



WAGIN DISTRICT HIGH SCHOOL

SEMESTER 1, 2024 OUTLINE

Year 9 - Mathematics

COURSE OUTLINE

Students will start first semester by exploring simple interest, before working through the index laws and scientific notation. They will then turn their attention to geometry for the remainder of the term, investigating area, surface area and volume of a range of common and composite shapes. In Term 2 students will look at the Cartesian plane, exploring the gradient and midpoint of a line and linear equations. To finish off the semester, students will turn their attention to probability by investigating two-step chance experiments, and relative frequency.

COURSE OUTCOMES

The following concepts from the Western Australian Curriculum will be addressed:

Number and Algebra

Real numbers

- Solve problems involving direct proportion. Explore the relationship between graphs and equations corresponding to simple rate problems (ACMNA208)
- Apply index laws to numerical expressions with integer indices (ACMNA209)
- Express numbers in scientific notation (ACMNA210)

Money and financial mathematics

- Solve problems involving simple interest (ACMNA211)

Patterns and algebra

- Extend and apply the index laws to variables, using positive integer indices and the zero index (ACMNA212)

Linear and non-linear relationships

- Find the distance between two points located on a Cartesian plane using a range of strategies, including graphing software (ACMNA214)
- Find the midpoint and gradient of a line segment (interval) on the Cartesian plane using a range of strategies, including graphing software (ACMNA294)
- Sketch linear graphs using the coordinates of two points and solve linear equations (ACMNA215)

Measurement and Geometry

Using units of measurement

- Calculate areas of composite shapes (ACMMG216)
- Calculate the surface area and volume of cylinders and solve related problems (ACMMG217)
- Solve problems involving the surface area and volume of right prisms (ACMMG218)
- Investigate very small and very large time scales and intervals (ACMMG219)

Statistics and Probability

Chance

- List all outcomes for two-step chance experiments, both with and without replacement using tree diagrams or arrays. Assign probabilities to outcomes and determine probabilities for events (ACMSP225)
- Calculate relative frequencies from given or collected data to estimate probabilities of events involving 'and' or 'or' (ACMSP226)
- Investigate reports of surveys in digital media and elsewhere for information on how data were obtained to estimate population means and medians (ACMSP227)

TASKS & ASSESSMENT

Students will generally undertake work in blocks of 5 weeks. During this time, they will be expected to complete a number of short quizzes, and an end of unit test. Students may also be required to complete assignments and/or investigations to help develop their understanding of the concepts covered. *While the key content will be taught at school, it is essential that students complete homework on a regular basis to help practice new skills and solidify their understanding.*

All work samples will then be used to determine the ability and grade of each student.

TIME LINE

	WEEK	KEY CONCEPTS	ASSESSMENTS
Term 1	1 – 5	<i>Number & Algebra</i> - Decimals & fractions - Ratios and Best buys - Percentages & money - Percentage increase & decrease - Profits & discounts - Simple interest - Compound Interest - Income and Taxation	Quiz (5%) End of Unit test (15%)
	6 – 9	<i>Measurement & Geometry</i> - Length, circumference & perimeter - Area - Composite shapes - Surface area of prisms & pyramids - Surface area of composite shapes - Volume	Quiz (5%) Maths Investigation (10%) End of Unit Test (15%)
Term 2	1 – 5	<i>Number & Algebra</i> - Cartesian plane - Plotting points on the Cartesian plane - Graphing lines on the Cartesian plane - Gradient of a line - Midpoint and length of a line - Intercepts - Equation of a line - Gradient and direct proportion	Quiz (5%) End of Unit Test (15%)
	6 – 10	<i>Statistics & Probability</i> - Probability 2-way tables & Venn diagrams - Set notation - Tree diagrams - Experimental probability - Relative frequency	Quiz (5%) Maths Investigation (10%) End of Unit Test (15%)

Timeline and assessment items may be subject to change.