Lanyon High School

Year 10 — Australian Curriculum: Mathematics

Identify curriculum

Achievement standard

By the end of Year 10, students recognise the effect of approximations of real numbers in repeated calculations. They use mathematical modelling to solve problems involving growth and decay in financial and other applied situations, applying linear, quadratic and exponential functions as appropriate, and solve related equations, numerically and graphically. Students make and test conjectures involving functions and relations using digital tools. They solve problems involving simultaneous linear equations and linear inequalities in 2 variables graphically and justify solutions.

Students interpret and use logarithmic scales representing small or large quantities or change in applied contexts. They solve measurement problems involving surface area and volume of composite objects. Students apply Pythagoras' theorem and trigonometry to solve practical problems involving right-angled triangles. They identify the impact of measurement errors on the accuracy of results. Students use mathematical modelling to solve practical problems involving proportion and scaling, evaluating and modifying models, and reporting assumptions, methods and findings. They use deductive reasoning, theorems and algorithms to solve spatial problems. Students interpret networks used to represent practical situations and describe connectedness.

They plan and conduct statistical investigations involving bivariate data. Students represent the distribution of data involving 2 variables, using tables and scatter plots, and comment on possible association. They analyse inferences and conclusions in the media, noting potential sources of bias. Students compare the distribution of continuous numerical data using various displays, and discuss distributions in terms of centre, spread, shape and outliers. They apply conditional probability to solve problems involving compound events. Students design and conduct simulations involving conditional probability, using digital tools.

Teaching and learning

Term overview

Term 1

NUMBER AND ALGEBRA

- *Students recognise the effect of approximations of real numbers in repeated calculations*
- *They use mathematical modelling to solve problems involving growth and decay in financial and other applied situations, applying linear, quadratic and exponential functions as appropriate, and solve related equations, numerically and graphically.*

Term 2

NUMBER AND ALGEBRA

- *They solve problems involving simultaneous linear equations and linear inequalities in 2 variables graphically and justify solutions.*
- *Students make and test conjectures involving functions and relations using digital tools.*

MEASUREMENT

- *They solve measurement problems involving surface area and volume of composite objects.*
- *They identify the impact of measurement errors on the accuracy of results.*

Term 3

MEASUREMENT

- *Students apply Pythagoras' theorem and trigonometry to solve practical problems involving right-angled triangles.*

GEOMETRY

- *They use deductive reasoning, theorems and algorithms to solve spatial problems.*
- *Students interpret networks used to represent practical situations and describe connectedness*

PROBABILITY

- *They apply conditional probability to solve problems involving compound events.*
- *Students design and conduct simulations involving conditional probability, using digital tools.*

Term 4

STATISTICS

- *Students compare the distribution of continuous numerical data using various displays, and discuss distributions in terms of centre, spread, shape and outliers.*
- *They plan and conduct statistical investigations involving bivariate data.*
- *Students represent the distribution of data involving 2 variables, using tables and scatter plots, and comment on possible association.*
- *They analyse inferences and conclusions in the media, noting potential sources of bias.*

MEASUREMENT

- *Students interpret and use logarithmic scales representing small or large quantities or change in applied contexts.*

MODELLING

- *Students use mathematical modelling to solve practical problems involving proportion and scaling, evaluating and modifying models, and reporting assumptions, methods and findings.*

General capabilities and Cross curriculum priorities

Literacy · Numeracy · ICT capability · Critical and creative thinking · Ethical behaviour · Personal and social capability · Intercultural understanding · Aboriginal and Torres Strait Islander histories and cultures · Asia and Australia's engagement with Asia · Sustainability

		Term 1		Term 2		Term 3		Term 4	
Develop assessment	**Assessment**	**Week**	**Assessment instrument**	**Week**	**Assessment instrument**	**Week**	**Assessment instrument**	**Week**	**Assessment instrument**
		4	Real numbers	13	Simultaneous Equations and Linear Equalities	3	Pythagoras and Trigonometry	14	Statistics Assignment
		10	Equations and Expressions	15	Functions and Relations	7	Congruence, similarity and networks	15	Logarithmic Scales
				20	Measurement	9	Probability	16	Modelling
Make judgments and use feedback	**Moderation**	**Term 1**		**Term 2**		**Term 3**		**Term 4**	
		Teachers moderate assessment tasks to ensure consistency of judgments.							