and cultural needs and practices when participating in physical activities. <p>Relationships</p> <ul style="list-style-type: none"> ● Demonstrate an understanding of how individuals and groups affect relationships by influencing people’s behaviour, beliefs, decisions, and sense of self-worth. 		
--	--	--	--

	<p>Identity, sensitivity, and respect</p> <ul style="list-style-type: none"> Plan and evaluate strategies recognising their own and other people’s rights and responsibilities to avoid or minimise risks in social situations. <p>Interpersonal skills</p> <ul style="list-style-type: none"> Plan strategies and demonstrate interpersonal skills to respond to challenging situations appropriately. <p>Societal attitudes and values</p> <ul style="list-style-type: none"> Analyse societal influences that shape community health goals and physical activity patterns. <p>Community resources</p> <ul style="list-style-type: none"> Advocate for the development of services and facilities to meet identified needs in the school and the community. <p>Rights, responsibilities, and laws</p> <ul style="list-style-type: none"> Compare and contrast personal values and practices with policies, rules, and laws and investigate how the latter contribute to safety in the school and community. <p>People and the environment</p> <ul style="list-style-type: none"> Investigate the roles and the effectiveness of local, national, and international organisations that promote well-being and environmental care. 		
<p>Years 10-13 Level 7</p>	<p>Personal Health and Physical Development; Movement Concepts and Motor Skills; Relationships with Other People; Healthy Communities and Environments</p> <p>Students will be able to:</p> <p>Personal growth and development</p> <ul style="list-style-type: none"> Assess their health needs and identify strategies to ensure personal well-being across their lifespan. <p>Regular physical activity</p>		

	<ul style="list-style-type: none"> ● Plan, implement, and evaluate a physical activity programme and examine factors used to justify physical activity as a means of enhancing wellbeing. <p>Safety management</p> <ul style="list-style-type: none"> ● Analyse the difference between perceived and residual risks in physical and social environments and develop skills and behaviour for managing responsible action. <p>Personal identity</p> <ul style="list-style-type: none"> ● Critically evaluate societal attitudes, values, and expectations that affect people's awareness of their personal identity and sense of self-worth in a range of life situations. <p>Movement skills</p> <ul style="list-style-type: none"> ● Appraise specialised motor skills and adapt them to extend physical competence and recreational opportunities. <p>Positive attitudes</p> <ul style="list-style-type: none"> ● Adapt skills and appraise responsible attitudes in challenging physical situations and unfamiliar environments. <p>Science and technology</p> <ul style="list-style-type: none"> ● Apply relevant scientific, technological, and environmental knowledge and use appropriate resources to improve performance in a specialised physical activity. <p>Challenges and social and cultural factors</p> <ul style="list-style-type: none"> ● Appraise, adapt, and use physical activities to ensure that specific social and cultural needs are met. <p>Relationships</p> <ul style="list-style-type: none"> ● Analyse the nature and benefits of meaningful interpersonal relationships. <p>Identity, sensitivity, and respect</p> <ul style="list-style-type: none"> ● Analyse the beliefs, attitudes, and practices that reinforce stereotypes and role expectations, identifying ways in which these shape people's 		
--	--	--	--

	<p>choices at individual, group, and societal levels.</p> <p>Interpersonal skills</p> <ul style="list-style-type: none"> ● Evaluate information, make informed decisions, and use interpersonal skills effectively to manage conflict, competition, and change in relationships. <p>Societal attitudes and values</p> <ul style="list-style-type: none"> ● Analyse ways in which events and social organisations promote healthy communities and evaluate the effects they have. <p>Community resources</p> <ul style="list-style-type: none"> ● Evaluate school and community initiatives that promote young people’s wellbeing and develop an action plan to instigate or support these. <p>Rights, responsibilities, and laws</p> <ul style="list-style-type: none"> ● Evaluate laws, policies, practices, and regulations in terms of their contribution to social justice at school and in the wider community. <p>People and the environment</p> <ul style="list-style-type: none"> ● Analyse ways in which the environment and the well-being of a community are affected by population pressure and technological processes. 		
<p>Years 12-13 Level 8</p>	<p>Personal Health and Physical Development; Movement Concepts and Motor Skills; Relationships with Other People; Healthy Communities and Environments</p> <p>Students will be able to:</p> <p>Personal growth and development</p> <ul style="list-style-type: none"> ● Critically evaluate a range of qualitative and quantitative data to devise strategies to meet their current and future needs for well-being. <p>Regular physical activity</p> <ul style="list-style-type: none"> ● Critically examine commercial products and programmes that 		

	<p>promote physical activity and relate this to personal participation in programmes intended to meet their current well-being needs.</p> <p>Safety management</p> <ul style="list-style-type: none"> ● Critically analyse dilemmas and contemporary ethical issues that influence their own health and safety and that of other people. <p>Personal identity</p> <ul style="list-style-type: none"> ● Critically analyse the impacts that conceptions of personal, cultural, and national identity have on people’s well-being. <p>Movement skills</p> <ul style="list-style-type: none"> ● Devise, apply, and evaluate strategies to improve physical activity performance for themselves and others. <p>Positive attitudes</p> <ul style="list-style-type: none"> ● Devise, apply, and appraise strategies through which they and other people can participate responsibly in challenging physical situations. <p>Science and technology</p> <ul style="list-style-type: none"> ● Critically analyse and experience the application of scientific and technological knowledge and resources to physical activity in a range of environments. <p>Challenges and social and cultural factors</p> <ul style="list-style-type: none"> ● Devise and apply strategies to ensure that social and cultural needs are met in personal and group physical activities. <p>Relationships</p> <ul style="list-style-type: none"> ● Critically analyse the dynamics of effective relationships in a range of social contexts. <p>Identity, sensitivity, and respect</p> <ul style="list-style-type: none"> ● Critically analyse attitudes, values, and behaviours that contribute to conflict and identify and describe ways of creating more harmonious relationships. <p>Interpersonal skills</p> <ul style="list-style-type: none"> ● Analyse and evaluate attitudes and interpersonal skills that enable 		
--	--	--	--

	<p>people to participate fully and effectively as community members in various situations.</p> <p>Societal attitudes and values</p> <ul style="list-style-type: none"> Critically analyse societal attitudes and practices and legislation influencing contemporary health and sporting issues, in relation to the need to promote mentally healthy and physically safe communities. <p>Community resources</p> <ul style="list-style-type: none"> Establish and justify priorities for equitable distribution of available health and recreational resources and advocate change where necessary. <p>Rights, responsibilities, and laws</p> <ul style="list-style-type: none"> Demonstrate the use of health promotion strategies by implementing a plan of action to enhance the well-being of the school, community, or environment. <p>People and the environment</p> <ul style="list-style-type: none"> Critically analyse the interrelationships between people, industry, technology, and legislation on aspects of environmental health. 		
--	--	--	--

Mathematics and Statistics, Years 7-13	Environment and Modern Agriculture	Healthful Eating
---	---	-------------------------

Years 7-8 Level 3	<p>Number and Algebra; Geometry and Measurement; Statistics</p> <p>Students will be able to:</p> <p>Number strategies</p> <ul style="list-style-type: none"> Use a range of additive and simple multiplicative strategies with whole numbers, fractions, decimals, and percentages. <p>Number knowledge</p>	✓	✓
----------------------	--	---	---

- Know basic multiplication and division facts.
- Know counting sequences for whole numbers.
- Know how many tenths, tens, hundreds, and thousands are in whole numbers.
- Know fractions and percentages in everyday use.

Equations and expressions

- Record and interpret additive and simple multiplicative strategies, using words, diagrams, and symbols, with an understanding of equality.

Patterns and relationships

- 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.

Measurement

- 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.

Shape



- Classify plane shapes and prisms by their spatial features.
- Represent objects with drawings and models. Position and orientation
- Use a co-ordinate system or the language of direction and distance to specify locations and describe paths.

Transformation

- Describe the transformations (reflection, rotation, translation, or enlargement) that have mapped one object onto another.

Statistical investigation

- Conduct investigations using the statistical enquiry cycle: – gathering,

	<p>sorting, and displaying multivariate category and wholenumber 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.</p> <p>Statistical literacy</p> <ul style="list-style-type: none"> ● Evaluate the effectiveness of different displays in representing the findings of a statistical investigation or probability activity undertaken by others. <p>Probability</p> <ul style="list-style-type: none"> ● Investigate simple situations that involve elements of chance by comparing experimental results with expectations from models of all the outcomes, acknowledging that samples vary. 		
<p>Years 7-11 Level 4</p>	<p>Number and Algebra; Geometry and Measurement; Statistics</p> <p>Students will be able to:</p> <p>Number strategies and knowledge</p> <ul style="list-style-type: none"> ● Use a range of multiplicative strategies when operating on whole numbers. ● Understand addition and subtraction of fractions, decimals, and integers. ● Find fractions, decimals, and percentages of amounts expressed as whole numbers, simple fractions, and decimals. ● Apply simple linear proportions, including ordering fractions. ● Know the equivalent decimal and percentage forms for everyday fractions. ● Know the relative size and place value structure of positive and negative integers and decimals to three places. <p>Equations and expressions</p> <ul style="list-style-type: none"> ● Form and solve simple linear equations. <p>Patterns and relationships</p>		

- Generalise properties of multiplication and division with whole numbers.
- Use graphs, tables, and rules to describe linear relationships found in number and spatial patterns.

Measurement

- 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.

Shape

- Identify classes of two- and threedimensional shapes by their geometric properties.
- Relate three-dimensional models to two-dimensional representations, and vice versa.

Position and orientation



- Communicate and interpret locations and directions, using compass directions, distances, and grid references.

Transformation

- Use the invariant properties of figures and objects under transformations (reflection, rotation, translation, or enlargement).

Statistical investigation



- 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.



	<p>Statistical literacy</p> <ul style="list-style-type: none"> ● Evaluate statements made by others about the findings of statistical investigations and probability activities. <p>Probability</p> <ul style="list-style-type: none"> ● 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. 		
<p>Years 7-13 Level 5</p>	<p>Number and Algebra; Geometry and Measurement; Statistics Students will be able to:</p> <p>Number strategies and knowledge</p> <ul style="list-style-type: none"> ● Reason with linear proportions. ● Use prime numbers, common factors and multiples, and powers (including square roots). ● Understand operations on fractions, decimals, percentages, and integers. ● Use rates and ratios. ● Know commonly used fraction, decimal, and percentage conversions. ● Know and apply standard form, significant figures, rounding, and decimal place value. <p>Equations and expressions</p> <ul style="list-style-type: none"> ● Form and solve linear and simple quadratic equations. <p>Patterns and relationships</p> <ul style="list-style-type: none"> ● Generalise the properties of operations with fractional numbers and integers. ● Relate tables, graphs, and equations to linear and simple quadratic relationships found in number and spatial patterns. <p>Measurement</p> <ul style="list-style-type: none"> ● Select and use appropriate metric units for length, area, volume and 		

	<p>capacity, weight (mass), temperature, angle, and time, with awareness that measurements are approximate.</p> <ul style="list-style-type: none"> ● Convert between metric units, using decimals. ● Deduce and use formulae to find the perimeters and areas of polygons and the volumes of prisms. ● Find the perimeters and areas of circles and composite shapes and the volumes of prisms, including cylinders. Shape ● Deduce the angle properties of intersecting and parallel lines and the angle properties of polygons and apply these properties. ● Create accurate nets for simple polyhedra and connect three-dimensional solids with different two-dimensional representations. <p>Position and orientation</p> <ul style="list-style-type: none"> ● Construct and describe simple loci. ● Interpret points and lines on co-ordinate planes, including scales and bearings on maps. Transformation ● Define and use transformations and describe the invariant properties of figures and objects under these transformations. ● Apply trigonometric ratios and Pythagoras' theorem in two dimensions. <p>Statistical investigation</p> <ul style="list-style-type: none"> ● Plan and conduct surveys and experiments using the statistical enquiry cycle: – determining appropriate variables and measures; – considering sources of variation; – gathering and cleaning data; – using multiple displays, and re-categorising data to find patterns, variations, relationships, and trends in multivariate data sets; – comparing sample distributions visually, using measures of centre, spread, and proportion; – presenting a report of findings. <p>Statistical literacy</p> <ul style="list-style-type: none"> ● Evaluate statistical investigations or probability activities undertaken 		
--	--	--	--

	<p>by others, including data collection methods, choice of measures, and validity of findings.</p> <p>Probability</p> <ul style="list-style-type: none"> • Compare and describe the variation between theoretical and experimental distributions in situations that involve elements of chance. • Calculate probabilities, using fractions, percentages, and ratios. 		
<p>Years 9-13 Level 6</p>	<p>Number and Algebra; Geometry and Measurement; Statistics</p> <p>Students will be able to:</p> <p>Number strategies and knowledge</p> <ul style="list-style-type: none"> • Apply direct and inverse relationships with linear proportions. • Extend powers to include integers and fractions. • Apply everyday compounding rates. • Find optimal solutions, using numerical approaches. Equations and expressions • Form and solve linear equations and inequations, quadratic and simple exponential equations, and simultaneous equations with two unknowns. <p>Patterns and relationships</p> <ul style="list-style-type: none"> • Generalise the properties of operations with rational numbers, including the properties of exponents. • Relate graphs, tables, and equations to linear, quadratic, and simple exponential relationships found in number and spatial patterns. • Relate rate of change to the gradient of a graph. <p>Measurement</p> <ul style="list-style-type: none"> • Measure at a level of precision appropriate to the task. • Apply the relationships between units in the metric system, including the units for measuring different attributes and derived measures. • Calculate volumes, including prisms, pyramids, cones, and spheres, 	✓	✓

	<p>using formulae.</p> <p>Shape</p> <ul style="list-style-type: none"> • Deduce and apply the angle properties related to circles. • Recognise when shapes are similar and use proportional reasoning to find an unknown length. • Use trigonometric ratios and Pythagoras' theorem in two and three dimensions. <p>Position and orientation</p> <ul style="list-style-type: none"> • Use a co-ordinate plane or map to show points in common and areas contained by two or more loci. <p>Transformation</p> <ul style="list-style-type: none"> • Compare and apply single and multiple transformations. • Analyse symmetrical patterns by the transformations used to create them. <p>Statistical investigation</p> <ul style="list-style-type: none"> • Plan and conduct investigations using the statistical enquiry cycle: – justifying the variables and measures used; – managing sources of variation, including through the use of random sampling; – identifying and communicating features in context (trends, relationships between variables, and differences within and between distributions), using multiple displays; – making informal inferences about populations from sample data; – justifying findings, using displays and measures. <p>Statistical literacy</p> <ul style="list-style-type: none"> • Evaluate statistical reports in the media by relating the displays, statistics, processes, and probabilities used to the claims made. <p>Probability</p> <ul style="list-style-type: none"> • Investigate situations that involve elements of chance: – comparing discrete theoretical distributions and experimental distributions, appreciating the role of sample size; – calculating probabilities in discrete situations. 		
--	---	--	--

<p>Years 10-13 Level 7</p>	<p>Mathematics; Statistics Students will be able to:</p> <p>Patterns and relationships</p> <ul style="list-style-type: none"> • Apply co-ordinate geometry techniques to points and lines. • Display the graphs of linear and nonlinear functions and connect the structure of the functions with their graphs. • Use arithmetic and geometric sequences and series. • Apply trigonometric relationships, including the sine and cosine rules, in two and three dimensions. • Choose appropriate networks to find optimal solutions. <p>Equations and expressions</p> <ul style="list-style-type: none"> • Manipulate rational, exponential, and logarithmic algebraic expressions. • Form and use linear, quadratic, and simple trigonometric equations. • Form and use pairs of simultaneous equations, one of which may be non-linear. <p>Calculus</p> <ul style="list-style-type: none"> • Sketch the graphs of functions and their gradient functions and describe the relationship between these graphs. • Apply differentiation and antidifferentiation techniques to polynomials. <p>Statistical investigation</p> <ul style="list-style-type: none"> • Carry out investigations of phenomena, using the statistical enquiry cycle: – conducting surveys that require random sampling techniques, conducting experiments, and using existing data sets; – evaluating the choice of measures for variables and the sampling and data collection methods used; – using relevant contextual knowledge, exploratory data analysis, and statistical inference. • Make inferences from surveys and experiments: – making informal predictions, interpolations, and extrapolations; – using sample 		
--------------------------------	---	---	---

	<p>statistics to make point estimates of population parameters; – recognising the effect of sample size on the variability of an estimate.</p> <p>Statistical literacy</p> <ul style="list-style-type: none"> ● Evaluate statistically based reports: – interpreting risk and relative risk; – identifying sampling and possible non-sampling errors in surveys, including polls. <p>Probability</p> <ul style="list-style-type: none"> ● Investigate situations that involve elements of chance: – comparing theoretical continuous distributions, such as the normal distribution, with experimental distributions; – calculating probabilities, using such tools as two-way tables, tree diagrams, simulations, and technology. 		
<p>Years 12-13 Level 8</p>	<p>Mathematics; Statistics</p> <p>Students will be able to:</p> <p>Patterns and relationships</p> <ul style="list-style-type: none"> ● Apply the geometry of conic sections. ● Display and interpret the graphs of functions with the graphs of their inverse and/or reciprocal functions. ● Use permutations and combinations. ● Use curve fitting, log modelling, and linear programming techniques. ● Develop network diagrams to find optimal solutions, including critical paths. <p>Equations and expressions</p> <ul style="list-style-type: none"> ● Manipulate trigonometric expressions. ● Form and use trigonometric, polynomial, and other non-linear equations. ● Form and use systems of simultaneous equations, including three linear equations and three variables, and interpret the solutions in context. ● Manipulate complex numbers and present them graphically. 		

Calculus

- Identify discontinuities and limits of functions.
- Choose and apply a variety of differentiation, integration, and antidifferentiation techniques to functions and relations, using both analytical and numerical methods.
- Form differential equations and interpret the solutions.

Statistical investigation

- Carry out investigations of phenomena, using the statistical enquiry cycle: – conducting experiments using experimental design principles, conducting surveys, and using existing data sets; – finding, using, and assessing appropriate models (including linear regression for bivariate data and additive models for timeseries data), seeking explanations, and making predictions; – using informed contextual knowledge, exploratory data analysis, and statistical inference; – communicating findings and evaluating all stages of the cycle.
- Make inferences from surveys and experiments: – determining estimates and confidence intervals for means, proportions, and differences, recognising the relevance of the central limit theorem; – using methods such as resampling or randomisation to assess the strength of evidence.

Statistical literacy

- Evaluate a wide range of statistically based reports, including surveys and polls, experiments, and observational studies: – critiquing causal-relationship claims; – interpreting margins of error.

Probability

- Investigate situations that involve elements of chance: – calculating probabilities of independent, combined, and conditional events; – calculating and interpreting expected values and standard deviations of discrete random variables; – applying distributions such as the Poisson, binomial, and normal.



**Educated
Choices
Program**

New Zealand Achievement Standards, last updated (July 11th, 2022)