



## By the end of year 9...

### MATHEMATICS

- Solve problems involving direct proportion. Explore the relationship between graphs & equations corresponding to simple rate problems
- Apply index laws to numerical expressions with integer indices
- Express numbers in scientific notation
- Solve problems involving simple interest
- Extend & apply the index laws to variables, using positive integer indices & the zero index
- Apply the distributive law to the expansion of algebraic expressions, including binomials, & collect like terms where appropriate
- Find the distance between two points located on a Cartesian plane using a range of strategies, including graphing software
- Find the midpoint & gradient of a line segment (interval) on the Cartesian plane using a range of strategies, including graphing software
- Sketch linear graphs using the coordinates of two points & solve linear equations
- Graph simple non-linear relations with & without the use of digital technologies & solve simple related equations
- Calculate the areas of composite shapes
- Calculate the surface area & volume of cylinders & solve related problems
- Solve problems involving the surface area & volume of right prisms
- Investigate very small & very large time scales & intervals
- Use the enlargement transformation to explain similarity & develop the conditions for triangles to be similar
- Solve problems using ratio & scale factors in similar figures
- Investigate Pythagoras Theorem & its application to solving simple problems involving right angled triangles
- Use similarity to investigate the constancy of the sine, cosine & tangent ratios for a given angle in right-angled triangles
- Apply trigonometry to solve right-angled triangle problems
- List all outcomes for two-step chance experiments, both with & without replacement using tree diagrams or arrays. Assign probabilities to outcomes & determine probabilities for events
- Calculate relative frequencies from given or collected data to estimate probabilities of events involving '&' or 'or'
- Investigate reports of surveys in digital media & elsewhere for information on how data were obtained to estimate population means & medians
- Identify everyday questions & issues involving at least one numerical & at least one categorical variable, & collect data directly from secondary sources
- Construct back-to-back stem-&-leaf plots & histograms & describe data, using terms including skewed, symmetric, & bi-modal
- Compare data displays using mean, median & range to describe & interpret numerical data sets in terms of location (centre) & spread

### ENGLISH

- Understand that Standard Australian English is a living language within which the creation & loss of words & the evolution of usage is ongoing
- Understand that roles & relationships are developed & challenged through language & interpersonal skills
- Investigate how evaluation can be expressed directly & indirectly using devices, for example allusion, evocative vocabulary & metaphor
- Understand that authors innovate with text structures & language for specific purposes & effects
- Compare & contrast the use of cohesive devices in texts, focusing on how they serve to signpost ideas, to make connections & to build semantic associations between ideas
- Understand how punctuation is used along with layout & font variations in constructing texts for different audiences & purposes
- Explain how authors creatively use the structures of sentences & clauses for particular effects
- Understand how certain abstract nouns can be used to summarise preceding or subsequent stretches of text
- Analyse & explain the use of symbols, icons & myth in still & moving images & how these augment meaning
- Identify how vocabulary choices contribute to specificity, abstraction & stylistic effectiveness
- Understand how spelling is used creatively in texts for particular effects, for example characterisation & humour & to represent accents & styles of speech

This is to be used as a guide only.  
All children learn at a different pace & in different ways.  
Summarised from: <https://www.australiancurriculum.edu.au/>