



WAGIN DISTRICT HIGH SCHOOL SEMESTER OUTLINE

Year 9 Semester 1 2017 Mathematics

COURSE OUTLINE

Mathematics this semester will cover mathematical topics set out by the Australian Curriculum. The semester will cover Number and Algebra, Measurement and Geometry as well as Statistics and Probability. These topics will involve a 3 or 4 week block of work on a topic relevant to the outcomes.

COURSE OUTCOMES

The topics covered this semester will meet the Australian curriculum standards in the following topics.

Curriculum Statements
Number and algebra
Real numbers
Solve problems involving direct proportion. Explore the relationship between graphs and equations corresponding to simple rate problems.
Apply index laws to numerical expressions with integer indices
Express numbers in scientific notation
Money and financial mathematics
Solve problems involving simple interest
Patterns and algebra
Extend and apply the index laws to variables, using positive integer indices and the zero index

Curriculum Statements

Linear and non-linear relationships

Find the distance between two points located on a Cartesian plane using a range of strategies, including graphing software

Find the midpoint and 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 and solve linear equations

Draw simple non-linear relations with and without the use of digital technologies and solve simple related equations

Measurement and Geometry

Geometric reasoning

Use the enlargement transformation to explain similarity and develop the conditions for triangles to be similar

Solve problems using ratio and scale factors in similar figures

Using units of measurement

Calculate the areas of composite shapes

Calculate the surface area and volume of cylinders and solve related problems

Solve problems involving the surface area and volume of right prisms

Investigate very small and very large time scales and intervals

Pythagoras and trigonometry

Investigate Pythagoras' Theorem and its application to solve simple problems involving right-angled triangles

Use similarity to investigate the constancy of the sine, cosine and tangent ratios for a given angle in right-angled triangle.

Statistics and Probability

Data representation and interpretation

Investigate reports of surveys in digital media and elsewhere for information on how pieces of data were obtained to estimate population means and medians

Identify everyday questions and issues involving at least one numerical and at least one categorical variable, and collect data directly from secondary sources

Curriculum Statements

Construct back-to-back stem-and-leaf plots and histograms and describe data, using terms including 'skewed', 'symmetric' and 'bimodal'

Compare data displays using mean, median and range to describe and interpret numerical data sets in terms of location (centre) and spread

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.

Calculate relative frequencies from given or collected data to estimate probabilities of events involving 'and' or 'or'

TIME LINE

This time line is a guide to the topics covered in each block

Term 1	Number	
Week 1		
Week 2	Addition and subtraction of integers	Investigation
Week 3	Scientific Notation	
Week 4	Fractions Ratios, rates and best buy	
Week 5	Interest profit and loss Compound and simple interest	Test
Week 6	Length, circumference and perimeter of sectors	
Week 7	Area of 2D shapes including composite shapes. Surface area of prism and pyramids	Investigation
Week 8	Volume Volume and surface area of a cylinder	Test
Week 9	Angles, triangles and parallel lines	Investigation
Week 10	Congruent triangles and proof of similarity	Test

Term 2	Linear functions	Investigation
Week 1	Graphing straight lines	
Week 2	Lines with one intercept Gradients	
Week 3	Graphing using gradients and direct proportion	Investigation
Week 4	Finding equations using gradients and interception form. Solving for midpoints and length of lines	
Week 5	Perpendicular and parallel lines	Test
Week 6	Pythagoras' theorem finding length of shorter sides	
Week 7	Applying Pythagoras' theorem in 2D or 3D	Investigation
Week 8	Trigonometric ratios Finding side lengths	
Week 9	Solving the denominator and angles	Investigation
Week 10	Applying trigonometry	Test

TASKS

Each section of work may involve

- End of topic Test
- Assignment
- Project
- Homework
- Revision Exercises

ASSESSMENT BREAKDOWN

CHAPTER TESTS (5)	55%
ASSIGNMENTS/PROJECTS (7)	35%
HOMEWORK /REVISION EXERCISES	10%